The background is a vibrant green with a complex pattern of orange and white circuit board traces. A large, light grey, downward-pointing arrow shape is positioned in the upper left. A dark silhouette of a European city skyline, including recognizable buildings like the Eiffel Tower and the Gherkin, is centered horizontally and reflected below. The text is overlaid on this background.

An Industry on
the move forward

An Exciting Journey
— NCAB's Growth in Europe

#1 2019

INFOCUS:

The electronics industry in Europe

– Yesterday, today and tomorrow



The field of technology has seen very rapid developments in recent years. Complex electronics can now be put into everyday products that previously did not contain electronics at all. A light bulb, for example, used to be a very simple product. Today you can buy bulbs that offer a variety of functions, can connect to the internet and be controlled via an app in your mobile phone.

NCAB has a presence in many major markets across Europe. So, in this issue of our newsletter, we will be focusing on the electronics industry in Europe. We will be tracing developments to date and looking ahead to developments going forward.



“What the right choice is when it comes to outsourcing very much depends on the type of product involved and at what point it is in its lifecycle. Is it at the development stage?”

**JON BARRETT, CHIEF EDITOR,
ELECTRONIC SOURCING**

We asked Jon Barrett, chief editor of the electronic magazine Electronic Sourcing, to share his views on the development of the European electronics industry.

If you compare the European electronics industry today with what it was like a decade ago, what would you say are the biggest differences?

“That is incredibly difficult to sum up briefly, but I can pick out two crucial changes that have affected all aspects of the industry, including printed circuit boards.

“The first is that we have seen what we could describe as a “democratization” in the field of electronics design. Ten years ago, new product development was mainly the domain of established manufacturers who had the necessary resources and brainpower to develop new products and take them to market. That is no longer the case today. Thanks to digitalization and the internet, it is now much easier for almost any aspiring designer to find the right skills and suppliers. The barriers to entry have gone and product design is happening everywhere.

“The other major difference is that electronics design is moving from a component-based level to a multiple level, with electronic designs increasingly being created with modules in mind, rather than

individual components. This simplifies the design process, since it can be sourced in modular form. We may in the future see more PCBs that have pads for modules, not components.

“These two changes mean that complex electronics can now be put into everyday products that previously did not contain electronics at all. Take lighting - in the past, a light bulb was a very simple product, today you can buy light bulbs that offer a variety of functions and even connect to the internet and can be controlled via an app in your mobile phone.”

How would you describe the outsourcing trend today, compared to earlier?

“For a time outsourcing was like a gold rush. One player started to do it and then everybody jumped on the bandwagon. I feel that some companies outsourced unnecessarily. That’s over, now they outsource for all the right reasons. For example, some operations may choose to focus on intellectual property rights and innovation through design rather than on manufacturing. Or they might be trying to access a market where trade restrictions apply, and which as a consequence, require products to be manufactured where they are sold. It can also be advantageous to manufacture close to their customers.

“What the right choice is when it comes to outsourcing very much depends on the type of product involved and at what point it is in its lifecycle. Is it at the development stage, in volume production or perhaps support? And you need to ask what the lifecycle of the product in question is expected to be? The time perspective may differ greatly depending on the type of product. It might be decades for a military aircraft, or 24 months for a mobile phone.”

If we look specifically at the PCB industry, what have the dominating trends been in recent years?

“We’ve seen PCB suppliers within the industry function more as a partner, both to its customers and the wider PCB community. The supplier acts as the customers’ sole point of contact in PCB matters,

“We’ve seen PCB suppliers within the industry function more as a partner, both with their customers and the wider PCB community.”

JON BARRETT, CHIEF EDITOR, ELECTRONIC SOURCING

throughout the product lifecycle. Some suppliers have their own manufacturing and some don’t. Others may operate as niche suppliers and specialize in the manufacture and design for a particular type of application.

“Another trend within the industry is the growing importance of traceability, both with regard to PCBs and components. If errors occur with a PCB, it is vital the product owner is able to trace its origin. The same applies for the components fitted on the board. Who made the board, where and when was it made? Under what conditions was the item stored and for how long? Does it have a stipulated limit to the time it may be in storage? Under what conditions was it transported and how long did it take? And so on and so forth.”

How would you describe the immediate future for the PCB industry?

“I would say that the demand for PCBs will increase as battery powered devices drive innovation. Renewable energy, Internet of Things (IOT), automation and industry 4.0 are what will largely drive developments over the next five years. After that, AI will be the next big thing.

“Fewer electronic products will get their power directly from the mains. Instead, we will increasingly be using batteries to charge them. The ability to generate increasing amounts of renewable energy through solar and wind power will drive the increasing use of battery-powered electrical systems. With batteries powering not only mobile phones but also cars and houses, we will see a greater focus on making electronic and electrical systems more energy efficient. Work will also have to be done on extending batteries’ run times and ability to deliver full power.

“To give us some perspective, we could look at the infrastructure for our home lighting. It used to require just 240 V, a mechanical switch and a length of metal wire that glowed when heated. PCBs weren’t anywhere in the equation. Today, that equation might well include solar panels, inverters, battery chargers, control systems, LED

drivers and LED lights. Maybe add to that, some wireless intelligence to remotely manage your lighting. I’d say this would involve at least six-seven PCBs. Given the pace of innovation in the area as regards both efficiency and functionality, I’d say that hat the we would see the initial set of PCBs replaced after five to ten years.

“Moreover, there are more and more portable electronics products being produced. These are battery operated, which makes weight and size increasingly important factors. This will also drive materials innovation in the PCB industry.

“When it comes to IOT, which is now happening, electronic intelligence is being built into what we could describe as formerly ‘stupid’ electrical products. This is creating a need for smaller and more specialized circuit boards with standardized interfaces that are capable of handling the new more complex workings of the product.”

“The automotive industry will play a particularly important role.”

JON BARRETT, CHIEF EDITOR, ELECTRONIC SOURCING

Which industrial segment would you rank as the most significant?

“The automotive industry, because we’re going to see particularly important developments when it comes to more advanced “ordinary” cars, as well as driverless vehicles. Then there will be a great deal happening with regard to smart factories, smart mines and IOTs in general. We should add medical equipment to the list, although development there will be slower due to the demanding certification processes. Nevertheless it will be an important segment. The expansion of the 5G network will also have a major impact on the electronics industry.

The industry is currently experiencing a shortage of components. What are your comments on this?

“The shortage is restricted to older, larger components and is a consequence of it being more profitable for the factories to manufacture the new generation of smaller components. At the same time, demand for older components has increased. I think this is actually a cyclical imbalance that will level out by the end of 2019. Some factories are increasing their production of larger components while some buyers are at the same time adapting their designs for use with the new components.



Medical equipment will be an important industrial segment going forward, together with the automotive segment, smart factories, the Internet of Things, among others.



There is a growing commitment to sustainability issues in the electronics industry as well. NCAB has been working actively with sustainability since 2014. Here, we see Jenny Zhang, Sustainability Manager, NCAB Group China, conducting a sustainability audit in a factory.

“Those who are feeling the worst effects from this type of imbalance within manufacturing market are those parties who haven’t established a good relationship with their distributors, but have instead chosen to shop around for lower prices.”

“The Western markets have reached a point where there is really no incentive for companies to be unsustainable.”

JON BARRETT, CHIEF EDITOR, ELECTRONIC SOURCING

Sustainability is something we are hearing a lot about in the media, but do you see a greater commitment to this issue in the electronics industry?

“The Western markets have reached a point where there is really no incentive for companies to be unsustainable. Firstly, there are obvious financial reasons to cut down their resource and energy consumption. Furthermore, it can be extremely costly for anyone who fails to comply with environmental regulations. Finally, there are moral reasons that speak strongly for sustainable business. Not least, a great deal of pressure is coming from end customers setting out a moral compass for suppliers to align themselves with. Moreover, in the world of social media there is nowhere to hide. You can be discovered and outed. You can’t get away with things in the course of public opinion. This means that you have to be careful when you outsource. You can’t outsource your responsibility for sustainability.

“If we look at the electronics industry’s role in driving consumption, I do feel that the industry does contribute to a more sustainable world, since the new products on the market are more energy-efficient and smaller, which saves on the use of raw materials. In the West, we are also beginning to reach saturation point on the consumer side. The main driver will instead be businesses and industry where the potential energy savings are even greater.”

What other challenges do you see the electronics industry facing today?

“A major challenge for the industry in general, which is important

not least from a sustainability perspective, is how to implement electrically driven, sustainable, autonomous forms of transport.

For the PCB industry in particular, I think we will see a major challenge going forward in the shape of demands for rapid development and new products, but combined with calls for long-term support for older products. Previously, product lifecycles for electronics have either been very long, such as with aircraft, military equipment or vehicles, or very short, as with consumer products. The trend nowadays involves pressure being put, in the name of sustainability, to provide consumers with the legal right to repair electronics products rather than having to replace them. IOT within the industry falls somewhere in the middle opinion-wise, regarding how long an electronic product should be supported.



“We are seeing a trend where pressure is being applied, in the name of sustainability, to provide consumers with the legal right to repair electronics products rather than having to replace them.”

“The best thing for the market in all these cases is a stable, robust and well-funded PCB sector, with IT and process support that enables flexible services. It should support the rapid development of unique prototypes, volume production and at the same time be able to handle unpredictable and complex long-term aftermarket support issues.”

A fascinating journey

To supplement the picture of the industry's development in general in Europe, we put some questions more specifically focused on NCAB to Howard Goff, Vice President Europe, and Rikard Wallin, Vice President Nordics.

How would you describe developments for NCAB in Europe over the past ten years?

Howard Goff (HG): "If you compare the Group's turnover today with the levels nine years ago when I started at NCAB, it is 2.5 times as high. Despite an at times unstable and volatile market, we have maintained very stable, sustainable growth, both organically and through acquisitions. It is quite remarkable and it has been fascinating to be part of that journey.

"Our local presence and our local commitment create loyal customers among companies that value quality at every level."

HOWARD GOFF, VICE PRESIDENT EUROPE

"I think that we can explain much of this success by the fact that we are an organization that is driven by values. We put quality first, build strong relationships and take full responsibility for our customers. Our local presence and our local commitment create loyal customers among companies that value quality at every level. We are seen as a low-risk PCB supplier, which is important in view of the enormous costs for the product owner that any errors on a PCB can entail."

Rikard Wallin (RW): – In the Nordic region, which is a mature market, NCAB has slowly but surely grown on all fronts. An important factor is that we build relationships with various kinds of customers those who develop products, produce them for themselves or outsource to manufacturers. What all our customers have in common is that they value good logistics, delivery reliability and quality. We invest a lot in helping developers to design for manufacturing. The better they are at making clear their demands when they contact us, the better the chances we have of clinching the deal."



Howard Goff, Vice President Europe



Rikard Wallin, Vice President Nordics

What would you say are the biggest challenges NCAB is facing in the European market today?

(HG): "I do not really want to talk about challenges, what I see are opportunities. The entire structure around our organization is decentralized and based on giving employees the right to decide and responsibility and the support they need to make the right decisions. What we have to do is help our employees grow in the direction they wish to go themselves. That is how we can ensure that we have the best employees in the industry. I have seen what fantastic results this has led to and it is vital we keep continuously growing our employees."

"What all our customers have in common is that they value good logistics, delivery reliability and quality."

RIKARD WALLIN, VICE PRESIDENT NORDICS

(RW): "Rarely do organizations in the electronics industry opt out of building technical know-how in the name of efficiency. That's why



Twice a year, we arrange Global Introductions for all new NCAB employees. Here, Anna Lothsson, Sustainability Manager at NCAB Group, is describing the company's sustainability work.

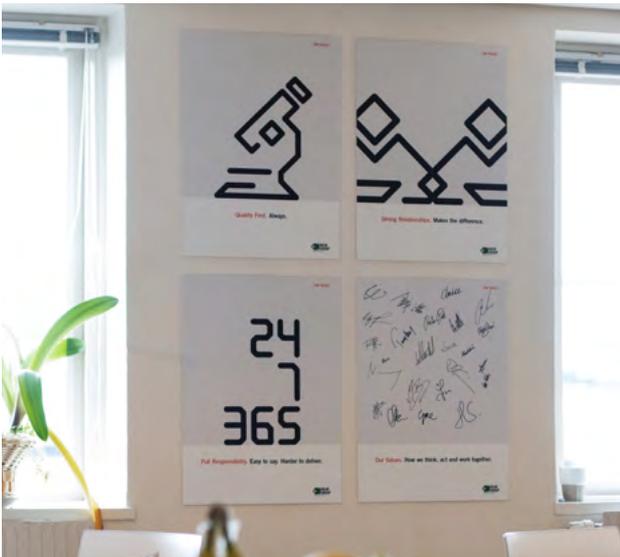


NCAB Group CEO Hans Ståhl sounding the bell to mark NCAB's introduction on the Nasdaq Stockholm Stock Exchange in June 2018.

“We must win our customers’ trust in order to clarify the added value we deliver in the form of higher quality.”

RIKARD WALLIN, VICE PRESIDENT NORDICS

It is important for us to help purchasers and product owners make appropriate decisions based on the total cost of purchasing PCBs. We must win our customers’ trust in order to clarify the added value we deliver in the form of higher quality. We achieve this through the local presence of skilled technicians and salespeople in the customers’ market - and of course, by demonstrating stability and sustainability over time in our deliveries.”



“I think that we can explain much of this success by the fact that we are an organization that is driven by values. We put quality first, build strong relationships and take full responsibility for our customers.” says Howard Goff. All our offices around the world have the group's values hanging on their walls.

In what way do European political and economic developments affect NCAB and the electronics industry in general?

(HG): “Looking back, we can see that NCAB has managed to survive and grow despite times of political and economic woe in the past. Certainly, we’ve experienced minor interruptions in the curve’s upward journey due to recessions, trade wars, laminate deficiency, fluctuating oil prices, GDPR and now Brexit. And certainly the world is less predictable today than in the last 30 years, but good companies like NCAB can handle issues such as these.

(RW): “At worst, a tough Brexit can of course be a major blow for everyone involved. Otherwise, political unrest in countries such as Poland and Hungary has not affected our industry very much. They are still important manufacturing countries for the electronics industry.

“Regardless of the sector, we turn to anyone who wants to minimize the risk of errors.”

HOWARD GOFF, VICE PRESIDENT EUROPE

How do you view the situation going forward?

(HG): “The NCAB Group was listed in 2018. It has proved to be a very positive development for the Group and helped us gain further recognition and respect. It’s given us even more resources to grow and build our customer base in both mature and new markets.

“Historically, we usually divide the industry into low technology and high technology, but we’d rather define it in terms of quality. Regardless of the sector, we turn to anyone who wants to minimize the risk of errors. If you manufacture smoke detectors, reliability is important even if the technology is not so advanced. At the same time, it is not as easy as it seems to buy PCBs from low-cost countries. Our core competence is precisely to supply high-quality PCBs, on time and at the right price. It demands quite a lot from us throughout the supply chain and we will continue to deliver this to our customers.”

(RW): “Looking at trends ahead, I believe that everyone will have to relate to the sustainability issue. Not least, it is an important factor in attracting the best young talents. The young generation demands high credibility in this area.”

An Industry on the move forward

HANS STÄHL
CEO NCAB GROUP



The past ten years have seen exciting developments in the electronics market as a whole. This applies not only to all the new technology that different players in the industry are turning out, but also to the continuing shift of PCB production to Asia. This has been hugely significant for NCAB. Thanks to our business model we have continued to successfully deliver value to our customers and achieved a global growth level of 400%. In Europe, we have established companies in the UK, France and Italy and have a local presence in 15 countries worldwide.

20 years ago, it would have been impossible to even dream of the extent and variety of advanced electronics that are today generally available to consumers everywhere. This scenario of continuously evolving products will see a growing demand for high-tech PCBs, and to meet this demand, it will be crucial for us to maintain our know-how and skills at the cutting edge of the industry. For NCAB, the keyword

is, and always has been, quality. In order to continue attracting not only customers, but employees as well, another priority will be to focus on honing our technical skills internally. Doing so will be vital if we are to continue being able to provide customers with the information and advice they need to attain the best possible solutions.

Working sustainably is also a key to success for companies that wish to continue being major players in the industry. For our part, we continue to steadfastly build up the sustainability strategy that we introduced in 2014. This has become an integral part of our operations and is applied in our activities on a daily basis.

Our view of the electronics industry going forward is a bright one. We see new opportunities, both in Europe and other parts of the world. It is indeed a privilege to be part of an industry that is constantly evolving and plays an important role in many peoples' everyday lives.



NCAB Group in Social Media

To get the latest news from NCAB, follow us on Twitter, LinkedIn and YouTube, and read our blog where we

immerse ourselves in the versatile world of circuit boards!

» [Twitter](#) » [LinkedIn](#) » [Blog](#) » [YouTube](#)

Join us!

We're always looking for competent people. If you are a well skilled technician, customer service or

sales person, don't hesitate to contact us or send your resume to: career@ncabgroup.com

Subjects we have covered earlier

Do read our earlier newsletters. You will find them all on our website, www.ncabgroup.com/newsroom/

» The PCB Industry in the United States

2018 12 14 | NEWSLETTER 4 2018

» More advanced boards and shorter product life cycles

2018 10 23 | NEWSLETTER 3 2018

» A better future

2018 06 18 | NEWSLETTER 2 2018

» Factory management

2018 04 12 | NEWSLETTER 1 2018

» More electronics in smaller spaces

2017 12 15 | NEWSLETTER 4 2017

» Sustainable Business

2017 10 25 | NEWSLETTER 3 2017

Are we taking up the wrong subjects?

We are always looking for interesting subjects that we could take a more in depth look at.

If there is something you would like to learn more about, or perhaps you would like to comment on anything we have written, do get in touch with us and tell us more.

Mail: sanna.magnusson@ncabgroup.com