

Is Europe still competitive?

SEMI Europe is holding its annual Industry Strategy Symposium (ISS) in Malta. Here **Alain Dutheil, Chief Operating Officer of STMicroelectronics** outlines his arguments for a debate about European competitiveness and the changing semiconductor industry landscape at the ISS Europe.



The semiconductor industry was a pioneer of the globalisation phenomenon, which we can define as the process by which a corporation ensures that its assets, materials and human resources are deployed in the right places, at the right time, in accordance with its worldwide strategy. Today, both the chip market and the chip production infrastructure are largely globalised.

During the 50 years of the semiconductor industry's existence, there have been many significant changes in the geographical make up of the industry. In 1960, the nine leading chip suppliers were all American companies, which was hardly surprising as Silicon Valley was the birthplace of the then newly emerging semiconductor industry. Twenty years later, American companies still accounted for five of the top ten, including the top two, but there were now three Japanese and two European companies also in the top ten.

As the 1980's progressed, industry analysts became increasingly pessimistic about the prospects for Europe's chip industry. The principal concern was that the "European" microelectronics industry was actually made up of many relatively small national companies that would individually be unable to achieve the critical mass required to continue funding the escalating costs involved in developing leading edge technologies. In fact, by 1990 the chip market was dominated by the Japanese, who occupied six of the top ten positions, including the top two, while Europe's highest ranking company was only in ninth position.

However, as we know, Europe had not given up and some very important



changes were taking place. Perhaps the most important of these was the creation and development of the pan European pre competitive R&D programs JESSI, MEDEA, MEDEA+, now being continued with CATRENE and ENIAC. These programs have helped bring about an astonishing transformation in the European microelectronics landscape. Another significant step, if I may say so, was the merger of SGS and Thomson

Semiconducteurs to form the company that is now ST. Even though it came at a time when the prospects for the European chip industry were widely regarded as bleak, the merger gave ST the critical mass needed to grow into a global player.

And today the chip market is a truly global industry. This is illustrated by the 2006 rankings, in which the top ten suppliers show a much more homogenous mix, with four from America, two from

Europe, two from Japan and two from South Korea. However, within the complex dynamics of the global semiconductor industry, competitive positions continue to change and the question of how Europe can continue to play a leading role remains as challenging as it was twenty years ago.

To answer this question, we must consider four different aspects of the semiconductor industry: selling chips in Europe; manufacturing chips in Europe; innovating in Europe; and recruiting in Europe.

Selling in Europe

Europe's share of the world market for semiconductor devices is continuously shrinking; for example, in 2007 the \$41B of semiconductor products sold in Europe accounted for less than 16% of the world market. This trend will inevitably continue as European electronics companies move more and more of their manufacturing to lower cost regions to remain competitive at the global level. On the other hand, European electronics companies, through their design activities, command some 34% of the worldwide semiconductor wireless market, 43% of automotive, and 34% of the industrial market. Such a strong world presence in key high growth applications is of great benefit to European semiconductor manufacturers, allowing them to both contribute to the success of their customers and to benefit from that success.

Manufacturing in Europe

The well known high cost of labour in Europe is a clear handicap. This is partly offset by the excellent logistic network and the high quality of manpower available in Europe but currency exchange rates continue to be a major problem in an industry where revenues are in dollars but costs are in local currencies.

Innovating in Europe

Europe is strongly positioned to maintain its excellent track record in semiconductor innovation. It can draw on a long established network of excellent laboratories and research centers but in addition it is also an efficient culture of co-operation between universities, research institutes, and industry. This co-operation is not just a policy or an ideal; it is actually implemented through mechanisms that have been developed and progressively fine tuned during the last twenty years. Moreover, the European

Union and individual European nations are committed to funding policies that contribute to maintaining Europe's position among the top world regions for chip innovation. One of the most important of these programs is ENIAC, the European Nanoelectronics Initiative Advisory Council, which brings together leading European players in Nanoelectronics from industry, research and academia to develop and implement a coherent European strategic research agenda for this sector.

The recently launched ENIAC Joint Undertaking is a unique Europe wide public private partnership that combines funding from industry, the European Commission, and the Member and Associated States over a 10 year period to ensure Europe's "knowledge" leadership in this area.

Recruiting in Europe

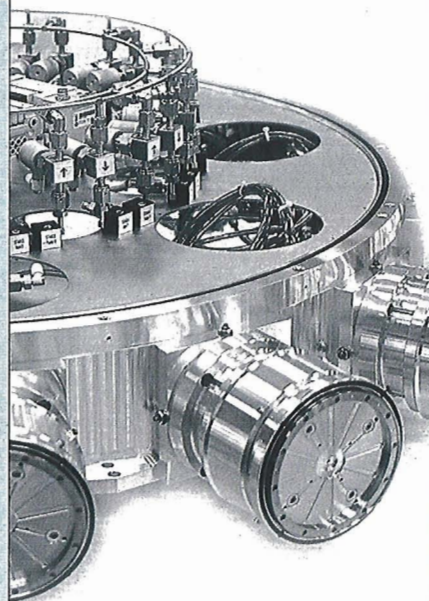
It has been often said that a company's major asset is its people, which means that attracting the highest quality workforce is one of the most important investments that a company can make. In this, Europe offers a strong advantage. For example, in 2007, there were some 17 million students in Europe, more than any other region of the world. Moreover, expansion of the EU has increased the number of high quality Universities from which European companies can recruit. This is undoubtedly one of Europe's most important assets for the development of high tech industries within Europe.

Conclusion

It is clear that the European zone has become less attractive in recent years as a manufacturing location; this is due primarily to the shifts in global currencies and the resulting rising cost of manufacturing in Europe and this trend is likely to continue. However, thanks to the excellent network, perfected over many years, that ensures an efficient co-operation between universities, states, and industrial companies, Europe will continue to be a world leader in microelectronics innovation.

In particular, the major European electronics companies operating in markets such as automotive, industrial, and mobile communication that will be the fastest growing segments for the next ten years represent for the European semiconductor companies an excellent jumping board to conquer a significant part of the world semiconductor market.

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