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European Electronic Markets Forecast

Industry Overview – The European Electronic Manufacturing Services (EMS) Industry

2014 was a tough year for most EMS companies with revenues in Western Europe declining by over 3% while an increase of 3.4% in Central and Eastern Europe (CEE) and Middle East/North Africa (MENA) helped the overall European market post growth of 0.5%, according to the latest figures from *Reed Electronics Research*. Although the market is expected to recover, growth is forecast to remain flat in 2015/2016 before gaining some traction in the later part of the forecast period.

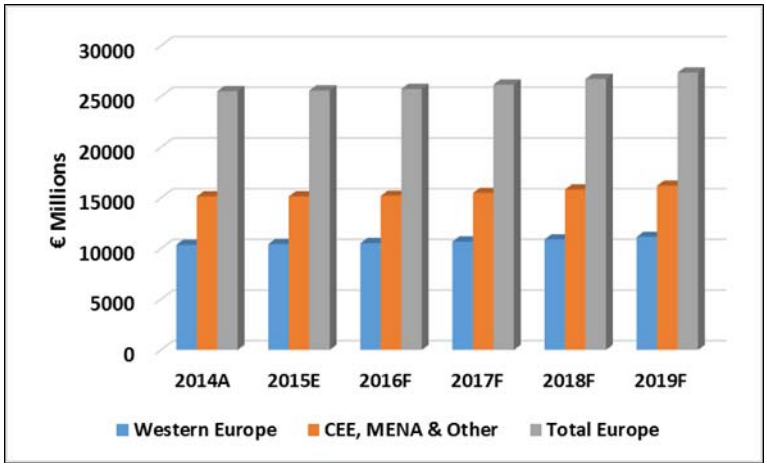

Figure 1 EMS Revenues for Western Europe and CEE/MENA and Other 2014-2019 (Source Reed Electronics Research)

EMS revenues in Western Europe are forecast to reach Euro 11.16 billion in 2019, up from Euro 10.37 million in 2014, with the market increasingly focused on the Aerospace, Defence, Automotive, Medical, Control & Instrumentation, Industrial and Telecom (ADAMCIT) segments of the market.

The transfer of production to manufacturing facilities in CEE/MENA to reduce costs and the increasing demand by OEMs for EMS to offer local manufacturing in key global markets will dampen growth in Western Europe during the period to 2019.

The reverse applies to CEE/MENA where growth will be boosted by the transfer of production from Western Europe and in particular, lower volume high mix products in the ADAMCIT segments. This is expected to be offset in part by the migration of higher volume products in the consumer, computing and communications, or 3C, segment to Asia as the major global EMS companies come under increasing pricing pressure. Assuming that the leading global EMS providers remain committed to retaining a major manufacturing presence in the region revenues are forecast to reach Euro 16.21 billion by 2019, up from Euro 15.15 billion in 2014.

Accounting for 33.6% of the total in 2014 Germany is the largest EMS market in Western Europe and with the country holding a leading position in key sectors such as control and instrumentation, medical and automotive is well positioned to offer EMS companies growth from both existing and new customers. The initial reluctance by German OEMs, especially when compared to other countries, to outsource production is also gradually changing. The need for OEMs to reduce costs to remain competitive is not only expected to lead to an increasing proportion of production to be outsourced but also an increase in the proportion of production transferred from Germany to lower-cost facilities in CEE.

Leading German EMS companies include Zollner, Europe's largest indigenous EMS provider and a major player globally; TQ Group; Leesys; Pretll Elekronik; BMK Group; Periscope; manufacturing, logistics, services; Tonfunk; Katek; RSG-Elcotech; bebro electronic and Turck Duotec. Reflecting the size of the market 11 German companies were in the Top 50 EMS companies in Europe and 24 in the Top 100.

Germany has witnessed a number of major acquisitions as the leading European EMS providers look to establish a manufacturing presence in the country.

- Neways' through the 2014 acquisition of BuS Elektronik is now ranked the fourth largest EMS provider in Germany, the move strengthening the Dutch companies existing operations in the country.

- In 2012, the French company Asteelflash entered the German market through the acquisition of the leading German EMS provider EN Electronic Network.

- In June 2014, the private equity fund 4K Invest acquired from Flex the outstanding share capital of Flextronics International Germany GmbH & Co KG, the company continuing its operations under the new name Periscope GmbH.

Smaller scale acquisitions have included:

- The French EMS company éolane acquired the insolvent Lagassé Communications in Berlin in 2012 and SysCom electronic GmbH, also based in Berlin, in the summer of 2014.

- Fellow French EMS provider LACROIX Electronics purchased PrehTronics in 2008.

- The Norwegian EMS provider Kitron acquired VERU Electronics in early 2010, the company initially acting as a local centre for NPI and small series manufacturing in Germany but today operates as a sales office.

- The Finnish EMS company Scanfil acquired Schaltex Systems GmbH in April 2014.

German EMS companies are facing increasing competition from Austrian and Swiss companies who are looking to exploit similar cultural backgrounds in a broader market covering Germany, Austria and the German speaking parts of Switzerland (DACH). The Swiss-headquartered CCS Holdings acquired the German company Gohlke Elektronik GmbH in February 2012 as part of the company's strategy to expand its position in the DACH region while in 2015 the Austrian EMS cms electronics acquired Hopp Elektronik GmbH & Co KG.

The second largest EMS market in Western Europe in 2014 was the UK accounting for 13.1% of the total and was followed by France with a 12.7% share.

The EMS industry in the UK is highly fragmented with the Top 10 companies accounting for an estimated 28% of EMS revenues in 2014. UK companies are in general small to medium sized with only TT Electronics' Integrated Manufacturing Services division within the Top 50 European EMS providers in 2014. Of the major global players only Jabil retains a manufacturing presence in the country although following the transfer by a key customer of production to another Jabil site globally, revenues have fallen sharply. In the year to August 2014, Jabil's UK operations reported sales of US$27.7 million down from US$202.7 million and US$336.2 million in fiscal 2013 and fiscal 2012, respectively.

The decline in sales at Jabil and the impact, in particular of lower defence spending, has resulted in a declining UK market, a trend which is expected to continue through into 2016 before recovering in 2017.

European companies have looked to enter the UK with mixed results. Asteelflash acquired MRP Electronics in 2008 and in 2014 was the fourth largest EMS provider in the country with sales of £34.1 million. The Swedish EMS provider PartnerTech entered the UK two years earlier through the acquisition of HansaTech a company with three manufacturing operations and sales in the region of £20 million. However, since the purchase the company's operations have been scaled back with the closure of two facilities with the company today only retaining a site in Cambridge which is focused on electronics and specifically fast turnaround prototyping and small series batch production. Fellow Swedish company NOTE acquired Proqual in 2008. The company focuses on prototyping and small series production with volume production transferred to NOTE's industrial plants in Estonia and China.

The French EMS industry is served primarily by domestic companies with the market dominated by a small number of companies. In 2014, the Top 10 companies accounted for and estimated 80% of French EMS revenues. Four French companies are ranked in the Top 20 European EMS providers – éolane, Asteelflash, ALL CIRCUITS and LACROIX Electronics, and eight in the Top 50.

The leading French companies have established low-cost facilities to support their domestic operations, with North Africa the preferred location, and have also looked to expand their presence in Germany and the UK (*see above*). Asteelflash, which was formed through the merger of French company Asteel and the US company Flash Electronics in 2008, has a strong presence globally the combined group having operations in EMEA, North America and China and group revenues of Euro 532 million in 2014, the company the second largest indigenous European EMS provider.

Continued Page 4

Contents

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In the Nordic area, which accounted for 14.8% of the West European EMS market in 2014, the major players have established multiple manufacturing operations across the region. Two significant acquisitions in 2015 have, however changed the competitive landscape. In July, the Finnish company Scanfil acquired the Swedish EMS PartnerTech creating a company with reported revenues in 2014 of Euro 461 million while in November 2015 the Swedish EMS provider Orbit One acquired Flex's manufacturing facility in Ronneby, Sweden. On a reported basis the enlarged Orbit One would have had sales of Euro 123 million in 2014, its operations in Sweden supported by facilities in Poland and Russia.

Excluding the acquisitions made in 2015 the Swiss EMS provider Enics was the largest EMS provider in the Nordic region in 2014 the company having operations in Sweden and Finland supported by low-cost manufacturing in Estonia, Slovakia and China. The Norwegian-headquartered Kitron was second with manufacturing operations in Norway and Sweden and low-cost facilities in Lithuania and China. The company also has an operation in the USA.
The Danish companies GPV Electronics and BB Electronics were both ranked within the Top 50 European companies based on global sales in 2014. However, to offset higher cost domestically both undertake the majority of production at facilities in Asia with GPV located at a new manufacturing site in Thailand and BB Electronics in China.

Southern Europe (Italy, Portugal and Spain) accounted for 8.5% of the market in 2014 and although the two major players were the Italian companies Selcom Elettronica and Elemaster the major global EMS providers have a more significant presence with Flex, Celestica and Jabil within the Top 10 companies in the region in 2014. Flex has since further strengthened its operations in the country following the acquisition of Alcatel-Lucent's manufacturing site in Trieste, Italy in June 2015.

The countries in the Rest of Western Europe are home to a number of major European EMS providers. The Dutch company Neways and the Belgian company the Connect Group hold the dominant position in the Benelux region although both companies have looked to support growth by expanding into new geographical markets and in particular Germany. Both companies also have low cost manufacturing facilities in CEE with the Connect Group recently announcing that it was looking to increase production in the region to offset higher costs in Belgium.

Four Austrian companies are ranked within the Top 50 European EMS providers in 2014 – MELECS ESW, SEIDEL Elektronik, cms electronics and Becom. All four are active in the DACH region and support their domestic operations with low cost manufacturing in CEE.

The leading Swiss companies include Enics, Cicor and CCS Holdings. As highlighted Enics has a broad geographical presence, in particular in the Nordic region and in low cost locations to support its position as a leading EMS in the industrial market.

CCS Holdings acquired fellow Swiss company Adaxys in 2011 and has since expanded into Germany through the acquisition of Gohlke Elektronik in 2012 and into Austria and Slovakia through the merger with the Austrian company AKAtech in 2014. Due to the current currency situation in Switzerland following the cancellation of the minimum euro exchange rate CCS has restructured its Swiss operations.

Cicor has also announced plans to restructure its Swiss operations in 2015 and during the course of 2016 will expand its operations in Romania as a way to lower costs. The company also has low cost operations in Sri Lanka and Asia.

Across Western Europe it is expected that EMS companies will also look to utilise a sales office or sales representative to enter new geographical markets. In doing so, the companies can utilise existing manufacturing facilities to support new business. The Italian company Elemaster is a good example with the company establishing a sales presence in Germany, France, Switzerland, Scandinavia and the United Kingdom.

Although made up of over 1,000 companies, the European EMS industry is dominated by a small number of Global players with the Top 3 – Foxconn, Flextronics and Jabil – accounting for around 44.5% of revenues in 2014, with nearly 90% from plants in CEE focused on the 3C segment.

With the Group 1 global players primarily focused on higher volume manufacturing in CEE competition in the markets for more complex medium to low volume production will be centred on the leading European-owned companies.

Table 1 highlights the Top 20 European-owned EMS providers based on global revenues. As highlighted acquisitions are playing an important role a trend which is expected to continue as the industry consolidates. Recent acquisitions by Scanfil, Neways, éolane and Asteelfalsh have changed the dynamics of the European EMS industry and with the major global players scaling back their activities in Europe these companies along with other European players are expected to increase their overall share of the market moving forwards.

Table 1 The Top 20 European-Owned EMS Provides based on Global Sales 2014

Rank	Company	HQ	2014 Sales Euro Millions
1	Zollner	Germany	925
2	Asteelflash	France	532
3	Scanfil	Finland	461
4	Enics	Switzerland	451
5	Videoton	Hungary	437
6	Neways	Netherlands	370
7	éolane	France	360
8	ALL CIRCUITS	France	270
9	LACROIX Electronics	France	221
10	Kitron	Norway	209
11	Selcom	Italy	209
12	TQ Group	Germany	188
13	Leipzig Electronic Systems	Germany	185
14	TT Electronics	UK	168
15	Prettl Elektronik	Germany	165
16	CCS Holdings	Switzerland	164
17	BMK Group	Germany	155
18	MELECS EWS	Austria	153
19	Elemaster	Italy	152
20	Fideltronik	Poland	145

Source: The European EMS Industry 2014-2019, Reed Electronics Research

The transition of volume manufacturing, initially by OEMs and then EMS, to lower cost countries has been a major trend in the electronics industry. Today, the need to lower costs is also becoming a key factor in the production of more complex lower volume products. Although the percentage of production undertaken in low cost locations various by manufacturer the trend will be for this to increase over the next five years.

Within CEE/MENA there are a number of indigenous EMS providers the most notable Videoton, which in terms of revenue was the fifth largest European-owned and the Polish company Fideltronik ranked 20th. Production is focused at operations located in CEE although Fideltronik has established a site in Sweden through the acquisition of a manufacturing facility from the Swiss company Ascom in early 2011.

A number of companies, both small and large, have closed following bankruptcy. However, the number is relatively small, especially when considering the current market situation of flat growth and increasingly tight margins.

Probably the most notable bankruptcy in recent years was the collapse of Elcoteq in 2011. At its peak the company had revenues of over Euro 4.2 billion in 2006 of which Euro 2.5 billion were in Europe. The German company SRI, ranked 14th largest EMS provider in 2011, filed for insolvency in 2012 and is now majority owned by the German TQ Group. In November 2015 Periscope, which was the former Flex facility in Paderborn, filed for insolvency in self-administration, the company citing the loss of two customers as well as the high operating costs of manufacturing in Germany as the main reasons.

The following article has been extracted from Reed Electronics Research's annual survey of the European EMS Industry. The comprehensive report provides an in-depth analysis of the market including revenue projections by country and market sector through to 2019; rankings and profiles of the Top 20 European EMS providers; rankings of the Top 50 European EMS providers and the Top 50 European companied based on global revenues; an overview of the market by country/region including rankings and profiles of the leading EMS providers and a directory of around 1,300 manufacturing facilities. For further information please contact andrew.fletcher@rer.co.uk or telephone +44 1235 227310.

6.4 Billion connected "Things" will be in use in 2016

Gartner forecasts that 6.4 billion connected things will be in use worldwide in 2016, up 30% from 2015, and will reach 20.8 billion by 2020. In 2016, 5.5 million new things will get connected every day.

Gartner estimates that the Internet of Things (IoT) will support total services spending of US$235 billion in 2016, up 22% from 2015. Services are dominated by the professional category (in which businesses contract with external providers in order to design, install and operate IoT systems), however connectivity services (through communications service providers) and consumer services will grow at a faster pace.

IoT services are the real driver of value in IoT, and increasing attention is being focused on new services by end-user organisations and vendors.

Enterprises to Bolster IoT Revenue

Aside from connected cars, consumer uses will continue to account for the greatest number of connected things, while enterprise will account for the largest spending. Gartner estimates that 4 billion connected things will be in use in the consumer sector in 2016, and will reach 13.5 billion in 2020 (see Table 1).

Table 1: Internet of Things Units Installed Base by Category (Millions of Units)

Category	2014	2015	2016	2020
Consumer	2,277	3,023	4,024	13,509
Business: Cross-Industry	632	815	1,092	4,408
Business: Vertical-Specific	898	1,065	1,276	2,880
Grand Total	3,807	4,902	6,392	20,797

Source: Gartner (November 2015)

In terms of hardware spending, consumer applications will amount to US$546 billion in 2016, while the use of connected things in the enterprise will drive US$868 billion in 2016 (see Table 2).

Table 2: Internet of Things Endpoint Spending by Category (Billions of Dollars)

Category	2014	2015	2016	2020
Consumer	257	416	546	1,534
Business: Cross-Industry	115	155	201	566
Business: Vertical-Specific	567	612	667	911
Grand Total	939	1,183	1,414	3,010

Source: Gartner (November 2015)

In the enterprise, Gartner considers two classes of connected things. The first class consists of generic or cross-industry devices that are used in multiple industries, and vertical-specific devices that are found in particular industries.

Cross-industry devices include connected light bulbs, HVAC and building management systems that are mainly deployed for purposes of cost saving. The second class includes vertical-specific devices, such as specialised equipment used in hospital operating theatres, tracking devices in container ships, and many others.

Connected things for specialised use are currently the largest category, however, this is quickly changing with the increased use of generic devices. By 2020, cross-industry devices will dominate the number of connected things used in the enterprise.

Market notes

- *Embraer Executive Jets* has released its 10-year market outlook for business aviation. The Company forecasts a global demand of 9,100 new business jets, worth US$259 billion. This is the total market opportunity to be serviced by all manufacturers and represents a Compound Annual Growth Rate (CAGR) of 3% per year over the next 10 years. The analysis foresees that demand is likely to exceed the last decade's deliveries and market value, when approximately 8,190 business jets were delivered, worth US$198 billion. The new deliveries forecast reflects a higher potential demand coming from the US market as well as a reduction in the demand from emerging markets. The small and medium jet segments are expected to represent the majority of the market, with nearly two thirds of the total deliveries, benefiting mostly from the opportunities out of the North American and European markets.

- Continued demand for affordable smartphones in emerging markets drove worldwide sales of smartphones in the third quarter of 2015 according to *Gartner Inc*. Global sales of smartphones to end users totalled 353 million units, a 15.5% growth over the same period in 2014. Smartphone sales in emerging markets rose to 259.7 million in the third quarter of 2015 — an 18.4% growth over the third quarter of 2014 — while sales in mature markets saw growth of just 8.2% over the same period.

Worldwide Mobile Phone Sales to End Users by Vendor in 3Q15 (Thousands of Units)

Company	3Q15 Units	3Q15 Market Share (%)	3Q14 Units	3Q14 Market Share
Samsung	102,063	21.4	93.620	20.3
Apple	46,062	9.6	38,187	8.3
Microsoft	30,291	6.3	43,134	9.4
Huawei	27,457	5.7	16,324	3.5
LG Electronics	18,194	3.8	21,292	4.6
Lenovo*	17,612	3.7	21.551	4.7
Xiaomi	17,197	3.6	15,773	3.4
TCL Communication	17,165	3.6	15,955	3.5
ZTE	13,682	2.9	13,858	3.0
Micromax	12,165	2.5	5,645	1.2
Others	176,011.1	36.8	175,725.9	38.1
Total	477,898.8	100.0	461,064.0	100.0

*Source: Gartner (November 2015) *The results for Lenovo include sales of mobile phones by Lenovo and Motorola both in 3Q15 and 3Q14.*

- RF-based Electronic Attack (EA) systems such as radar, communications and RCIED (radio controlled improvised explosive device) jammers will dominate the market for EA system spending, increasing to 70% of the total market in 2024, according to *Strategy Analytics*. The North American region, and specifically the US, will drive spending on EA systems especially for airborne and shipborne EA systems and account for the largest end market over the entire forecast period. Land-based EA systems will represent the second largest market in dollar terms and dominate total shipments. The total number of EA system shipments is forecast to grow at a CAGR of 3.9% through 2024 to reach 10,844 units.

- Trends driving spending on the Electronic Warfare (EW) sector will be underpinned by the need to control an ever increasing complex spectrum environment, countering modern frequency agile radar systems and network-based IP-centric communications in conventional symmetric warfare scenarios, as well as combatting asymmetric threats from improvised explosive devices. According to *Strategy Analytics* spending on global electronic warfare systems and services will grow to over US$18.7 billion in 2024, representing a CAGR of 3.7%.North America will be the largest regional end market, and will continue to drive spending with a renewed emphasis on conventional systems, though the fastest spending will come from the Asia-Pacific region. Airborne EW systems will represent the largest market in dollar terms while system shipments will be dominated by the land domain.

- Following a 21% surge in the second quarter, global spending on optical network equipment declined 10% in the third quarter, to US$2.95 billion, reports *IHS*. The market is down 1.7% from a year ago, with the biggest declines coming from EMEA and CALA. The previous three quarters' results for EMEA (Europe, Middle East, Africa) indicated the first reversal of poor optical spending since 2009. However, third quarter results are less favourable, with a 5% year over year decline. IHS assumes this is a short-term setback and the recovery will continue.

- According to *MarketsandMarkets* the electric motor sales market is expected to grow from an estimated US$91.75 billion in

2015 to US$125.02 billion by 2020, at a CAGR of 6.38% from 2015 to 2020. Increased use of motors, across major industries, growing agricultural sector, transition towards energy-efficient motors are the major factors driving the market for electric motors across the globe. AC motors is projected to dominate the market with a share of around 81% by 2020. With the growing demand of AC motors in various industries such as oil & gas, mining, wastewater treatment and chemicals, the market of AC motors is expected to grow during the forecast period.

Industry Outlook

Business confidence

At 52.8 in November, the final seasonally adjusted *Eurozone Manufacturing Purchasing Managers Index (PMI)* posted its highest level since April 2014. The PMI has now remained above the no-change mark of 50.0 for 29 straight months. It's by no means a spectacular pace of expansion, however, broadly consistent with 2% annualised growth, and there are also few signs of underlying inflationary pressures picking up. Average prices charged by manufacturers fell for the third month running and average input costs continued to drop sharply.

At 52.9, and up from 52.1 in the prior month, the *Markit/BME Germany Manufacturing PMI* recovered some of the ground it had lost recently and rose to a three-month high in November, with employment, new orders and output all rising at slightly stronger, although still moderate rates. For now, it seems as if Germany's goods-producing sector is largely unaffected by the VW emissions scandal.

The French manufacturing sector saw another month of stuttering growth in November with the headline *Markit France Manufacturing PMI* registering 50.6, unchanged from the previous two months' readings. Stagnant new orders were again reported, highlighting the subdued nature of demand at present. While there were no specific reports from surveyed manufacturers of an immediate drop in orders following the Paris attacks, the likely effect on consumer confidence will clearly not help the sector's prospects of breaking out of its prolonged sluggish phase as we head towards the end of the year.

At 54.9, up from October's 54.1, the headline *Markit/ ADACI Italy Manufacturing PMI* recorded its highest reading for four months in November. The latest survey results show the Italian manufacturing sector growing at a solid pace, with the PMI close to its highest level seen in the past four-and-a-half years in November. The tailwinds from a weak euro and falling commodity prices continue to benefit manufacturers overall, while at the same time demand in the domestic market continues to improve and is adding impetus to the upturn.

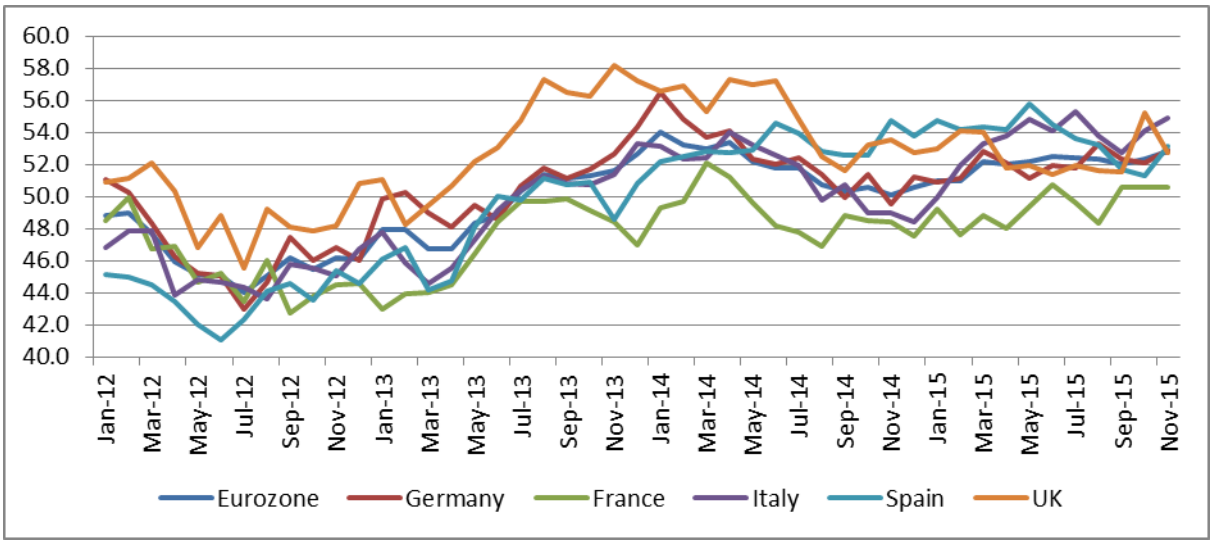
With the *Markit Spain Manufacturing PMI* rising to 53.1 in November from 51.3 in October Spanish manufacturers recorded a welcome pick-up in growth, bringing an end to a prolonged slowdown. This provides some optimism that the sector will be able to remain in growth mode as the year draws to a close. The great unknown, however, remains the looming general election, which has the possibility to result in a period of political instability.

The seasonally adjusted *Markit/CIPS UK PMI* posted 52.7 in November, down from October's 16-month high of 55.2 (originally reported as 55.5). The headline PMI has remained above the neutral 50.0 mark in each month since March 2013. However, the expansion remained firmly centred on large companies, as the trend at SMEs stayed lacklustre in comparison.

At 51.2 in November, the *J.P.Morgan Global Manufacturing PMI* was broadly unchanged from the five-month high of 51.3 reached in October. The rate of expansion signalled by the headline PMI remained relatively lacklustre nonetheless, meaning that November continued the subdued run of data for the global manufacturing sector through 2015 so far. The respective averages for the PMI sub-indices tracking output, new orders and new export orders are all around 1.0-1.5 points below the levels achieved for 2014 as a whole.

With the exception of Japan – where production rose at the quickest pace since March 2014 – Asian economies generally reported lacklustre or decreasing trends in output during November. India partly bucked this trend by recording a slight gain in production, although the rate of expansion was below those seen during its current 25-month sequence of increase. Output stagnated in China and Vietnam, and declined in Taiwan, South Korea, Indonesia and Malaysia. A marked contraction was also signalled in Brazil.

US manufacturers signalled a loss of momentum in November, with business conditions improving at the slowest pace since October 2013. This was highlighted by a fall in the final seasonally adjusted *Markit US Manufacturing PMI* from 54.1 to 52.8 during November. While the pace of manufacturing growth appears to have slowed in November, it remains encouragingly resilient, which is all the more impressive once headwinds such as the strength of the dollar and malaise in overseas markets are taken into account. The PMI results are indicative of the



Manufacturing PMI for the Major West European Regions/Countries Source: Markit Economics (www.markiteconomics.com)

manufacturing sector growing at an annualised rate of around 2% in the fourth quarter so far. Growth is being driven by domestic demand, with exports falling back into decline. The uncertain global picture and strong currency are key areas of worry to manufacturers, which led to a more cautious approach to hiring during the month.

Adjusted for seasonal factors, the *Caixin China General Manufacturing PMI* posted at 48.6 in November, up slightly from 48.3 in October and signalled that output stabilised in November, thereby ending a six-month sequence of reduction. Meanwhile, total new work continued to decline, and at a similarly modest rate to that seen in October, despite a pick-up in new export business growth. Relatively soft overall client demand led firms to scale back their purchasing activity again in November, while inventories also declined. Deflationary pressures intensified over the month, as highlighted by sharper decreases in both input costs and output prices.

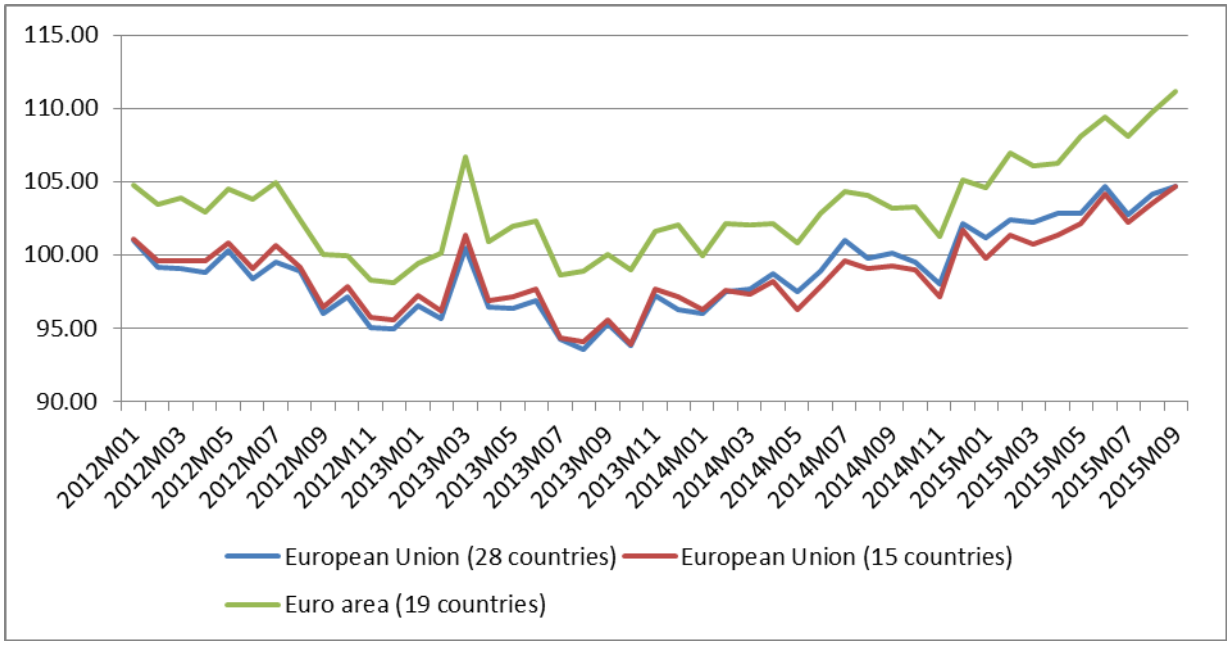
Electronics production

Eurostat's Monthly Index of Production for Computer, Electronic and Optical Products increased sequentially in September with the index increasing for both the EU and the Euro area. Of the leading West European countries only the UK posted a decline in September and has now remained below the 100 level for the whole of the third quarter. All three of the key countries in CEE — the Czech Republic,

Monthly Index of Production – Computer, Electronic and Optical Products, EU, Euro Area and Selected European Countries

	2015M03	2015M04	2015M05	2015M06	2015M07	2015M08	2015M09
Germany	118.10	118.00	120.60	122.70	120.00	117.50	122.90
Spain	83.57	82.31	83.21	88.33	82.94	84.25	90.18
France	103.50	106.34	108.38	107.69	104.20	105.27	111.27
Italy	93.30	92.00	92.50	91.10	92.60	88.60	91.80
United Kingdom	99.16	100.07	98.03	103.05	99.01	99.12	98.44
Czech Republic	114.15	113.10	110.33	113.79	114.76	109.75	114.52
Hungary	75.70	76.20	73.10	78.80	74.80	71.90	75.70
Poland	98.20	93.50	88.30	93.20	97.10	93.10	96.30
EU (28 countries)	102.23	102.87	102.84	104.68	102.75	104.15	104.70
EU (15 countries)	100.70	101.36	102.12	104.13	102.20	103.57	104.63
Euro area (19 countries)	106.11	106.25	108.12	109.39	108.08	109.73	111.15

Source: Eurostat Monthly Index of Production – Computer, Electronic and Optical Products (2010 = 100/NACE Rev 2/Seasonally Adjusted and Adjusted Data and by Working Days)



Monthly Index of Production Computer. Electronic & Optical ProductS
Source: Eurostat Monthly Index of Production – Computer, Electronic and Optical Products
(2010 = 100/NACE Rev 2/Seasonally Adjusted and Adjusted Data and by Working Days)

Hungary and Poland — all posted a sequential increase in September although only the Czech Republic remains above the base level of 100.

The underlying trend in both the EU and Euro area has been for the index track up since the summer of 2013 with the recovery gaining momentum throughout the first nine months of 2015. With business confidence remaining positive in the first two months of the final quarter of the year it is anticipated that these trends will continue for the year as a whole.

Mergers & Acquisitions

- OLEDWorks LLC, the leading US OLED light engine and panel manufacturing company, has announced that it has completed the acquisition of key OLED assets and relevant intellectual property from **Philips**, the global leader in lighting. Manufacturing will continue in the existing facility in Aachen, Germany with the establishment of OLEDWorks GmbH.

- The Swedish company **Obducat AB** has entered into an agreement concerning the acquisition of the German company **Solar-semi GmbH**. The company is a leading supplier to the micro and nano electronic industry. With the acquisition, Obducat will more than double its installation base, triple its revenues and strengthen its leading position globally within nano imprint lithography. The acquisition price amounts to approximately SEK 7.6 million. Solar-semi, with revenues of around SEK 55 million and 30 employees, holds a very strong position within the growing applications areas OLED and LCD displays and is currently supplier to a number of global customers such as Nasa, Infineon, Sumitomo, Omnisun and STMicroelectronics. Solar-semi's coating technology is at the forefront of the technology.

- The Norwegian **Norautron Group** has entered into an agreement to acquire **Hatteland Display** from **Herkules Capital**. Hatteland Display is a leading designer and manufacturer of high-end rugged displays, panel computers, and computers for all segments of the professional marine industry. The company has established strong relationships with major systems integrators through a growth strategy based on technological leadership and innovation. Including Hatteland Display, the Norautron Group will have an estimated annual turnover of approximately NOK 1.8 billion and will be a significant player within several segments of the electronics industry, with positions in markets for complete products and components.

- Atos, **The Gores Group** and **Siemens** have reached an agreement for Atos to acquire Unify, the number three world leader of integrated communication solutions. With this acquisition Atos intends to create a unique integrated proposition for unified communications and real time capabilities enhancing social collaboration, digital transformation, and business performance of its clients. The transaction is subject to employee representative's bodies' information and consultation and the approvals of the regulatory and antitrust authorities. Closing is expected in the first calendar quarter of

Finance

2016. Founded in 2008 as Siemens Enterprise Communication and headquartered in Munich (Germany), Unify is a joint venture between The Gores Group (51%) and Siemens (49%), active mainly in Europe and in the Americas. Unify provides end-to- end communications software and services enhancing social collaboration, digital transformation and business performance, through vertical specialized solutions. With 5,600 employees and active in over 60 countries, Unify today generates Euro 1.2 billion in revenue.

- The Swiss **Oerlikon** group has signed an agreement to sell its Leybold Vacuum business to **Atlas Copco**. The transaction is based on an enterprise value of CHF 525 million and is expected to close by middle of the year 2016. The divestment of its Vacuum Segment to Atlas Copco marks the thirteenth strategic transaction for the Group since 2010. It will allow the Group to further allocate resources and management attention to its strategic growth areas. In 2014, the Vacuum Segment generated sales of CHF 390 million and as of 30 June 2015, has 1,646 employees worldwide.

- TE Connectivity has announced that it has entered into an agreement to sell its Circuit Protection Devices (CPD) business to the US company Littelfuse. The transaction is expected to close in the second quarter of fiscal year 2016 and is subject to customary regulatory approvals. TE's CPD business, which is externally reported as part of the Data and Devices business within TE's Communications Solutions segment, has a broad presence serving the communications, mobile computing, industrial, automotive and battery industries. The business had revenues of approximately US$190 million in fiscal year 2015, and is headquartered in Menlo Park, California, with manufacturing facilities in Tsukuba, Japan and Shanghai and Kunshan, China. The sale of CPD is another step in TE's strategy to focus and expand its leadership position in harsh environment connectivity and sensor solutions.

- Acal plc, the UK-headquartered supplier of customised electronics to industry, has announced the acquisition of **Flux AS** for a consideration of DKK 39 million (£3.7 million). Flux, which is headquartered in Denmark and has a manufacturing facility in Thailand, is a designer and manufacturer of customised magnetic components for use across the range of industrial, high reliability and space grade applications. Revenues for the year ended 31 December 2014 were DKK 89 million (£8.5 million) generating a pre-tax profit of DKK 7.2 million (£0.7 million). The business will operate within Acal's Design & Manufacturing division and will build on Acal's growing custom magnetics capabilities, following on from the acquisitions of Noratel and Myrra.

- Siemens has met its guidance for fiscal 2015 and announced an ambitious outlook for fiscal 2016. In fiscal 2015, orders climbed 6% to Euro 82.3 billion. Revenue was also up 6% to Euro 75.6 billion. Excluding currency translation and portfolio effects, orders and revenue were both down 1%, roughly at the prior-year level. The book-to-bill ratio was 1.09. Siemens anticipates further softening in the macroeconomic environment and continuing complexity in the geopolitical environment in fiscal 2016. Nevertheless the company expects moderate revenue growth, net of effects from currency translation. Siemens anticipates that orders will materially exceed revenue for a book-to-bill ratio clearly above 1. Reported revenue increase driven by double-digit growth in Energy Management and in Power and Gas which made acquisitions between the periods under review; Energy Management, Building Technologies, Healthcare, and Digital Factory grew on a comparable basis. By division in the final quarter of fiscal 2015 Power & Gas reported revenues of Euro 4,050 million (Q4 2014: Euro 3,661 million) an increase of 11% or down 17% on a comparable basis; Wind Power & Renewables Euro 1,504 million (Q4 2014: Euro 1,636 million) a decline of 8% or by 10% on a comparable basis; Energy Management Euro 3,473 million (Q4 2014: Euro 3,120 million) an increase of 11% or by 7% on a comparable basis; Building Technology Euro 1,679 million (Q4 2014: Euro 1,544 million) an increase of 9% or 3% on a comparable basis; Mobility Euro 1,998 million (Q4 2014: Euro 2,109 million) a decline of 5% or 10% on a comparable basis; Digital Factory Euro 2,654 million (Q4 2014: Euro 2,526 million) an increase of 5% or 1% on a comparable basis; Process Industries & Drives Euro 2,728 million (Q4 2014: Euro 2,716 million) an increase of 0% or down 4% on a comparable basis; and Healthcare Euro 3,622 million (Q4 2014: Euro 3,400 million) an increase of 7% or 1% on a comparable basis.

- Sales for **Continental**, the international automotive supplier, tire manufacturer, and industry partner rose by 14.2% year on year to Euro 29.2 billion in the first three quarters of 2015. Before changes in the scope of consolidation and exchange rate effects, sales rose by 3.3%. In the first nine months of this year, the Automotive Group generated sales of Euro 17.6 billion. Sales for the Chassis & Safety Division were up 12.7% at Euro 6,277 million in the first nine months of 2015 (Nine Months 2014: Euro 5,570 million). Before changes in the scope of consolidation and exchange rate effects sales rose by 4.9%. The number of electronic brake systems sold in the first nine months increased by 5%. In the Passive Safety and Sensorics business unit, sales of air bag control units

declined year on year. Unit sales of advanced driver assistance systems were up approximately 59%. Sales for the Powertrain division were up 10.1% at Euro 5,304 million the first nine months of 2015 (Nine Months 2014: Euro 4,816 million). Before changes in the scope of consolidation and exchange rate effects sales rose by 0.2%. Sales for the Interior division were up 17.5% at Euro 6,060 million the first nine months of 2015 (Nine Months 2014: Euro 5,158 million). Before changes in the scope of consolidation and exchange rate effects sales rose by 9.2%.

- Fourth-quarter revenue for German semiconductor group **Infineon** edged up by Euro 12 million or 1% to Euro 1,598 million in the fourth quarter of the 2015 fiscal year, compared with Euro 1,586 million in the previous quarter. The Automotive (ATV) segment recorded revenue of Euro 614 million in the fourth quarter of the 2015 fiscal year, whereby the marginal 1% decrease against the previous quarter's figure of Euro 621 million reflects the fact that strong demand for new vehicles in Europe and North America was not quite sufficient to fully offset the slightly weaker demand recorded in China early in the final quarter of the 2015 fiscal year. The Industrial Power Control (IPC) segment revenue edged up by 1% to Euro 271 million in the fourth quarter, compared to Euro 269 million in the previous quarter, with demand growing for electrical drives and renewable energy business and falling for major home appliances. Power Management & Multimarket (PMM) segment revenue grew quarter-on-quarter by 3% from Euro 517 million in the third quarter to Euro 534 million in the fourth quarter in the 2015 fiscal year. The rise was primarily driven by good sales for mobile devices, with smaller increases also recorded in the field of power supplies and DC-DC conversion solutions for servers. Chip Card & Security (CCS) segment revenue grew by 5% to Euro181 million in the fourth quarter of the 2015 fiscal year, up from Euro 172 million in the preceding quarter. However, fourth-quarter revenue was 27% up on the previous year's figure of Euro 142 million. The payment, government ID and authentication businesses all showed an upward trend in the fourth quarter, with demand rising sharply in some of these areas. Based on an assumed average exchange rate of US$1.10 to the euro, Infineon expects year on year revenue growth of around 13% (plus or minus 2 percentage points) in fiscal 2016.

Automotive

Renesas signs strategic partnership with Nevs

Renesas Electronics Corporation, the Japanese supplier of advanced semiconductor solutions, and National Electric Vehicle Sweden (Nevs) have signed a strategic partnership agreement. Utilizing Nevs' Phoenix architecture technology for electric vehicles and Renesas' technologies for new energy vehicles, the companies will join forces on the development of various system solutions targeting China's new energy vehicle market.

The focus of this partnership is to build advanced automotive electronics technologies. The companies will engage in the development of high-end automotive control systems for new energy vehicles. This includes R&D of motor drive systems, automotive information systems, ADAS (Advanced Driving Assistance System), and safety control systems, and will also extend to the development of such new automotive applications as cloud-connected systems.

Passenger car registrations: +8.2% over ten months; +2.9% in October

In October 2015, the EU passenger car market continued its upward trend, despite a slower rate of increase (+2.9%), marking the 26th consecutive month of growth, according to figures released by *ACEA*.

Demand for new passenger cars saw momentum slowing down in all major markets. Registrations in Italy (+8.6%), Spain (+5.2%), Germany (+1.1%) and France (+1.0%) kept growing, even though less strong than in past months, while the UK market declined in October (-1.1%). Across the region, new passenger car registrations totalled 1,104,868 units, also supported by growth in the EU's new member states (EU-12).

Over the first ten months of 2015, new passenger car registrations increased (+8.2%), surpassing 11.5 million units (11,523,903). All major markets posted growth, contributing to the overall upturn of the EU market over the period. Spain (+20.5%) and Italy (+14.7%), benefiting from economic recovery and relatively low base comparisons, posted double-digit percentage gains, followed by the UK (+6.4%), France (+5.7%) and Germany (+5.1%).

October also saw demand for new commercial vehicles in the EU increasing (+6.6%) for the tenth consecutive month, totalling 189,092 units. Growth was sustained across all commercial vehicle segments. Spain (+22.9%) confirmed the positive momentum posting double-digit growth, followed by Italy (+7.6%), Germany (+6.7%) and France (+3.9%), while the UK performed less well compared to October 2014 (-3.0%).

Over ten months in 2015, the EU market expanded (+11.6%), totalling 1,706,662 commercial vehicles. During the same period, Spain (+36.5%), the UK (+16.6%), Italy (+9.8%), Germany (+2.7%) and France (+2.1%) all posted growth.

Distribution

Semiconductor component distribution remains robust

According to DMASS (Distributors' and Manufacturers' Association of Semiconductor Specialists), semiconductor distribution sales in Q3 2015 grew by 17.9% to Euro 1.86 billion compared to the same period a year earlier and close to the record sales in achieved in the prior quarter. Again, exchange rate effects between US Dollar and Euro had their influence, but a significant portion of the growth remains organic, as at the same time volume sales grew double digit.

From a regional view, the massive growth in almost all of Eastern Europe drove a huge portion of DMASS' overall growth in Q3/CY15: Eastern Europe (excluding Russia) grew by a staggering 37.6% to Euro 244 million. The UK market, increased by 17.4% to Euro 158 Million Euro, the same level as Italy, which grew by 16.8%, while Germany climbed double digit (15.8%) to Euro 593 million. The French market grew by 10% to Euro 135 million. Demand in Scandinavia seems to have weakened slightly compared to an outstanding first half. Sales grew by 12.5% to Euro 165 million, Sweden being by far the largest slice of the pie.

EMS / PCB

Orbit One acquires Flex's Swedish manufacturing facility

Orbit One has acquired Flex's manufacturing facility in Ronneby Sweden, the site focusing on the industrial and infrastructure segments. The move will significantly strengthen Orbit One's offering in particular in the area of logistics and aftermarket services.

Located virtually next to Orbit One's existing headquarters and manufacturing facility the additional capacity will enable the company to offer a greater degree of high level assembly and step up from advance box build to complete solutions with advanced systems integration.

Orbit One, which reported sales of SEK 461 million (Euro 51 million) in 2014, has existing manufacturing facilities in Sweden, Poland and Russia. The acquisition of the Flex site, based on reported sales, will result in Orbit One becoming the third largest EMS manufacturer in the Nordic area.

For Flex the move will see the company end manufacturing in the Nordic region.

Flex acquires Wink

Flex has entered into an agreement to acquire US-based Wink, the smart home platform that enables smart products to work together seamlessly, and connect and communicate globally.

Upon completion of the acquisition, Flex will enhance its strategy of driving the Intelligence of Things™, and helping the world Live smarter™. Wink improves the functionality and usefulness of disparate devices in the home by allowing them to communicate with each other, while enhancing usability through a shared common interface in the Wink mobile app.

Flex has been a strategic partner to Wink, serving as their primary supplier of hardware and firmware, including the Wink HUB and Wink Relay, which include core IP developed within Flex. After the acquisition, Wink will remain a separate entity and corporation, with its own management structure for day-to-day activities and operations. Flex will look to leverage Wink's platform and provide current and future Flex customers with improved connectivity in a rapidly expanding open ecosystem.

Kimball Electronics to open new Romanian plant

The US EMS provider Kimball Electronics will open its new 6,150 sq m plant in Timisoara, Romania by the end of 2015. The plant, which will have multiple production lines, an engineering and quality laboratory and warehouse space.

The facility will ultimately serve customers in all four of the Kimball Electronics market verticals: Automotive, Industrial, Medical, and Public Safety.

Celestica collaborates with CERN

Celestica has announced that in collaboration with international researchers from the ATLAS experiment at CERN, the European Organization for Nuclear Research and the University of Toronto, they had produced a radiation-hard sensor for the Large Hadron Collider (LHC), the world's largest and most powerful particle collider.

A prototype of the radiation-hard sensor, assembled at Celestica's Microelectronics Lab and tested at the University of Toronto's High Energy Physics detector lab, is a highly complex device that consists of 20 large electronic computer chips attached on a printed circuit board by 2,500 wires smaller than a human hair. The technology used in the sensor can also have a range of applications including medical imaging and electronics in satellites.

PartnerTech to start statutory negotiations in Norway

Scanfil has announced that its Norwegian subsidiary, PartnerTech AS, has informed the representatives of the company's personnel groups its intention to restructure the company's operations. The option of discontinuing production at the factory will be discussed in the negotiations. The restructuring negotiations concern all personnel in PartnerTech AS.

The negative impact on earnings resulting from a possible factory closing is estimated at approximately Euro 5.0 million to Euro 7.5 million. The respective cash impact is estimated at approximately Euro 3.0–5.5 million.

Flex expands with new facility in Poland

Flex has opened a new logistic and manufacturing centre at the company's Industrial Park in Tczew, Poland. The 9,300 sq m facility has been focused towards the final stages of production, storage, management of goods as well as to distribution of products manufactured at the company's two existing production halls at the park. Flex currently focuses on electronics and metal parts at its existing facilities.

Orbotech enters solder mask direct imaging segment

Israeli-based Orbotech, a leading provider of process innovation technologies, solutions and equipment serving the global electronics manufacturing industry, have announced the introduction of a new family of Direct Imaging (DI) solutions for PCB solder masks. Direct Imaging, one of the methods utilized in imaging solder mask layers, is an increasingly important segment, which Orbotech currently estimates to between US$70 million - US $90 million per annum.

The Orbotech Diamond DI system addresses the solder mask manufacturing needs of the High Density Interconnect (HDI) and Multilayer board (MLB) segments of the PCB industry by offering high power and throughput. Beta site testing by three different customers in diverse geographical regions has resulted in orders from all three PCB manufacturers.

Kitron signs agreement with global energy company

Kitron has signed an agreement with a global energy company headquartered in the US. The agreement is valid for three years with an option of a one-year extension. The deal is estimated to be worth NOK 100 million for Kitron.

Kitron will initially deliver prototypes and serial manufacturing for a specific product family of power controllers. The first prototypes will be delivered from the company's factory in Lithuania, but Kitron's facilities in China and the US are also considered as applicable supply partners for the future.

HANZA increases capacity

The Swedish contract manufacturer HANZA has completed a major investment of approximately SEK 20 million to meet increased demand in its mechanics segment. The includes two CNC grinding machines to increase capacity for new products and will be installed during the fourth quarter of 2015 at the company's mechanics factory in Årjäng.

Plexus reduces headcount in Scotland

The US EMS provider Plexus has announced plans to reduce capacity at its Scottish manufacturing site in Livingston. Fifty jobs will be affected by the reduction.

Plexus said it will maintain its rapid prototyping capabilities and Livingston Design Centre which are also based within the Pyramids Business Park site.

Changing end market dynamics, particularly within the oil and gas industry, have required the company to reduce its UK capacity to match customer demand. Many of the customer programmes currently supported by the Livingston manufacturing operations will be transferred to the company's Kelso, Scotland manufacturing facility.

The manufacturing capacity reduction is expected to be complete by the end of Plexus' fiscal second quarter in February 2016. Once fully implemented, these actions are expected to generate between US$1.25 million and US$1.7 million dollars in annual savings.

Season Group opens UK design operation

Due to increased demand for its services, Season Design Technology (SDT), a member of the Season Group, and who specialize in Embedded Computing products and custom electronic design, has relocated to brand new offices in Sheffield.

The new offices provide the SDT team with the opportunity to triple its workforce over the next few years – a growth rate that the company anticipates needing to achieve if it is to support the growing demand for design services from Season Group customers and for the expansion of its own Embedded System product line.

The investment will also allow SDT to offer better support and solutions to its customers - and the signing of a long-term lease emphasizes the strong commitment that Season Group has to design in the region.

exceet invests in manufacturing for state-of-the-art LED lighting

exceet electronics GesmbH, a member company of exceet Group and specialist for the development and manufacture of complex electronic assemblies, has launched a facility for high-precision bonding of electronic components. exceet is thus able to optimally satisfy the rising demand for fittings with high-quality glass lenses and plastic optics in the LED field.

Based in Ebbs in Tyrol, Austria, exceet electronics GesmbH has many years of expertise in high-precision manufacturing of maximum-quality electronic assemblies. exceet is now bringing this knowhow to the field of glass lens placement. Investments in the new bonding and positioning line lets exceet mount lenses up to 10 cm in diameter. In LED technology, glass lenses permit particularly high light yields. To satisfy exacting quality demands and precision requirements, the new production facility includes an optical inspection system for automatic 100% quality assurance. exceet is thus able to optimally serve the trend toward high-value, energy-efficient LED lighting for use in industry and the consumer sector.

Norautron and Sensonor sign five-year contract

The Norwegian EMS provider Norautron has entered into a five-year contract to manufacture electronic assemblies for the Norwegian company Sensonor. The scope of the contract is prototyping, sourcing and manufacturing of advanced electronics for a range of Sensonor's products.

The agreement extends beyond 2020 and is worth more than NOK 100 million.

Sensonor, which has worked with Norautron for a number of years, is a global leader in MEMS technology, design and manufacture of advanced gyro sensors, gyromodules and IMUs for high-precision applications.

Cicor announces new strategic priorities

Cicor the Swiss high-tech industrial group and international leader in the areas of PCBs, microelectronics and electronic solutions is taking targeted measures for the strategic orientation of the Group. The Group will differentiate itself even more from the competition through "leading edge" technologies and comprehensive manufacturing Services ("box building") in strongly growing niches and segments.

Cicor has strengthened its technology sector and services portfolio, so that customers can use the existing and expanded services in the development of innovative products and applications in an even more targeted manner. Thanks to technological advances and comprehensive service packages right up to "box building", the Group is looking to establish itself as "the preferred innovation partner". Together with their customers, the Group will also focus more on the development and manufacture of their products and applications with generally more complex projects.

Measures have already been taken to improve profitability. Two Swiss PCB production sites belonging to the Advanced Microelectronics and Substrates (AMS) division (Moudon and Boudry) have been merged. Cicor has also decided to merge the Electronic Solution (ES) division's customer care operation in Switzerland from its previous two locations into one joint location and to relocate the Ticino sales office in Quartino to the ES Division's head office in Bronschhofen.

The Group will also achieve additional growth by reinforcing the international sales organisation.

In Eastern Europe, production capacities in Arad, Romania will be doubled by a new construction at the end of 2016, which will increase the value-added share generated outside Switzerland.

A new competence centre is currently being built in Bronschhofen, Switzerland, which will allow for better focused development, modern production and administration. Accordingly, the Group management will be located at this site from August 2016.

Tronico Atlas awarded Nadcap for Electronics

Tronico Atlas, the Moroccan manufacturing subsidiary of the French EMS provider Tronico ALCEN, has been accredited Nadcap for Electronics. The company's French manufacturing facility received the accreditation in April 2015. This certification is essential for new aeronautical programs, especially for export. Both TRONICO's production sites are now part of the 136 companies accredited Nadcap for electronics manufacturing in the world.

EMS financial round up

- The Dutch EMS provider **Neways** booked turnover of Euro 96.5 million in the third quarter of 2015, an increase of 7% compared to the same period of last year (Q3 2014: Euro 89.9 million). This increase was largely due to a recovery in demand from clients in the semiconductor and automotive sector. Compared to the first half year the revenue stabilizes in the third quarter of 2015. This is partly due to the decrease in the predictability of customers, whereby customers from different market sectors conduct a more tightening inventory policy towards the end of the year.
- The French EMS provider **LACROIX Electronics** has reported sales of Euro 268.5 million in the year to 30 September 2015, 21.7% higher than the Euro 220.6 million reported in the same period a year earlier. The increase in sales was evenly distributed among sites and business sectors.
- Kimball Electronics has reported fiscal first quarter sales of US$200.4 million a decline of 2% compared to the same period a year earlier, the fall in part, to a US$12.9 million reduction related to the exit of Johnson Controls Inc compared to the same quarter last year. Sales to the automotive market increased 1% to US$72.0 million (Fiscal Q1 2015: US$71.2 million); medical declined 5% to US$58.5 million (Fiscal Q1 2015: US$56.5 million); industrial declined 8% to US$49.5 million (Fiscal Q1 2015: US$53.6 million); public safety increased 16% to US$16.4 million (Fiscal Q1 2015: US$14.2 million); and other increased 26% to US$4.0 million (Fiscal Q1 2015: US$3.2 million).
- Philippine headquartered **Integrated Microelectronics Inc** (IMI) has announced that its European and Mexican operations have benefitted from robust activity in their automotive businesses and recorded combined revenues of US$204 million in the first nine-months of 2015, a 1% growth year-on-year. The weakening Euro had a negative impact on revenues which would have increased by 17% at constant exchange rates.
- Revenue for the Finnish EMS provider **Incap** increased steadily during the first nine months of 2015 thanks to the launch of new customers' production and the increased volumes for established customer relationships. The revenue in January-September increased by 64.6% on the comparison period in the year 2014 to Euro 21.2 million (1-9/2014: Euro 12.9 million). The strengthening of the Indian Rupee in relation to Euro helped boost sales. The company estimates that the Group's revenue for the full year 2015 will be approximately EUR 25-30 million.

Production

AIM Solder reveals full-line manufacturing facility in Europe

AIM Solder, a leading global manufacturer of solder assembly materials for the electronics industry, has announced the opening of a full-line manufacturing facility in Łódź, Poland. AIM's new European facility will now offer locally made solder paste, bar solder, cored and solid wire, liquid flux, cleaners, adhesives, and underfills. This fully-staffed facility will also provide sales support, customer service and technical support.

Bosch Rexroth to restructure Mobile Applications business unit around

As part of a move to reduce costs by Euro 450 at its Mobile Applications business unit Bosch Rexroth is planning to shed up to 1,150 jobs at six German locations – Augsfeld, Elchingen, Homburg, Horb, Lohr, and Schwieberdingen – by the end of 2018.

To cut costs and turn the Mobile Applications business unit around, Bosch Rexroth has planned a wide raft of measures: simpler work processes will be introduced, and greater use made of lower-cost plants outside Germany. In addition, manufacturing processes will be made more flexible to allow Bosch Rexroth to react better to ever greater fluctuations in demand. Distribution processes are also to be made more flexible so that the company can react faster to customer requirements. At the same time, the company plans to invest in the development of new products.

Bosch Rexroth is a leading supplier of mobile applications for excavators, wheeled loaders, forklifts,

tractors, and combine harvesters. Worldwide, demand has been declining for some years, with the companies that manufacture these vehicles reducing capacity, relocating to lower-cost countries, and even closing down plants completely. To compound this situation, sales of construction machinery in China have fallen even further, and were down more than 40% year on year in the first half of 2015.

Ericsson in strategic partnership with Cisco

Ericsson has announced a next-generation strategic partnership with Cisco to create the networks of the future. The partnership will combine the best of both companies: routing, data centre, networking, cloud, mobility, management and control, and global services capabilities. Ericsson will together with Cisco, leader in IP-networking, offer end-to-end leadership across network architectures for 5G, cloud and IP, and the Internet of Things.

The announcement is supported by multiple agreements including a global service partner agreement, as well as a broad reseller agreement. The parties have also agreed to discuss FRAND policies and enter a licensing agreement for their respective patent portfolios.

As a result of the partnership, Ericsson will extend its addressable market and is expected to generate US$1 billion or more of additional sales by 2018 (full year). The extended addressable market is primarily in professional services, software and resell of Cisco products. The additional sales are expected to be accretive to operating income already in 2016. The partnership is expected to generate full-year effect from synergies, primarily in expenses of SEK 1 billion in 2018.

Ericsson and Cisco will continue to explore further joint business opportunities as the partnership progresses.

Bosch and SBB Cargo sign agreement

Bosch Engineering is working with Swiss rail freight operator SBB Cargo to develop rail logistics into a connected transport system. The two companies have concluded a cooperation agreement that will see them jointly develop an asset intelligence system for rail freight traffic.

Whirlpool invests in Poland

Whirlpool Corporation plans to invest over Euro 235 million in Poland. More than half of this amount will go to the Whirlpool plant in Wroclaw, which will become the largest free-standing refrigerator factory of the Whirlpool group in Europe, the Middle East and Africa.

TT Electronics completes transfer of production from Germany to Romania

The UK TT Electronics Group, as part of its Operational Improvement Plan, has completed the transfer of ten production lines, with nine of them customer qualified. Transfer and qualification of a further two lines is scheduled for the first half of 2016. The final four lines will remain in Germany, with the transfer of production to Romania now expected to be concluded by the end of the first half of 2016.

TT expects the costs of the programme to be around £25 million, approximately £5 million less than originally anticipated and there will be a modest reduction in project benefits. The company intends to re-deploy this cash in further cost reduction measures in its shorter cycle industrial market facing businesses.

Airbus Helicopters chooses Romania

Airbus Helicopters has set down the foundation stone of its new Romanian factory, established to assemble the latest helicopter to join the H Family of aircraft – the H215.

Under the control of Airbus Helicopters Industries, the 10,000 sq m factory based in Brasov will house H215 production from procurement to after-sales, including design office activities, and will provide jobs to more than 300 employees in the long term. The modern assembly line with its takt time flow line will be capable of producing up to 15 aircraft per year. The first H215 to roll out of the assembly line is planned for 2017.

Alpha & The National Graphene Institute sign collaborative partnership agreement

Alpha, the world leader in the production of electronic bonding materials, has announced a collaborative partnership with the National Graphene Institute (NGI) at The University of Manchester to develop next generation graphene-based electronic materials for the electronics assembly & packaging, as well as for the energy and power market segments.

The collaboration is a multi-year effort and focuses on how to utilize these innovative soldering materials in applications where components must meet higher

connectivity, mobility and sustainability requirements. Graphene-based materials provide significant improvement in thermo-mechanical reliability that are particularly useful in the Energy and Power industries.

Huawei opens Irish R&D centre

Huawei, a leading global ICT solutions provider, has opened an additional Irish R&D office in the centre of Dublin's Digital Docklands (IFSC). Over 50 new R&D jobs will be created by 2016, bringing the total to 120 Huawei employees working in R&D in Ireland.

The project is supported by the Department of Jobs through IDA Ireland.

Semiconductors

WSTS forecasts semiconductor market to maintain steady growth until 2017

The World Semiconductor Trade Statistics (WSTS) expects the world semiconductor market to show flattish growth of 0.2% to US$336 billion in 2015. For 2015, growth in Optoelectronics (12.1%), Sensors (3.4%), and Analog (2.5%) is expected to be partially offset by declines in Discrete (-6.8%), Micro (-1.5%), Logic (-1.6%), and Memory (-1%).

By geography, for 2015, growth in Asia-Pacific is expected to be offset by declines in Americas, Europe and Japan. Europe and Japan will show a decline in 2015 at the US$ based forecast, which is mainly based on the current FX effect between the Euro/USD and Yen/USD.

The semiconductor market growth in 2015 is expected to be driven by Analog Signal Converters (up 17%), Communications Analog (up 9%), 32bit MCU (up 14%), Automotive DSP (up 28%), Display Drivers (up 12%), Touch Screen Controllers (up 31%), Communications Logic/short range (up 13%), Optoelectronics (up 12%) and Actuators (up 10%).

For 2016, all major product categories (excluding memory) and all regions (except Europe) are forecasted to grow.

For 2017, all major product categories and regions are forecasted to grow with the assumption of a rebound in the macro economy throughout the forecast period.

Worldwide Semiconductor Market 2014-2017

Autumn 2015	Amounts in US$M				Year on Year Growth in %			
	2014	2015	2016	2017	2014	2015	2016	2017
Americas	69,324	68,930	70,516	73,072	12.7	-0.6	2.3	3.6
Europe	37,459	34,388	34,355	35,331	7.4	-8.2	-0.1	2.8
Japan	34,830	31,251	31,564	32,203	0.1	-10.3	1.0	2.0
Asia Pacific	194,230	201,823	204,576	210,990	11.4	3.9	1.4	3.1
Total World - $M	335,843	336,392	341,011	351,596	9.9	0.2	1.4	3.1
Discrete Semiconductors	20,170	18,794	18,902	19,584	10.8	-6.8	0.6	3.6
Optoelectronics	29,868	33,493	35,269	36,895	8.3	12.1	5.3	4.6
Sensors	8,502	8,789	9,024	9,366	5.8	3.4	2.7	3.8
Integrated Circuits	277,302	275,316	277,816	285,752	10.1	-0.7	0.9	2.9
Analog	44,365	45,483	47,027	48,953	10.6	2.5	3.4	4.1
Micro	62,072	61,170	63,047	64,474	5.8	-1.5	3.1	2.3
Logic	91,633	90,212	91,753	93,785	6.6	-1.6	1.7	2.2
Memory	79,232	78,450	75,989	78,539	18.2	-1.0	-3.1	3.4
Total Products - $M	335,843	336,392	341,011	351,596	9.9	0.2	1.4	3.1

Source: WSTS

As a result, the worldwide semiconductor market is forecasted to be up 1.4% to US$341 billion in 2016 and up 3.1% to US$352 billion in 2017, respectively.

By end application, automotive and wireless communications are projected to grow faster than the total market, whereas consumer and computer are expected to grow slower than the total market.
By region, a positive growth rate is projected for all regions in 2017. The Americas region is expected to show the highest growth rate for 2016 and 2017 and is expected to reach US$71 billion in 2016, which is a 21% share of the total semiconductor market.

ON Semiconductor to acquire Fairchild Semiconductor

The US companies ON Semiconductor Corporation and Fairchild Semiconductor International Inc have entered into a definitive agreement for ON Semiconductor to acquire Fairchild in a deal valued at approximately US$2.4 billion. The acquisition creates a leader in the power semiconductor market with combined revenue of approximately US$5 billion, diversified across multiple markets with a strategic focus on automotive, industrial and smartphone end markets.

ams acquires CMOSIS

ams, a leading worldwide provider of high-performance sensor and analog solutions, has entered into an agreement to acquire 100% of the shares in CMOSIS, a leader in advanced area and line scan CMOS image sensors for high-end imaging applications, in an all-cash transaction valued at Euro 220 million.

CMOSIS, with its headquarters in Antwerp, Belgium, operates as a fabless semiconductor supplier from locations in Belgium, Germany, Portugal, and the US and has more than 110 employees. CMOSIS expects to generate full year 2015 revenues of approx. Euro 60 million with strong operating profitability above ams' current group operating profitability. Based on available information, CMOSIS expects to continue year-on-year revenue growth in 2016.

CleanTech / Renewable Energy

Building automation market to grow steadily through 2021

According to *ABI Research* the building and automation market will experience steady but incremental growth in the next five years to generate revenues of US$45 billion by 2021. Europe will dominate the market in terms of revenues followed by North America and Asia Pacific in 2021.The big four building automation OEMs - Honeywell, Schneider Electric, Johnson Controls and Siemens - have more than 60% market share and a strong influence in the market. Holding back adoption is the slow return on investment for building owners due to the high costs of installing building automation systems.

Office buildings are projected to be the biggest verticals in the forecast period followed by retail and public assembly buildings. Among the other verticals, hospitality and healthcare are expected to witness rapid growth from 2016-2021. In hospitality, the short refurbishment cycles in hotels are becoming a lucrative market for solution providers to upgrade or replace existing systems with more intelligent systems to improve the overall customer experience. In healthcare, increasing regulatory and compliance requirements are driving the use of connected medical devices to improve auditability in the use of high value moveable assets and to control environments to improve patient comfort.

Wired field equipment accounts for the majority of commercial building connections in 2015, but wireless is gaining traction for connecting wireless field devices. Wired connectivity solutions adhere to the high Quality of Service (QoS) requirements for applications, such as security, fire and life safety applications that are critical requirements mandated by regulatory compliance.

Applications such as lighting and HVAC are increasing their use of wireless technologies accounting for 19% and 21% of the annual field equipment shipped in 2021.

Bosch sets up new company for the smart home

Bosch is strengthening its business in solutions for the smart home. From 1 January 2016 the newly founded subsidiary Robert Bosch Smart Home GmbH will bring together the company's smart-home activities, including related software and sensor-system expertise.

Bosch's smart-home solutions are aimed at a giant market: according to market experts, by 2020 alone some 230 million homes worldwide – almost 15% of all households – will feature smart-home technologies.

Asia Pacific Electronics

Equipment/Manufacturing

- The Indian company **Optiemus Infracom Limited** and the Taiwanese ODM **Wistron Corporation** have signed a joint venture (JV) agreement to establish a production base in India. According to the agreement, the partners will strategically invest approximately US$200 million in in establishing the joint venture which will focus on smart phones, tablets and smart devices.

- The Japanese company **Mitsubishi Electric** has announced that its Indian subsidiary **Mitsubishi Electric India Pvt Ltd** (MEI) has opened a factory for transportation-systems business in Bidadi, near Bengaluru, India. Mitsubishi Electric is targeting transportation-systems annual revenue of US$170 million in India by fiscal 2020, in part by strengthening sales and maintenance services for subways and trains to meet the growing global demand for transportation infrastructure.

Displays

- According to a *DigiTimes* report **LG Display** is planning to invest more than US$ 4 billion in new OLED facility, P10, in Paju, South Korea. The company has been increasing both its production and investment in OLED in order to meet the upcoming demand for both smartphones, tabled and TV applications.

- Foxconn, according to local media reports, is looking to invest RMB 28 billion (US$4.4 billion) in constructions of a Gen-6 LTPS (Low Temperature Polycrystalline Silicon) factory in Zhengzhou, the capital of China's inland province Henan. The plant is slated to launch operation in 2017 and begin volume production in 2018, with a production capacity of 20,000 units per month.

Automotive

- The German automotive components and systems supplier **paragon AG** has opened its first production plant in China. The site in Kunshan will initially produce air quality sensors. In 2016, the company will also begin the assembly of battery systems.

Components

- The German company **X-FAB Silicon Foundries** has announced it will expand the capacity and capabilities of its Kuching-based foundry operation, **X-FAB Sarawak Sdn Bhd**, to meet accelerating demand for its core technologies – the 0.18µm and 0.35µm process platforms. With revenue having grown 25% for each of the past two years, and similar growth expected for the next two years, X-FAB plans to invest a total of US$114 million between 2015 and 2017. This includes capex spending amounting to US$29 million in the current year.

- AIM Solder, a leading global manufacturer of solder assembly materials for the electronics industry, has announced that its Shenzhen, China facility has been awarded an ISO/TS 16949:2009 certification for the manufacture of solder paste, solder wire and solder bar for automotive products.

European Electronic Markets Forecast

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REED ELECTRONICS RESEARCH

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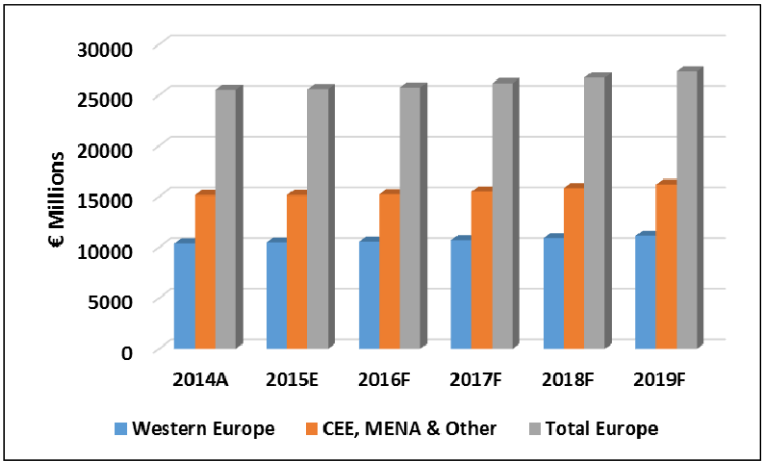
New Analysis Provides Strategic Outlook for European Electronic Manufacturing Services Industry

Reed Electronics Research's latest strategic study on the European EMS industry, the Thirteenth, provides an in-depth analysis on one of the key sectors of the European electronics industry. In addition to the market projections through to 2019, the report highlights the key trends impacting the industry and the major players, both on a European and country level.

The Market

2014 was a tough year for most EMS companies with revenues in Western Europe declining by almost 3% while an increase of 3.4% in Central and Eastern Europe (CEE) and Middle East/North Africa (MENA) helped the overall European market post growth of 0.5%. Although the market is expected to recover, growth is forecast to remain flat in 2015/2016 before gaining some traction in the later part of the forecast period.

EMS revenues in Western Europe are forecast to reach Euro 11.16 billion in 2019, up from Euro 10.37 million in 2014, with the market increasingly focused on the Aerospace, Defence, Automotive, Medical, Control & Instrumentation, Industrial and Telecom (ADAMCIT) segments of the market.



EMS Revenues for Western Europe and CEE/MENA and Other 2014-2019

The transfer of production to manufacturing facilities in CEE/MENA to reduce costs and the increasing demand by OEMs for EMS to offer local manufacturing in key global markets will dampen growth in Western Europe during the period to 2019.

The reverse applies to CEE/MENA where growth will be boosted by the transfer of production from Western Europe and in particular, lower volume high mix products in the ADAMCIT segments. This is expected to be offset in part by the migration of higher volume products in the consumer, computing and communications, or 3C, segment to Asia as the major global EMS companies come under increasing pricing pressure. Assuming that the leading global EMS providers remain committed to retaining a major manufacturing presence in the region revenues are forecast to reach Euro 16.21 billion by 2019, up from Euro 15.15 billion in 2014

The Major Players

Although made up of over 1,000 companies, the industry is dominated by a small number of Global players with the Top 3 – Foxconn, Flextronics and Jabil – accounting for around 44.5% of revenues in 2014, with nearly 90% from plants in CEE focused on the 3C segment.

Approaching 75% of the total sales (Euro 19.1 billion) are achieved by the leading 50 companies or 5% of the total number. We are expecting that there will be further consolidation across the industry due to the downward price pressure, slow economic growth and requirement to broaden and deepen the design, development and aftercare services to customers.

This comprehensive report provides:-

A detailed market analysis to 2019 for Western Europe, CEE and North Africa in a single report.

A breakdown of the market by major sector.

An in-depth analysis and comment on the key market trends impacting the European EMS Industry.

A ranking and detailed profiles of the Top 20 EMS providers in Europe.

An overview of electronic production and EMS manufacturing in the major countries and regions including a ranking of the leading companies and profiles of the major players.

A directory by country of the EMS manufacturing locations with addresses, contact numbers, websites.

An appendix with the estimated sales turnover for 2014 of the Top 50 European EMS providers and the Top 50 European EMS companies based on global revenues and a list of the prevailing and historical currency exchange rates.

Reliable, Timely, Cost-Effective *…….*

REED ELECTRONICS RESEARCH

RER published its first study on the European EMS industry in 1993 and since then has tracked the development of the industry through a series of comprehensive reports and now offer a range of publications as well as consultancy to meet your specific information needs.

Contents

Who will benefit

RER's Series of reports on the Electronics Manufacturing Services (EMS) industry is essential research for all areas of the electronics industry including:

- Distributors and manufacturers of electronic components and materials - the profiles and directory provide a detailed analysis of potential customers, highlights growth markets by sector and country/ region. The understanding and interpreting of the market trends will also be important as this market further develops.

- Production equipment suppliers – the profiles and directory provide a detailed analysis of potential customers, track key EMS trends and provide location information.

- OEMs – A comprehensive guide to the major EMS companies in Europe in detail and further listing of EMS companies by geographic location.

- EMS – The report provides a complete overview of the European EMS industry, including revenue forecasts by country, competitor information and the trends which will have an impact on business in the period from 2014 to 2019

- Other organizations which will benefit from the report include: Government, including investment organizations; Financial and industry analysts; Academic institutes & universities tracking developments in the electronics industry.

Related Research

The European EMS Industry - A Strategic Analysis of the Top 50 European EMS Providers

Annual report providing a strategic analysis of the Top 50 European EMS providers in Europe and the leading 50 European EMS based on global revenues. The report provides a ranking by revenue for 2014, detailed company profiles and a directory of their European manufacturing facilities.

Publication Date: January 2016
Price: £550/Euro 770

For a limited period the price includes an annual subscription to European Electronic Markets Forecast (see below)

European Electronic Markets Forecast (EEMF)

Published since 1996, EEMF provides a combination of market analysis, industry overviews and company news to keep you fully informed of the latest developments in the European and global electronics industry. Designed to save you time and resources the report can quickly be distributed via email to the key decision makes within your company.

Publication Date: Monthly
Price: £450/Euro 565
Introductory price £360/Euro 500

For a sample copy please contact andrew.fletcher@rer.co.uk

The European Electronics Industry - European Electronics Production 2000-2018

As part of its programme of research covering developments in the European electronics industry, RER has released a new statistical database providing a medium term outlook for electronics production in Europe. Covering the period 2000-2018 the research allows you to track developments both geographically and by major product group for 29 countries.

Publication Date: September 2015
Price: £995/Euro 1395.

Custom Research

In addition to its published reports, RER offers bespoke client research and consultancy services on the European and global electronics industry, including in-depth industry presentations for internal sales and marketing meetings.

Please visit www.rer.co.uk or contact andrew.fletcher@rer.co.uk for more detailed information on any of the above reports or to discuss your require custom research requirements.

REED ELECTRONICS RESEARCH

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