

Bertrand Loy (E88): “Semiconductors Will Power the Fourth Industrial Revolution”



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Bertrand Loy (E88) is CEO at Entegris, one of the world’s largest suppliers to the global semiconductor industry. He tells us more about his top career in the USA and gives us his take on the current shortage in semiconductors – and how to get past it.

ESSEC Alumni: When and why did you settle in the United States?

Bertrand Loy: After my studies at ESSEC, I spent several years with Novartis in a variety of strategic planning and finance positions in Switzerland, Japan, and Central America. Then I joined Millipore, a market leader in high performance filtration, and became the controller and head of manufacturing for their laboratory water division. The role was based near Paris. Within a few years, I was identified as a potential successor to the CFO and, as an interim step, asked to transfer to Boston to become the Chief Information Officer for the group. I have been in the USA ever since, for the past 22 years.

EA: How did you switch from the pharmaceuticals industry to the electronics industry?

B. Loy: In 2000, Millipore announced its decision to spin off its semiconductor business to refocus on its life science activities. I was offered the opportunity to become the CFO of the new entity (Mykrolis) and led the Initial Public Offering process. We were the last IPO before 9/11. This was my first exposure to the semiconductor industry and I never looked back.

EA: And how did you become CEO at Entegris?

B. Loy: Mykrolis was a small platform (\$300m in revenue) – arguably too small to be a publicly traded company, especially given the highly cyclical nature of the semiconductor industry. This led us to accept the invitation to merge with Entegris in 2005. I managed the post-merger integration process, and later took charge of the IT, global MFG and supply chain operations for the combined entity. I was offered the position of Chief Operating Officer in 2008 and became the CEO of Entegris in 2012.

EA: Could you tell us more about Entegris?

B. Loy: You have likely never heard of Entegris! Yet, with approximately 6,000 employees globally and revenue expected to reach \$2.2bn in 2021, we are one of the largest and most critical suppliers to the global semiconductor industry. Our highly engineered materials improve the performance of next-generation chips by industry leaders like Intel, Samsung and TSMC. In addition, our market-leading contamination-control solutions are enabling atomic-level purity in semiconductor manufacturing processes, which is critical to reach acceptable yields and enable further miniaturization of the chips. Furthermore, our global network of technology centers allows us to collaborate effectively with technology leaders in the US, Taiwan, Korea, China and Japan. As a result, we offer very differentiated process solutions, and we enjoy market share greater than 60% in most applications we serve.

EA: Semiconductors have an environmental impact. How do you deal with that issue?

B. Loy: The Electronic Industry Citizenship Coalition has been the framework governing our sector for two decades, but our collective efforts have recently increased in intensity and focus under the stewardship of SEMI, an industry association representing the materials and equipment suppliers to the global semiconductor industry. I have the privilege of chairing this association. All member companies have pledged significant reductions in energy and water consumption. For example, Entegris has committed to decrease its water consumption by more than 50% per Entegris revenue dollar and to reduce its energy consumption by more than 20% per Entegris revenue dollar from our 2020 baselines, as well as to achieve 100% electricity consumption generated from renewable sources, when available by 2030. Our comprehensive corporate social responsibility objectives can be found on our website.

EA: What is your outlook on the current semiconductor supply chain crisis?

B. Loy: There are many aspects to the current shortage of semiconductors: overreaction by the automotive industry in the early stage of the pandemic leading to semiconductor production shutdown for several months in the summer of 2020; supply tightness directly and indirectly induced by export restrictions with China from the US administration; and poor capacity planning by the global industry ecosystem who proved to be unable to anticipate the recent surge in demand.

EA: How can we solve this crisis?

B. Loy: In my view, the solution lies in open trade, open collaboration, accelerated innovation, and better long-term capacity planning across the ecosystem. Semiconductor manufacturing and its supply chain require uncompromising precision with zero tolerance for process variation. In that context, distributed manufacturing is not a viable option. You can best accomplish this when you rely on few highly capable manufacturing centers of excellence serving your global customer base.

EA: What about government intervention?

B. Loy: Many governments are attempting to help, but it seems to me that their motives are driven by nationalistic and selfish geopolitical motives. I am concerned that localizing the manufacturing of semiconductors in too many countries might give a false sense of supply chain security. I believe it could lead to a slow-down in innovation and an increase in the cost of semiconductors.

EA: What are the prospects for the semiconductors industry in the years to come?

B. Loy: I am very bullish about our future. Semiconductors will power the fourth industrial revolution, which will transform our cities, our healthcare and more generally improve the way we work and live. As a result, I expect the semiconductor industry will sustain a growth rate of twice the rate of GDP growth. And the prospects for Entegris are even more exciting since our content per chip is steadily increasing in each generation due to the growing importance of our solution set. We prepare for strong growth in the years to come.