



# IDEA NEWSLETTER

## Semiconductors on track for a good year in 2020

According to Malcolm Penn, Future Horizons' market analyst and "guru" of the electronics market, 2020 will know a significant growth in the semiconductors sector due to a strong bounce-back together with a recovery in ASPs and the excess inventory liquidation.

In fact, the way things are going, it could turn out to be a very good year indeed!

Following the precipitous market meltdown in Q1-2019, which saw semiconductor revenues decline 14.7 percent in value versus Q4-2018, one of the largest falls on record, Q3-2019 heralded the inevitable bounce-back from Q1-2019's over-reaction.

What made this bounce-back more significant than previous ones was it coincided with a natural end to the excess inventory liquidation, **a recovery in average selling prices (ASPs)**, the normal third quarter strong seasonal demand

MALCOLM PENN, FUTURE HORIZONS



BOOM TIMES FOLLOW BUST, +10% IS THE MINIMUM

Chart 1



### FEBRUARY 2020



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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
- 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



and a tightening of capacity due to the instant freeze on factory investment (CapEx) as soon as the chip market hit the buffers. These five factors set the stage for a **perfect semiconductor storm**.

The recovery momentum gained further strength in Q4-2019, with the chip market growing 0.9 percent vs Q3. Normally one would have expected Q3 growth to be seasonally negative, removing all doubt that the downturn was over. With IC unit shipments currently around their long-term average 8 percent growth, new fab capacity tightly managed and overall ASPs back growing, it is hard to see the overall semiconductor market in 2020 **growing less than 10 percent year on year, reaching US\$450 billion**. And if the industry rebounds as strongly as in previous recoveries, that growth rate increases to at least 15 percent, for a final 2020 market figure of around US\$470 billion.

**“IN 2020, WE EXPECT FOR THE SEMICONDUCTORS MARKET A GROWTH OF 10-15%,”**

One reason for the growth rebound was simply that 2019 was a very bad year, partly the result of an inevitable correction following two very strong years of growth – yes, the industry is still cyclical – and partly the result of the US-China trade sanctions and a tariff-induced slowdown in global trade, a

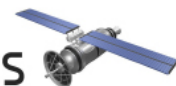
slowdown in global GDP growth, from 3.5 percent to 3.2 percent, and an inventory correction due to the resultant slowdown in purchased vs. real demand (units bought equals units needed plus/minus any inventory adjustment).

**“THE COMBINATION OF POTENTIALLY STRONG UNIT GROWTH AND RISING ASPs WILL MAKE 2020 VERY INTERESTING,,**

As a result, IC annual unit sales growth shrank 7.2 percent in 2019, rather than just slowed down or levelled off. Negative unit growth is highly exceptional; there have only been five times in the past 35-years that have seen negative growth, and each time it has happened, growth rebounded very strongly the following year.

With ASPs already recovering, the combination of potentially strong unit growth and rising ASPs is setting the stage for a gangbuster 2020. 10 percent growth is the absolute minimum.

**FutureHorizons**  
The Global Semiconductor Industry Analysts



Future Horizons Ltd  
Blakes Green Cottage  
TN15 0LQ, UK  
Tel: +44 1732 740440  
Fax: +44 1732 808045  
mail@futurehorizons.com  
www.futurehorizons.com



# US / China Trade Pact Looks Promising...

At their recent Forecast Meeting the collective opinion of members of the Electronic Components Supply Network (ecsn) concluded that the greatest threats to economic growth in 2020 and beyond are likely to be geopolitical in nature. And the start of 2020 is already proving to be interesting. What they didn't factor in was a potential pandemic in China, which may yet prove to be highly disruptive to global economic growth. What's certain is that we're going to have to contend with a number of fairly major political upheavals with the ability to destabilise the global economy and probably keep consolidated growth for the global electronic components markets in low single figures. In this article IDEA and ecsn chairman **Adam Fletcher** provides an update on the Intellectual Property aspects of the US China Initial Trade Pact and ecsn UK members forecast for 2020...

ADAM FLETCHER, ECSN



## US / CHINA INITIAL TRADE PACT...

Global stock markets surged on the news that the US and China had reached an initial trade pact. Much of the media coverage is centred on the relief the agreements gives to the US agricultural sector, which is currently in crisis but the Phase 1 deal also halved the tariff rate to 7.5% on about \$120 billion worth of other Chinese goods, including flat-panel televisions, Bluetooth headphones and footwear. Probably more important to technology markets the agreement also cancelled planned U.S. import tariffs on Chinese-made mobile phones, toys and laptop computers but left in place 25% tariffs on a \$250-billion array of Chinese industrial goods and components used by U.S. manufacturers. China's retaliatory tariffs remain in force on over \$100 billion in U.S. goods.

## IP THEFT, TRADE SECRETS AND CONFIDENTIAL BUSINESS INFORMATION

Following a brief review of the initial economic and trade agreement between the US and China I can see that it will

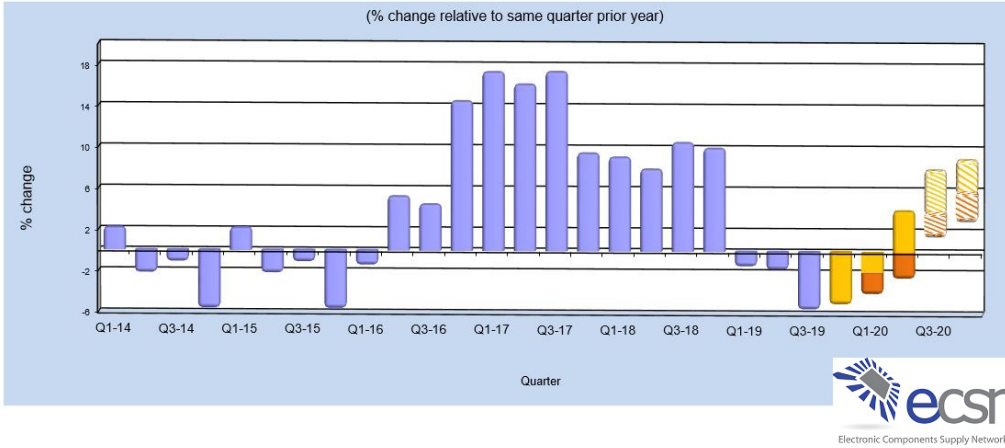
force some very interesting changes to how the Chinese legal system responds to issues surrounding international standards on **Intellectual Property (IP)** theft, **Trade Secrets (TS)** and **Confidential Business Information (CBI)**.

One of the most useful changes is that Chinese businesses and Chinese Government organisations and agencies will now be required to acknowledge the IP ownership, TS and CBI issues that already exist and also uprates current breaches from an "Administrative" to a "Criminal" enforcement issue and mandates that appropriate tariffs (fines, penalties, jail terms) are put in place.

**“MUCH OF THE MEDIA COVERAGE IS CENTERED ON THE RELIEF THE AGREEMENTS GIVE TO THE US AGRICULTURAL SECTOR”**

DTAM BY QUARTER FOR 2014 - 2020

Chart 1



“Unfortunately, together with growth we will also see the return of extended lead times”

In the short and medium-term this is a big win for US-based (and by default, other Western nations’) organisations who will be able to licence their technology and operate in a more certain legal environment. Once strong legal protections are in place and more sophisticated financial markets are established Western based organisations will feel comfortable making direct investment in China. In the medium- to longer-term it also provides greater protection for Chinese IP, TS and CBI both within China and internationally as innovative ideas are generated. It will be interesting to see how quickly these Chinese legal systems are established and how effective they are. In the meantime the US government is retaining some of the current US import tariffs and will probably do so until strong evidence of compliance is detected.

## “2020 IS GOIGN TO BE ANOTHER INTERESTING YEAR IN THE GLOBAL ECONOMY”

### US / CHINA TRADE WAR RUMBLES ON...

Despite the initial trade pact the US Commerce Department is currently considering modifying its Foreign Direct Product de-minimus rules to enable it to block the sale of products by manufacturers in third party countries by reducing the threshold of US hardware or software content from 25% to 10% of the sales value of the item. This is well illustrated in the US Commerce Department’s recent application of pressure on the Dutch government to embargo the sale of very advanced semiconductor manufacturing equipment made by ASML to a Chinese organisation and the pressure it continues to apply on the UK government (and other nations) to dissuade it not to purchase 5G telecom equipment from Huawei under the threat of reduced security cooperation. Huawei remain on the US ‘table of denials’ for both the purchase of US technology products for use in their equipment and banned the sale of any Huawei datacoms equipment to US entities. Despite this political pressure

the UK government has approved the use of Huawei datacoms equipment in the non-core elements of the UK network, probably to try and satisfy the needs of all parties and to protect the short-term economic prosperity of the UK.

### 2020 FORECAST...

2020 is going to be another interesting year in the global economy but hopefully we will see modest growth in global electronic components markets. Our ecsn members UK and Ireland are forecasting revenue-growth for the UK and Ireland electronic components markets **in the range 0%-to-4.5%**, with a mid-point of 2% when compared to 2019. Any progress will however be linked to what happens in global electronic components markets where it is widely believed, stronger growth is set to return into the second half of the year.


The table “DTAM By Quarter for 2014 – 2020” summarises this information. The blue bars show actual results achieved while the bars shaded orange indicate the association’s forecast for 2020 and the brown portion highlights the range.

### FINAL THOUGHTS...

Unfortunately, we’ll probably also see **the return of extended lead-times** across many components as a result of persistent (and probably justified given the poor forecasting record of most customers) underinvestment in manufacturing capacity. These swings in components availability are not in the interests of any party in the electronic components supply network and I remain confident that they can best be mitigated in the coming year by the sharing business intelligence effectively up and down the supply network and an accurate and effective forecasting process. I encourage you and your organisation to play your part in this communication process, it costs nothing and can yield significant rewards along with improved competitive advantage.

Further information about **The Electronic Components Supply Network** and **afdec** may be found at the following website: **www.ecsn-uk.org**.

# ECIA Announces New Podcast Series: “The Channel Channel”

by ECIA 

ECIA launched a new way to connect to the industry - “The Channel Channel” Podcast, dedicated to fascinating and wide-ranging discussions of topics about the Authorized Channel for Electronic Components. Various industry leaders discuss a new topic every other week. The 20-minute episodes are available on many podcast platforms or through the [ECIANow.org](http://ECIANow.org) website.

“There’s much to talk about these days, with all the change and disruption that is occurring in the global channel for authorized components,” explained **Bill Bradford**, ECIA’s President, and host of the new podcast channel. “Our recent Executive Conference stimulated a lot of discussions about the way forward through the challenges of tariffs, counterfeit components, talent development, and bringing value to customers. Our podcast agenda will keep that discussion moving forward. It is a way for the industry to stay current on these fast-moving topics.”

Episode one spotlights ECIA Board Chair, **Jeff Thomson**, VP of Global Channel Sales for ON Semiconductor where he shared his views on association involvement. Jeff has been involved since 2004 and firmly believes in its value. Subsequent episodes feature industry luminaries **David Doherty** (Digi-Key Electronics), **Ed Smith** (SMTC Corporation), and **Michael Knight** (TTI, Inc.) **Rob Kirch** (Vishay), **Alan Ahern** (Crowley Associates), **Dale Ford** (ECIA Chief Analyst), and **Don Elario** (ECIA VP of Industry Practices) discuss the value of the work being done by the association Councils and Committees, how to get involved and the need for more to add their voices to these important discussions.



The podcasts are available to all those interested in the electronics industry. Subscribe to “The Channel Channel” through [www.ecianow.org/podcasts](http://www.ecianow.org/podcasts). In addition to the podcast series, ECIA hosts webinars on topics from market trends to tariffs to data privacy regulations. Visit [www.ecianow.org](http://www.ecianow.org) for access to a variety of ECIA resources.

## News from India

ELCINA



### Experts discuss FDI investments in India what more needs to be done

In a bid to make India an attractive investment destination, the Indian government had taken a slew of Foreign Direct Investment (FDI) measures. The Centre cleared FDIs in contract manufacturing, single brand retail, insurance and digital media, hoping to increase FDI in the country. But, as per experts there was room for more such announcements. In a bid to discuss the reforms and outline a vision on what more needs to be done, PwC in association with CNBC, held a discussion on FDI Reforms & Tax Incentives, during which experts **R. Abhishek**, former Secretary, Department of Industry Policy & Promotion; **J. Dasgupta**, former DTO Ambassador and **A. Gupta**, Partner & Leader-Regulatory Services, PwC India, spoke about FDI, corporate tax and job creation. Speaking about the favourable corporate climate and how much does India stand to gain, Abhishek said the FDI move will put things in perspective.

“I think the government has been responding to many of these (suggestions), and all these put together actually create a conducive environment climate,” said Abhishek.

(Source: Money Control, January 2020)

### Mahindra outlines its electric mobility roadmap

In the past decade, electric mobility has emerged as a major trend in the automotive industry. Mahindra, a company that has been the bellwether of electric vehicles in India, plans to accelerate its efforts in this field. The company recently outlined its electric mobility roadmap, including its upcoming products and technologies.

Contrary to some of the other OEMs in the industry, the home-grown automaker intends to direct its efforts more towards the fleet segment. Commenting on the company’s strategy, **Dr Pawan Goenka**, managing director, Mahindra & Mahindra, said: “Our focus is on shared mobility and not on personal mobility. And that is the priority that the Government of India has also given because that is how we will get the maximum bang from the buck in terms of the impact on the environment and the impact on oil imports.”

(Source: Auto Car, January 2020)

### Samsung’s premium focus could mean exit for many employees

**Samsung**, one of the biggest consumer electronics companies by sales, appears to have had enough of price wars with its rivals from China. The South Korean major has seen its bottom-line trimmed lately as a fallout of the trans-peninsular rivalry, and is moving away from entry-level smartphones and televisions that have a pronounced Chinese flavour in India. An outcome of this shift in strategy is manpower redeployment, something a company spokesperson described as “realignment of resources”. But three top trade sources said about 600 roles could disappear in sales support functions such as sales planning, market hygiene and order punching at shops, with the core sales team taking over such tasks that are often repetitive in structure.

(Source: ET, January 2020)

# Outlook for the components market The upturn begins on May 17

GEORG STEINBERGER, DMASS & IDEA



“THE COMPONENTS  
MARKET  
WILL TAKE OFF AGAIN,,

In 2019, the European components market was hit by a glitch. Nevertheless, long-term the demand for high-tech components is essentially continuing to grow - though it may look different from what we might expect today. But the next upturn is already just around the corner. Are we ready for it?

Know the feeling? You want to check out facts and figures, take a quick look at the news, and straight away your world-view is shaken. Through the chaos, you see the meta structures of our current homo sapiens world (hmm ...), and you wonder what it could all mean for you, your job and your industry. Let's start by throwing some numbers around: The European components market ended the year with what looks like an undramatic dip. After an overheated 2017, and a more than sound 2018, a projected decline of about 7% in 2019 indicates more of a market, price and inventory correction than a downturn. In any case, better than the 13% drop of the global market (Source: WSTS).

With a decline of around 5% in 2019, distributors are in a rather better position than the market as a whole, even though some manufacturers have been forcing customers to migrate to direct procurement models. After the almost 15% growth in 2017, and a further 8.5% plus in 2018, the 5% dip is certainly not a crisis. More likely, **many customers had placed more orders, over longer periods, up to the end of 2018, and had gradually reduced inventories**, once the shortage had subsided. (Source: DMASS, FBDi et al.)

Another factor is that global data is often misleading. The 13% decline in the semiconductor market worldwide in 2019 was, not least, down to a sharp drop in the price of memory ICs. Many other components were not as badly affected by the oversupply, but then saw demand plummet. By mid-year, semiconductor inventories held by customers and manufacturers were at levels well above historical averages. (Source: Morgan Stanley) As a result, order intake suffered for the rest of the year, cutting the famous book-to-bill rate down to 0.85 at times. The more short-term orders (the so-called turns business) were not included in this, though they have increased significantly in recent months. So much for the numbers!

This is where the story begins (thanks, Walter Moers!). The basic question is where are we currently at? (We'll come to that later.) But there are some far more burning questions: *What impact will Brexit have on us? What is the future for the automotive industry? When will 5G arrive in a big way? What will the USA and China do about their trade dispute? How will the WTO crisis provoked by the USA affect further growth? How will the Coronavirus affect the global supply chain of our industry?... In Germany, when will the political paralysis come to an end and the backlogged innovation and investment finally happen?*

While on the last question we can safely assume that the current German government has no ambitions to create the right incentives soon (that also applies to the 5G question, and the yes/no decision concerning Huawei), the Brexit is in fact going to happen, and there will finally be some certainty (one way or another). In purely psychological terms, the impact appears to be worse in Germany than in the UK - as suggested by the crash in the Production & Manufacturing Index (PMI), polled by IHS Markit among German business leaders from January to October 2019, down to a catastrophic 41.7 points (Armageddon!). In the meantime, it has slightly improved to 45 points (Armageddon Light!) This “German angst” is far removed from the reality of economic trends.



It remains to be seen what will happen in the USA (regarding tariff disputes, impeachment, etc.), and what the effects will be on US consumers, who are widely acknowledged as drivers of global economic growth. But let's quietly hope that some movement - and realism - will be brought to bear soon in those areas too. The \$1,000 cost to every American thanks to import duties should not be without consequences.

Let's take a look at the short-term and long-term trends.

## SHORT-TERM

In the purely economic context - that is, in terms of how customers and individual technology markets are doing (forgetting the whole doom-and-gloom mentality) - the mood is still one of "wait and see", based on a mix of over-cautiousness and weakness in specific segments. But whether in engineering or industrial automation, **digitalization is advancing rapidly** - coming rather sooner for some, a little later for others. That trend demands lots of innovative hardware and - even more so - software and platform solutions, along with well-conceived use cases (according to many industry experts, from Gartner to McKinsey, many IoT projects are failing due to imprecise definition of use cases and underestimating the complexity of digitalization). It is only a matter of time as to when and where the critical mass for the next growth spurt will be attained. There might be empty warehouses, but there are plenty of ideas. All it will take is a small trigger, and the components market will take off again (and with it our small distribution business). Or stop in its shoes, when a virus hits the industry. It is all but clear what impact the virus outbreak in China and the spread to other countries will have on our industry. Currently, we see the mix of indifference, panic and zero information at a detail level, which makes any prediction irrelevant.

## LONG-TERM

The throw-away society, with its many reprobate trends - including smartphones and fossil fuel powered transport - is on the brink of collapse. We are still a long way away from a **functioning circular economy, with sustainable products and production methods**, but in the next ten years the course will be set (or else...), and that will entail massive changes in technology, and above all in the use of technology. This transition period may be longer in some countries than others (those who complain of overly stringent environmental standards have just not yet grasped what is coming), but once it has started, we will find new fields of application for technologies across the board - provided that raw materials do not run out by then. It might not be the automotive industry and smartphone manufacturers who then set the tone. And maybe not the internet giants we know today - who make their money more or less with online trash (and quite a lot of real trash).

## VERY LONG-TERM

Ultimately, the future will be about the real (excessive) needs of people (not the ones sold to them): **health** (which also includes the **environment and clean energy**); **security** (not surveillance); **communication/information** (not fake news); and meaningful **quality of life**. Which technology products will be able to offer all that, individually or in combination? And sustainably? Few today, but



more and more in the future. Because without a radical commitment to proven necessity and value a global society that has to protect itself from itself will end up producing nothing.

That might sound very long-term, and utopian, but already today international banks are setting up multi-billion dollar **"Circular Economy and Innovation"** funds, and more will follow. 10 billion people, living meaningful lives at virtually one and the same level, using technology in a sensible way, sounds like a gigantic market (100 dollar chips per person and we're already at \$1 trillion), and will doubtless need some technological quantum leaps. Artificial intelligence, robotics, Big Data are likely just the beginning (correctly used, which from a current perspective appears pretty dubious).

## "2020 WILL BE A YEAR OF UPTURN OR MAYBE THE BEGINNING OF A NEW TECHNOLOGICAL ERA,"

## IN CONCLUSION

2019 was a year full of real and perceived uncertainties - and doubtless not the last of its kind. I believe **2020 will be a year of upturn (coronavirus or not)**, and perhaps **the beginning of a new technological era**, entailing nothing more and nothing less than a radical shift away from waste, and a commitment to sustainable innovation worthy of the name.

When will the upturn come in our sectors? In macro-economic terms, the first quarter of 2020 will still be dominated by uncertainty (and caution), and also suffer by comparison to the record sales levels (at least) of first quarter 2019 - so will see no major growth. But then the stage is set: Get over with Easter, get over with Brexit, get the tariff dispute settled, get beyond the April weather, get over the virus panic - and the April PMI will be back up to 50. May 17, 2020 is looking like the Sunday when everyone will say: "Ok now..."

*(If you were wondering about, irritated by, or indeed enjoyed the many parentheses in this text, it's because I affect a slightly adapted style of "Yarnspinnerish Digression"..... Walter Moers: "Ensel und Krete", novel published in 2000.)*

# Q4 2019 European Component Distribution declines again but hopeful shoots appear

AUBREY DUNFORD, IDEA



The global economic slowdown continues to affect the sales of Electronic Components through Distribution in Europe as the decline of billings continued into the last quarter of 2019, and brought total sales for 2019 to be virtually the same as in 2018.

With the global economy continuing to slow in the last quarter of 2019, the European Electronic Components Distribution Market declined as shown by the Q4 2019 European Electronic Components Statistics.

Billings measured across Europe in Q4 2019 were 12.7% lower than in the same quarter of 2018. In all countries the seasonal pattern is for the fourth quarter of the year to be lower than the third quarter and in 2019 overall the billings for Q4 have been 10% lower than in Q3. However, taking 2019 as a whole sales were 0.9% lower than the whole of 2018 – in other words 2019 has been a flat year. On the more positive side there are signs that the decline in the market is slowing. Although bookings are 16% lower in the last quarter of 2019 than in the last quarter of 2018, the bookings are only 1.3% lower in the last quarter compared to the third quarter.

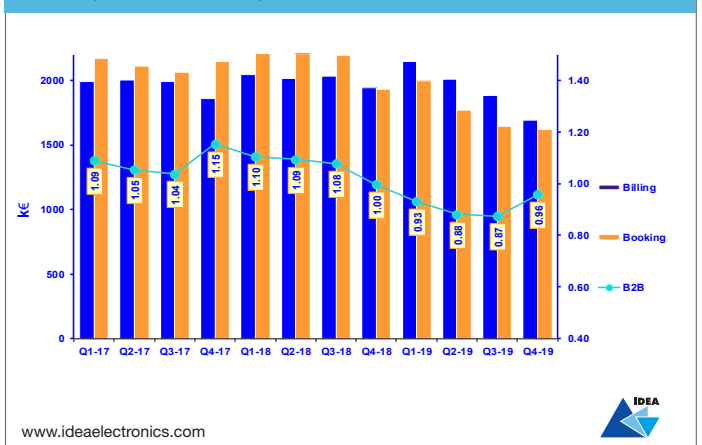
Another sign can be seen in *Graphic T1*. The book:bill ratio having been falling for 8 successive quarters improved in the last quarter of 2019 – although still below unity indicating that there will be

further decline in the market at the start of 2020, the increase in the ratio could indicate that the market is starting to turn. With the continued slowing of the global economy the supply/demand has come back into balance and companies have adjusted their stock levels to lower levels and are starting to place orders more in line with demand and hence the improvement in the book:bill ratio. It continues to be difficult to assess how much more adjustment there will be until supply comes back into line with the reduced level of demand and how much further the demand will fall. Sectors such as automotive are clearly continuing to reduce demand.

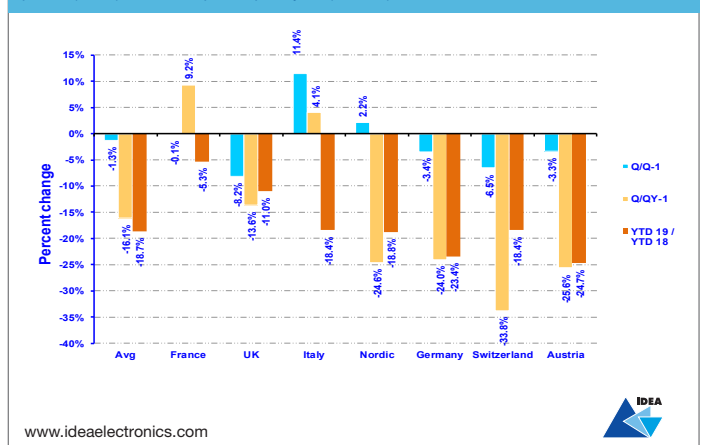
**“IN 2019 SALES WERE 0.9% LOWER THAN 2018,,**

The outlook for the first half of 2020 is therefore for the decline in the European Market to continue. Although it might be that trade tensions appear to be easing, global trade is still slowing, and

**4TH QTR. 2019 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



**4TH QTR. 2019 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





the effects of the measures being taken in China to prevent the spread of the **Coronavirus** are unknown but will not be positive. We therefore expect that the first half of 2020 will continue to be difficult and any market growth is unlikely to be seen before the second half. 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.

## THE ECONOMIC OUTLOOK - TENTATIVE STABILIZATION, SLUGGISH RECOVERY?

According to the International Monetary Fund's World Economic Outlook published in January 2020, *"Global growth is projected to rise from an estimated 2.9 percent in 2019 to 3.3 percent in 2020 and 3.4 percent for 2021 - a downward revision of 0.1 percentage point for 2019 and 2020 and 0.2 for 2021 compared to those in the October 2019 report. The downward revision primarily reflects negative surprises to economic activity in a few emerging market economies, notably India, which led to a reassessment of growth prospects over the next two years. In a few cases, this reassessment also reflects the impact of increased social unrest. On the positive side, market sentiment has been boosted by tentative signs that manufacturing activity and global trade are bottoming out, a broad-based shift toward accommodative monetary policy, intermittent favourable news on US-China trade negotiations, and diminished fears of a no-deal Brexit, leading to some retreat from the risk-off environment that had set in at the time of the October report. However, few signs of turning points are yet visible in global macroeconomic data."*

## "GROWTH IN THE EUROZONE HAS ALMOST FIZZLED OUT IN THE LAST QUARTER,"

*While the baseline growth projection is weaker, developments since the fall of 2019 point to a set of risks to global activity that is less tilted to the downside compared to the October 2019 report. These early signs of stabilization could persist and eventually reinforce the link between still-resilient consumer spending and improved business spending. Additional support could come from fading idiosyncratic drags in key emerging markets coupled with the effects of monetary easing. Downside risks, however, remain prominent, including rising geopolitical tensions, notably between the United States and Iran, intensifying social unrest, further worsening of relations between the United States and its trading partners, and deepening economic frictions between other countries. A materialization of these risks could lead to rapidly deteriorating sentiment, causing global growth to fall below the projected baseline."*

**China's GDP grew 6.0%** on-year in the fourth quarter of 2019, according to the National Bureau of Statistics.

In the third quarter of 2019, GDP growth in the world's second largest economy was 6% - the slowest pace since the first quarter of 1992, according to Reuters records. The data came after President Donald Trump signed a partial trade deal with China after a prolonged trade fight between the U.S. and China for almost two years.

Other Chinese economic data released alongside the GDP numbers showed growth in industrial output and retail sales for the month of December. Analysts read the data from Beijing positively, although there was still some caution about the partial trade deal with the U.S. *"The uncertainties faced by corporates are diminishing along with the progress in US-China trade negotiation since December,"* said Chaoping Zhu, global market strategist at JP Morgan Asset Management.

## "FOR EUROPE AS A WHOLE THE COMPONENT MARKET HAS DECLINED BY 12.7%,"

Japan's GDP shrank an annualized 6.3 percent in the fourth quarter of 2019, following a downwardly revised 0.5 percent growth in the previous period and much worse than market forecasts of a 3.7 percent fall. It was the sharpest contraction since the second quarter of 2014, led by falls in consumer and business spending on the back of a sales tax hike, a destructive typhoon and subdued global demand.

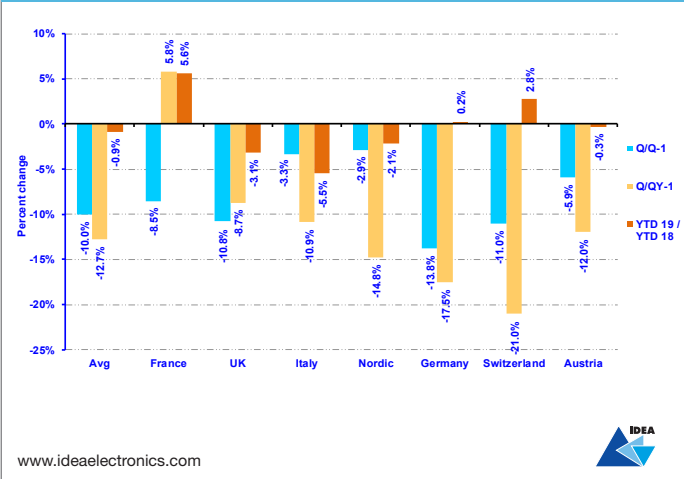
The U.S. economy grew 2.1% in the fourth quarter, closing out a year in which gross domestic product decelerated to its slowest pace in three years amid a continuing drag in business investment. The GDP increase matched the third quarter and met expectations of economists surveyed by Dow Jones. For the full year, the economy grew 2.3%, below the 2.9% increase from 2018 and the 2.4% gain in 2017, according to the initial estimate released by the US Commerce Department. The move in 2019 was well below the White House's projections following the 2017 tax bill that cut corporate and individual rates. The administration has said the stimulus would lead to GDP increases of at least 3%, but that hasn't happened yet.

Growth in the eurozone has almost fizzled out in the last quarter, hit by weak internal demand and a slowing global economy. **Eurozone GDP only expanded by 0.1%** in October-December, down from 0.3% in the third quarter. This is the weakest performance since 2013 and raises the prospect that some countries will fall into recession. France was disappointed, with GDP falling by 0.1% in Q4. Finance minister Bruno Le Maire blamed the protests that have hurt its economy in recent months. Italy also declined by 0.3%. But Spain outperformed its neighbours, growing by 0.5%. Economists have warned that the eurozone could struggle this year, having been wounded by trade conflicts in recent quarters.

4TH 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



European Union statistics office Eurostat, the statistical office of the European Union said that seasonally adjusted GDP rose by 0.1% in both the euro area (EA19) and the EU28 during the fourth quarter of 2019, compared with the previous quarter. Compared with the same quarter of the previous year, seasonally adjusted GDP rose by 1.0% in the euro area and by 1.1% in the EU28 in the fourth quarter of 2019, after +1.2% and +1.4% respectively in the previous quarter. According to a first estimation of annual growth for 2019, based on quarterly data, GDP grew by 1.2% in the euro area and 1.4% in the EU28.

Looking at the data from the Q4 2019 European Electronic Components Statistics we can see:

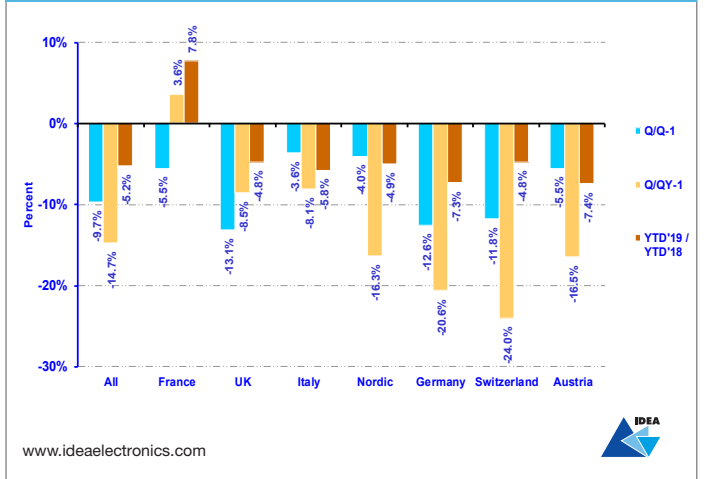
MARKET DECLINE CONTINUES

As can be seen in *Graphic T3* there has been decline in billings (sales) Q4 2019 over Q4 2018 in all countries except France that means that for Europe as a whole the market has declined by

4TH 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



12.7%. Europe's largest market, Germany, declined by 17.5%. The figures shown in *Graphic T2* show that bookings in Q4 2019 were overall 16.1% lower than Q4 2018, compared to a decline of 25% in Q3. Overall bookings were -18.7% lower in 2019 than they were in 2018. There was the same picture in all countries. The largest decline in bookings was in Switzerland 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.

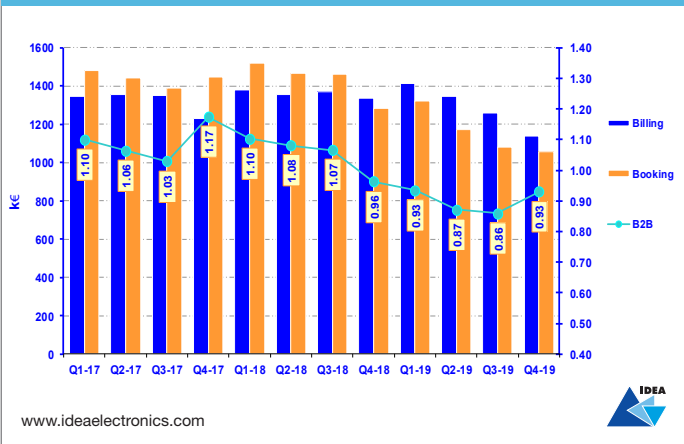
Semiconductors

The book:bill ratio for semiconductors as shown in *Graphic S1* shows the same pattern as for the total components with 7 quarters with the ratio declining but then increasing in the fourth

4TH QTR. 2019 SEMICONDUCTOR BOOKINGS, BILLINGS & BOOK:BILL RATIO

Graphic S1

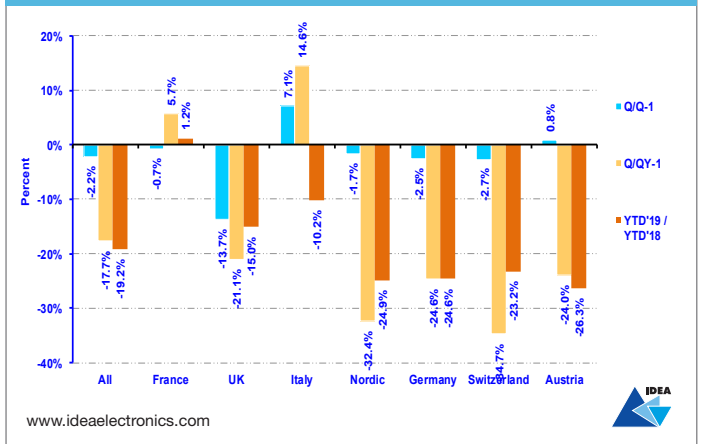
Semiconductor components bookings, billings & book:bill ratio for Germany, France, Italy, UK, Sweden, Norway, Denmark, Finland, Switzerland and Austria



4TH QTR. 2019 SEMICONDUCTOR BOOKING TREND

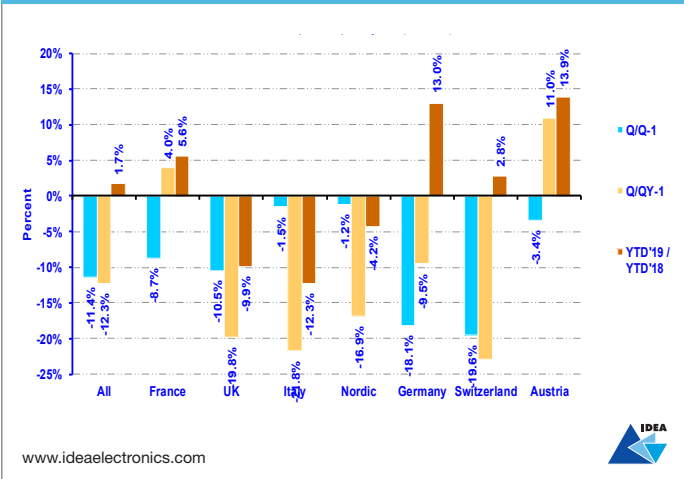
Graphic S2

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



**4TH QTR. 2019 PASSIVE COMPONENTS BILLINGS TREND**  
 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)

Graphic P3



quarter of 2019 but still being less than unity. This picture within the semiconductor market in Europe continues to be consistent with figures from other sources showing the slowdown in the global market but suggests that an upturn is about to happen. As can be seen in *Graphic S3* Billings in Q4 2019 were 9.7% lower than in Q3 2019 but 14.7% down compared with Q4 2018. The steepest decline was in the UK at -13.1%, although compared to Q4 2018 the biggest decline was in Switzerland at -24.0%. Overall the market for semiconductors was just under 5.2% lower in 2019 than 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 having been positive for nine consecutive quarters, dropped to 0.86 and 0.85 in the first three quarters of 2019 but then rebounded nearly to unity in the last quarter. As can be seen from *Graphic P3* there continues to be some growth in this sector. Overall sales in Q4 2019 are 11.4% lower than in Q3 2019 and 12.3% lower compared to Q4 2018 but 1.7% higher for the whole of 2019 are compared to 2018. On this measure there was growth in some countries, most notably in Germany and Austria but with large declines in Italy and the UK and flat in Nordic.

As *Graphic P2* shows in this quarter there has been a stronger performance in bookings hence the rise in the book:bill ratio. Bookings overall in Q4 2019 were 1.7% higher than in the third quarter of 2019 but 19.1% lower than the last quarter of 2018. This picture was fairly consistent across all countries. Overall bookings were 22% lower in 2019 than 2018.

**E-Mech and Other Components**

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

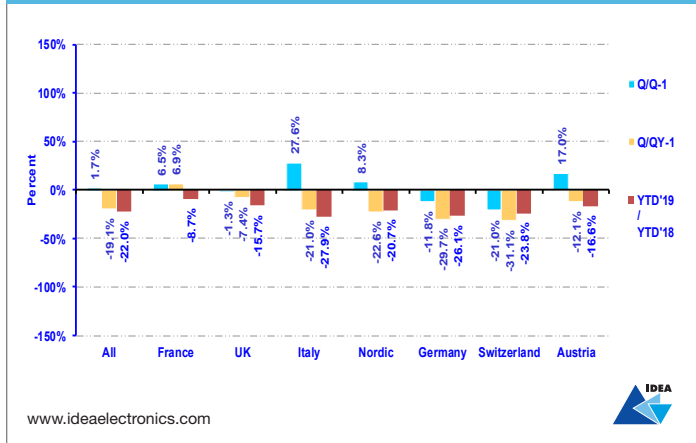
in the first quarter of 2019 the ratio was only just below unity at 0.97 and dropping to 0.94 for both the second and third quarters and then has gone back past unity to 1.04 in the last quarter indicating the much more stable nature of this sector compared to semiconductors.

**“IN E-MECH THE BOOK:BILL RATIO HAS INCREASED PAST UNITY,,**

Overall there was a decline of 10.1% in billings in the last quarter of 2019 over the third quarter with all countries showing decline. When compared to Q4 2018, billings declined by 5.5% and in 2019 billings were 2.2% lower than 2018. Bookings decreased overall by less than one percent compared to Q3 2019 and declined by 9% compared to Q4 2018. For 2019 bookings were 11.6% lower than 2018.

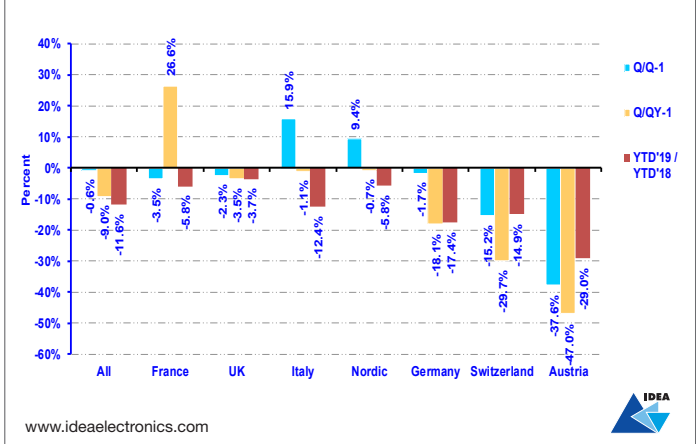
**4TH QTR. 2019 PASSIVE COMPONENTS BOOKING TREND**  
 Distribution orders for passive components by country comparing Q2 2017 with the prior quarter (Q/Q-1) and the same quarter prior year (Q/QY-1)

Graphic P2



**4TH QTR. 2019 EMECH COMPONENTS BOOKING TREND**  
 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)

Graphic E2



# The Italian industry of Power electronics

FRANCO MUSIARI, ASSODEL

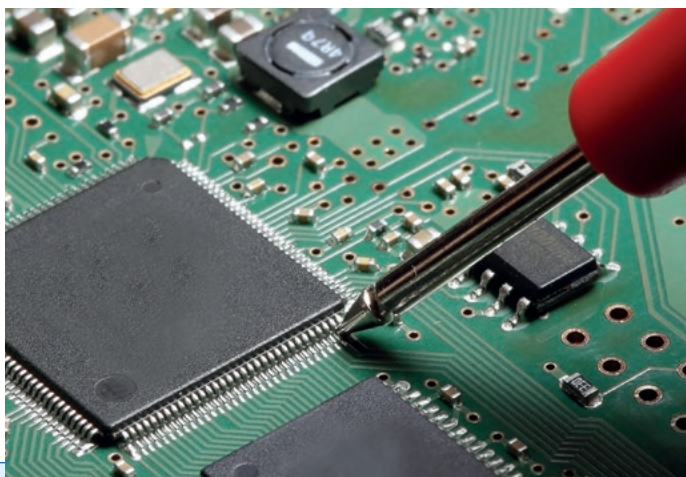


At its 17<sup>th</sup> edition, the **Fortronic Power**, the electronics congress promoted by **Assodel** (*the Italian Association of Electronics Clusters*) and by **Consorzio Tecno**, returns to Bologna.

Scheduled on June 16, the event is a technological day of networking and study addressed to designers and technicians. The event will be marked by a series of contents and technical updates, designed to meet the needs of the power electronics market.

“VISITORS ATTENDING THE EVENT WILL HAVE A COMPLETE OVERVIEW OF THE BEST MARKET SOLUTIONS ,”

Thanks to a focused exhibition area, conferences, workshops, a training lab and special demo areas, visitors attending the event will have a complete overview of the best market solutions and will be able to better understand the technologies to support their innovative projects.

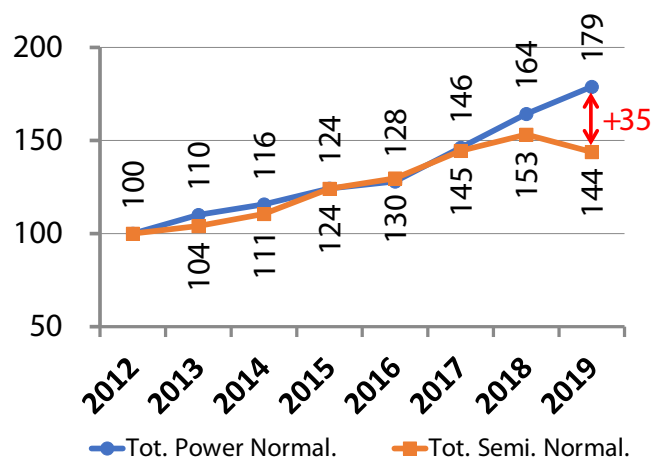


The **power electronics market** is one of the most interesting both at an international level (*with a growth of +7% per year*) and at an Italian level, where there is a very dynamic market.

According to Assodel, if the Italian DTAM is around **866 million euros**, power devices represent the **15.4%** of this total which means over **133 million**.

TOTAL SEMICONDUCTORS VS POWER SEMICONDUCTORS

Figure 1



Among the topics:

- Inverter & driver
- Power supplies
- Energy storage
- Batteries and battery management system
- Wireless charging
- Digital power
- IGBT, SJ-Mosfet and power modules
- New technologies SiC and GaN
- Packaging for high power
- Electromagnetic compatibility
- Connectors and magnetic components
- Power Management IC
- Thermal management devices
- Supercap
- Motor control
- Software and instrumentation
- Control unit & algorithms

More info on <https://fortronic.it/>

# How's Business? OEM

RON BISHOP, BISHOP & ASS.



**Bishop & Associates** tracks quarterly sales and profits for 13 market sectors and more than 120 companies. The objectives are to determine how these selected markets have performed, identify sales and profit trends for forecasting purposes, and monitor company performance within market sectors.

The following tables provides the percent change in sales for 2017/2018 and for the first nine months of 2018 versus the first nine months of 2019 by market.

## GLOBAL SALES TREND BY MARKET

Table 1

Market Sector	2017/2018 % Change	Nine Months 2018	Nine Months 2019	Percent Change
Telecom/Datacom	1.8%	\$285,539.2	\$289,098.8	-5.8%
Automotive	5.3%	\$1,208,891.8	\$1,188,130.9	-1.7%
Industrial	7.1%	\$327,814.8	\$319,921.2	-2.4%
Mil/Aero	8.4%	\$245,936.3	\$264,956.0	7.7%
Computers	5.7%	\$276,563.5	\$276,727.2	0.1%
Peripherals	-0.5%	\$59,386.2	\$51,478.8	-13.3%
Consumer	3.7%	\$257,659.5	\$258,570.8	0.4%
Transportation	5.2%	\$269,416.0	\$263,303.1	-2.3%
Medical	9.2%	\$75,783.5	\$77,595.3	2.4%
Instrumentation	12.9%	\$32,462.8	\$33,793.1	4.1%
Semiconductors	17.1%	\$234,437.7	\$192,526.7	-17.9%
CEMs	7.9%	\$52,509.2	\$54,260.7	3.3%
Distribution	7.9%	\$50,201.2	\$47,887.1	-4.6%

\$ Millions

Source: Bishop & Associates

Less than half (6) of the 13 market sectors **Bishop** tracks had year-over-year sales growth during the first nine months of 2019. Mil/Aero experienced the highest growth rate at 7.7%, followed by Instrumentation at 4.1%.

Two markets experienced double-digit declines in sales, with Semiconductors contracting -17.9%, and Peripherals declining -13.3%.

## “MILITARY/AERO EXPERIENCED THE HIGHEST GROWTH RATE AT 7.7%”

Semiconductors are performing poorly in 2019. Micro Technology's sales decline resulted from a worse than expected pricing trend in DRAM and NAND. Xilinx's growth was driven primarily by the communication's operating unit with 5G wireless. Samsung's sales were negatively impacted by the drop in memory chip prices.

Nine market sectors had a sequential sales increase in 3Q19 led by Telecom/Datacom with a quarter-over-quarter sales increase of 10.8%, followed by Transportation with an increase in quarterly sales of 6.3% over the same period in 2018.

**Industrial, Mil/Aero, Computer, Consumer and Instrumentation** were the five markets to have a YOY increase in net income for the first nine months of 2019 versus prior year. The following sections review a few of these market sectors in detail.

## AUTOMOTIVE EQUIPMENT SECTOR

The automotive equipment sector recorded a sales increase of 5.3% in 2018. Sales for the first nine months 2019 versus the first nine months 2018 were down 1.7% year-over-year. Net income as a percent of sales totaled 4.0% for the period, down 27.1% year-over-year.

Tesla's sales increase resulted from increased production of the Model 3. Overall demand for vehicles declined worldwide, particularly in China. With a strong finish in December, Europe's sales were up 1.2% for the year.

## AUTOMOTIVE EQUIPMENT: SALES & NET INCOME

Table 2

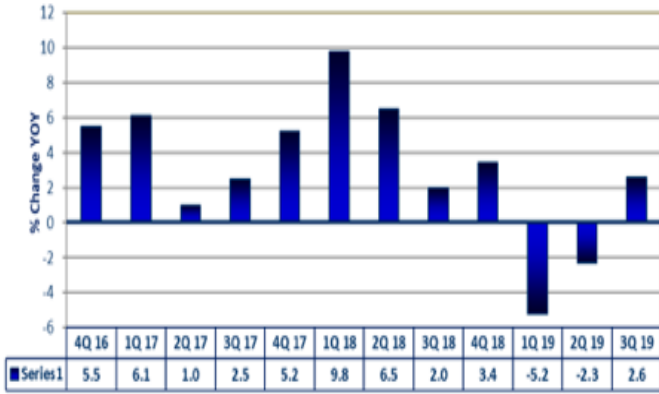
Company	2017/2018 % Change	Nine Months 2018	Nine Months 2019	Percent Change
Borg Warner Auto	7.5%	\$7,958.0	\$7,612.0	-4.3%
Daimler	3.1%	\$80,400.2	\$77,542.0	-3.6%
Ford Motor Co.	2.3%	\$118,545.0	\$116,185.0	-2.0%
General Motors	1.0%	\$108,650.0	\$106,411.0	-2.1%
Lear Corp.	3.3%	\$16,206.7	\$14,994.1	-7.5%
Honda	5.9%	\$107,508.5	\$107,882.9	0.3%
Toyota	5.1%	\$203,111.0	\$211,144.4	4.0%
Volkswagon	7.4%	\$208,708.2	\$209,782.1	0.5%
Kia Motors	4.9%	\$37,317.7	\$36,150.8	-3.1%
Nissan	2.5%	\$81,778.1	\$73,307.5	-10.4%
Fiat	5.7%	\$98,304.7	\$88,268.1	-10.2%
BMW AG	5.8%	\$86,517.9	\$84,092.6	-2.8%
Tesla Auto	82.5%	\$14,235.8	\$17,194.5	20.8%
Continental AG	6.0%	\$39,650.1	\$37,564.2	-5.3%
<b>Total Sales</b>	<b>5.3%</b>	<b>\$1,208,891.8</b>	<b>\$1,188,130.9</b>	<b>-1.7%</b>
<b>Total Net Income</b>		<b>\$65,445.4</b>	<b>\$47,712.1</b>	<b>-27.1%</b>

\$ Millions

Source: Bishop & Associates

**AUTOMOTIVE: YEAR-OVER-YEAR  
% CHANGE IN SALES BY QUARTER**

Chart 1



Source: Bishop & Associates

Quarter-to-quarter (3Q19 versus 2Q19) sales decreased 0.1%. Year-over-year, sales increased 2.6% in the third quarter.

**MILITARY/AEROSPACE: YEAR-OVER-YEAR  
% CHANGE IN SALES BY QUARTER**

Chart 2



Source: Bishop & Associates

and 13 points of acquisition benefit offset by 1 point of foreign exchange headwind.

Quarter-to-quarter (3Q19 versus 2Q19) sales increased 1.4%. Year-over-year, sales increased 7.0% in 3Q19.

**MILITARY/AEROSPACE EQUIPMENT SECTOR**

The military/aerospace equipment sector recorded a sales increase of 8.4% in 2018. Year-over-year, sales for the first nine months 2019 versus the first nine months 2018 was up 7.7%. Net income as a percent of sales totaled 9.8% for 3Q19 and was up 4.0% year-over-year.

**MEDICAL EQUIPMENT SECTOR**

The medical equipment sector recorded a sales increase of 9.2% in 2018. Sales for the first nine months 2019 versus the first nine months 2018 were up 2.4% year-over-year. Net income as a percent of sales totaled 10.9% for 3Q19 and was down 4.8% year-over-year.

**MIL/AERO EQUIPMENT: SALES & NET INCOME**

Table 3

Company	2017/2018 % Change	Nine Months 2018	Nine Months 2019	Percent Change
Boeing (Mil/Aero)	17.2%	\$18,310.0	\$20,265.0	10.7%
Airbus (Mil/Aero)	-0.1%	\$12,808.0	\$12,516.6	-0.7%
General Dynamics	18.9%	\$25,815.0	\$28,577.0	10.7%
Honeywell	3.1%	\$32,073.0	\$27,211.0	-15.2%
Lockheed Martin	5.3%	\$39,351.0	\$43,934.0	11.6%
Northrop Grumman	16.6%	\$21,939.0	\$25,120.0	14.5%
Raytheon	6.7%	\$19,698.0	\$21,334.0	8.3%
Textron	-1.6%	\$10,222.0	\$9,595.0	-6.1%
United Technologies	11.2%	\$48,459.0	\$57,535.0	18.7%
L-3 Communications	-0.5%	\$7,785.0	\$8,602.0	10.5%
Finmeccanica	7.6%	\$9,676.3	\$10,266.5	6.1%
<b>Total Sales</b>	<b>8.4%</b>	<b>\$245,936.3</b>	<b>\$264,956.0</b>	<b>7.7%</b>
<b>Total Net Income</b>		<b>\$24,869.9</b>	<b>\$25,863.2</b>	<b>4.0%</b>

\$ Millions

Source: Bishop & Associates

Honeywell's sales decline is attributed to the spin-offs of their Transportation Systems business and their Homes/ADI Global Distribution business. Northrop Grumman's sales increased \$1.3 billion primarily due to the addition of a full quarter of Innovation Systems sales as well as higher sales at Mission Systems and Aerospace Systems.

United Technologies' sales of \$19.6 billion were up 18 percent over the prior year, including 6 points of organic sales growth

**“SALES IN  
THE MEDICAL SECTOR  
HAVE GROWN MODESTLY”**

Medical sales have grown modestly in 2019. Sales have been limited by budget constraints in Europe's socialized healthcare systems and by reductions in Medicare payments in the US

**MIL/AERO EQUIPMENT: SALES & NET INCOME**

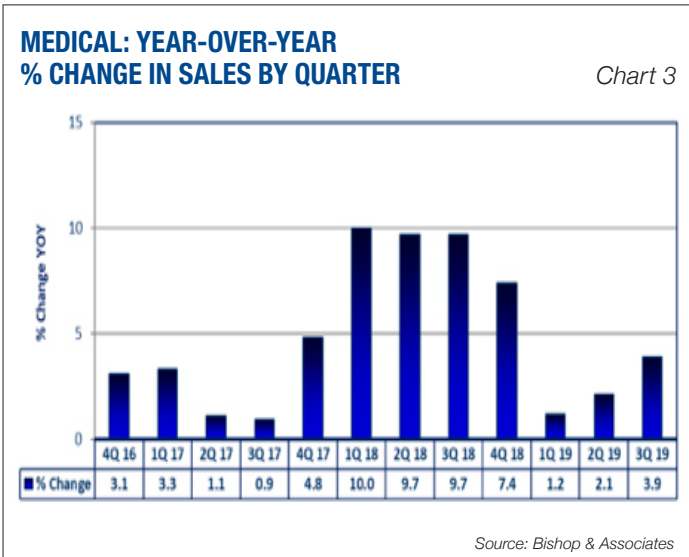
Table 4

Company	2017/2018 % Change	Nine Months 2018	Nine Months 2019	Percent Change
Becton Dickinson	39.3%	\$12,902.0	\$13,129.0	1.8%
Boston Scientific	8.6%	\$7,262.0	\$7,831.0	7.8%
Medtronic	2.8%	\$23,009.0	\$23,345.0	1.5%
Owens & Minor	5.5%	\$7,296.0	\$7,344.4	0.7%
Quest Diagnostics	-2.3%	\$5,692.0	\$5,800.0	1.8%
Baxter	5.4%	\$8,286.0	\$8,323.0	0.4%
Danaher	8.4%	\$11,336.5	\$11,822.9	4.3%
<b>Total Sales</b>	<b>9.2%</b>	<b>\$75,783.5</b>	<b>\$77,595.3</b>	<b>2.4%</b>
<b>Total Net Income</b>		<b>\$8,849.2</b>	<b>\$8,421.8</b>	<b>-4.8%</b>

\$ Millions

Source: Bishop & Associates

healthcare system for many diagnostic treatments, resulting in less equipment purchases. Quarter-to-quarter (3Q19 versus 2Q19) sales increased 1.4%. Year-over-year, sales increased 3.9% in 3Q19.



After reviewing these 13 sectors for full-year 2019, Bishop forecasts that seven market sectors will have declining sales year-over-year, and six market sectors will have increasing, or flat sales, from the prior year. Semiconductors, which Bishop has historically found to be a leading indicator for the connector industry, will likely be down 16% to 19% for full-year 2019 versus full-year 2018.

## “IN 2019, CONNECTOR INDUSTRY SALES WERE DOWN 3.8%”

Full-year connector industry sales for 2019 are currently projected to be down 3.8%. We will have a final take on the results in February.



**IDEA NEWSLETTER**  
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**EDITOR IN CHIEF: Aubrey Dunford**

EDITORS: Silvio Baronchelli (Italy); Ron Bishop (USA); Andrea Falke (Germany);  
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## News from India

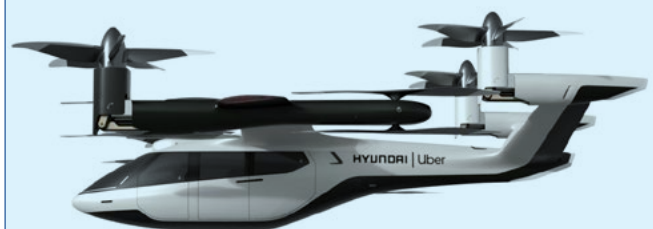
ELCINA

### Indian firms seek line of credit for telecom carriers to procure locally-made gear

The domestic telecom equipment makers and suppliers have urged the Government to allow line of credit or soft loan to incumbent telecom operators that could encourage them to purchase locally-made network products. “There is a need to allow a domestic line of credit to telecom service providers so that electronics in networks up to 75% should be purchased within India,” **Sandeep Agarwal**, Chairman— Telecom Committee of the PHD Chamber of Commerce and Industry (PHDCCI) told ETT. Early this week, the representatives of the domestic trade groups such as Telecom Equipment Promotion Council (TEPC), Telecom Equipment Manufacturers’ Association (TEMA) besides the PHD Chamber submitted the proposal to the Department of Telecommunications (DoT) to press their demand. “Foreign countries provide a line of credit to their manufacturers for supply of telecom equipment to India on liberal terms. Indian manufacturers find it difficult to counter this and that only promoted imports by operators, a Delhi-based group told DoT officials. “A domestic line of credit should be allowed by the Finance Ministry.

(ET, Jan 10, 2020)

### Hyundai, Uber join hands to develop electric air taxis



South Korean automobile manufacturer **Hyundai Motor Company** today entered into a partnership with US ride-hailing giant **Uber** to produce electric air taxis. Hyundai also unveiled a new full-scale concept PAV (personal air vehicle), developed jointly with Uber, at the ongoing Consumer Electronics Show 2020. Hyundai is the first automotive company to join the Uber Elevate initiative. Under the partnership, Hyundai will produce and deploy the air vehicles and Uber will provide airspace support services, connections to ground transportation and customer interfaces through an aerial rideshare network. The two entities are also collaborating on infrastructure concepts to support their take-off and landing.

The concept PAV -- S-A1 -- is an eVTOL (electric vertical take-off and landing) aircraft designed for aerial ridesharing purposes. The S-A1 will seat five people, including the pilot, and have a cruising speed of 290 kmph, with a flying trip up to 100 km. The cruising altitude of the air vehicle will be around 1,000-2,000 feet above the ground. Being a completely electric air vehicle, the S-A1 will utilise distributed electric propulsion, powering multiple rotors and propellers around the airframe to increase safety by decreasing any single point of failure.

(Source: India Today - January 2020)

# Why are we falling short?

ERICH NAST, AREI 

**South Africa** is recognised as one of the most advanced emerging markets in the world and a powerhouse in Africa. We should thus have a thriving economy, as we are a country with huge potential and expertise. Our tertiary institutes produce world-class engineers and technicians who are leaders in engineering. We have the technical skills, the business skills, the manufacturing skills, but yet as an industry, we seem to be falling short.

We are not falling short because we lack technical expertise or ambition to succeed. We are not falling short because entrepreneurial spirit or creativity is lacking. We are not falling short because there are not markets for South African products.

We are falling short because government places so many obstacles and barriers in our paths. Energy constraints, rampant corruption, inflexible labour laws, crime; the list goes on and on, many problems impeding **economic growth in South Africa**. While other African countries are rolling out the red carpet to foreign investors, South Africa is rolling out the red tape. We as the electronics industry see our manufacturing capacity declining despite government's localisation programmes.

The good news is that the DTI is beginning to realise the importance of the electro-technical sector, and we have been invited to give inputs into the electro-technical sector's profile. Inputs from our members will thus be welcomed.

As we go forward into 2020, the new committee has set itself **three key areas of focus**:



- Engaging more of our membership
- Getting more done to benefit our industry
- Closer collaboration with other industry players

## “AREI FOCUS FOR 2020: ENGAGING MORE MEMBERS AND GETTING MORE DONE FOR THE INDUSTRY”

If we are focussed on getting more done to benefit our industry, we need to start with getting to know our members better. We need to understand what you, our members, expect from the AREI committee and how we can add value to the electronic industry.

**Market statistics** is one area we have already made much progress; however we want to get a higher level of confidence in these statistics, and the easiest way of achieving this is by having more members submit their figures. The data is submitted by you to an independent organisation, Data Dynamics, in the UK, so total confidentiality is guaranteed.

**Training** is another important focus area we have identified. If our industry is to keep growing it is important that we ensure school leavers choose a career in electronics. I do believe that our universities and other tertiary institutes are doing an excellent job in training engineers and technicians. We can play a role participating in their open days, possibly even doing short presentations so students are more aware of us as an industry representative.

## “IT’S IMPORTANT THAT WE ENSURE SCHOOL LEAVERS CHOOSE A CAREER IN ELECTRONICS”

What lies ahead in 2020? Yes, there will be new challenges and problems, but there will also be new opportunities. We look forward to working at an international level and ensuring that our industries voice is heard.



# Russian Components Market but hopeful signs for 2020

IVAN POKROVSKY, ASPEC



The **Russian electronic components market declined by 5%** in 2019. The consumption volume was the same as in 2018 but prices went down after the climb in the previous years of product shortages.

The demand in Russia continues to swing around zero. The first half of the year was about minus 9%. It seemed that the market channels were hampered by unnecessary paperwork flows. Usually paperwork grows with number of orders and deals together with monetary value. But sometimes the paper flow grows against the money flow. In Russia, at the beginning of 2019 the government started several national development programs. The **“Digital Economy”** is one of them.

## “MARKET CHANNELS WERE HAMPERED BY UNNECESSARY PAPERWORK FLOWS”

Huge investments remained on the accounts of government and state-owned companies without movements because regulators didn't define the basic terms and rules for digital infrastructure and security, as well as services, products and technologies. The hottest discussion was about how to divide domestic and foreign products and which attributes and papers identify it.

The idea was very simple – to develop the digital infrastructure on secure Russian made products. But the devil is in the details. Can we define a PC assembled in Russia as Russian made and secure? Equipment based on an Intel processor and Windows OS contains embedded remote control which is accessible from abroad. This is not good for government IT-systems. A lot of projects were paused. However, there are not enough resources and skills in Russia to develop whole hardware and software stacks for a lot of different applications to provide complete security of infrastructure, technology independence and resistance to sanctions. Next question: what about all IT systems already installed? Most of them are on WINTEL. What about users and support engineers? Most of them can work only with WINTEL platform. It is impossible to replace all equipment and to teach all users on another platform for several years. So simple ideas don't work in the **“Digital Economy”**. Half a year was spent on understanding it.

There was some recovery to the Russian market in the third and fourth quarters. Some terms and requirements of the **“Digital Economy”** were approved and some projects started. Government and companies step by step clarified the most important tasks and

plans of hardware and software development. At the end of the year the Ministry of trade and industry opened the registry of domestic electronics equipment to direct the demand of state customers and state-owned companies. Earlier they established the registry of domestic software. Domestic electronics equipment is defined now not only by added value, but also required localization of several production processes.

## TOWARDS A NEW GROWTH

The key one is **PCB assembling**. New legal requirements commit a 30% price advantage for domestic electronics equipment in government and state-owned companies purchasing. This should push the development of equipment production, mass demand for components and investments by companies in the industry. Sound good. However, the process of the official registration of domestic products is very difficult. Our association is taking part in the working group for the electronics equipment registry. We are trying to improve the process to make it available for all medium and small companies. I think we will win against the bureaucracy in this field although, it will not be easy. By the end of 2020 we will see who is stronger. Industry growth over 10% will mean that we have done it. I am sure we can get much more if the government decides to set the 20% custom duties for end products and 0% for components. But Russia conforms to the WTO agreement, unfortunately without any economic sense.

The new prime minister can change the trade policy of Russia to be more predictable and pragmatic. **Mikhail Mishustin** was appointed as the head of the Government a month ago in January. Before then he was the head of the Federal Tax Service. Interestingly he is a system engineer by education. He started his career in the non-profit organization, Computer Club, which promoted international cooperation and IT-technology transfer. So, he was very close to our community. When he became the head of Federal Tax Service it was a power agency. Now it is an IT service for taxes and fees. Thanks to an IT-system with an end-to-end control from customs to retail, grey imports have become very risky and very expensive. We saw all distribution channels became clear and transparent in two years. In retail he set requirements for all fiscal terminals to connect to online cloud servers. Several Russian companies have developed fiscal equipment and cloud IT services for processing information. About 3 million online terminals were produced in Russia in two years. This was a good contribution to the Russian electronic components market.

Although his previous position was more administrative, we hope he will keep his pragmatic approach in the political field.