





The sectors driving the American PCB market are medical and automotive – self-driving cars and so on, as well as aerospace, Internet of Things, and cellular.

It has been more than six years now since NCAB Group first set up operations in the United States. Much has happened during this time, and this issue of the newsletter takes a closer look at the U.S. market, which has been undergoing a period of great uncertainty.

To help us with that, we turned to industry veteran Nolan Johnson, who, after three decades in the electronics design and manufacturing industry, is now managing editor of media producer I-Connect007, which publishes a number of specialized digital trade magazines and other digital content.

**What have been the main drivers within the PCB industry in the U.S. since NCAB started its operations here in 2012?**

"In terms of technology we have been seeing a steady progression towards HDI. When it comes to the increasingly smaller and more complex chips, there really is no choice for anything other than HDI. Another major trend that is driving the manufacturing market is the increasing use of flex, usually flex-rigid designs, due to consumer demand for wearable items.

"In terms of sourcing, it's a bit of a mixed bag, with some companies turning to foreign-based suppliers. There is still a dynamic for overseas sourcing for larger volumes and longer lead times. For smaller volumes, there is no obvious trend. The same applies to electronics manufacturing in general. It seems to me that China is taking on the mantle of global industry leader when it comes to factors such as labor and infrastructure. But having said that, we are seeing an erosion of the price gap, or margins, due to tariff issues. Also, the availability of components is steering manufacture of the PCBs to the same market the components are produced.

**If we look at the immediate future, what do things look like then?**

"We are living in times where the overriding feeling is one of uncertainty. U.S. tariffs are stirring things up and causing problems in the industry's supply chain. There is no general consensus within the industry about how best to handle the changing situation. Nobody can foresee for sure what direction things are going and as a result there is a great deal of uncertainty as to how to handle sourcing.

"One effect of this general uncertainty I think is that it gives players like NCAB a competitive edge. A design team looking to source electronics today needs to invest a considerable amount of time and effort working with buyers and planners, carefully examining and comparing



**"One effect of this general uncertainty I think is that it gives players like NCAB a competitive edge."**

**NOLAN JOHNSON, MANAGING EDITOR, I-CONNECT007**

the options. If production costs in China rise, it is important to be on top of your supply chain. So, turning to someone like NCAB instead makes a lot of sense. The PCB supplier can just focus on the design and let someone else worry about whether the manufacturing should be moved from one location to another."

**Where is the American market for PCBs going and what is driving growth?**

There is a feeling of activity and growth. Manufacturers able to meet demand in an appropriate manner are seeing growth, while others are experiencing a slowing demand. The medical and automotive sectors – self-driving cars and so on, are driving the market; not forgetting aerospace, IoT, and cellular as always.

**What would the effect be on the American electronics market if a trade war were to break out?**

"That's a good question and I'm not sure anyone has a good answer, so it's ripe for speculation in these uncertain times. There is a camp in the industry that supports a harder line and wants to reset boundaries. Customers are re-evaluating, assessing their options and choosing to move their manufacturing bases back to the U.S.

"However, I feel the biggest impact comes from what I mentioned earlier, namely the dynamics of the situation, which is prompting electronics companies to look at their PCB supply chain, re-evaluate and put everything to question. That's why we are seeing a trend where sourcing is being handled as a project-by-project operation. It is

difficult to measure the impact on different sectors of the industry.”

**Can one say anything generally about trends with regard to outsourcing, offshore and onshore manufacturing?**

”Trends are divergent. If you look at manufacturing in Asia; that’s always about costs. The benefits are almost always linked to margins or logistics. It is on the one hand a matter of lower manufacturing costs and, on the other, as previously mentioned, of gaining advantages by manufacturing PCBs close to where you can source the components.

”Depending on individual company values you can choose to produce in the U.S. Some companies have a value statement to produce everything in the U.S. Others are not so devoted to that way of thinking. Not least, companies with a global presence have another way of looking at it. With the general scenario today being one of continuous reassessment, some companies may conclude that it is not economically profitable for them to manufacture in the United States. Perhaps they recognize that they can achieve better flexibility and price stability through working with a player such as NCAB. My point is that today’s dynamics are prompting U.S. PCB customers to revise the calculations.

**“We are also seeing that sustainability is an important factor for PCB customers. They are asking how green factories are and how, for example, conflict minerals are handled.”**

**NOLAN JOHNSON, MANAGING EDITOR, I-CONNECT007**

**What is the status as regards PCB production onshore in the U.S.?**

”Our October issue of PCB007 highlights a new factory in New Hampshire. It’s a fully automated, state-of-the-art operation for advanced HDI prototype work. That is an example of where PCB production should be in the U.S. The problem is that it is not like that. The norm is old infrastructure. The manufacturing industry has not moved forward nearly enough. The tech gap is pushing designers to look overseas or hook up with a source like NCAB, who can find the right factory for them.

”Yet another problem is the competence issue. The IPC is encouraging new college graduates to join the industry. There is a large group of over 50s now who are getting ready to retire and there isn’t



One problem many PCB companies are facing is the competence issue. There is a large group of experienced over 50s now getting ready to retire, but there isn’t enough skilled labor to take their place. That’s why the IPC is encouraging new college graduates to join the PCB industry.

enough skilled labor to take their place. The industry today comprises those who are over 50 or under 30, which is very concerning for the industry. Some U.S. factories could shutdown simply due to a lack of competence. This adds yet another level of uncertainty.

”12 to 15 years ago, IPC recognized about 850 factories, a lot of them were small and local. This has since consolidated. The number of factories has shrunk and will continue to do so. My guess is that in the next 4-5 years there will be just 250 left. This isn’t only due to economic pressure from offshore factories, but also a reluctance to invest in equipment and the staffing problem I mentioned.”

**How high up the agenda is sustainability within the American PCB industry?**

”Contrary to what you hear about in daily politics, sustainability is very much on the agenda. For example, the factory in New Hampshire has achieved zero waste and zero effluent. It’s a model that shows it can be done and how to do it. In New Hampshire specifically there are a lot of green, zero waste facilities.

”We are also seeing that sustainability is an important factor for PCB customers. They are asking how green factories are and how, for example, conflict minerals are handled. But I wouldn’t say that we have come to the point where green is more important than price. Yet hopefully, if you do your homework and build a sustainable plant with zero waste, it is overall more efficient and ultimately cheaper than the old way of doing things.”



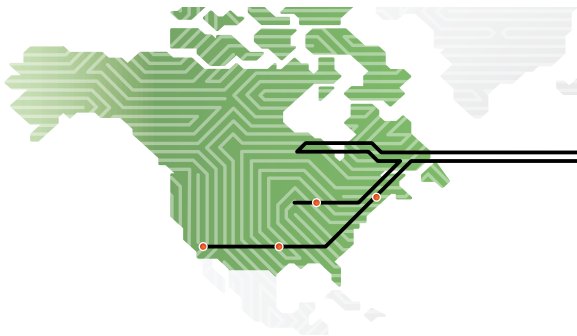
Sustainability is an increasingly important factor for U.S. PCB customers. They are asking how green factories are and how, for example, conflict minerals are handled. But price is still a more important factor.

## Local presence and global strength

The NCAB Group set up its U.S. base in Hampstead, New Hampshire on the U.S. East Coast in 2012. The company has since established itself throughout the United States. Customers across the country can take advantage of the strong purchasing power NCAB can offer, its high level of service and comprehensive factory management. Martin Magnusson, President of NCAB Group USA, sees a bright future ahead for NCAB in North America, despite market uncertainties.

### How would you describe NCAB's growth during the six years you have been established in the U.S.?

"NCAB Group's establishment in the U.S. started when we acquired PD Circuits 2012. In many ways it could be described as an uncomplicated integration process, since PD Circuits was quite similar to NCAB. We had similar business models, types of customers and factory management set up in China. One difference was that they had a smaller sales force and a large indirect sales network through sales representatives. We have systematically changed that and expanded our sales force, but also retained a lot of the indirect sales channels, especially in regions where we do not have a presence ourselves.



NCAB Group has four offices in the U.S. today and we see a potential to expand our presence to other regions. Just like in Europe, local presence is important here, with business often conducted locally. We are thus planning new sales offices to provide our customers with the best service experience," says Martin Magnusson, President of NCAB Group USA.

"In 2014, we expanded our U. S. presence to the Chicago region through the acquisition of M-Wave's circuit board department in Itasca, Illinois. In that case, the structure of the company's customers was quite different from PD Circuits, which made integration more challenging. The part of the business based on the delivery of large



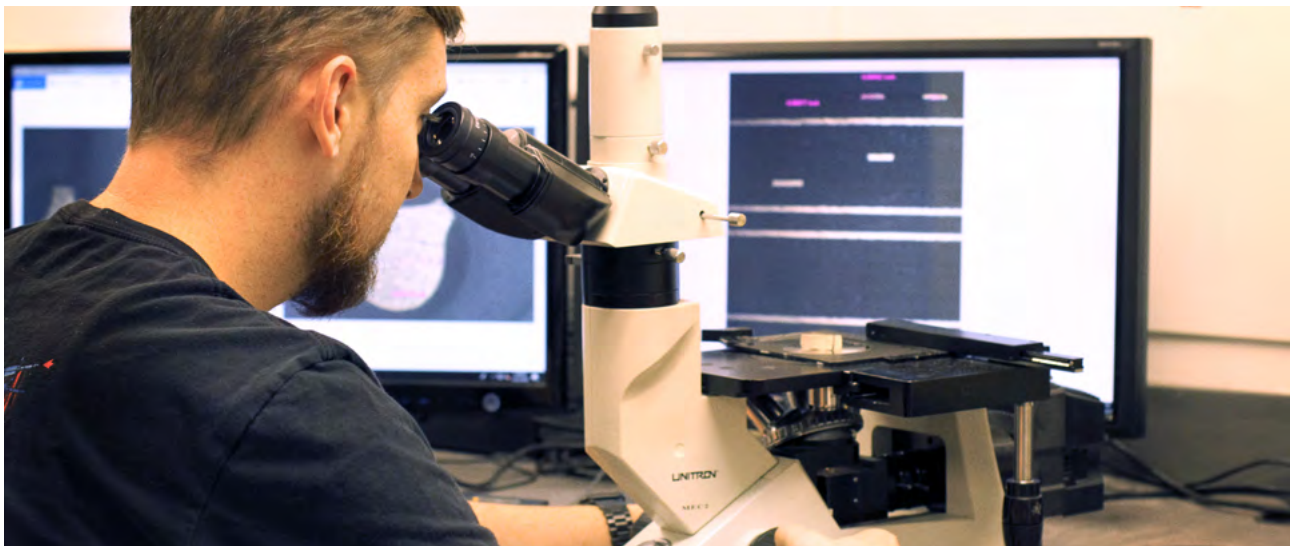
**"We have put a great deal of effort into building a culture where motivated employees are to a large extent able to make own decisions, can see opportunities for growth and take every opportunity to realize them."**

**MARTIN MAGNUSSON,  
PRESIDENT, NCAB GROUP USA**

volumes of more basic boards has been phased out and replaced by more of NCAB's main activities that focus on the High-Mix, Low-Volume (HMLV) segment.

"Prior to acquiring M-Wave, we had established our first sales office in Vancouver, Washington, adjacent to Portland, Oregon. We followed up the M-Wave acquisition with two further sales offices; in Dallas, Texas and Los Angeles, California. These are exclusively sales offices to secure our presence and cover customer support, sales and technology in key regions. These services are also provided through our offices in New Hampshire and Chicago, with added areas encompassing quality control, lab and warehousing.

"We are now focusing on further growth. The USA market offers massive potential and favorable conditions. To achieve success here, you need to fully grasp the enormity of the country and that it comprises 50 states that vary a lot. Just like in Europe, local presence is important here, with business often conducted locally. We are thus



Two of NCAB's offices in the U.S., in New Hampshire and Chicago, have their own labs and equipment to run inspections, including first article inspections.



In this picture we see Wendy Liu, Quality Manager NCAB Group China, carrying out an audit at Suntak, Jiangmen in China. “Through our purchasing power and our factory management in China, customers get preference priority at the factories,” says Martin Magnusson, President of NCAB Group USA.

in the process of planning a new sales office to provide our customers with the best service experience.”

**How would you describe the main challenges NCAB has had to face?**

“One challenge has come in the form of the different way leadership is viewed here. We are a Swedish, value-based company that builds on everyone knowing where we are going and assuming a great deal of personal responsibility. We have put a great deal of effort into building a culture where motivated employees are to a large extent able to make own decisions, can see opportunities for growth and take every opportunity to realize them. We have also worked to build our brand internally and, among other things, have designed our offices to resemble those in Europe.

**“Increasing the tariffs to 25 percent will make things hard for the industry. At the same time, the increase will not bring any board production back to the United States to any significant extent.”**

**MARTIN MAGNUSSON, PRESIDENT, NCAB GROUP USA**

“The biggest challenge for us, like the rest of the industry, is to find and retain people with the right skill sets. Unemployment in the States has been very low during the period we have been here. Finding appropriate staff has in fact become by far the biggest single challenge companies are facing. It is particularly difficult to find people with the niche skills we need. One way to tackle this is to hire young talents who can learn from experienced colleagues.”

**In what way would you say the political and economic situation in the U.S. has affected NCAB and the electronics industry?**

“Firstly, I’d say that the economy is doing well. Growth and inflation are high, unemployment, as mentioned, is low. At the same time we see worrying clouds on the horizon in the shape of a growing federal budget deficit. We need to keep an eye on how it develops in the longer term. We have to take into account that a recession is on its way, the question is when it’ll happen and how deep it’ll be. At the same time, I am confident that NCAB will weather the storm and remain strong through our local presence combined with the superior service, knowledge and quality we offer.

“Looking specifically at the issue of tariffs on trade with China, I would say how it pans out will be the biggest single factor that will determine how things go for NCAB, for our customers and for the whole

country. For PCBs specifically, the customs duties amount to 10 percent, to which NCAB adds 7.52 percent when we invoice. It is important I think to emphasize that the boards themselves have not become more expensive, the industry has to see it as a tariff and nothing else.

“Increasing the tariffs to 25 percent will make things hard for the industry. At the same time, the increase will not bring any board production back to the United States to any significant extent. There is no capacity for larger volumes. At the same time, there is a lack of willingness to invest since new policies can lead to tariffs being eliminated quickly. What’s going to happen in a trade war is instead that the consumers will have to bear the burden. It neither creates jobs creation nor stimulates the American economy.

“With higher tariffs, many companies will find cash flow a major problem. Everyone will have to tie up more of their money before they can invoice and cover their costs. It will create liquidity problems for many smaller companies. On the other hand, for a financially strong, listed player like NCAB, it may mean new opportunities.

“Whatever happens, we’ll try to look constructively at all factors. We can always offer the option to manufacture in the United States, but the price will not be particularly attractive. Handling tariffs can be incredibly complicated. This may benefit us as we can offer added value by relieving customers of the extra trouble involved. But I do feel that even with higher tariffs, China will remain competitive in terms of both electronics in general and PCBs specifically.

**How do you see the future shaping up?**

“I see that NCAB is well positioned in the market. We have a local presence in the United States, and can provide our customers with better prices, quality and service than our local competitors. Through our purchasing power and our factory management in China, customers get preference priority at the factories. Going to China yourself is not a real option for the customer categories we focus on. Chinese companies with sales offices in the U.S. are targeting customers with large volumes and the U.S. manufacturers who have started their own outsourcing operations in China are finding it hard to do it as well as we do.

“The outsourcing trend is driven further by the industry’s skills supply problems. NCAB is able to exploit its global competence, not least in China. What we need to do now above all is it focus on further growth. The bigger we are, the greater the synergies and the greater the security customers can feel. To achieve this, we are striving to become a well-known name in the North American market. With the right market offering and prioritizing customer relations, within five years we will have grown to a much larger company than today.”

## We asked two of NCAB's talented and experienced American employees to give us their view of developments in the U.S. by asking them to answer two questions:



### USA

#### CONNIE HERRING

General Manager, NCAB Group USA West division

#### What do you see as the most important factors affecting developments in the U.S. PCB market since NCAB established itself in 2012?

"Since 2012 the competitive landscape has certainly changed in the U.S. Politics are a much stronger influence than previous U.S. presidencies. Political interference is new to our industry and has caused some uncertainty in an already deteriorating U.S. market.

"U.S. PCB manufactures are losing the race in contributing to the development of manufacturing equipment and raw materials. Most of this activity is now based in Asia.

"Today's market requires the PCB supplier to possess a complex web of skills in order to bring added value. Quality is very seldom mentioned, as dialogues are more focused on adding value, including early engineering engagement, design development, material selection and DFM support to name a few. These are now expected with a supplier.

"As regards competition, nearly all U.S. PCB manufactures have become traders in some form in a desperate attempt to remain a player. The market has a false confidence in this model. Customers believe that these players must know what they are doing, but the vast majority lack their own list of authorized suppliers or a team to monitor them. This has led to quality becoming a major issue on the agenda

"Suppliers with a focus on a quality relationship with factories, limiting customers to the exposure of the traditional offset of 'low-cost, low-quality expectations' are becoming even more valuable."

#### What are your biggest expectations for the years ahead when it comes to the U.S. PCB market?

"As electronic-based products continue to grow, so will the market that uses those products also. The interesting equation is, will there be enough capacity to support the research and development stateside along with the rapid increase of the military sector the U.S. is currently experiencing?

"U.S. board factories are no longer segregated into commercial or military -- many are certified to support both. The military sector has grown and now there is limited capacity in the competitive landscape of the top three U.S. suppliers. If the OEM has to accept waiting longer for an offshore build, this may establish a new price point for quick-turn, and change the U.S. market indefinitely."



### USA

#### WAYNE ANTAL

Key Account Manager, NCAB Group USA Eastern division

#### What do you see as the most important factors affecting developments in the US PCB market since NCAB established itself in 2012?

"Two very significant events have dominated the market and changed the landscape of purchasing channels in the PCB industry. Firstly, many Chinese PCB factories have themselves entered directly into the PCB market in the U.S. There is nothing new about this kind of direct sales to U.S. customers, but in the past it only involved the largest factories. However, it does not change the fact that there are inherent risks involved when purchasing directly from factories for customers in the high-mix, low-to-medium volume segment, as these customers lack the necessary purchasing power.

"The second major event is the 10 percent tariff imposed by the U.S. government on all PCBs imported from China. This tariff risks being raised to 25 percent unless the trade dispute is resolved before March 1, 2019. Whatever one might feel about the conflict, one should remember that these tariffs will not only affect the costs of goods sold in the U.S. to U.S. consumers, but also how and where these products are manufactured and assembled. This also applies to PCBs. This means that all electronics manufacturers in the United States will need to reassess their total production costs.

"The ongoing trade dispute also opens up opportunities for NCAB. Due to the negative impact of the tariffs on the cash flow of the individual organization, medium-sized PCB buyers have begun to review their options and become more interested in purchasing indirectly."

#### What are your biggest expectations for the years ahead when it comes to the U.S. PCB market?

"For the calendar year 2019, I expect that the political will for the new tariffs will disappear after their impacts are fully felt at the consumer level, and the run-up to the next Presidential election cycle kicks into gear.

"Secondly, as technologies press further into flex, rigid-flex and HDI designs, I see an exponentially higher need for closer relations between engineering teams. This will create opportunities for suppliers with a clearly defined focus on seamless production to gain market share by addressing this scenario. Trends in outsourcing the design and engineering roles to reduce costs will further bolster the 'local to the customer' selling point."

"With a return to common sense, the market in the U.S. will stabilize and return to its normal path of growth. Finally, I'd say, the U.S. PCB market will remain a fertile ground for market share expansion, despite the prevailing political storm we currently find ourselves. I expect that NCAB will be a big part of that growth."

# Exciting times in the American Market

HANS STÄHL  
CEO NCAB GROUP



In this issue of our newsletter we venture across the Atlantic to the United States - the land of opportunity. The U.S. is a huge market and it is easy to make the mistake of seeing it as one country and one market. But the U.S. consists of many states where, in many cases, business is only done locally. Thus, it is important for us to be close to customers to provide them with maximum support in securing their PCB needs.

We can also read about the very large number of PCB factories that have been forced out of the market in the United States, as well

as in Europe. We are now seeing a strong and steadily increasing need for a supplier able to deliver a wide product mix.

Last but not least, the current trade dispute makes for a compelling drama - or perhaps more precisely the jockeying by China and the United States for the best possible negotiating position. I think that consensus will eventually prevail and the 25 percent tariffs the Trump administration is threatening will never actually materialize. China will also make concessions that will ultimately benefit global free trade, which is the platform for increased global prosperity.



## NCAB Group in Social Media

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immerse ourselves in the versatile world of circuit boards!

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## 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](mailto: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/](http://www.ncabgroup.com/newsroom/)

### » 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

### » The PCB Industry in Asia

2017 06 29 | NEWSLETTER 2 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.

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