

## **Digitization Is Affecting European Engineering Industries, Bringing a Mixed Bag of Competitive Pressures**

By Olivier Coulon, DÉCISION Études et Conseil  
Member, IPC Thought Leadership Program

Digitization has already had a significant impact on the European engineering industry and that trend is expected to continue, although it will require significant investments in capital equipment, workforce training, and other competitive factors.

Those were just a few of the findings from a new [study](#) of the competitiveness of the electrical, electronics, and mechanical engineering industries across the 27 European Union (EU) Member States plus the United Kingdom. The study was a collaboration among several European research institutes: the Centre for Strategy & Evaluation Services (CSES); KMU Forschung Austria; IDEA Consult; Prognos ; and DÉCISION Études et Conseil.

### ***Sectoral Performance***

Over the past decade, European electronics production became more specialized in intermediate sectors, such as electronics for automotive, industrial, medical, aerospace, defense, and security. Consequently, the European electronics value chain adapted to this trend by strengthening its competitiveness in sub-sectors, such as specialist semiconductors and cyber-secure sensors for motor vehicles and medical instruments.

On the other hand, the EU engineering industries have lost ground to the United States, China and certain other Asian countries in electronic components and mass-produced semiconductors. In Asia, the production structure has mostly been driven by mass-market, consumer products such as TVs, smartphones, and PCs, but the region is also emerging as an ambitious competitor in embedded and professional electronics markets, where strong growth is expected.

Since 2011, European exports of engineering goods have been performing distinctly better than EU exports overall, particularly since 2016. Looking specifically at extra-EU exports, the average annual growth for all engineering products was 5.7% in the 2013-2018 period with the computer, electronic and optical products sector ranked second in terms of growth rates.

### ***Impacts of Digitization***

Concerning one of the most significant factors in future competitiveness, the study finds that digitization is already having an impact on the European engineering industries, and that trend is expected to continue, with investments increasingly geared towards digital applications, especially in the software segments of the value chain.

Digitization is key to maintaining Europe's industrial competitiveness by optimizing operating efficiencies; identifying production problems earlier; and harnessing the potential of Industry

4.0 technologies. However, digitization poses a number of challenges for engineering enterprises in terms of the rate of uptake needed to catch up with global competitors; specific technology choices; investment capacity; business model development; and skills.

Another key finding was that, while the EU engineering industry remains a strong innovator, it appears to be less dynamic in digital patenting activities compared to its global competitors. Also, a lower percentage of Europe's small and medium-sized enterprises have adopted digital technologies, automation, and robotization compared with their counterparts in Asia and the United States. Addressing this gap will require capital investment and upskilling for both advanced and lower-level jobs.

The study also concludes that widespread adoption of digital technologies has the potential to help reshore some high-value-added manufacturing activities in the EU, such as new product development and prototyping using 3-D printing and virtual and augmented reality technologies. However, we think it is unrealistic to expect much production to be brought back to Europe from East Asia, given the overall cost competitiveness of offshore production (especially labor cost differentials) and the high efficiency of factories in East Asia, where Industry 4.0 technologies are already the norm.

The [complete study](#) is available from the European Commission. For further information: Olivier Coulon, [ocoulon@decision.eu](mailto:ocoulon@decision.eu).

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