

The European PCB Industry In 2015

by Bernard Bismuth,
CCI Eurolam

What is the future of our industry? Where are we going? Is the future already written or can we change it? We take a look at how the future of our industry looks and how the players in the electronics manufacturing supply chain (suppliers of PCB shops, PCB shops, assembly companies, OEMs and end users) might act and cooperate to make it better.

Let's recall some figures about the current situation. In 1990 there were about 1500 Printed Circuits Board (PCB) manufacturing shops in Europe. In 2000, this figure had dropped to 1000, while in 2005 it had dropped to 500. At this rate, it may drop to 250 by 2011.

In one year's time the suppliers of this industry have lost 5 copper clad laminates plants (out of 7) and 2 copper plants (out of 4). Equipment manufacturers have suffered even more than the PCB shops. The value of the boards manufactured in Europe has decreased in 10 years by 50%, while during the same period the world PCB market has grown. In last 18 months, there have been very few new investments and nearly no new plant openings. Instead many European plants have closed or have reduced their number of employees.

How has the global financial crisis affected the European PCB industry?

Figure 1 illustrates the strong decline of the European PCB industry. According to the general theory of relativity, a black hole is a region of space from which nothing, including light, can escape. Around a black hole there is an undetectable surface – called the event horizon – which marks the point of no return. The image of the black hole is a meta-

phorical way of showing how many companies and PCB industry employees have disappeared in a short time; we know that we are not going to see them again. This article is thus also an opportunity to pay homage to all these people. Many of these people and companies had been involved in the European PCB industry since many years, overcoming the crisis of 2000 and other critical moments, only to leave due to the current crisis.

As shown in Figure 1, sales of PCB manufactured in Europe dropped by 35% in 2009. After this strong plunge, several "W" curves ensued, giving hope that the industry would start to recover progressively. However, the main improvement only started in Germany in September of 2009; since then it is a little better for the rest of Europe as well. The German market has had a direct and clear effect on the total manufacturing figures. For the coming months, it looks like the recovery will continue to the end of 2010 and then stabilize at 20% less than the figures we had in first six months of 2008. Note that this analysis should not compare calendar years (2008 to 2009) but the period beginning in September 2008, when the big drop started, to that which begins the following September, when the recovery began.

During these 12 months, the European production capacity slowed due the closure of plants, and the number of employees dropped by 15 to 20%. Unfortunately this has not meant more business, and thus profits, for the remaining companies because prices have also dropped during this period. There are some exceptions, mainly in the auto industry, where some important players have disappeared, leaving others well positioned in 2010.

Overall the shock is very important; as one PCB shop put it, "How do you explain that in an economy that has a overall recession rate of 2%, the PCB recession rate is 35%?"

PCB buyers and their behaviour are another factor. When PCB buyers think that they will survive by killing their traditional suppliers, the black hole is working. For their suppliers first, but in the longer term for them also. When we note that very few PCB shops were profitable in 2009 and that in 2010 their customers are asking for price decreases of as much as 10% when costs for raw materials are increasing, it is scary. The question is how to avoid disappearing into this black hole. Will the industry disappear or will a part of it stabilize? Or will there be a big bang that will renew our industry?

What market for Europe?

There are several reasons to believe that the European PCB market will remain viable. First, we expect that in 2015 Europe will still be manufacturing planes, trains, cars and communication devices, devising green solutions for creating energy and saving energy, creating new medical and safety devices and meeting the needs of our society in many other ways as well.

In each of these sectors, the electronics industry will make the difference in terms of staying competitive and innovating. This is not to say that we expect Europe to become once again a manufacturer of high volume, stable, low cost products.

Europe will hopefully participate in the challenge of our century by being able to innovate and compete in the manufacture of high tech products, insure the quick delivery,

in appropriate volumes, of reliable, diversified and innovative critical equipment and preserve the future of the whole industry.

Electronics continues to change and adapt to new needs every day and during a product's lifetime, there are different steps of development and marketing and different actors that enter the scene.

In the first steps, before the product is completely developed and established, the most important players are those who are innovative and make smart use of emerging technologies.

In the next steps, where there are stable products and constant production volumes and labour costs, it is normal to see production move to the country where its manufacture is cheapest. There is every reason to expect that we will continue to see this pattern of development and production in the future of electronics manufacturing.

Why is the PCB an important link in the electronics supply chain?

The importance of the PCB has been recently emphasized by IPC. As stated by IPC President Denny McGuirk, "The products we produce are not a commodity, but they are the foundations of all electronic products. To some, it may seem as though the PCB is just a commodity, however, the PCB truly does not fit the definition.

"Sugar, flour, salt – these products fit the classic definition of a commodity. To lump PCBs, the foundation of the electronics industry, into such a category diminishes their importance and the value they provide the world. Each board is custom-designed and produced to serve a specific purpose. Clearly, it is not like a bag of flour which you open up and take a cup, or two, to mix into a recipe to produce pancakes, cookies, cakes, gravy, or whatever else a million other recipes can produce.

"PCB is the foundation of the elec-

tronics industry. In its current state this foundation continues to take the shape of a PCB. In the next 20 years we know that what functions as a circuit board may not always look like what we produce today; it may be entirely different in form, but it will still be the foundation of the industry. What are we selling and what are the customers of PCB shops buying? A highly-valued electronic component or a bag of flour? The answer given to this question by all actors will determine their own approach to the business."

I want to convince you that the PCB is not a commodity but a key link in the electronics supply chain and that if we lose PCB development and production, we will cease to be a link in the supply chain and will become only spectators or end users, like the assembly shops. Such an outcome would threaten not only the PCB industry but the whole electronics industry and all its applications.

Any supply chain is as strong as its weakest link

I do not know who said that "any supply chain is as strong as its weakest link", but this idea looks right even if it is often forgotten. Innovation in conceiving products is not enough in our markets; it must be supported by innovation in manufacturing. If this is not taken in account, the research

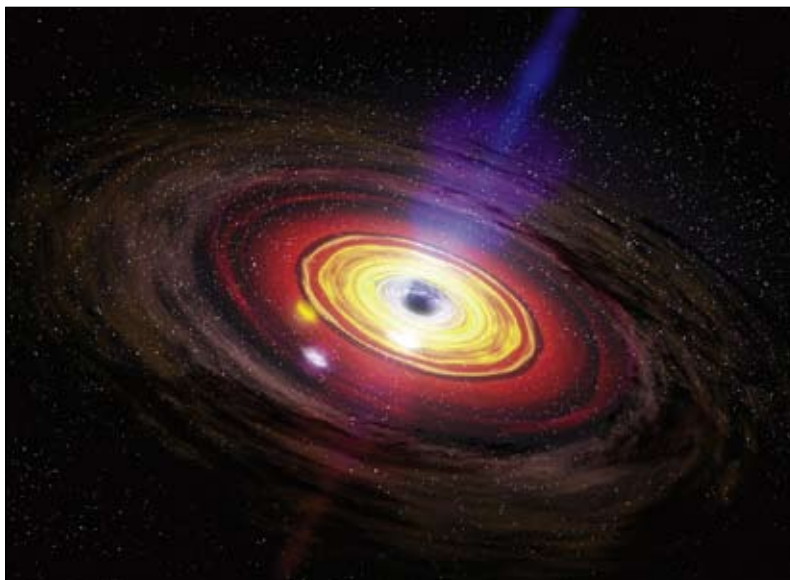
centres will soon be moving closer to the manufacturing centres in order to find the innovation in manufacturing for designing their products. And progressively the whole supply chain will move to where the first piece and foundation of electronics – the printed circuit board – is manufactured.

If Europe intends to stay strong in the electronics industry, which is a key to the future, it is important that it remains strong in all stages of the supply chain. Printed circuits boards are a key component of electronics for new products. In some areas of the world this industry is given support, including for exports, enabling it to attract all other players of the supply chain, while in Europe it is neglected.

The future is now in the hands of European actors, which include European policy makers, governments, end users, actors in the supply chain and the PCB shops. Total European PCB market is comparable in sizes to that of the USA, Taiwan, South Korea or to one third of that of Japan or China but we are competing with 25 countries, 25 languages and with a European Union which has forgotten to build an industrial policy.

Orgalime (The European Engineering Industries Association) has recently issued a press release entitled '*Manufacturing Matters – manifesto*'

Figure 1 – Is the European PCB industry being gobbled up by a black hole?



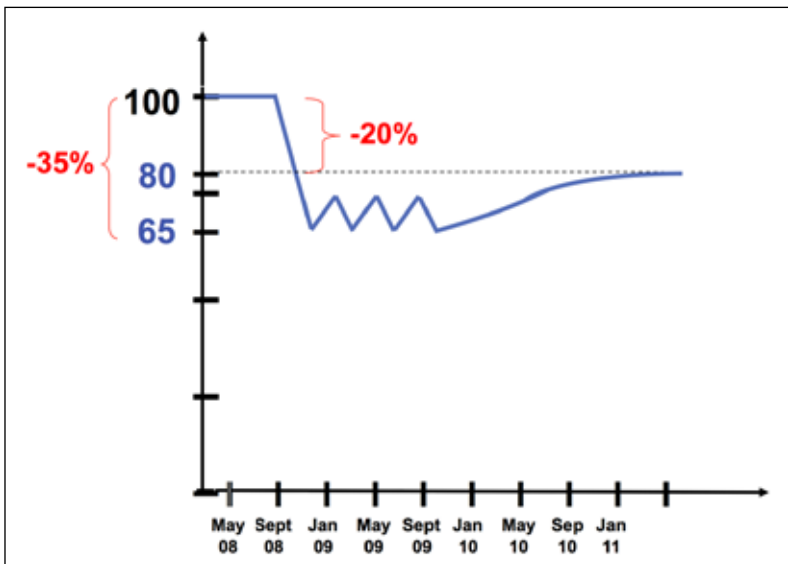


Figure 2 – Evolution in PCB sales in Europe

in which it states: “The Competitiveness Council of 28 May 2009 recognized in its conclusions the key role that manufacturing industry plays as a driver of Europe’s economy, both through the direct jobs that companies provide and indirectly throughout their supply chains, including not least the services industry. The Council highlighted the central role that the manufacturing industry including the mechanical, electrical and electronic industries will play in Europe.”

We would like to see these points help to drive some changes in all Europe. In practical terms, if some strong programs are initiated by the European Community it is important that these programs involve not only the end users but also those players manufacturing components and PCBs and assembling components for these end users.

If innovation is supported in the conception phase, innovation should be supported even more strongly in the manufacturing stage. If nothing is done soon by the European Community and by our governments, the end users will start to buy everything from outside of Europe and we will see all our activities disappear, followed closely by the assembly shops and then the end users, which will lose an important part of the knowledge of their products.

Practical answers for building a different future

Ideas for building a different future for the European electronics industry involve all the stakeholders.

End users

- Consider that they are driving a complete supply chain, select and support all their links for moving together in the future
- Involve subcontractors in research and development programs
- Employ purchasing people able to buy on costs and not only on prices.

PCB industry and its suppliers

- Flexibility, capacity to supply what is needed (and only what is needed) when it is needed
- Consolidate soon with other companies throughout Europe, including countries not part of the European Union and Mediterranean countries
- Provide strong technical support to customers all along the supply chain
- Buy and sell on costs and not on prices.

European Community

- Support research and development in manufacturing companies and support process innovation, which is as important as fundamental research in terms of the jobs it creates

- Support participation in technical conferences; support the removal of language barriers by providing free translators at high tech conferences. Technical support and technical knowledge have been sacrificed for the sake of survival
- Name a European Printed Circuits Board person in Brussels representing this link of the supply chain as the American have started to do. This is the only chance for an industry of small and medium size companies to defend its position.

How our industry may look in 2015

The worst case scenario sees the disappearance of manufacturing, with Europe becoming a land of great unemployment. I would like to specify that I have nothing against manufacturing in Asia and that I believe that Asia will bring in this century a lot of good and important things to the world community. However, I do not accept for future generations that we stop manufacturing in Europe and surrounding areas, forgetting the importance of “how to make things” and sacrificing all the jobs resulting from a competitive manufacturing capability.

Now if I take the risk of predicting the future of our industry, I would imagine a limited group of strong actors all along the supply chain employing high tech staff able to work and improve together with their suppliers and customers and to innovate continuously. These actors will cover Europe as they now cover single countries, will have plants in different countries with up to date equipment, high tech employees, permanent technical research in collaboration with universities, their customers and suppliers and the end users, and ... they will be profitable!

The future for all the actors of the supply chain without exception will be very much dependant on working together more efficiently, getting better support from our governments and from Europe, and on how we will be able to participate in these wonderful upcoming times where everything can be reinvented every day.