



IDEA  
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# NEWSLETTER

## Gazing into our crystal balls for forecast guidance...

Much management time is invested in the final quarter of each year as senior executives try to analyse their organisation's position in the markets in which they operate and forecast what is likely to happen to their sales revenue growth, profitability, employment and new opportunities over the next twelve months. Accurate forecasting is always a challenge but at times of great fluctuation in macro and micro economic factors aligned to increased geopolitical tensions it really does become a struggle... In this article, **Adam Fletcher**, Chairman IDEA reviews some of the wider market intelligence available to executives and suggests how this information contributes to best-guess forecasting within electronic components markets.

Visibility within electronic component markets has been significantly restricted over much of the last decade, primarily due to the inability of customers in the electronic systems markets to accurately forecast their demand due to an almost total lack of foresight into what's likely to be happening in their customers' market. Sadly, there is no sign that this situation will change in 2020 and if anything, things seem set to become even more difficult...

### GROWTH STALLS...

After a period of sustained sales revenue growth, global electronic component markets unexpectedly stalled in 2019 and look likely to show only **single digit growth for the entire year**. This came as something of a surprise because the entire industry was anticipating stronger growth. The consensus of leading forecasters suggested that UK GDP would grow by 1.3% in 2019, whilst ecsn UK members forecast sales revenues for electronic components markets growing by 5.5% in the same period. However the outcome year-to-date for the UK electronic components markets is a decline of (1.5%) and its looking likely that the outcome for the full year will only be **"(3)-to-1% growth"**.

ADAM FLETCHER, ECSN



### WHAT'S HAPPENING IN INTERNATIONAL ELECTRONIC COMPONENTS MARKETS...

Unfortunately growth is slowing here too... The **German electronic components market**, which is the largest in Europe, has performed significantly better than anticipated in the first half of the year, growing by 5.4% compared to the same period last year. But anecdotal evidence suggests that the slowdown in the German economy has now started to impact the electronic components markets and is likely to reduce the full year growth significantly. Despite the strong German growth the overall electronic

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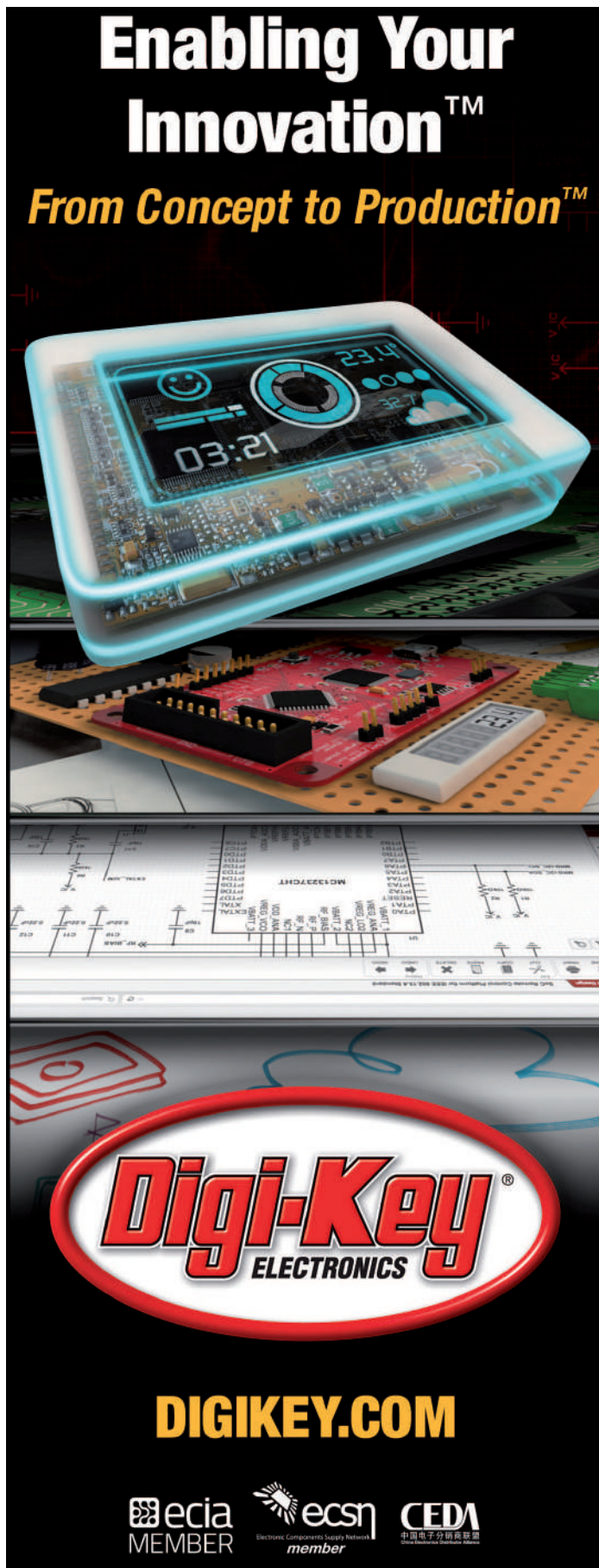
### ASSOCIATIONS



- AREI - SOUTH AFRICA**  
Association of Representatives for Electronics Industry
- ASPEC - RUSSIA**  
Association of Suppliers of Electronic Components
- ASSODEL - ITALY**  
Associazione Nazionale Fornitori Elettronica
- CEDA - CHINA**  
China Electronics Distributor Alliance
- ECAANZ - AUSTRALIA**  
Electronic Components Association Australia and New Zealand
- ECIA - UNITED STATES**  
Electronic Components Industry Association
- ECSN - UNITED KINGDOM**  
Electronic Components Supply Network
- ELCINA - INDIA**  
Electronic Industries Association of India
- ELKOMIT - FINLAND**  
Suppliers of Electronic Instruments and Components Association
- FBDI - GERMANY**  
Fachverband der Bauelemente Distribution
- FEDELEC - TUNISIA**  
Tunisian Federation of Electric and Electronic Industries
- SE - SWEDEN**  
Svensk Elektronik Trade Associations
- SPDEI - FRANCE**  
Syndicat Professionnel de la Distribution en Electronique Industrielle

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components market in Europe only grew by 2% in the first half of the year. Growth continues to slow and the outcome for the year is now likely to be in the range (1%)-to-3% growth.

## “GLOBAL ELECTRONIC COMPONENT MARKETS,,

The US appears to be holding up with electronic components markets growing at close to 5% in the first half of the year but are also now beginning to turn down but the rate of decline is slower than in Europe. **US components** markets have been helped by the re-shoring of some electronics manufacturing from China to Mexico, where components are often invoiced from US based parent companies or distributors.

Growth data from the **Chinese electronic components markets** is often unreliable but was much lower than normal in the first half of the year probably in the range **6%-to-8% growth**, with significant stockpiling of US manufactured semiconductor products by some of the largest organisations. However the Chinese electronic components market historically grows faster in the second half of the year but this is now being hampered by restrictions on the supply of US hardware and software technology.

### WHY HAS THE REVENUE DECLINED - TRADE WARS?

The ongoing trade dispute between the US and China has resulted in a negative impact on global trade and GDP growth. The dispute over abuse of US based organisations intellectual property rights by Chinese organisations (and thereby the state) initially targeted electronic components and advanced technology but expanded quickly to cover almost all goods traded between the two nations. The result is that it has severely disrupted growth and is causing a great deal of economic uncertainty, particularly in Asia.

The US has banned the use of telecom and datacom infrastructure products manufactured by Huawei and other leading Chinese manufacturers in the US and is encouraging other governments to do the same. There are indications that the Chinese government is bringing forward legislation to enhance the legal protection of third- party IP rights, which when enacted should go some way to resolving this dispute. Despite protracted negotiations there has been no agreement or resolution of the dispute although both parties have made some concessions, it currently looks unlikely to be resolved soon.

The trade dispute between Japan and South Korea has been disruptive in Asia and unsettled Asian financial markets but not yet had much impact in Europe. The Japanese government has applied export licences to three chemicals essential for the manufacture of semiconductors and display technologies citing reasons of “national security. Denying South Korean organisations such as Samsung, SK Hynix, LG etc., licences to Fluorinated Polyimide, EUV Photoresists and Hydrogen Fluoride Gas companies will hugely disrupt production, potentially causing huge economic damage to

the South Korean economy and massive supply problems for the entire electronic components supply network and electronic systems industry.

## “AN ELECTRONIC COMPONENTS MARKET CORRECTION WAS INEVITABLE,,

### WHY HAS THE REVENUE DECLINED - MARKET DRIVERS...?

The global electronic components market has been slowing as customers for mobile phones - the primary electronic components market driver - hold off purchasing new models until faster 5G products and services become available. The **Automotive sector**, which is likely to become the electronic components market driver by 2023 due to the rapidly increasing electronics content within automotive platforms, has been slowing since mid 2018 and is not forecast to recover substantially until the second half of 2020. In the IoT sector, customer concerns about the lack of an international security standard are now being resolved but slow down deployment. The Aerospace, Computing, Industrial, Medical sectors are in good health but are “flatlining” in the current economy, however the Military and Server Computing sector have continued to demonstrate stronger growth.

### WHY HAS THE REVENUE DECLINED - ELECTRONIC COMPONENTS MARKET CORRECTION...?

An electronic components market correction was inevitable but the timing, speed and scale is always difficult to predict. From mid-2017 the average manufacturer lead-time for electronic components increased from 2-to-4 weeks to a peak in mid-2018 of 16-to-18 weeks, with a very small number of critical components on 26+ weeks.

The manufacturing lead-time is a critical value in the ERP systems of all customers, which as it extends, automatically increases in-house inventory and order cover on suppliers to ensure continuity of supply. The average manufacturer lead-time for electronic components in 2019 sharply declined in Q2'19 and by October '19 has reduced close to 6-to-8 weeks although there remains a few passive components on 26 weeks. As a result customers ERP systems continue to reduce their inventory and order cover in line with the revised lead-times and their projected demand.

### ONGOING CONSOLIDATION... CORRECTION?

Consolidation in the semiconductor market continued in 2019 as manufacturers strove to increase their shareholder returns.

The need to acquire particular technologies triggered numerous small deals but these were almost totally eclipsed by, for instance; **Apple's** \$1Bn acquisition of **Intel's** Cellular business and **NXP's** acquisition of **Marvell's** Wi-Fi connectivity business for \$1.7Bn, a deal that enabled Marvell to subsequently acquire Global Foundries'



ASIC operation for \$650M and **Aquantia** for \$475M.

This consolidation activity looks likely to continue into 2020 with even more ambitious purchases planned, typified by **Infineon's** announcement that it is prepared to spend \$10Bn to acquire **Cypress Semiconductor**.

The huge investments in the internet as a sales portal has prompted changes to the way some manufacturers go to market. Texas Instruments for example believes that it can adequately serve a greater proportion of their customers directly and as a result has cancelled its channel partner agreements with three of the largest international distributors. Fortunately Authorised Distributors are used to working through ongoing challenges such as these and are well versed in minimising the potential disruption to their customers.

### INTO 2020 AND BEYOND...

The wider forecast for the UK, European and Global electronic components markets remains “up and to the right” and the sheer weight of new high growth applications confirms that this is going to happen. I suspect that 2020 will be a relatively low growth year for electronic components markets but in the second half much stronger growth is going to return to an industry where the production capacity remains unchanged. This suggests that there will inevitably be another period of manufacturer lead-time extensions...

Customers can continue to have faith in the electronic components supply network as manufacturer authorised distributors are experienced at successfully and professionally managing the sort of supply and demand changes we're currently experiencing.

Personally, I see 2020 as a year of consolidation and low growth for the electronic components markets in the UK and worldwide, but I'm optimistic that we'll see much stronger growth in 2021, trade wars permitting. In the meantime, please consider how your organisation can share its business intelligence effectively with its supply network partners to help all organisations with their forecasting process and accuracy.



# Q3 2019 European Component Distribution recedes as Global Supply Chain adjusts

Growth in the sales of Electronic Components through Distribution in Europe receded in the third quarter of 2019, as the global economic slowdown caused a correction to the whole supply chain

AUBREY DUNFORD, IDEA



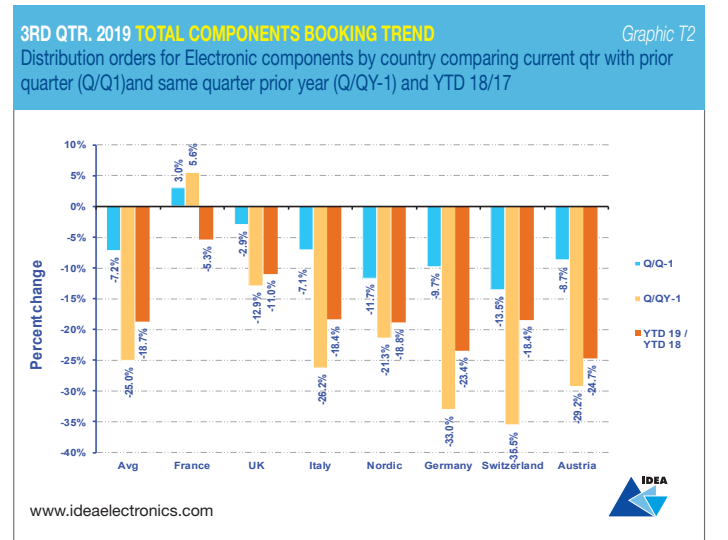
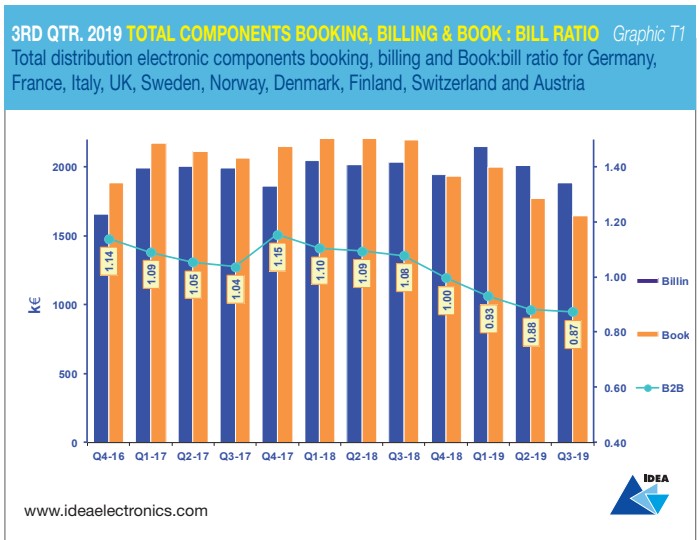
As can be seen from *Graphic T1* the book:bill ratio having been above one for 8 successive quarters dropped in the last quarter of 2018 to 1 and in the first three quarters of 2019 to 0.93, 0.88 and 0.87. With the slowing of the global economy the supply/demand has to come back into balance and so companies are now looking to reduce stock levels. It continues to be difficult to assess how much of the current slowdown is due to this effect and how much the under-lying demand has slowed. Sectors such as automotive are clearly continuing to reduce demand. The outlook for the last quarter of 2019 and **for the first half of 2020 is therefore for the decline in the European Market to continue.** With the impact of trade issues becoming more apparent in many sectors and currently few signs that these issues will be solved soon it is difficult to forecast any different view until at least the middle of next year.

With the global economy slowing further in the third quarter of 2019, the European Electronic Components Distribution Market declined as shown by the Q3 2019 European Electronic Components Statistics. Billings measured across Europe in Q3 2019 were 7.5% lower than in the same as in the third quarter of 2018. In many countries the seasonal pattern is for the third quarter of the year to be higher than the second quarter but in 2019 this has only occurred in the UK and France and so when compared to Q2 2019 billings were -6.3% lower in the third quarter. However, taking the first three quarters of 2019 sales were 0.9% lower than the same period of 2018. Nor are there signs that growth will return in the near future as **bookings are -25% compared to the third quarter last year and -18.7% for the first three quarters as a whole.**

## THE ECONOMIC OUTLOOK GLOBAL GROWTH DECLINES FURTHER

According to the **International Monetary Fund's** *World Economic Outlook* published in October 2019 :

“Over the past year, global growth has fallen sharply. Among advanced economies, the weakening has been broad based, affecting major economies (the United States and especially the euro area) and smaller Asian advanced economies. The slowdown in activity has been even more pronounced across emerging market and developing economies, including Brazil, China, India, Mexico, and Russia, as well as a few economies suffering macroeconomic and financial stress. One common feature of the weakening in growth momentum over the past 12 months has been a geographically broad-based, notable slowdown in industrial output driven by multiple and interrelated



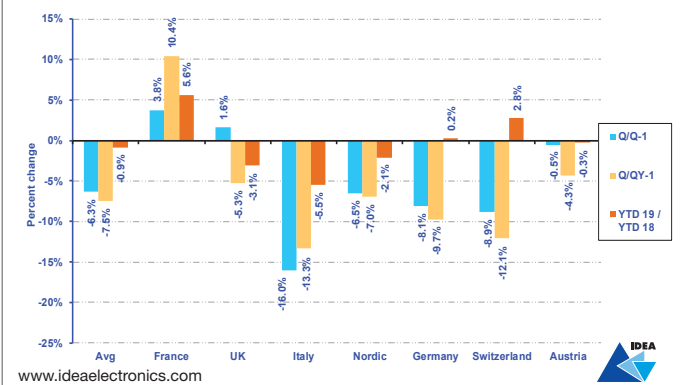
factors: a sharp downturn in car production and sales, which saw global vehicle purchases decline by 3 percent in 2018; the automobile industry slump reflects both supply disruptions and demand influences; a drop in demand after the expiration of tax incentives in China; production lines adjusting to comply with

new emission standards in the euro area (especially Germany) and China; and possible preference shifts as consumers adopt a wait-and-see attitude with technology and emission standards changing rapidly in many countries, as well as evolving car transportation and sharing options.

Weak business confidence amid growing tensions between the United States and China on trade and technology. As the reach of US tariffs and retaliation by trading partners has steadily broadened since January 2018, the cost of some intermediate inputs has risen, and uncertainty about future trade relationships has ratcheted up. Manufacturing firms have become more cautious about long-range spending and have held back on equipment and machinery purchases. This trend is most evident in the trade and global-value-chain-exposed economies of east Asia. In Germany and Japan, industrial production was recently lower than one year ago, while its growth slowed considerably in China and the United Kingdom and, to some extent, in the United States. The weakness appeared particularly pronounced in the production of capital goods.”

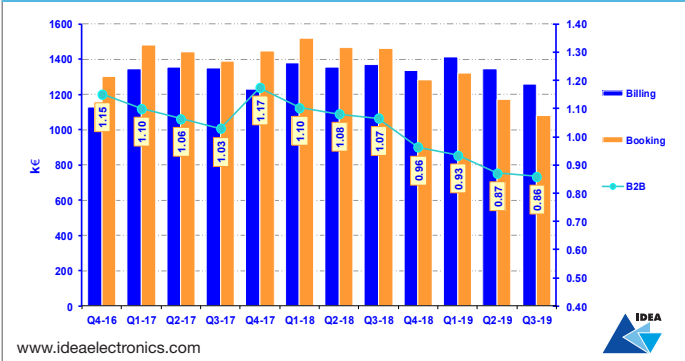
### 3RD QTR. 2019 TOTAL COMPONENTS BILLING TREND Graphic T3

Distribution sales for Electronic components by country comparing current qtr with prior quarter (Q/Q1) and same quarter prior year (Q/QY-1) and YTD 18/17



### 3RD QTR. 2019 SEMICONDUCTOR BOOKINGS, BILLINGS & BOOK:BILL RATIO Graphic S1

Semiconductor components bookings, billings & book:bill ratio for Germany, France, Italy, UK, Sweden, Norway, Denmark, Finland, Switzerland and Austria



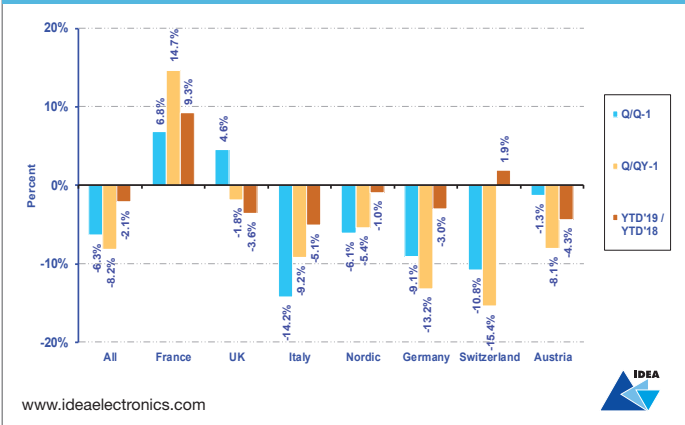
## “BILLINGS MEASURED ACROSS EUROPE IN Q3 2019 WERE 7.5% LOWER THAN IN Q3 2018,,

A slowdown in demand in **China**, driven by needed regulatory efforts to rein in debt and exacerbated by the macroeconomic consequences of increased trade tensions.

With the slowdown in industrial production, trade growth has come to a near standstill. In the first half of 2019, the volume of global trade stood just 1 percent above its value one year ago—the slowest pace of growth for any six-month period since 2012.” China’s growth dropped in the third quarter to its lowest level in nearly three decades, as the world’s second largest economy continues to feel the pain from the trade war with the United States. China’s gross domestic product grew by 6% in Q3 2019, the weakest quarterly growth rate since 1992 and down from 6.2% in Q2, according to government statistics. “Trade tension with the US is the key factor weighing on business sentiment and investment activities, although domestic stimulus policies are providing some buffer from the down side,” said Chaoping Zhu, global market strategist for JP Morgan Asset Management.

### 3RD QTR 2019 SEMICONDUCTOR BILLING TREND Graphic S3

Distribution sales for semiconductors by country compared with the prior quarter (Q/Q1) and the same quarter prior year (Q/QY-1) and YTD 18/17



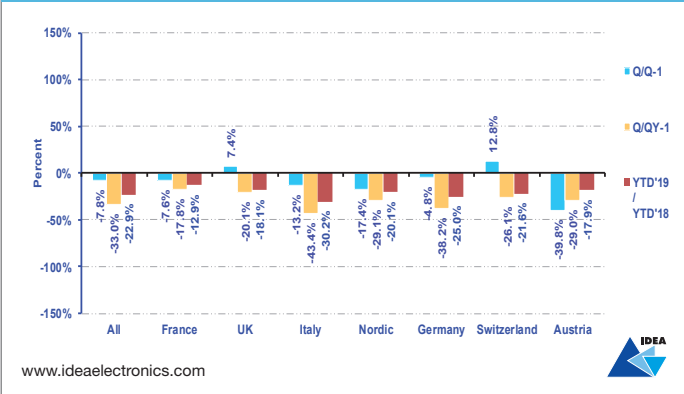
The **Japanese economy** advanced 0.1 percent quarter-on-quarter in Q3 2019, missing market expectations of a 0.2 percent expansion and following a revised 0.4 percent growth in the previous period, a preliminary estimate showed. Net external demand subtracted 0.2 percentage points from the GDP growth.



3RD QTR. 2019 PASSIVE COMPONENTS BOOKING TREND

Graphic P2

Distribution orders for passive components by country comparing Q2 2017 with the prior quarter (Q/Q-1) and the same quarter prior year (Q/QY-1)



+1.2% and +1.4% respectively in the previous quarter. Looking at the data from the Q3 2019 European Electronic Components Statistics we can see:

“ CHINA’S GROWTH DROPPED IN THE THIRD QUARTER TO ITS LOWEST LEVEL IN NEARLY THREE DECADES,, ”

MARKET DECLINE IN ALL COUNTRIES EXCEPT FOR FRANCE

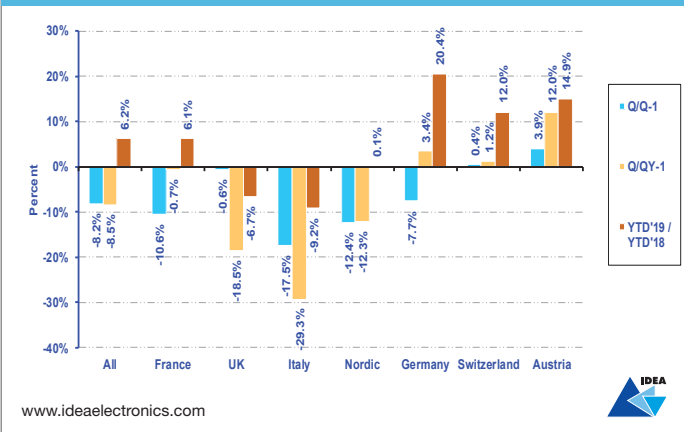
As can be seen in *Graphic T3* there has been decline in billings (sales) Q3 2019 over Q3 2018 in all countries except France that means that for Europe as a whole the market has declined by -7.5%. France grew by 10.4% but the greatest decline was in Italy with a decline of -13.3%. Europe’s largest market, Germany, declined by -9.7%.

The figures shown in *Graphic T2* show that bookings in Q3 2019 were overall -25% lower than Q3 2018, compared to a decline of -19.6% in Q2.

3RD QTR. 2019 PASSIVE COMPONENTS BILLINGS TREND

Graphic P3

Distribution sales for passive components by country comparing Q2 2017 with the prior quarter (Q/Q-1) and the same quarter prior year (Q/QY-1)



Exports of goods and services declined 0.7 percent (vs 0.5 percent in Q2), while imports increased 0.2 percent (vs 2.1 percent in Q2). On an annualized basis, the economy expanded 0.2 percent in the third quarter, also the weakest in a year, after an upwardly revised 1.8 percent expansion in the June quarter and below consensus of a 0.8 percent advance.

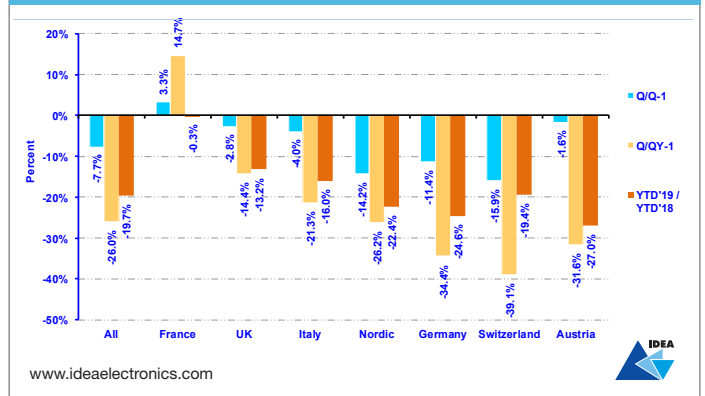
The advance estimate showed that the **US economy** grew by an annualized 1.9 percent in the third quarter of 2019, beating market expectations of 1.6 percent and following a 2.0 percent expansion in the previous three-month period. Personal consumption expenditures rose 2.9 percent in the third quarter (vs 4.6 percent in Q2) mainly boosted by consumption of goods, in particular durable goods, and services.

**European Union** statistics office Eurostat, the statistical office of the European Union, said that seasonally adjusted GDP rose by 0.2% in the euro area (EA19) and by 0.3% in the EU28 during the third quarter of 2019, compared with the previous quarter. In the second quarter of 2019, GDP had grown by 0.2% in both the euro area and the EU28. Compared with the same quarter of the previous year, seasonally adjusted GDP rose by 1.2% in the euro area and by 1.3% in the EU28 in the third quarter of 2019, after

3RD QTR. 2019 SEMICONDUCTOR BOOKING TREND

Graphic S2

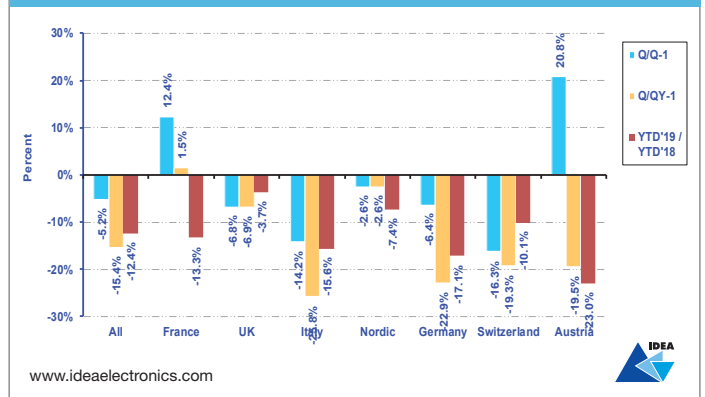
Distribution orders for semiconductors by country comparing with the prior quarter (Q/Q-1) and same qtr prior year (Q/QY-1) and YTD 19/18



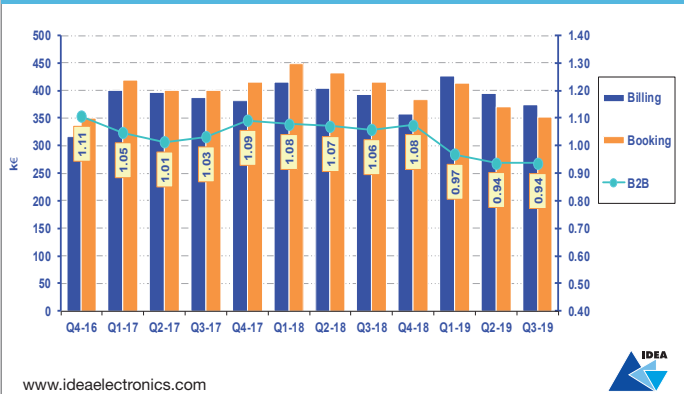
3RD QTR. 2019 EMECH COMPONENTS BOOKING TREND

Graphic E2

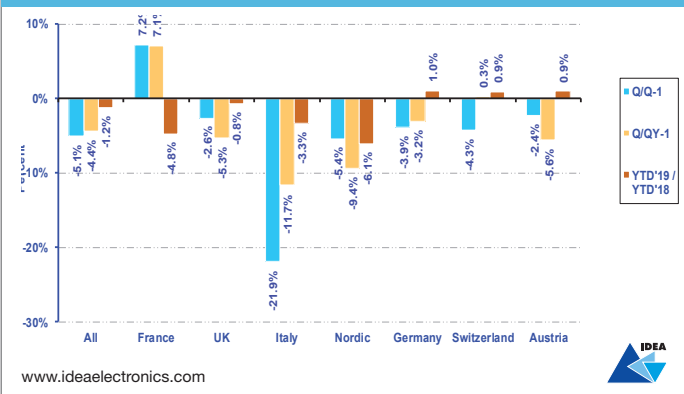
Distribution orders for passive components by country comparing Q3 2019 with the prior quarter (Q/Q-1) and same qtr prior year (Q/QY-1)



**3RD QTR. 2019 EMECH COMPONENTS BOOKING, BILLING & BOOK:BILL RATIO** *Graphic E1*  
 EMECH components Bookings, billings & book:bill ratio for Germany, France, Italy, UK, Sweden, Norway, Denmark, Finland, Switzerland and Austria



**3RD QTR. 2019 EMECH COMPONENTS BILLINGS TREND** *Graphic E3*  
 Distribution sales of emech components comparing current qtr with prior qtr (Q/Q-1) and same qtr prior year (Q/QY-1) plus YTD trend



Overall bookings were -18.7% lower in the first nine months of 2019 than they were in the same period in 2018. There was the same picture in all countries. The largest decline in bookings as last quarter was in Austria and the smallest was in France with a decline of -5.3%.

### Quarterly Sales by Product Family

As we do each quarter, we look at the booking and billing trends by product and regional market.

**“EUROPE’S LARGEST MARKET, GERMANY, DECLINED BY -9.7%.,”**

### Semiconductors

The book:bill ratio for semiconductors as shown in *Graphic S1* shows the same pattern as for the total components with 8 quarters with the ratio being above one but a decline throughout 2018, dropping below unity in Q4 2018 and declining to 0.86 in the third quarter of 2019.

This distinct slowing within the semiconductor market in Europe continues to be consistent with figures from other sources showing the slowdown in the global market.

As can be seen in *Graphic S3* Billings in Q3 2019 were -6.3% lower than in Q2 2019 but -8.2% down compared with Q3 2018. The pattern is similar in all countries except France, The steepest decline was in Italy at -14.2%, although compared to Q3 2018 the biggest decline was in Switzerland at -15.4%. Overall the market for semiconductors was just under -2.1% lower in the first three quarters of 2019 than in the same period of 2018. As semiconductors are the largest category as usual the bookings pattern is the same as for total components.

### Passives

In the Passives Sector the book:bill ratio was positive for nine consecutive quarters, remaining positive even in the fourth quarter of 2018 but then dropped to 0.86 and 0.85 in all quarters of 2019. As can be seen from *Graphic P3* there continues to be growth in this sector. Overall sales in Q3 2019 are -8.2% lower than in Q2 2019 and -8.5% lower compared to Q3 2018 but 6.2% higher when the first nine months of 2019 are compared to the same period of 2018. On this measure there was growth in some countries, most notably in France and Germany but declines in Italy and the UK and flat in Nordic.

As *Graphic P2* shows this growth in billings has not been supported by a growth in bookings and hence the drop in the book:bill ratio. Bookings overall in Q3 2019 were -7.8% lower than in the second quarter of 2019 and -33.0% lower than the third quarter of 2018. This picture was consistent across all countries.

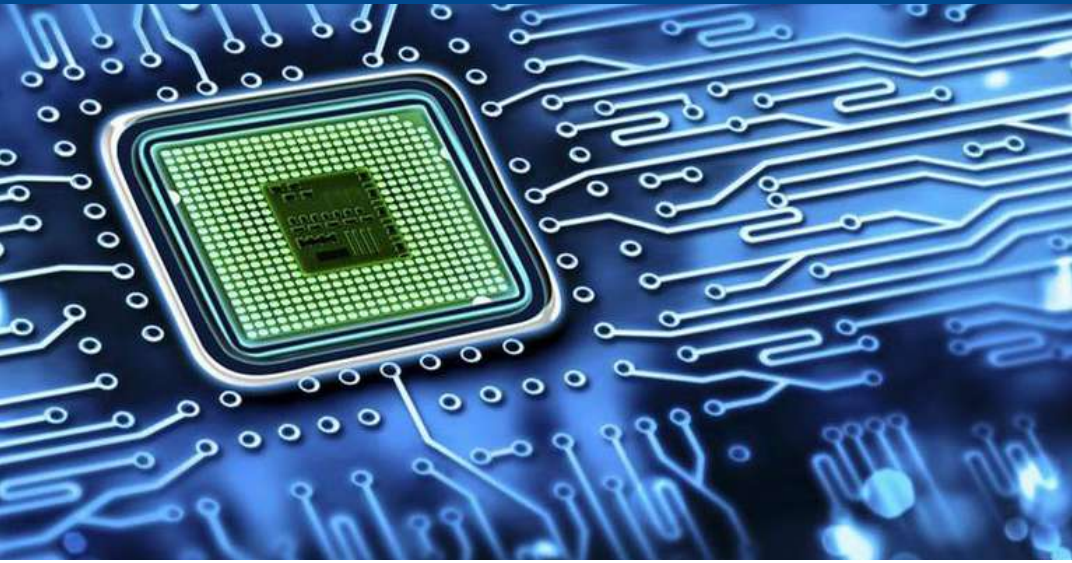
### E-Mech and Other Components

As can be seen from the *Graphic E1* the trend for the book:bill ratio is slightly different from the other two product categories. The ratio has been more stable and did not show a decline in the last quarter of 2018 staying above unity for a tenth consecutive quarter. Although there was a decline in the first quarter of 2019 the ratio was only just below unity at 0.97 and dropping to 0.94 for both the second and third quarters indicating the much more stable nature of this sector compared to semiconductors *Graphic E3* shows that overall there was a decline of -5.1% in billings in the third quarter of 2019 over the second quarter with all countries showing decline again except France with a growth of 7.2%. When compared to Q3 2018, billings declined by -4.4%. Bookings decreased overall by -5.2% compared to Q2 2019 and declined by -15.4% compared to Q3 2018. On this measure there was a decline in every country again with the exception of France where there was a slight increase of 1.5%.



# Semiconductors are suffering, but IoT and Power components are in the hype

Wireless components and Power ICs are knowing a moment of growth driven by some key applications...



FRANCO MUSIARI, ASSODEL



The Italian semiconductor market is marking a negative year-on-year performance, with a decline close to 4%. And the forecast for the Italian association **Assodel** looks gloomy for the end of the year... members feel it will be among -5% and -10%, with memories reporting the worst results.

Among the aspects cited for these negative perspectives there are the different conditions of availability of materials, the accumulation of stocks with customers and the fear that the

upcoming customs duties planned by the United States may also impact exports of electrical and electronic equipment. But not all the product families of semiconductors have shown such a bad performance...

## POWER SEMICONDUCTORS

The numbers in *table 1* show the situation of power electronics components: **MOSFETs, IGBTs, diodes** and

POWER SEMICONDUCTORS (mln dollars)

Table 1

Power	2Q18	3Q18	4Q18	1Q19	2Q19	Q/Q <sub>-1</sub> %	Q/Q <sub>-1</sub> %	YtD%
FET	8.292	7.350	8.018	8.603	9.524	10,70%	14,9%	44,5%
IGBT	7.395	9.232	6.656	7.739	6.564	-15,2%	-11,2%	-6,6%
Diodes	6.757	5.693	5.506	6.373	6.568	3,1%	-2,8%	5,0%
Power	13.281	12.253	12.074	13.508	15.139	12,1%	14,0%	9,1%
Total Power	35.725	34.528	32.254	36.224	37.796	4,3%	5,8%	11,4%
Total Semi	237.456	205.387	195.977	231.366	216.612	-6,4%	-8,8%	-3,7%

Source: Assodel

“POWER ELECTRONICS IS GROWING, ESPECIALLY MOSFETS AND POWER MODULES”



## WIRELESS SEMICONDUCTORS - ITALIAN MARKET (\$ millions)

Table 2

Wireless	2Q18	3Q18	4Q18	1Q19	2Q19	Q/Q <sub>-1</sub> %	Q/Q <sub>-1</sub> %	YtD%
Long Range	734	1.321	1.458	157	578	269,3%	-21,2%	-37,5%
Short Range	1.734	1.996	1.505	1.638	1.473	-10,1%	-15,1%	23,4%
GPS	1.863	2.303	1.597	1.786	2.374	32,9%	27,4%	17,7%
Total Wireless	4.331	5.620	4.559	3.580	4.425	23,6%	2,2%	10,7%

Source: Assodel

“E-MOBILITY IS DRIVING THE POWER MARKET IN EUROPE”

**modules.** In the last line, by comparison, the performances of the total semiconductor market are reported; the most significant figure is the extreme-right one which shows the ratio between the current half-year, the first of 2019, and the same quarter of the previous year: **-3.7%**. In the line immediately above, the performance of the power sector alone is reported, which scores a **+11.4%**, a positive difference of about fifteen percent.

Which market applications are driving these numbers? Automotive is at the first place with electric cars boosting the whole market. The traditional car is suffering but **e-mobility** is starting to take its first steps and a growth is expected in both the number of vehicles produced and the electronic content that becomes predominant.

According to data from the **International Energy Agency** in 2018 electric cars (*PHEV Plug-in Hybrid Electric Vehicle plus BEV Battery Electric Vehicle*) in circulation had exceeded **five million units**, see chart in *Figure 1* - with a 65% growth over 2017. This represented only one percent of the circulation but analysts predict that, in a sustainable development scenario (SDS), electric vehicles will reach 15% of the circulation in 2030 with an average annual growth of 30%. China will undoubtedly play the lion's share but it is not clear why Europe, and therefore Italy, should not play their part and take their slice of the cake.

And we have not to forget that together with the cars we are preparing all the infrastructure that will have to provide electric cars circulating with the possibility of recharging the batteries within a reasonable time and each charging column will be equipped with power electronics.

## FINALLY, THE IOT MARKET

Finally the long-awaited **internet of things** market is showing some good numbers and real investments. We can read it in *table 2* which reports the data of wireless devices, that is those devices that through radio frequency - that is without a physical connection - allow “things” to connect to the network of networks, or to the internet.

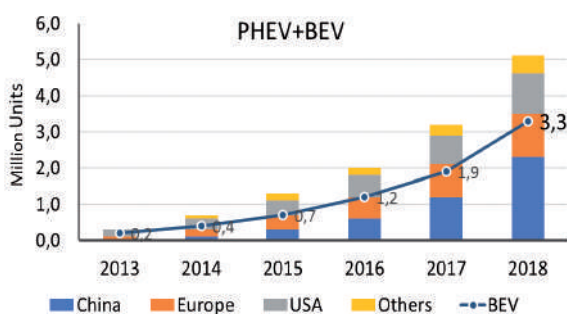
The 1<sup>st</sup> half report on the first half of the year leads to an extremely positive **+10.7%**, which is always compared with -3.7% of the total semiconductors. Of this decidedly good result, credit must be given above all to the short range devices (bluetooth, zigbee, etc.) which achieved a **+23.4%** and therefore to the GPS geolocation systems with almost **18%**. These two results were then squashed down by the poor performance of long range devices (LoRa, Sigfox, etc.).

*Table 3* shows the latest **Gartner** estimates on the market evolution of the number of IoT terminals that will be installed worldwide in the next two years, separated by segment. Below the total line are the growth percentages that Gartner estimates at +21%.

The **Utilities**, for the remote reading of electricity, gas and water consumption, will be the main users of IoT terminals totaling 1.17 billion units in 2019 to then increase by 17% in 2020, and **security** (Physical Security), surveillance and anti-intrusion, will be the second application sector.

## ELECTRIC CARS' TREND

Graph 1



Data: The International Energy Agency

Source: International Energy Agency



## WIRELESS SEMICONDUCTORS (Market share w/w by application)

Table 3

Segment	2018	2019	2020
Utilities	0.98	1.17	1.37
Government	0.40	0.53	0.70
Building Automation	0.23	0.31	0.44
Physical Security	0.83	0.95	1.09
Manufacturing & Natural Resources	0.33	0.40	0.49
Automotive	0.27	0.36	0.47
Healthcare Providers	0.21	0.28	0.36
Retail & Wholesale Trade	0.29	0.36	0.44
Information	0.37	0.37	0.37
Transportation	0.06	0.07	0.08
<b>Total</b>	<b>3.96</b>	<b>4.81</b>	<b>5.81</b>
	+21%	+21%	

Source: Gartner

**Building automation**, driven by interconnected lighting devices, will be, according to **Gartner**, the segment with the highest growth (+42%) followed by **automotive** and **Healthcare** whose growth forecasts for 2020 stand at 31% and at 29 % respectively. In the health sector, chronic patients will be monitored to request the largest number of IoT terminals, while in the automotive sector, cars equipped with connectivity will be joined by ad hoc functions such as, for example, flock management and asset tracking.

The numbers of Gartner may seem astronomical but the distribution by application segment can be a good suggestion on the sectors to be carefully monitored.



# A negative Q3 2019 for the French Market

by SPDEI



In the third quarter of 2019, the distribution of electronic components in the French market posted a decrease of **16%** compared to the 3<sup>rd</sup> quarter of 2018 and **11%** compared to the 2<sup>nd</sup> quarter of 2019. It represented **303.8 million euros**, according to the data collected by SPDEI, the French trade association for the distribution of components. The book-to-bill remained below 1, which does not bode well for customers in the coming quarters.

The organization reported a book-to-bill of 0.87 after book-to-bill of 0.98 in the first quarter of 2019 and 0.79 in the second quarter of 2019. In fact, we need to go back to the 2<sup>nd</sup> quarter of 2018 to meet a book-to-bill higher than unity - that is to say orders higher than billings. This also is not a good sign for the whole of 2019 and for the beginning of 2020.

## “THERE HAS NOT BEEN A BOOK-TO-BILL RATIO ABOVE ONE SINCE Q2 2018”

Analysis by product segment shows that in the third quarter of 2019, **active components** recorded a one-year decline of 18% and a sequential decline of 10% to **€154.9 million**. The area of **passive components** decreased by 20% year on year and by 16% sequentially to **€51.5 million**. That of the **connectors and cables** posted a decline over one year of 11% and a sequential decline of 10% to **€46.661 million**. The segment of electromechanical components shows a decline of 21% over one year and 22% sequentially to €11.9 million.

## “THE ENERGY SEGMENT WAS THE ONLY ONE TO HAVE INCREASED”

Among the two newest categories, that of embedded systems is down 20% year on year and 3% sequentially to €24.4 million. The energy segment was the only one to have increased: +14% over one year to €14.3 million; however, it decreased by 10% sequentially.

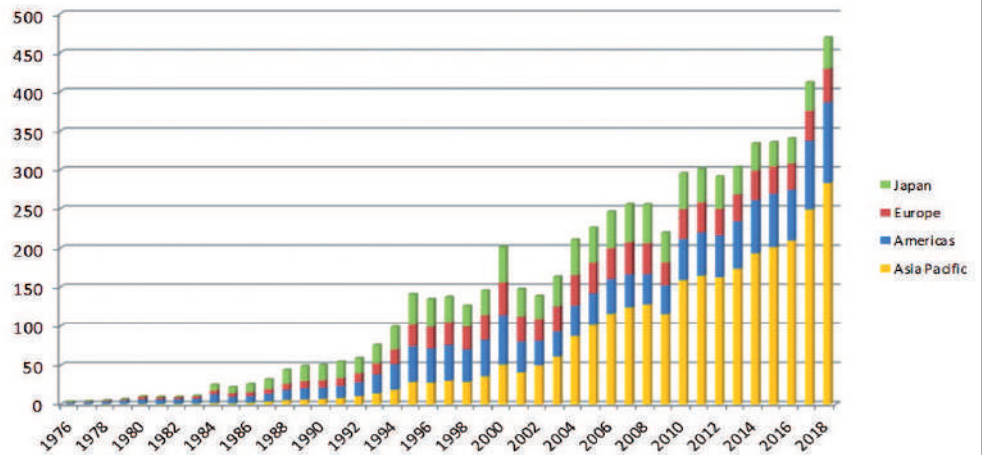
# 50 years of change The big shift

“THE SEMICONDUCTOR INDUSTRY HAS BEEN KNOWN AS AN INDUSTRY OF DRAMATIC CHANGE,,

In 2020 **ecsn** will be celebrating its 50<sup>th</sup> birthday. Founded in 1970 as “afdec” the Association of Franchised Distributors of Electronic Components, the UK trade association is planning events throughout next year to mark its half a century, representing the Distribution market in the UK. As part of these celebrations, **ecsn** Market Analyst, Aubrey Dunford reflects on the changes in the industry over those 50 years.

SEMICONDUCTORS WORLDWIDE MARKET

Figure 1



Source: United States Semiconductor Industry Association

It was in September 1970 that a number of people met together in the Tower Bridge Hotel in London and the **Association of Franchised Distributors of Electronic Components - afdec** was formed. It was five years later in September 1975 that I started work for Philips as a graduate engineer working in the exciting new world of semiconductor technology. As a student I had been fortunate to have a vacation job working for IBM and I still remember the day when Texas Instruments (TI) delivered the first 256 bit static memories to be sold in the U.K. One year later I was working on the 1024 bit dynamic memory. Seems curious now to consider that the entire factory output in 1976 would only be sufficient to produce a fraction of the memory capacity of a modern smartphone.

A few months later it was the 4096 bit memory but a company called Mostek was already shipping the 16K.

From the outset the electronics industry and in particular the semiconductor industry has been known as an industry of dramatic change, yet strangely change as it happens at an ever-increasing rate, always seems to surprise us. Few of us working in that brand new clean-room capable of working at 12microns(!) even knowing Moore’s law would have been able to predict where semiconductor technology would be by 2020, although a Philips promotional video made in 1970 did talk about driverless cars being possible by the end of the millennium.

In 1976 the world market for semiconductors was \$3Bn – in 2018 it was \$469Bn and that is not allowing for 42 years of constant price erosion! Maybe the futurologists may have predicted what the technology might be capable of delivering, but I suspect that those people meeting in London in 1970 would not have

seen would have been the huge impact that geo-politics and globalisation would have upon the industry.

In 1976, 67% of semiconductor sales were in the USA 22% were in Europe and 5% in Japan. Up to 1984 there was relatively little change but after that a big shift started to happen and by 2018 22% of sales of semiconductors were in the USA, 9% in Europe, 9% in Japan and 60% in Asia Pacific. The huge change brought about the changing politics of China has had a profound effect upon the electronic components markets and the distributors that serve within it.

“IN 1976, 67% OF SEMICONDUCTOR SALES WERE IN THE USA AND 22% WERE IN EUROPE”

Now the biggest issue facing distributors in 2020 will be managing the effects as the global economy reacts to the changes as trade policies continue to be the focus of attention between the USA and China. The only thing we can be sure of is that in 2020 the function for trade associations may have changed but the need is there as much as it was in 1970.



# Top 10 Connector Manufacturers in Europe and Worldwide

RON BISHOP, BISHOP & ASSOCIATES 



**Bishop & Associates** has published a 10-chapter research report that provides a complete analysis of the **World's Top 100 Electronic Connector Manufacturers**. This report furnishes detailed statistics that benchmark the leading connector manufacturers by 2017/2018 total sales, sales by end-use equipment market, sales by product category, and many other key industry measurements. All manufacturers are exhibited by 2018 sales and are ranked by region of the world with percent year-to-year change. The report provides all the key data needed to analyze each of the top 100 worldwide electronic connector suppliers.

**Bishop & Associates** annually tracks the sales of the top 100 connector manufacturers in the world. The top 10 of the top 100, as a group, achieved \$36 billion in annual sales in 2018, or 59.8% of world connector demand. This is down from 2017's market share of 60.6%.

The following table identifies the 2018 top 10 as defined by total world connector sales.

- There are three Japanese companies in the top 10: **Yazaki** (7), **JAЕ** (8), and **J.S.T.** (9).
- There is one top 10 company from Europe: **Rosenberger** (10).
- There is one top 10 company from the Asia Pacific region: **Foxconn (FIT) Taiwan** (6).
- There is one top 10 company from China: **Luxshare** (6).
- The top 10, as a group, reported a sales increase of 10.6% in 2018. This compares favorably to an industry-wide sales increase of 11.0%. The stellar performance of the top 10 was aided by growth in the world economy, especially the United States, and continued industry consolidations.

Note: the three largest companies, TE Connectivity, Molex, and Amphenol, are very active acquirers. Rosenberger made the top 10 for the first time in 2017, previously ranking in the top 15.

## THE TOP 10 MARKET SHARE (1980-2018)

The following table compares the top 10 combined annual sales to world connector demand.

The top 10 accounted for 38% of the world connector demand in 1980 and 59.8% in 2018. Much of this growth can be attributed to acquisitions made by the top 10.

**“TE CONNECTIVITY HAS REMAINED THE LARGEST CONNECTOR COMPANY SINCE 1980”**

In the last decade, significant M&A activity has occurred, e.g., TE acquired Deutsch (\$670 million - 2011), Aptiv (Delphi) acquired the MVL division of FCI (\$950 million - 2012), Molex acquired Oplink Communications (\$200 million - 2014), Amphenol acquired FCI (\$600 million - 2016), and Aptiv acquired Winchester (\$650 million - 2018). In addition to those mentioned, manufacturers listed in the top 10 made over 50 acquisitions during the past five years.

**TOP 10 RANKED BY WORLD SALES** Table 1

2018 Rank	Manufacturer	2017 Sales	2018 Sales	Percent Change
1	TE Connectivity	\$9,386.0	\$10,304.0	9.7%
2	Amphenol	\$6,441.7	\$7,567.5	17.5%
3	Molex	\$5,298.2	\$5,557.5	4.9%
4	Aptiv (FKA Delphi Connection)	\$3,046.2	\$3,239.4	6.3%
5	Foxconn (FIT)	\$2,895.9	\$3,195.2	10.3%
6	Luxshare Precision	\$1,777.9	\$2,716.9	52.8%
7	Yazaki	\$2,588.0	\$2,892.0	4.0%
8	JAЕ	\$2,056.0	\$1,947.0	-5.3%
9	J.S.T.	\$1,534.0	\$1,475.0	-3.8%
10	Rosenberger	\$1,041.5	\$1,214.1	16.6%
<b>Total Top 10</b>		<b>\$36,075.4</b>	<b>\$39,908.6</b>	<b>10.6%</b>
<b>Total All Other</b>		<b>\$24,040.3</b>	<b>\$26,801.5</b>	<b>11.5%</b>
<b>Total World</b>		<b>\$60,115.8</b>	<b>\$66,710.1</b>	<b>11.0%</b>

Source: Bishop & Associates

The above table reveals some interesting trends:

- The top four connector manufacturers are all US-based companies: **TE Connectivity** (1), **Amphenol** (2), **Molex** (3), and **Aptiv** (4). Note: TE Connectivity although US-based is headquartered in Switzerland and Aptiv is headquartered in Ireland.

### TOP 10 BY MARKET SHARE (1980-2018)

Table 2

Year	Top Ten	World	Top Ten Market Share
1980	\$3,417.0	\$8,989.0	38.0%
1990	\$7,063.0	\$17,166.5	41.1%
1995	\$9,850.0	\$23,700.5	41.6%
2000	\$17,462.6	\$35,692.7	48.9%
2005	\$18,841.0	\$38,185.4	52.0%
2010	\$24,542.7	\$47,938.7	51.2%
2011	\$27,760.6	\$51,193.0	54.2%
2012	\$28,477.2	\$49,814.9	57.2%
2013	\$29,506.5	\$51,183.4	57.6%
2014	\$31,461.1	\$55,402.0	56.8%
2015	\$30,046.5	\$52,049.8	57.7%
2016	\$32,374.8	\$54,163.7	59.8%
2017	\$36,437.2	\$60,115.8	60.6%
2018	\$39,908.6	\$66,710.1	59.8%

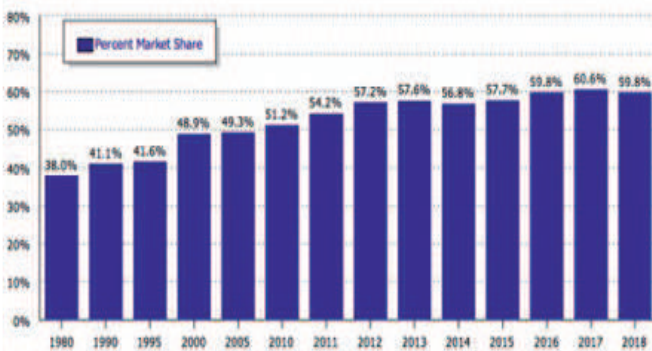
\$ Millions

Source: Bishop & Associates

The following graph shows market share of the top 10 connector manufacturers for 1980, 1990, 1995, 2000, 2005, and the period 2010 through 2018.

### TOP 10 MARKET SHARE PERCENTAGE OF WORLD MARKET

Graph 1



Source: Bishop & Associates

### TOP 10 LANDSCAPE CHANGES

Since 1980, there has been a dramatic change in the companies that comprise the top 10. Some companies have moved up in rank, others have moved out of the top 10, and still others have gone out of business, or have been acquired by larger companies.

The following table provides a history of the top 10 over a 28-year time frame. Some highlights include:

- **TE Connectivity** has remained the largest connector company since 1980. **AMP** was acquired by Tyco International in 1999 and then Tyco Int'l split up into three separate companies – one of which was **Tyco Electronics**. In 2011, Tyco Electronics received approval to change to its current name, TE Connectivity.
- **Molex** and **Amphenol** have remained in the top 10 throughout

### TOP 10 BY NAME (1990-2018)

Table 3

Rank	1990	2000	2010	2015	2018
1	Amp	Tyco Electronics	Tyco Electronics	TE Connectivity	TE Connectivity
2	Molex	Molex	Molex	Amphenol	Amphenol
3	LPL/Amphenol	FCI	Amphenol	Molex	Molex
4	ITT Cannon	Delphi	Yazaki	Delphi	Aptiv (Delphi)
5	3M	Amphenol	FCI	Yazaki	Foxconn (FIT)
6	Burndy	Yazaki	J.S.T.	Foxconn (FIT)	Luxshare Precision
7	DuPont (Berg)	ITT Cannon	Foxconn (Hon Hai)	JAE	Yazaki
8	J.S.T.	3M	Delphi	J.S.T.	JAE
9	Hirose	JAE	Hirose	Luxshare	J.S.T.
10	JAE	J.S.T.	JAE	Hirose	Rosenberger

Source: Bishop & Associates

the 38-year time frame. Molex moved from the tenth largest in 1980 to the third largest in 2018. Amphenol, the second-largest in 1980, fell to fifth in 2000 but moved up to the third largest in 2010 and was the second largest in 2018.

- Companies that were in the top 10 in 1980 but have not retained a top 10 ranking are **ITT Cannon**, **DuPont (Berg)**, **3M**, **Winchester**, **Augat**, **Cinch**, and **Burndy**. DuPont (Berg) was acquired by Framatone (FCI) in 1998 and later by Amphenol in 2016. Augat was acquired by Thomas & Betts in 1996 and Thomas & Betts' OEM division was acquired by Tyco Electronics in 2000. Cinch was acquired by Bel in 2010. Burndy was acquired by Framatone (FCI). ITT and 3M were still ranked in 2018 but they have slipped to positions outside the top 10.
- There were no Asian companies in the top 10 in 1980. In 2018, five Asian companies were in the top 10.

The *graph 1* shows the number of top 10 companies by region of the world over the 38-year period (1980-2018).

Luxshare Precision achieved a top 10 rank in 2015, making it the first and only Chinese company achieving top 10 status. They maintained this ranking in 2018. Rosenberger, who achieved top 10 status in 2017 and 2018, is the first European company to achieve top 10 ranking since 2011.

### TOP 10 BY REGION (1980-2018)

Table 4

Region	1980	1990	2000	2010	2018
North America	10	6	6	4	4
Europe	0	1	1	1	1
Japan	0	3	3	4	3
China	0	0	0	0	1
Asia Pacific	0	0	0	1	1

Source: Bishop & Associates



# REACH - ECHA candidate list now contains 201 SVHCs

by FBDi



Berlin, 28 October 2019 – The **ECHA** (*European Chemicals Agency*) candidate list now comprises 201 substances of very high concern (SVHCs) for authorization. In summer (July 16) ECHA had added four new substances:

- **2-methoxyethyl acetate** - toxic for reproduction - used i.e. as industrial solvent for resins, oils and various types of rubber - i.e. in paints, for semiconductor production
- **TNPP** or rather **Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with  $\geq 0.1\%$  w/w of 4-nonylphenol, branched and linear (4-NP)** - Endocrine disrupting properties - primarily used as an antioxidant to stabilize various polymers (possible spin-off of nonylphenol)
- **2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) propionic acid, its salts and its acyl halides** (covering any of their individual isomers and combinations thereof) - Equivalent level of concern having probable serious effects to the environment and human health - used as processing aid in the production of fluorinated polymers and substitute for perfluorooctanoic acid
- **4-tert-butylphenol** - Endocrine disrupting properties - employed in coating products, polymers, adhesives, sealants and for the synthesis of other substance

FBDi association expressively underlines **immediate obligations for companies** regarding associated substances included on the Candidate List.

## “FBDI POINTS OUT DUTY OF INFORMATION

In particular, if a subassembly contains a SVHC in a concentration above 0.1% weight by weight, manufacturers and importers of substances are obliged to inform customers down their supply chain and consumers on the use of this substance. Within EU they have to hand out safety sheets, if they deliver SVHCs, at least need to name the contained substance (Art. 33 (1) of REACH-Directive). Consumers need to be informed on their request within 45 days.

According to a ruling by the European Court of Justice of September 2015 the 0.1% w/w concentration threshold also applies to all the constituent products of a given end product. *In other words:* where a product is made up of more than one



article the relevance of each article in terms of SVHCs is to be determined irrespective of whether it is part of or will become part of another product.

## RESTRICTION OF LEAD IN PVC PRODUCTS

The European Commission intends to limit the use of lead and lead compounds for the production of PVC products as well as the placing on the market of lead-containing PVC-products. As such, it has requested ECHA to review entry 63 of Annex XVII to REACH in regards to lead in certain articles supplied to the general public in light of new scientific information.

PVC-products are not allowed to be placed on the market if the concentration of lead is  $\geq 0.1\%$  weight by weight of the PVC-material. There are exemptions for hard and soft PVC cleaning material, PVC silicic acid separators in lead batteries. A transitional period of 24 months applies from the date of entry into force. Annex XVII contains of REACH regulation contains the list of those substances (on its own, in a mixture or in an article) for which manufacture, placing on the market or use is limited or banned in the European Union.



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# Two changes to the RoHS Directive since 22 July 2019

Expired open-scope transitional regulation and an extended list of restricted substances

by FBDi



The “**extended**” **RoHS Directive (2011/65/EU)** with new substance restrictions and an open scope of application entered into force on 22 July of this year.

As part of the opening-up of the scope of application, which has so far been limited to 10 specific categories, all the electrical and electronic equipment falls within the scope of the RoHS Directive for the first time, unless it is explicitly excluded.

This means that **Category 11** electrical and electronic equipment may no longer be made available on the market if it does not meet the requirements of the RoHS Directive. In addition, four substances have been added to the list of restricted substances.

## THE SCOPE OF THE ROHS DIRECTIVE ENCOMPASSES:

- **electrical and electronic equipment that requires electric currents or electromagnetic fields** to operate properly or to perform at least one of its intended functions, and
- **equipment for the generation, transmission and measurement of such currents** and fields designed to operate on an alternating current of not more than 1,000 volts or a direct current of not more than 1,500 volts.
- This includes **all cables with a rated voltage of less than 250 volts** which are used as connecting or extension cables to connect electrical or electronic devices to a socket or to connect two or more electrical or electronic devices together.

## “FOUR SUBSTANCES HAVE BEEN ADDED TO THE LIST OF RESTRICTED SUBSTANCES”

According to Annex II of the RoHS Directive, **since 22 July 2019 the following substance restrictions are also applied** (see also *Delegated Directive (EU) 2015/863*): the previously listed substances lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) were supplemented by the four phthalates di(2-ethylhexyl) phthalate (DEHP), butylbenzyl phthalate (BBP), dibutyl phthalate (DBP) and diisobutyl phthalate (DIBP). These are now also subject to a restriction, with a respective permissible maximum concentration of 0.1 percent by weight in the homogeneous material. With regard to these four

substances, the following also applies:

- The restriction of DEHP, BBP, DBP and DIBP will apply **from 22 July 2021 to medical devices**, including in vitro diagnostic medical devices, and monitoring and control instruments, including industrial monitoring and control instruments.
- The restriction of DEHP, BBP, DBP and DIBP does not apply to cables or spare parts for repair, reuse, updating or enhancing the performance of electrical and electronic equipment placed on the market before 22 July 2019 and medical equipment placed on the market before 22 July 2021 (*see above*).
- The restriction of DEHP, BBP and DBP does not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 in Annex XVII to Regulation (EC) No. 1907/2006.



## LEGAL BACKGROUND: ROHS

The **RoHS Directive** (*RoHS = Restriction of Hazardous Substances*) establishes provisions for the restriction in the use of hazardous substances in electrical and electronic equipment to protect human health and the environment, including the environmentally-compatible recovery and disposal of the devices. The aim of the regulation is to ban substances harmful to health and the environment such as lead, mercury and chromium from electronic products. Companies must be able to demonstrate that products falling within the scope of the RoHS Directive do comply with the requirements of the RoHS Directive. Germany has decoupled the RoHS Directive from the **Electrical and Electronic Equipment Act (ElektroG)** and incorporated it into the **Electrical Substances Ordinance (ElektroStoffV)**.

