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NEWS

FEDERATION IDEA

February/March 2019

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

Georg Steinberger joins IDEA leadership team

Steinberger will become the new President of IDEA working in a honorary capacity and sharing responsibilities with Adam Fletcher

The **International Distribution of Electronics Association (IDEA)**, an international federation of the local country electronic components industry associations is delighted to announce the appointment of **Georg Steinberger** as its new President, effective immediately.
Silvio Baronchelli, who served as President of IDEA for 35 years has accepted the role of Honorary President. Steinberger will work in an honorary capacity and share responsibilities with **Adam Fletcher**, Chairman of IDEA, and **Laura Baronchelli**, secretary of IDEA and responsible for its administration matters.

"It is a great honour to work with IDEA on the global promotion of the electronics components industry", said Georg Steinberger on his appointment.

"Distribution and its services and solutions are key to the global supply chain and product life cycle of all customers, and it is necessary to underscore our performance for the industry.
While the local country associations do an excellent job on collecting market data and collaborating on political, legal, commercial and environmental industry topics, IDEA is the ideal vehicle to surface trends and developments for an international audience."

Georg Steinberger, Chairman of DMASS and Chairman of the Board of Directors at FBDi

Adam Fletcher, Chairman of IDEA

Silvio Baronchelli, past president IDEA

Steinberger, who is working as vice-president marketing & communications at Avnet EMEA and heads the German Distribution Association FBDi e.V. as well as DMASS Ltd., is an established leader in the electronic components industry. He started his career as technology editor at German trade magazines in 1987 and joined EBV Elektronik in 1998.

"Distribution is key to the global supply chain"

When Avnet acquired the EBV Group in 2000, Avnet promoted him to his current position. Since 2003, he is also responsible for environmental compliance within Avnet EMEA and since 2015, he is co-chairing Avnet's global Corporate Social Responsibility Council.

Silvio Baronchelli, past president of IDEA, said: *"Georg has created a lot of visibility for distribution in Europe over the last 20 years. We are happy to be able to bring his experience to IDEA to take us to the next level, which is a more intensive sharing of trends, market information and insights into legal and political topics, between the members, but ultimately with component manufacturers, authorised distributors and their wider customer base."*

"I'm delighted to welcome Georg to the IDEA Leadership Team, his knowledge and expertise will help guide the association and the global electronic components industry through the next stage of development" said Fletcher, Chairman IDEA, *"I'm very grateful to Silvio Baronchelli for the huge and selfless contribution that has made to benefit the global electronic components industry throughout his career, he's going to be a tough act to follow but I know Georg will rise to the challenge…"* he concluded.

"Silvio Baronchelli will be a tough act to follow"

"I wish all in the electronics industry and the IDEA Leadership team continued success, it has been my great pleasure to serve them…" concluded Baronchelli…

IDEA *(www.ideaelectronics.com)* founded in 1984, has members that represent the most important electronic components markets worldwide.

One way or another, it manages to grow!

by Georg Steinberger
Chairman of DMASS
and Chairman of the Board
of Directors at FBDi

Up to now, the market has almost always managed to insulate itself from macroeconomic influences reasonably successfully. However, 2019 presents several major stumbling blocks that could change this.
And yet demand for components continues to grow.

When compared with 2017 – a year that saw double-digit growth – the European component distribution sector actually had little cause for complaint in 2018. Starting from a very high level, it managed to achieve further growth in the medium to higher single-digit percentage range, with some areas such as passive components even making it into double digits.
At the start of the year, there were many concerns that things might turn out differently – the usual suspects such as trade disputes, Brexit, EU weakness, various political and military conflicts all had the potential to dampen the mood in the market as a whole and consequently in the high-tech industry as well. It is clear that growth in the EU as a whole cannot match that of China, India or the US. However, even 'problematic candidates' such as Italy or France have displayed astonishing resilience, at least in the industrial electronics field, which is the main customer of the distributors.

Looking at the sector in detail, **DMASS**, a leading collator of distribution market data, measured growth in the semiconductor distribution market in Europe at over 6% to reach just under 9 billion euros.
Germany, one of the largest markets, saw slightly weaker growth of around 4 percent to 2.7 billion euros.
With regard to the passive and electromechanical components not officially reported by DMASS, it can be assumed based on figures from other bodies, that supply scarcity and price increases during 2018 led to growth of around 20%.
The semiconductor distribution market is likely to be around 10 billion euros in 2018 and the IP&E market somewhere between 4 and 4.5 billion euros (DMASS only represents 90% of semiconductors and perhaps 65% of IP&E).

WHAT CAN WE EXPECT FROM 2019?

On this basis, what can we expect for 2019? There are two blocks of factors to be considered here: The macroeconomic or known stumbling blocks, which include primarily **Brexit** and its as yet uncharted consequences and the **trade dispute between the US and China**. Then there is the market itself. But first things first.
While the trade dispute is currently in full swing and corresponding tariffs have already been imposed on products manufactured in China, industry in the US is trying or contain or at least limit the extent of the administrative chaos. It is not yet clear how this conflict will develop.

> *"No country in the world cooperates with China on an equal footing"*

However, it is the issue actually at stake that has rather fallen by the wayside in the debate concerning market consequences: China's lax approach to IP and the unfair trading practices it has been operating for years. No country in the world cooperates with China on an equal footing and credit is due to the US for highlighting this thorny issue (it should also be noted that many accusations aimed at the EU are similarly justified). Therefore, there is not yet any need for emergency plans for the electronics market in Europe, with the exception to minor interruptions to the flow of materials.

BREXIT CHALLENGE

Brexit represents yet another great unknown. Nobody can really predict what will happen in the event of a no-deal scenario. However, it is entirely possible that the consequences will not be nearly as severe as they are currently being portrayed. And as far as the electronics market is concerned, the UK is no longer the major producer it was during the 1980s. Most electronics production has migrated either to China or to Eastern Europe. Of much greater interest is the aspect of innovation: If the innovations or IP emanating from the UK is good, it will find its way onto the market.

In supply chain terms, the priority is to apply the correct export scenario for future deliveries to the UK (in the

same way as for Norway or Switzerland). For deliveries from the UK, the focus must be to reduce costs in such a way that either nothing is delivered from the UK unless necessary or that shipments are first sent to a central EU hub before continuing to the individual countries.
Across this entire area, experts are working through all scenarios so as to minimise possible supply, taxation and other problems as well as any consequences for customers.

MARKET COMBINATION

The market itself, often free of political influence, experienced a prolonged period of growth with corresponding supply bottlenecks, some of which (in the case of capacitors) will also persist in the new year. Growth in 2017 was driven largely by price increases while 2018 appeared relatively normal, at least in the semiconductor field. Then again, **the semiconductor market is not homogeneous** and there is an important dividing line between storage/memory components (which experienced a massive capacity expansion) and processors (mainly Intel) on the one hand and the remaining semiconductors on the other. The bottlenecks were equally lacking in homogeneity.

Semiconductors represent a highly complex combination of IP, design, manufacturing technology (in-house or foundry), testing and packaging. Each of these areas can generate its own supply bottleneck – all the more so when problems or changes are thrown into the mix. There are no indications of major problems on the horizon in this area in 2019. Apart from a few isolated exceptions, problems relating to long delivery times are easing at the moment.
Given that the lion's share of general demand for semiconductors is driven by the computer and smartphone industry – and that production is largely based in Asia – the industrial electronics and automotive industries that are dominant in Europe often become the collateral damage of the above-mentioned mass-produced articles.
If a new iPhone needs 40% more MLCCs than its predecessor, it is rather clear where 'this product' will land and who will draw the short straw.

> *"Industrial electronics and automotive industries often become the collateral damage"*

But let's return to the question as to what we can expect for the European market and the distribution sector in 2019. If we assume that we are currently experiencing a soft correction to the supply chain, with stock adjustments, backlog movements etc., then 2019 is likely to start slowly compared to 2018, in the low single-digit percentage range, before gaining momentum from the fall of 2019 onwards. In USD terms, the European semiconductor market grew by around 13% in 2018, although this figure takes currency effects into account.

Expressed in Euros, a growth around 8% is more likely.
It is no surprise that the distribution sector lagged behind with approximately 6 to 6.5% because availability problems probably had a greater impact on distribution and since quite a number of major manufacturers started to support key distribution customers themselves.

WHAT WILL INFLUENCE MARKET TRENDS?

For 2019, the **WSTS** in Europe is predicting just under 2% growth in USD, which is likely to run at a similar level in Euros. Major differences between the general market and distribution are unlikely. What actually happens will become clear in due course.

However, the fundamental questions that will also influence market trends strongly are as follows:

- When will **IoT** actually "arrive"? Many IoT projects are allegedly facing major challenges that are more of a commercial/business case definition nature.
- At what point will **AI** actually play a role that also drives hardware (and therefore component) sales?
- How quickly will the necessary transition in the **automotive industry** (e-mobility, but also autonomous vehicles) progress?
- When will governments finally do more in the area of **climate change**? This would lead to massive infrastructural innovations and could advance the demand for electronics dramatically.
- When will **start-ups** and the **maker market** actually contribute significantly to market development? It sounds sexy to talk about them, but given the low success rate of start-ups…

INNOVATION... BETWEEN POTENTIAL AND THE REALITY

I merely want to point out the difference between the vast potential and the reality – if Europe's semiconductor market is to double in the same way as global market (thanks to AI) to reach around 100 billion US dollars by 2030 (the distribution sector would be happy to absorb 30% of this), this would equate to 7% annually. However, this calls for significant changes in terms of development, decisions and change measures – even self-learning machines are unlikely to invent and order their memory expansions and additional processor performance by themselves.

Germany, in particular, needs to take a different approach to innovation marketing to reduce the incubation times for new technologies. Let us take home network as just one example: thirty years after the first innovations in this field, it remains an alien concept for many builders, architects and planners and, for many system providers, an excuse to charge rip-off prices. There is a great deal to do and 2019 is a good year to get started.

Q4 2018: A good end to a good year but...

by **Aubrey Dunford**
www.ideaelectronics.com

Sales of Electronic Components through Distribution in Europe continued to grow in the last quarter of 2018 but the economic clouds are still getting darker

Despite continuing slowing of the global economy in the last quarter of 2018, growth in the European Electronic Components Distribution Market as shown in the Q4 2018 European Electronic Components Statistics has continued at around 7% for each quarter of the year when compared with the same quarter of 2017. Billings in Q4 2018 were lower than the third quarter although is an annual trend as many companies take an extended holiday due to Christmas and the New Year.

Also, some companies look to reduce their inventory at the end of the calendar year. Total Billings as reported by the trade associations shows that sales by the member companies were 8.3% higher in Q4 2018 than in Q4 2017 and 7.1% for the whole of 2018 compared with 2017. As can be seen from Graphic T1 the book:bill having been positive for 8 successive quarters dropped in the last quarter of 2018 to 0.99 continuing a slowing trend that had been seen throughout 2018 and indicating that the growth in the market is slowing and that although growth should continue in the first half of 2019 it will be slower than the rates seen in the past two years.

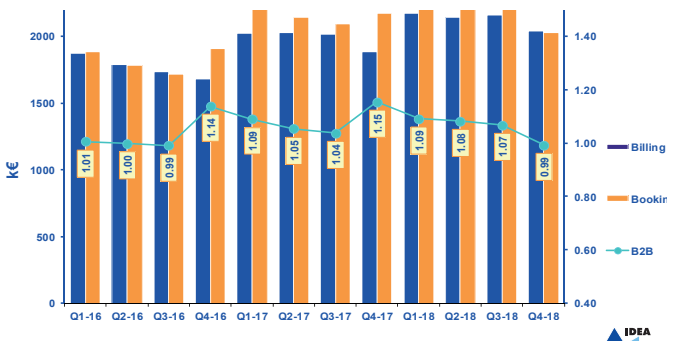
THE ECONOMIC OUTLOOK

According to the International Monetary Fund's World Economic Outlook published in January 2019 – "The global economy continues to expand, but third-quarter growth has disappointed in some economies.

> ***"The book/bill ratio dropped below unity in the last quarter of 2018"***

Idiosyncratic factors (new fuel emission standards in Germany, natural disasters in Japan) weighed on activity in large economies. But these developments occurred against a backdrop of weakening financial market sentiment, trade policy uncertainty, and concerns about China's outlook. While the December 1 announcement that tariff hikes have been put on hold for 90 days in the US-China trade dispute is welcome, the possibility of tensions resurfacing in the spring casts a shadow over global economic prospects. Financial conditions in advanced economies have tightened since the autumn of 2018. Equity valuations - which were stretched in some countries - have been pared back with diminished optimism about earnings prospects amid escalating trade tensions and expectations of slower global growth. Concerns over a US government shutdown further weighed on financial sector sentiment toward year-end.

4TH QTR. 2018 TOTAL COMPONENTS BOOKING, BILLING & BOOK : BILL RATIO *Graphic T1*
Total distribution electronic components booking, billing and Book:bill ratio for Germany, France, Italy, UK, Sweden, Norway, Denmark, Finland, Switzerland and Austria



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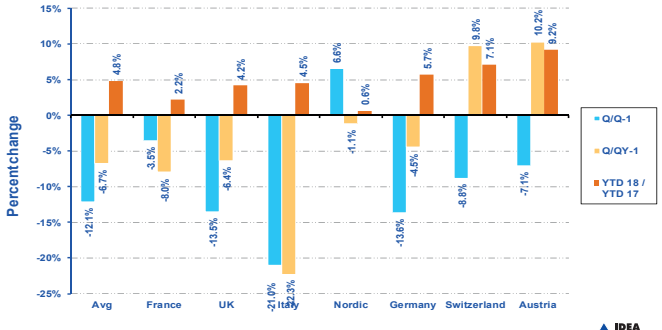
4TH QTR. 2018 TOTAL COMPONENTS BOOKING TREND *Graphic T2*
Distribution orders for Electronic components by country comparing current qtr with prior quarter (Q/Q1)and same quarter prior year (Q/QY-1) and YTD 18/17



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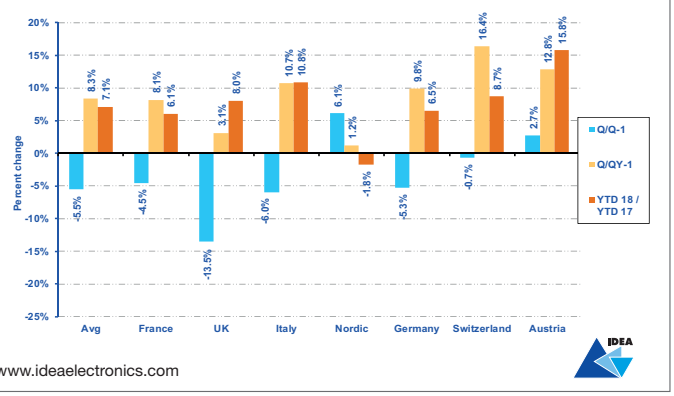
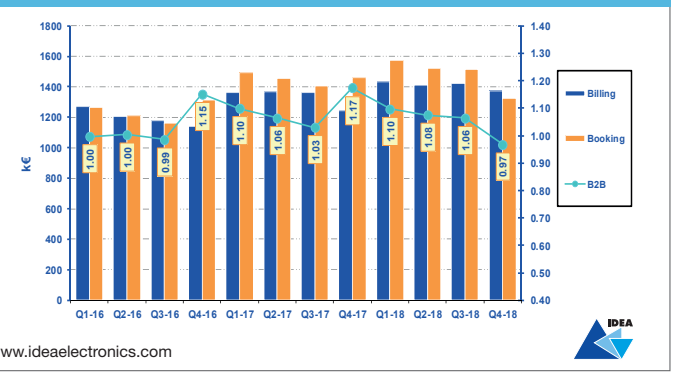
4TH QTR. 2018 TOTAL COMPONENTS BILLING TREND *Graphic T3*

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



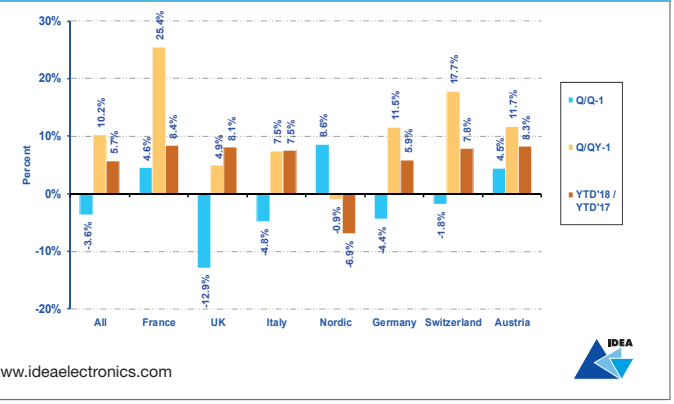
4TH QTR. 2018 SEMICONDUCTOR BOOKINGS, BILLINGS & BOOK:BILL RATIO *Graphic S1*

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



4TH QTR 2018 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



Major central banks also appear to be adopting a more cautious approach. While the US Federal Reserve raised the target range for the federal funds rate to 2.25 - 2.50 percent in December, it signalled a more gradual pace of rate hikes in 2019 and 2020.

In line with earlier communication, the European Central Bank ended its net asset purchases n December.

Financial conditions in emerging markets have tightened modestly since the autumn with notable differentiation based on country-specific factors, closing output gaps or passthrough from currency depreciation have led central banks in many emerging market economies to raise policy rates.

> *"The growth of sales in 2018 compared to 2017 was 7.1%"*

By contrast, central banks in China and India maintained policy rates on hold and acted to ease domestic funding conditions

GLOBAL GROWTH TO SLOW IN 2019

Global growth in 2018 is estimated to be 3.7 percent, as it was in the autumn, but signs of a slowdown in the second half of 2018 have led to downward revisions for several economies.

Weakness in the second half of 2018 will carry over to coming quarters, with global growth projected to decline to 3.5 percent in 2019 before picking up slightly to 3.6 percent in 2020. This growth pattern reflects a persistent decline in the growth rate of advanced economies from above-trend levels together with a temporary decline in the growth rate for emerging market and developing economies in 2019, reflecting contractions in Argentina and Turkey, as well as the impact of trade actions on China and other Asian economies".

So, although 2018 has been a good year for the Electronic Components Distribution Market throughout the world, the economic outlook and the dropping book:bill ratio from the European statistics show that we need to be cautious.

Looking at the data from the Q4 2018 European Electronic Components Statistics we can see the results for the total of 2018.

GROWTH IN MOST AREAS

As can be seen in Graphic T3 there has been growth in Q4 2018 over Q4 2017 in all European countries. Growth was highest in Switzerland at 16.4% and lowest in Nordic with a growth of 1.2%.

Overall the growth was 8.3%. The last quarter of the year in line with the normal seasonal pattern has shown a decrease over the third quarter in most countries, the exceptions to this were Austria and Nordic. Overall the growth of sales in 2018 compared to 2017 was 7.1%.

Sales growth was highest in Austria (the gateway to Eastern Europe economies) at 15.8% and lowest in Nordic with a decline of -1.8%.

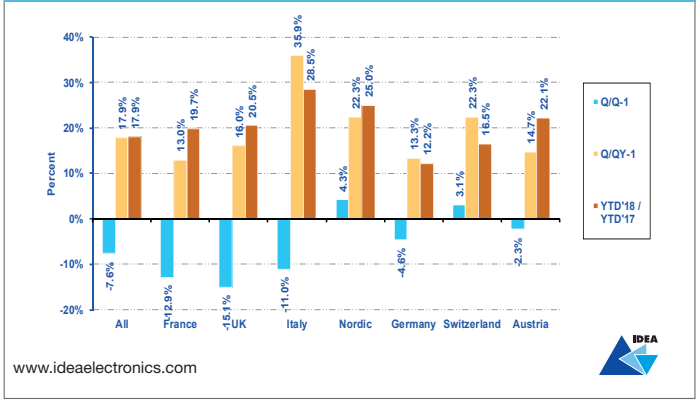
The figures shown in Graphic T2 show that bookings in Q4 2018 were overall 12.1% lower than Q3 2018, but overall bookings were 4.8% higher in than they were in 2017.

QUARTERLY SALES BY PRODUCT FAMILY

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

4TH QTR. 2018 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)



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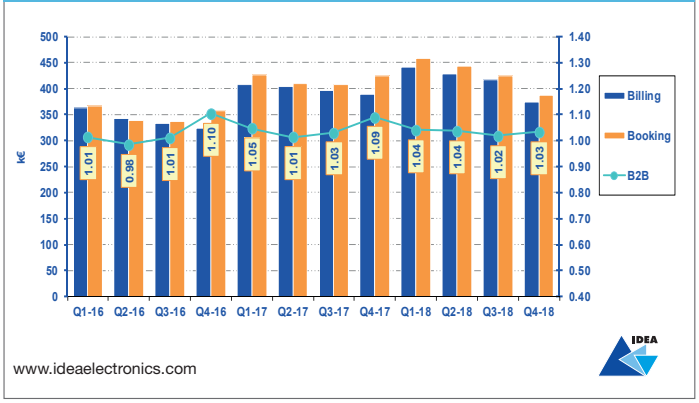
4TH QTR. 2018 EMECH COMPONENTS BOOKING, BILLING & BOOK:BILL RATIO *Graphic E1*

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



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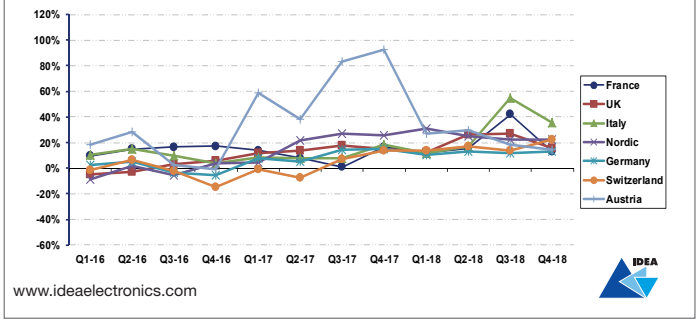
4TH QTR. 2018 PASSIVES TENDENTIAL INDEX BY COUNTRY(Q/QY-1) *Graphic P6*

Trend showing growth/decline % in quarterly sales of passives through distribution by country compared with the same quarter prior year



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SEMICONDUCTORS

In 2018 as a whole billings of Semiconductors accounted for 66.2% of the total billings slightly down on 2017 when it was 67%, and 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 to 0.97 in the last quarter of 2018. The last quarter of the year tends to have the highest book:bill ratio as billings in the last quarter are lower due to less working days in December thus the decline in the ratio in the last quarter signifies that there is a slowing within the semiconductor market.

However as can be seen §in Graphic S3 Billings in Q4 2018 were 10.2% higher than in Q4 2017 with growth in all countries except Nordic. Growth was strongest in France. Total sales of Semiconductors were 5.7% higher in 2018 than in 2017.

PASSIVES

Passive components sales in 2018 have been 14.2% of the total sales of components which was an increase over 2017 when passives accounted for 13%. As can be seen from Graphic P3 there has been strong growth in Q4 2018 when compared to the same quarter in 2017 and also for 2018 total compared with 2017.

Total sales growth in both cases has been 17.9%. The prime reason we believe for this change in share and strong sales growth is the increase in prices of some passive components as product shortages have allowed manufacturers to reverse some of the price decrease that has been happening for many years. As Graphic P6 shows there is still a strong upward trend in all areas. The book:bill ratio trend for Passives has been the same as for semiconductors with a decrease in Q4 2018 but in the case of passives this has remained above unity an 1.06 which means that there have now been nine consecutive quarters with a ratio above one.

E-MECH AND OTHER COMPONENTS

Our Emech and Other Components Category contains many of the newer and growing product categories such as displays and Modules (including Wireless) and accounts for the remaining 20% of the total. As can be seen from the graphic E1 the trend for the book:bill ratio is different from the other two product categories. The ration has been more stable and has not shown a decline in the last quarter of 2018 staying above unity for the tenth consecutive quarter.
The last quarters of 2016 and 2017 showed the highest ratios. Although the last quarter of 2018 showed a decrease of 3.8%, compared to the same quarter of 2017 primarily due to a very large decline in France of -33%
Total growth for 2018 as a whole over 2017 was 3.9% with the largest growths in Italy at 9.4% and Austria at 14.3% and the largest decline in France at -8.2%.

Electronics Supply Chain faces new California Proposition 65 warning requirements and litigation risks

by ECIA

As the **August 30th, 2018** deadline for new California Proposition 65 Labeling and Warning Requirements has now passed, electronic component manufacturers, and distributors should carefully consider risks and develop appropriate compliance plans.
The original Proposition 65 Safe Water and Toxic Enforcement Act was passed by California ballot in 1986 in the interest of protecting consumers from substances that cause cancer and reproductive harm. Since then over 900 substances have been identified by the **California OEHHA** *(Office of Environmental Health Hazard Assessment)* as a risk to public health, and the list grows with annual updates.

A trip to any retail store in the country will give you a view of how far reaching the effects of this State of California Prop 65 law are.
California Prop 65 Warnings can be found on power cords, surge protectors, lighting products, golf clubs, fishing sinkers, bicycles, wood products and many other common products.

Within the State of California, Prop 65 Warning signs now appear in coffee shops, liquor stores, marijuana dispensaries, gas stations, retail stores, amusement parks, parking garages and more.

The Prop 65 law has engendered a substantial increase in litigation among the tort bar in California. Prop 65 has simple claim requirements and shifts the burden of proof to defending companies. Over $25 million in settlements were awarded in 2017 and litigation is on a pace to nearly double that in 2018, and that's before new tougher Labeling and Warning requirements approved in 2016 go into effect on products manufactured after August 30th and sold in California.

> **"There are over 100 substances found in electronic components and products"**

So, why should the electronics industry be concerned? Within the list of over 900 substances on the current OEHHA list there are estimated to be over **100 found in electronic components and products**. Components or products available to consumers or exposed to workers in California must be labeled if those products contain any of the listed substances and exceed *"safe harbor"* levels, which are defined by the OEHHA with complex and technical exposure criteria. Prop 65 Warning label formats and content are specific:

There are also specific warning requirements that **apply to Internet and catalog sales**. Warning responsibilities begin with component manufacturers and extend to distributors, OEMs, online merchants and retailers. Violations often ensnare everyone in that supply chain, and at that point you bring in the lawyers and the toxicologists, and the costs mount whether you win or not. A sound risk management strategy should focus on claim prevention, not simply claim defense.
As the litigators target opportunities, they look for products containing listed substances, noncompliant labels or warnings, and companies with deep pockets. They do not have to prove damages, just label or warning violations. You can settle, you can fight, but either way it will be expensive.
The **ECIA GIPC** *(Global Industry Practices Council)* and their Environmental SMEG *(Subject Matter Expert Group)* have been looking into this issue.
A recent survey of ECIA members found that current written positions may not fully reflect the requirements of the law, or the substance list, or the required toxicology data.

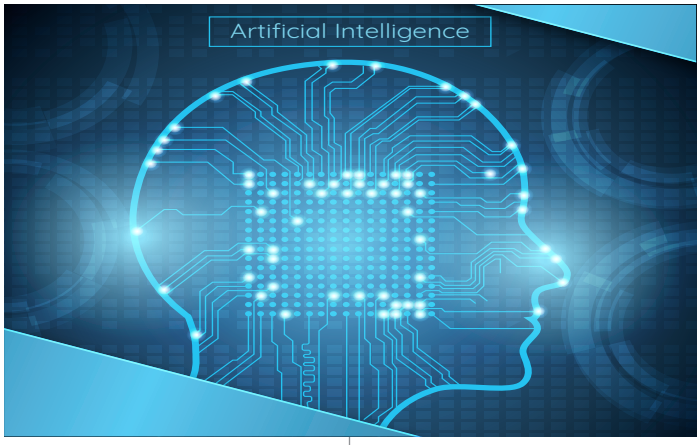
> **"They do not have to prove damages, just label or warning violations"**

Customers are asking for Proposition 65 compliance information. Manufacturers are advised to become familiar with the Prop 65 law, identify if P65 listed substances are in their products, develop compliance position statements, and provide Prop 65 compliant notifications and warning labels if appropriate. Distributors are advised to survey their supplier base for Prop 65 compliance information and be prepared to pass Prop 65 warnings to customers prior to sale and provide P65 warning labels on products as required.

More info on *www.ECIA.org*

AI = artificial intelligence. A promising promise

by Franco Musiari
Assodel



Artificial intelligence (AI) is another topic that, like Internet of Things, or IoT, is on everyone's lips today.

According to experts, AI will allow us to solve any problem regardless of the application sector. Be it financial, related to medical or industry issues, linked to autonomous driving or production processes...

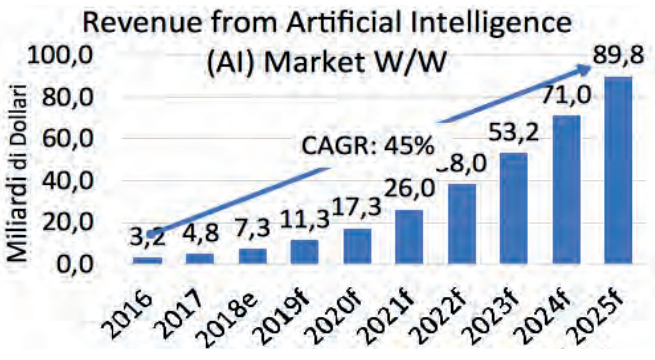
A PROMISING MARKET

An article by **BCC Research** says: *"Today's artificial intelligence market is not easy to quantify.*
In addition to the lack of consensus on a consistent definition of "artificial intelligence" as a term, the early stage of development of the sector makes it difficult to cut out boundaries where one sector or application ends and another begins."
Despite these difficulties there are dozens of market researches that offer even striking numbers. According to experts *(Graph 1)*, the world market for products, systems and platforms and related software services linked to artificial intelligence is estimated at over seven billion dollars in 2018 but with a compound annual growth rate (CAGR%) of 45% which will bring it to 90 billion in 2025.

"The world market could be $90 Bn by 2025"

There are also market analysts who see the market even more interesting. For example, **Markets and Markets** estimates that in 2017 the AI market has exceeded a value of 16 billion dollars and will grow, with a CAGR of 37%, to 190 billion in 2025.

NORMALISED DTAM ($M) (HALF YEAR) *Graph 1*



Source: Statista

News

SIA: 2018 global results

The global semiconductor industry posted sales of US$468.8 billion in 2018, the industry's highest-ever annual total and an increase of 13.7% compared to the 2017 total, according to Semiconductor Industry Association (SIA).
Global sales for the month of December 2018 reached US$38.2 billion, a slight increase of 0.6% over the December 2017 total, but down 7.0% compared to the total from November 2018, said SIA. Fourth-quarter 2018 sales of US$114.7 billion were 0.6% higher than the total from the fourth quarter of 2017, but 8.2% less than the third quarter of 2018.
Several semiconductor product segments stood out in 2018. Memory was the largest semiconductor category by sales and the fastest growing, with sales increasing 27.4%.
Within the memory category, sales of DRAM products increased 36.4% and sales of NAND flash products increase—d 14.8%.
Logic and micro-ICs rounded out the top three product categories in terms of total sales. Other fast-growing product categories in 2018 included power transistors (14.4% growth/total sales) and analog products (10.8% growth/total sales). Even without sales of memory products, sales of all other products combined increased by nearly 8% in 2018.

News

China's growth in IC capacity

China's installed semiconductor wafer production capacity grew faster than any other region of the world in 2018 as the nation continued to ramp into high gear its ambitious plan to bolster its domestic semiconductor industry, according to market research firm **IC Insights**. At the end of 2018, China accounted for 12.5% of the world's global fab capacity, up from 10.8% in 2017.

Last week, IC Insights projected that the value of China's IC production would nearly double between 2018 and 2023, increasing from increasing from $23.8 billion to $47 billion. Taiwan continued to lead all regions of the world in installed fab capacity in 2018, accounting for 21.8% of the global total, up from 21.3% in 2017, IC Insights said. Taiwan has been the leader in fab capacity since 2015.

South Korea finished 2018 a close second in the fab capacity race, accounting for 21.3% of the global total, according to IC Insights. IC Insights said foundry giant **TSMC** accounted for 67% of Taiwan's installed capacity last year, while the combination of Samsung and SK Hynix accounted for 94% of South Korea's total.

IP and Intelligence....

by Adam Fletcher
ECSN

Misappropriating IP, copying ideas and gathering intelligence on organisations, people and nations is as old as time and despite the increasing trade tensions particularly between the US, EU and China it isn't going to stop anytime soon. It is however perfectly legitimate for organisations to look closely at their competitor's products and services to understand if they have achieved a competitive advantage in the market and if so, use that intelligence to formulate a plan to catch up and overtake their competitors. In this article ecsn / IDEA chairman Adam Fletcher suggests that the wider proliferation of IP and intelligence generally benefits all in society and therefore demonising the few who take things too far is probably counter-productive…

Organisations in the semiconductor market have historically sought to secure strong global patents on their underlying core **technology IP** rather than on individual components, believing that achieving "first mover" advantage was the best way to achieve strong market share for a product with a new technology.

But competitors often then either reverse engineered the component and produced their own variant or more often, negotiated with their competitor to produce their own version under licence, which was usually the preferred solution. In a fast-growing market, the IP holder benefited from having an approved second and third sources of supply for their component, encouraging more customers to design it into their equipment and thereby increase the size of the available market. As semiconductor components became more complex the licencing and cross-licencing of technology, design tools and manufacturing processes between organisations became a market necessity both at the components and end equipment level. Producing a high-end smart phone today involves acknowledging and paying to use the IP of 1000's of independent organisations without whose collective IP creativity it would be impossible to achieve the time-to-market necessary to achieve commercial success.

> ***"The licencing and cross-licencing of technology has become a market necessity"***

The current trade dispute between the US and China (although other nations, notably the EU, Canada and Australia are also involved) is predominantly about the control and protection of IP of western organisations that for over twenty years has been unfairly accessed by some Chinese state-owned organisations. The electronic components industry is at the centre of this dispute because the ownership of enabling semiconductor IP gives a huge economic advantage

to an organisation and to their home nation who benefit from the investment, employment and taxation on the revenues generated. Regardless of their location organisations should not be expected to give away their technology advantage or in essence, have it stolen from them.

After many unfruitful years of quiet unproductive diplomacy, the US government has finally moved to impose tariffs on a wide range of products manufactured in China in order to protect US based organisations.
Previously almost no tariffs were levied on electronic components traded between China and the US but they are now subject to a 10% tariff and a hike to a 25% was due to come into force early this year.

Fortunately, the implementation date has been delayed for ninety days to enable further negotiations to take place.

GOVERNMENT / THIRD PARTY INTELLIGENCE

All governments have sophisticated and generally publicly acknowledged intelligence gathering operations involved in obtaining some insight into, or advantage over other nations, whilst at the same time seeking to protect the interests of their own citizens.

Various whistle-blowers including Wikileaks, Edward Snowden and defecting diplomats have provided us all with an uncomfortable

insight into these nefarious activities.
We do however accept that governments routinely monitor our communications for keywords and believe – perhaps naively – that they do so primarily for the greater good of society.

> *"Organisations should not be expected to give away their technology advantage"*

In addition, all governments mandate that "backdoors" into communications systems are made available to the relevant authorities and we permit a wide range of third-party organisations such as Google, Facebook etc. to access a huge amount of our personal data which is primarily used in targeted advertising, but this data has also been subject to abuse.

Although new and enhanced regulation and legislation on what these organisations may do with our data is evolving the global nature of these data flows, makes this very difficult. So we are increasingly reliant on the expertise of the organisations that specify and operate communication systems, along with regulators to ensure that systems are robust, secure and able to withstand attack.
In a global economy increasingly dependant on a wide range of highly integrated and interoperable technology solutions we need to ensure that international legislation on IP protection works effectively for all organisations, nations and their citizens.
In my opinion demonising a few miscreant organisations or governments is likely to be counterproductive to resolving the issue.

> *"International legislation on IP protection has to work effectively for all organisations"*

My hope is that the current trade dispute is quickly resolved and an effective framework for future negotiation via the WTO is re-established and greeted with widespread support.

The 23rd edition of SPDEI Trophées (Awards)

by Pascal Fernandez
SPDEI

Under the chairmanship of **Pascal Fernandez**, **SPDEI** presented the 23rd edition of its Trophées (Distribution Awards) to the industry.
Every year, the awards are assigned to the electronics manufacturers who have distinguished themselves by the quality of their support and their collaboration with distributors.

The 2018 categories were: Semiconductors / Digital, Semiconductors / Analogic, Wireless, Display, Passives, Connectors, Electromechanicals, Cables and Accessories, Energy, and MEMS.

"We were very happy to share this convivial moment with all the players in the electronics value chain - said Pascal Fernandez, President of SPDEI -.

This 23rd edition is of historical importance for our sector. Thanks to the mobilization of all its components, our political environment has changed radically with the recognition of the strategic nature of electronics, resulting in the creation of the Industry Committee dedicated to the electronics industry. The doors of the Ministries are opening and we can finally start decisive work for our future... Let's not miss this opportunity!

> **"The awards are assigned to the manufacturers who have distinguished quality of support"**

> **"Tomorrow's growth will depend on our ability to respond now"**

Tomorrow's growth will depend on our ability to respond now and work collectively in 2019.
The SPDEI intends to take this opportunity and calls for a broad mobilization also involving major contractors who are an essential link in our economy".

During the Awards, **Masafumi Tanaka**, Head of the Office of Electronic Systems of the **Ministry of Economy and Finance**, presented the main reflections and prospective actions identified in the framework of the study conducted by his Ministry, the **SPDEI**, **ACSIEL**, **SNESE** and **FIEEC**.

Electronics remains central to the digital transformation of our economy and society as a whole.

The control of electronic manufacturing is therefore an issue of economic and strategic sovereignty for France. However, electronics is one of the most globalized economic sectors, and it is impossible to control the entire value chain in France.

Brexit – A personal view

by Aubrey Dunford
ECSN

In my discussions with European colleagues, I can see that to those outside of the United Kingdom, the Brexit process and the chaos with the UK Parliament can be even more confusing than to those of us who are trying to make sense of it from within the UK.

In my discussions with European colleagues, I can see that to those outside of the United Kingdom, the Brexit process and the chaos with the UK Parliament can be even more confusing than to those of us who are trying to make sense of it from within the UK. Over 43 years ago on the 7th June 1975, I voted to stay in the European Economic Community which the UK had joined in 1973, twelve years after our application to join was made in 1961.

> *"In 1975 no one used the word 'Union'"*

Although in 1975 the country did indeed vote to be part of an omelette, the stirring process has always been difficult.
In 2017, the country was again given a choice and in effect voted to have its egg back – although no-one seemed to have any idea how that could be done – and the really contentious issue of the Irish border didn't get a mention at all.
When I like many others voted in 1975 all the talk was about an Economic Community – no one used the word 'Union'.
At the heart of the European Union sit four key principles: the free movement of goods, services, capital and labour. The "four freedoms" were enshrined in the 1957 Treaty of Rome well before the UK application to join in 1961.

Back in 1975 the then 'Labour' government under Prime Minister, Harold Wilson was trying to persuade the voters like me to vote 'remain', even against many in his own party which at that time was deeply divided.
It was known then that even the word 'Union' would be unacceptable and so the term 'economic community' was used.
Of course, the four freedoms can only be completely delivered when there is full fiscal and political union.
That is not what people like me voted for in 1975, and it can be argued that the British public were lied to back then.

So that is why the British Parliament is so divided – on one side the purists who want us to completely leave the European Union and to distance ourselves from the project of a Federal Europe as they see it, to those who welcome the idea of a United States of Europe, and all shades of opinion in between.

> *"Whatever happens the matter is far from settled"*

It is impossible at the moment to predict what will happen on the 29th March, but as one who has watched this debate for all of his adult life, I can be sure of one thing – Whatever happens on that day the matter is far from settled.
The discussion about the future of Europe is far from over in the UK as I suspect it is in many other European countries. However, despite the many differences that have existed from the outset, the European project has brought peace (including on the island of Ireland) and prosperity, so I am hopeful that whatever our politicians may say and do, the good will and co-operation that has got the EU through the last 60 years will continue.

Connector companies get smarter, faster with acquisitions

by Ron Bishop
Bishop & Associates

Electronics companies are consolidating their expertise with acquisitions as new technologies become part of the connector ecosystem.

When is a connector company more than a connector company? When it is also a wire and cable company, a sensor company, an antenna company, a transceiver and transponder company, and even, sometimes, a software company. As increasingly complex and demanding applications increase their requirements on every component within a design, connectors must do more than unite systems or transfer information within a system.

They must facilitate the development of new technologies. Some companies are finding it beneficial to bring more of that development in-house through acquisitions of complementary and connector adjacent businesses.
Since 1985, **Bishop and Associates has recorded close to 600 mergers and acquisitions within the connector industry**.

In particular, the development of the Internet of Things (IoT) and autonomous systems are pushing a new wave of industry marriages, intensifying the relationship between **sensors**, antennas, fiber optics, and other hardware in 21st century applications across multiple markets.

> *"IoT and autonomous systems are pushing a new wave of industry marriages"*

Molex is one company that has been especially active in acquisitions, growing by more than 30 purchases, the second-most active company in acquisitions. (Amphenol is the biggest, with 58 acquisitions.).

At the end of 2018, Molex announced that it has acquired the Connected Vehicle Solutions division of **Laird Limited**, which will give it new capabilities in antenna systems, smart device integration, and vehicle connectivity systems. *"Molex is going through a transformation. Instead of being a connector company, we are becoming an interconnect solutions company, and acquisitions are one of the ways we are accessing expertise,"* said **Mike Gardner**, director, advanced technology market development, transportation & industrial at Molex.

He says that new technologies tend to arise as stand-alone electronics with unique functionality, and as the capabilities become critical to other systems, it is helpful to bring them in-house so complementary connector technology can be developed with greater insights on both sides of the connection. Acquisitions enable connector industry leaders to increase collaboration to address new or challenging business opportunities while beefing up their internal engineering support resources.

In an era of **decreasing R&D**, acquisitions give companies a jump-start on new technologies they didn't develop, but now must accommodate or improve upon. Molex recently completed the acquisition of two industry leaders in FPGA accelerators.

Samtec continues to expand their **Microelectronics Group** to augment their 3D packaging and wireless connectivity capabilities.
In 2018, Amphenol acquired All Sensor Corporation, a company that specializes in pressure sensors and pressure transceivers, and SSI Controls Technologies, a company that specializes in sensors for automotive and industrial environments.

"SSI's product offerings are uniquely complementary to our existing offerings and represent a significant long-term growth opportunity driven by the expansion of electronics across a broad set of applications in the automotive and industrial markets," said **R. Adam Norwitt, Amphenol's** president and CEO.

Many of the most significant tech trends and disruptions depend on sensors, so **we expect to see greater collaboration between connector and sensor companies**, extending to more acquisitions, although close collaborations between connector companies and their engineering customers can also yield fruitful results.

RECENT ACQUISITIONS OF SENSOR COMPANIES BY CONNECTOR COMPANIES

Table 1

Type	Company	Year	Acquirer
M	Amphenol acquired all Sensor Corporation	2018	Amphenol
M	Amphenol acquired Meggitt PLC companies	2017	Amphenol
M	Amphenol acquired Intelligente Sensors systeme Dresden GmbH	2017	Amphenol
M	AVX acquiredbAB elecktronik	2017	AVX
M	TE Connectivity acquired Jaquet Technology Group	2016	TE Connectivity
M	Amphenol acquired SGX Sensortech	2016	Amphenol
M	Molex acquired Sensorcon	2015	Molex
M	Sensata Technologies acquired Custom Sensor and Technologies	2015	Sensata
M	Amphenol acquired Casco products	2014	Amphenol
M	TE Connectivity acquired American Sensor Technologies, Inc.	2014	TE Connectivity
M	TE Connectivity acquired Measurement Specialties, Inc.	2014	TE Connectivity
M	Amphenol acquired GE Advanced Sensors	2013	Amphenol
M	Methode acquired touchSensor Technologies	2007	Methode
M	Cooper Industries acquired Novitas, Inc.	2005	Cooper
M	Methode acquired American Components, Inc.	2001	Methode
M	Methode acquired Magnetoelastic Devices, Inc. (75% ownership)	1997	Methode

In the past five years, more than 15 sensor companies have been acquired by connector companies. At the end of every sensor is a connector, but the connection goes further than this. Many emerging technologies involve autonomous functions.

New medical devices are integrating sensors to measure patients' vital signs and transfer that information to clinicians or to other equipment, which can adjust medication or alert caregivers. Sensors can improve safety in warehouse operations, evaluate the functionality of equipment, and control inventory levels. In the automotive realm, sensors are paramount to nearly every function in autonomous systems, transferring information from radar and LiDAR systems, safety controls, fuel systems, and interfacing with external networks in a connected infrastructure environment.

The advent of the autonomous vehicle and the number of components that are going to be required to bring this to fruition has inspired connector and cable assembly manufacturers to invest in heavy-duty connectors and automotive connectors, as well as the many sensors that will be needed.

> *"We expect to see greater collaboration between connector and sensor companies"*

Other acquisitions have occurred among individual product and cable types. Thanks to the IoT and the **Industrial Internet of Things (IIoT), great investments have been made in the area of fiber optic technology.** This includes fiber optic connectors, fiber optic cable, and the ability to manufacture and install fiber optic cable assemblies. Also not to be forgotten are the hundreds and hundreds of active optical cables, transceivers, and transponders that will be required to support the speed and bandwidth necessary for this technology to operate correctly.

When connector companies can access and observe the development of critical new technology, they can coordinate connector innovations to streamline functionality, develop customized solutions, and address size, weight, and power (SWaP) concerns, not to mention offer engineers a one-stop solution for multiple hardware needs. But it's much more than a mere marketing move. Connector companies — and ultimately connectors themselves — are becoming smarter, by necessity.

For more information on mergers and acquisitions in the connector, cable, and cable assembly markets, see **Bishop & Associates** newest research report, *History of M & A in the Connector Industry.*

IDEA

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