

## Securing Europe's Future by Accelerating Strategic Technologies for Sovereignty and Competitiveness

**Presented by:** NE.DI.SY (Cyprus)

**Supported by:** SDM (Slovenia), PAS Youth (Moldova), ONNED (Greece), GDC (San Marino), YFU VMRO-DPMNE (North Macedonia), ML (Czech Republic), NNGG (Spain), KNL (Finland), CSJ (Luxemburg), JM (Switzerland)

### Recognizing that

- Technological leadership in advanced technologies is essential for Europe to underpin economic prosperity, foster social cohesion and guarantee security and sovereignty.<sup>1</sup>
- Four strategic technology pillars, advanced microchips, artificial intelligence and machine learning (AI/ML), robust cybersecurity solutions and next-generation robotics, drive innovation across energy, healthcare, manufacturing, infrastructure, mobility, food production, telecommunications and finance.<sup>2</sup>
- The EU's AI Act (Regulation 2024/1689) and Cyber Resilience Act (Regulation 2024/2847) establish the world's first horizontal rules for trustworthy AI and secure digital products<sup>3</sup>, yet delays in investment or rollout could cost up to €2 trillion in annual output and endanger 20 million high-skill jobs in sectors such as automotive, healthcare, finance and energy.
- Although high-tech goods already account for 18% of extra-EU exports, the Union still posted a €16.9 billion trade deficit in that segment in 2023, showing that Europe buys more advanced technology than it sells.<sup>4</sup>
- The Digital Decade Policy Programme 2030 commits the Union to doubling its share of global semiconductor production and ensuring that 80% of citizens attain at least basic digital skills, anchoring Europe's claim to digital sovereignty.<sup>5</sup>
- Every euro invested in semiconductor fabrication generates roughly sixteen euros in downstream value. In 2021, chip shortage alone cost EU carmakers €100 billion in revenue and shaved 0.4 percentage points off EU-27 GDP.<sup>6</sup>

<sup>1</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0118>

<sup>2</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52023PC0335>

<sup>3</sup> <https://eur-lex.europa.eu/eli/reg/2024/1689/oj>

<sup>4</sup> [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=International\\_trade\\_in\\_high-tech\\_products](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=International_trade_in_high-tech_products)

<sup>5</sup> <https://eur-lex.europa.eu/eli/dec/2022/2481/oj>

<sup>6</sup> <https://www.bcg.com/publications/2024/emerging-resilience-in-semiconductor-supply-chain>

- Full-scale deployment of AI and ML could add up to €2.7 trillion to EU GDP and raise labour productivity by 11-14 % by 2030, while accelerating defence-intelligence cycles by 40% and reducing frontline exposure by 30 %.<sup>7</sup>
- Cybercrime drains about €265 billion from the EU economy each year—equivalent to the entire EU research budget; building a sovereign cybersecurity ecosystem could avert €80 billion in losses, protect 33 million SMEs and create high-wage employment by filling a 200 000-person talent gap.<sup>8</sup>
- Non-European providers control more than 70% of the EU cloud market, China holds roughly 39% of quantum-technology patents (compared with less than 15% for the EU), and U.S. private AI investment reached \$109 billion in 2024, leaving Europe dependent on external jurisdictions for data sovereignty and future competitiveness.<sup>9</sup>

#### **Acknowledging that**

- Europe's reliance on external supply chains, from rare-earth minerals to advanced chips, means that a single quarter of semiconductor import disruption could wipe out €112 billion in GDP and endanger 1.3 million manufacturing jobs, hitting regions already in industrial decline.<sup>10</sup>
- Regulatory leadership alone is insufficient. While the AI Act, NIS2, Cyber Resilience Act and Chips Act set essential guard-rails, Europe must commit substantial investment and accelerate the uptake of these technologies, otherwise it risks entrenching external dependence, eroding strategic industrial capacity, and diminishing its geopolitical influence.
- Digital readiness and innovation capacity remain uneven across the Union, with only 54% of SMEs using advanced digital technologies and rural gigabit coverage lagging urban areas by more than 30 percentage points, which risks widening prosperity gaps within the Digital Decade.<sup>11</sup>
- Critical talent shortages threaten timely rollout because over 70 % of European companies struggle to hire micro-electronics, AI and cybersecurity specialists, leaving the EU with a projected shortfall of about 500 000 deep-tech professionals by 2027 and slowing adoption of strategic technologies.<sup>12</sup>
- Fragmented capital markets hamper scale-ups, as venture funding for EU deep-tech start-ups remains less than half that available in the United States and only 12% of European unicorns operate in strategic technologies, limiting domestic champions and increasing exposure to non-EU takeovers.<sup>13</sup>

<sup>7</sup> <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-economic-potential-of-generative-ai-the-next-productivity-frontier>

<sup>8</sup> <https://www.enisa.europa.eu/publications/enisa-threat-landscape-2024>

<sup>9</sup> <https://digital-strategy.ec.europa.eu/en/policies/cloud-computing>

<sup>10</sup> <https://publications.jrc.ec.europa.eu/repository/handle/JRC133736>

<sup>11</sup> <https://digital-strategy.ec.europa.eu/en/policies/desi>

<sup>12</sup> <https://www.eitdeeptechtalent.eu/the-pledge/deep-tech-talent-initiative-first-pledgers/>

<sup>13</sup> <https://www.eib.org/en/publications/20240130-the-scale-up-gap>

- 68 • EU researchers author 22% of the world’s highly cited AI papers, yet Europe controls  
69 under 10% of semiconductor design IP and just 8% of global AI compute capacity.<sup>14</sup>
- 70 • Critical infrastructure remains vulnerable, with many hospitals, utilities and public  
71 administrations still lack mandatory incident reporting and micro-segmentation,  
72 leaving cyber-resilience gaps despite the new NIS2 rules.<sup>15</sup>
- 73 • Public trust is fragile and fewer than half of EU citizens understand how AI  
74 decisions are made and 37% fear job loss, so transparency, accountability and  
75 robust safeguards are essential to uphold the social license for rapid deployment.<sup>16</sup>
- 76 • Data-center power demand could triple by 2030 and without ambitious efficiency  
77 standards and stronger renewable-energy integration, the digital expansion risks  
78 derailing Green Deal climate targets.<sup>17</sup>

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#### 80 YEPP calls on

- EU Member States and the European Commission to fully fund and fast-track the  
existing European Chips Act, and prioritize fabs below the 5 nm node, advanced-  
packaging capacity and compound-semiconductor production lines
- 81 • EU Member States and the European Commission to mobilize the European  
82 Investment Bank (EIB), InvestEU and national development banks to de-risk private  
83 investment and speed permitting for shared manufacturing hubs.
- 84 • The European Commission to use the Strategic Technologies for Europe Platform  
85 (STEP) as a single “Semiconductor Sovereignty” window within the EIB group,  
86 coordinating all semiconductor-related guarantees and equity instruments under  
87 clear, profitability-driven criteria.
- 88 • The European Commission should strengthen Europe’s “AI Factories” initiative by  
89 tightly interlinking existing high-performance computing centres, Digital Innovation  
90 Hubs and IPCEIs. Contingent on favorable, independent mid-term reviews, it should  
91 raise the AI allocations of Digital Europe and Horizon Europe by up to 50 percent  
92 and establish an open-source EU foundation-model facility that keeps cutting-edge  
93 capabilities accessible to researchers, start-ups and industry while avoiding extra  
94 bureaucracy.
- 95 • EU Member States to pool resources for cybersecurity through a streamlined  
96 “Cyber-Resilience window” inside InvestEU, aimed at scaling European threat-  
97 intelligence platforms, secure-by-design chips and post-quantum-cryptography  
98 solutions.
- 99 • EU Member States to launch joint EU procurement of cybersecurity solutions for  
100 public administrations, coordinated by the European Cybersecurity Competence  
101 Centre, to strengthen domestic vendors and cut unit costs without multiplying  
102 programmes.
- 103 • EU Member States and the European Commission to conduct a performance audit of  
104 the Digital Education Action Plan and the Deep Tech Talent Initiative by 2026, on  
105 the basis of proven impact, consider increasing their combined resources (up to a  
106 doubling) to equip 20 million Europeans with advanced digital skills by 2030 and

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<sup>14</sup> <https://arxiv.org/abs/2406.01722>

<sup>15</sup> <https://www.eca.europa.eu/en/publications/SR-2024-26>

<sup>16</sup> <https://europa.eu/eurobarometer/surveys/detail/538>

<sup>17</sup> <https://www.iea.org/reports/energy-and-ai>

110 ensure that every region is served by at least one high-quality Digital Innovation  
111 Hub.

- 112 • The European Commission to secure critical raw-material supply chains by  
113 diversifying imports, expanding sustainable mining and recycling within Europe, and  
114 creating a strategic EU stockpile of rare-earth elements and other vital inputs.
- 115 • The European Parliament, in cooperation with the European Commission, to publish  
116 an annual Strategic Technologies Scoreboard, require social-impact assessments for  
117 major technology projects and deepen technology partnerships with like-minded  
118 democracies.

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