

The European semiconductor ecosystem: Regional development in a geopolitical context

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Received: 10 January 2026; Revised: 24 April 2026; Accepted: 30 April 2026; Published online: 8 May 2026

ABSTRACT: Human society is increasingly dependent on electronic devices, from phones and laptops to renewable energy and electric vehicles. Semiconductors are essential materials for these devices due to their electrical properties. The manufacture of semiconductors, such as chips, is one of the most complex and sophisticated processes in the manufacturing industry and requires numerous precision steps and many actors involved. This research aimed to analyse the European semiconductor ecosystem in terms of its regional development, Europe's position in the supply chain and the measures taken to reduce dependence on external markets. The results show a diversified but unbalanced European semiconductor ecosystem, with research and development activities in almost all European countries, but the production of semiconductor equipment and devices is concentrated in a few countries in central and western Europe. It also shows that Europe's dependence on external markets for semiconductor supplies is considerable and, although significant measures have been adopted to support the European semiconductor ecosystem, achieving the objectives proposed by the EU Chips Act will be difficult to achieve.

KEYWORDS: Europe, semiconductor ecosystem, dependence, EU Chips Act, global chip market

TO CITE THIS ARTICLE: Popa, V. (2026). The European semiconductor ecosystem: Regional development in a geopolitical context. *Central European Journal of Geography and Sustainable Development*, 8(1), 6-27. <https://doi.org/10.51865/CEJGSD.2026.8.1.1>

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