**SIEMENS' POLICY RECOMMENDATIONS
FOR THE 2024 – 2029 LEGISLATIVE TERM**

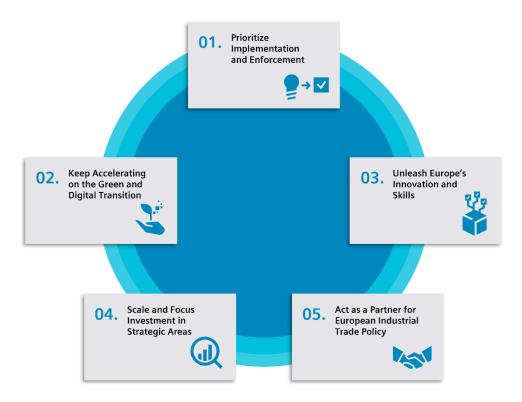# Five Levers for a Sustainable and Competitive European Union

SIEMENS

Executive summary

**Five Levers for a Sustainable and Competitive European Union
Siemens' policy recommendations for the 2024 – 2029 legislative term**

01. Prioritize Implementation and Enforcement

02. Keep Accelerating on the Green and Digital Transition

03. Unleash Europe's Innovation and Skills

04. Scale and Focus Investment in Strategic Areas

05. Act as a Partner for European Industrial Trade Policy

01 First Lever: Prioritize Implementation and Enforcement

Main recommendations:

- Apply the Implementation First Principle
- Align product legislation with the New Legislation Framework approach
- Use targeted regulatory intervention only when genuine market failures are identified
- Employ good governance as a guiding principle for implementation

02 Second Lever: Keep Accelerating on the Green and Digital Transition

Main recommendations:

- Adopt a renewed Green and Digital Transition Agenda
- Bring energy efficiency to the next level to increase resilience
- Prioritize electrification with a European Electrification Act
- Make the Circular Economy happen
- Deliver on the promises of a toxic-free environment
- Upgrade connectivity infrastructure as a backbone for competitiveness

03 Third Lever: Unleash Europe's Innovation and Skills

Main recommendations:

- Foster ecosystems of companies and science in key industrial segments
- Strengthen Public Private Partnerships for Research and Innovation
- Build a strong Artificial Intelligence ecosystem in Europe and beyond
- Ensure a coherent and secure digital regulation framework
- Promote collaboration to address the green and digital skills gap

04 Fourth Lever: Scale and Focus Investment in Strategic Areas

Main recommendations:

- R&D funding: make the goal of 3% of GDP for innovation a reality
- Adopt a Green European Investment Plan
- Leverage the European Single Market to bridge the green premium gap
- Align the EU's financing framework with Green and Digital Transition needs

05 Fifth Lever: Act as a Partner for European Industrial Trade Policy

Main recommendations:

- Support a rules-based multilateral trading system
- Deliver on a proactive EU Trade Policy
- Develop a coherent EU-China Strategy
- Offer economic security without "outbound investment screening"

The European Union stands at a crossroads: The words of former European Commission President Jacques Delors are more accurate than ever: "*The only choice Europe has is between survival and decline.*"

Back then, Europe faced the challenge of globalization and the Single Market was seen as a necessity. Today, European companies operate in an increasingly volatile and fragmented global environment, while barriers to the EU's Single Market still remain. Rising energy prices and inflation, supply chain delays and shortages, a lack of skilled labor as well as an increasingly complex regulatory framework are heavily impacting companies operating in Europe, while these companies must adapt and invest to remain competitive. At the same time, we face common climate and environmental challenges that require changes to our way of living, working, producing and consuming to secure a sustainable future.

These challenges should not paralyze Europe, but rather fuel forward-looking and collective European action **to revive sustainable and resilient growth in Europe**. This is our plea to the next European institutions for the 2024-2029 legislative term.

At Siemens, we are convinced that industry has a home and future in Europe: that is why Siemens keeps investing in Europe. More than half of our recent €2 bn global investment plan is focused on the EU[1] – investing in new and existing high-tech factories as well as innovation labs and education centers. **Our footprint is truly European, covering all 27 Member States, with more than 250 subsidiaries**, including our world-leading manufacturing sites and research and development hubs. Half of Siemens' workforce is located in the EU, with **145,000 employees creating more than one-third of our global revenues** here each year (approx. €27 bn in 2023[2]).

As a global technology company with its headquarters and deep roots in Europe, we stand ready to support the new EU leadership for the next five years. Driven by our motto **"technology with purpose,"** we strive to deliver on sustainability and competitiveness and believe they are two sides of the same coin to address the EU's re-industrialization and durable growth.

For the next European legislative term 2024 – 2029, a renewed industrial policy is needed: Five intertwined and essential levers should guide the EU's political action:

    1. Prioritize Implementation and Enforcement

    2. Keep Accelerating on the Green and Digital Transition

    3. Unleash Europe's Innovation and Skills

    4. Scale and Focus Investment in Strategic Areas

    5. Act as a Partner for European Industrial Trade Policy

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[1] Siemens press release (2023). https://press.siemens.com/global/en/pressrelease/siemens-invest-eu1-billion-germany-and-create-blueprint-industrial-metaverse-nuremberg

[2] Siemens AG (2023). All figures for fiscal year 2023. International business volume by base of the customer. It includes Siemens Healthineers (SHS), but not Siemens Energy (SE).

First Lever: Prioritize Implementation and Enforcement

Under the current European Commission, 633 legislative proposals have been put on the table[3]. At the same time, action by the European Commission against internal market infringements by Member States fell by 80% from 2020 to 2022 when compared to the EU's previous political cycle (2014 – 2019)[4].

Effective implementation and enforcement are key to the success of adopted proposals and must be a top priority of the next European Commission. Failing to uphold single market rules and gold-plating EU measures can lead to Member States adopting different standards that gum up cross-border business and hamper competition with third countries.

> **Main recommendations:**
>
> 1. Apply the Implementation First Principle
> 2. Align product legislation with the New Legislation Framework approach
> 3. Use targeted regulatory intervention only when genuine market failures are identified
> 4. Employ good governance as a guiding principle for implementation

1.1 Apply the Implementation First Principle

The success of the Green Deal and other adopted legislation during this term will depend upon stringent and timely implementation by all Member States – providing for the legal certainty that companies need for their investments into a Green and Digital Transition.

Siemens' recommendations:

- **Put implementation on the EU's competitiveness agenda:** EU regulations bring value only when they are implemented and enforced uniformly in all 27 Member States. Otherwise, it is an additional burden for European companies. Implementation should be a political priority of the next legislative term, as part of the objective to reduce the regulatory burden.

- **Appoint a Chief Implementation and Enforcement Commissioner** who will oversee the implementation of adopted legislation and any internal market infringements – similar to the existing Chief Trade Enforcement Officer.

- **Ensure allocation of adequate resources and personnel at the European Commission** to focus on areas for sustainability and competitiveness, like energy, environment and digitalization.

- **Infringement measures for non- or partial implementation** should be activated much sooner, empowering the European Commission and its enforcement toolbox.

1.2 Align product legislation with the New Legislation Framework approach

The New Legislation Framework (NLF) has proven to be effective and efficient in reducing divergences in EU product legislation and for implementation, as well in improving the internal market for goods. Each piece of legislation never happens in isolation but adds to existing laws; hence, our preference for horizontal requirements.

- **Don't fix what isn't broken:** Any requirement that is horizontal (e.g., obligations for economic operators, content of EU declaration of conformity, conformity assessment procedures, product marking) must not be repeated (and modified) in vertical product specific instruments. If new requirements are deemed necessary, we recommend adding or changing the requirements in a horizontal way and set vertical requirements when specific targets require so. This would tremendously simplify the regulatory framework for all stakeholders involved, reduce compliance costs, ensure smooth implementation and support market surveillance.

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[3] European Commission (2023). State of the Union 2023 – Letter of Intent. https://state-of-the-union.ec.europa.eu/system/files/2023-09/SOTEU_2023_Letter_of_Intent_EN_0.pdf

[4] Financial Times (2023). Policing of EU market rules drops under von der Leyen's Commission (9 May 2023). https://www.ft.com/content/b81c0d86-4837-42a5-bf01-d4768791f2cf

- **Review the better regulation toolbox:** References to the NLF should not only appear in a box[5], but have a dedicated tool. This would give a more prominent role to the NLF. In addition, the Commission should organize workshops to train and inform its staff about the value of the NLF.

1.3 Use targeted regulatory intervention only when genuine market failures are identified

After five years of active decision-making, European companies must absorb and comply with many new requirements. To ensure fit for purpose and impactful legislation, we call for the next EU institutions to carefully consider any revision of existing legislation and refrain from introducing new proposals unless it can be proven that their benefits clearly outweigh the additional burden. Any decision should be based on robust impact assessments and consultations of all involved and impacted stakeholders.

Siemens' recommendations:

- The **number of existing laws must be drastically reduced**, and care should be taken when introducing new legislation at the EU level. The European Commission should set the goal to have fewer rules at the end of the legislative cycle than at the beginning.

- **Sustainability reporting:** The main priority of the next European Commission should be to ensure comparability between disclosures (including guidance on harmonized approaches for auditing practices) and to solve implementation issues before considering any new requirements or standards.
  - **CSRD:** Take time to develop robust sectoral standards, with the close involvement and support from the industry.
  - **EU Taxonomy:** Prioritize the completion of sustainable economic activities and solve usability issues (see point #4.4), before considering any extension toward a harmful, neutral or social taxonomy.
  - **Emphasize incentives:** The European Commission should consider introducing incentives for adopting performance standards, such as company alignment with EU climate targets (e.g., SBTi Net-Zero).

1.4 Employ good governance as guiding principle for implementation

Principles of good governance should apply not only upstream when legislation is being prepared – with the proper time for consultation of stakeholders and robust impact assessments – but also downstream for the implementation of legislation. Timely, transparent and proportionate implementation, including for delegated and implementing acts, is essential to provide companies with a stable and predictable legal environment and deliver on adopted legislation.

Siemens' recommendations:

- **Timely adoption of delegated and implementing acts, guidelines or FAQs** to provide legal certainty for companies to be able to comply with new requirements. If not adopted in a reasonable time, delays for compliance should be granted to companies[6].

- **Delegated and implementing acts should be limited to technical aspects:** Political issues should not be dealt with in delegated and implementing acts. They should be discussed by the co-legislators in the decision-making process. If political issues were to occur, these should rather be sent back to the co-legislators for decision-making.

- **Transparency of European Commission's expert groups:** The governance of expert groups set up by the European Commission should be significantly improved as regards to transparency (documents, meetings, agendas, etc.). In addition, the inclusion and participation of industry stakeholders should be assured. In this regard, the European Financial Reporting Advisory Group and Ecodesign Consultation Forum could be considered good examples.

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[5] European Commission (2023). Better Regulation Toolbox. https://commission.europa.eu/document/download/9c8d2189-8abd-4f29-84e9-abc843cc68e0_en?filename=BR%20toolbox%20-%20Jul%202023%20-%20FINAL.pdf

[6] Selected examples of delayed guidelines, etc., in the current (2019 – 2024) term: a) guidelines for the implementation of the Alternative Fuel Infrastructure Regulation, while provisions take effect on April 13, 2024; b) FAQs on EU Taxonomy published in December, while companies had to finalize their reporting for the next year; c) calculation methodologies for circularity metrics (e.g., recycled content, recyclability rates, repairability indexes).

Second Lever: Keep Accelerating on the Green and Digital Transition

The EU Green Deal has been an unprecedented step in the EU's action on green policies, but significant challenges remain ahead: high energy prices[7] impacting competitiveness, unprecedented investment needs for the transition[8], preservation of the EU's leadership in a challenging and volatile global environment. The best way to increase the EU's energy security, competitiveness and resilience is to intensify sustainability efforts toward 2050, with digital technologies as the key accelerator to reach these objectives.

Main recommendations:

1. Adopt a renewed Green and Digital Transition Agenda
1. Bring energy efficiency to the next level to increase resilience
2. Prioritize electrification with a European Electrification Act
3. Make the Circular Economy happen
4. Deliver on the promises of a toxic-free environment
5. Upgrade connectivity infrastructure as a backbone for competitiveness

2.1 Adopt a renewed Green and Digital Transition Agenda

Although the Green and Digital Transition Agenda has been strongly anchored in the European Commission's actions, more can be done to tap the full **potential of digitalization for sustainability**. 79% of the targets defined by the U.N. Sustainable Development Goals (UNSDG) could be positively impacted by Artificial Intelligence in the future[9].

Siemens' recommendations:

- **Re-invigorate the EU's Digital Decade Strategy:** By 2030, 85% of EU companies should use Information and Communication Technologies (ICT) to reduce their environmental footprint[10].

- **Define sectoral digital strategies for the decarbonization of key sectors** (similar to the Digitalizing the Energy System Action Plan[11]): transport, buildings and industry. These strategies should include Key Performance Indicators (KPIs) to monitor progress.

- **Deliver on the digitalization of electricity grids** as outlined in the Digitalizing the Energy System Action Plan and in the EU Action Plan for Grids[12], with a progress report in 2025 and actions to address identified gaps.

- **Deploy resilient and smart blue infrastructures:** To answer the EU's rising water scarcity issue, the EU should adopt an EU Blue Deal that would ensure access to water and sanitation throughout the Union. The use of digital technologies for better wastewater and water quality management, as well as the leveraging of the water-energy nexus should be supported. System inefficiencies have to also be addressed.

- **Let the Digital Product Passport (DPP) unleash its potential:** Companies should be allowed to include additional features (e.g., dynamic data or services, more granular information) to mandatory data sets if they wish to do so. To be effective, we recommend that the data remain with the manufacturer (decentralized approach).

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[7] Vbw – Vereinigung der Bayerischen Wirtschaft e.V. (2023). Internationaler Energiepreisvergleich für die Industrie. https://www.vbw-bayern.de/Redaktion/Frei-zugaengliche-Medien/Abteilungen-GS/Wirtschaftspolitik/2023/Downloads/vbw-Studie_Internationaler-Energiepreisvergleich_Oktober-2023.pdf

[8] European Commission (2023). 2023 Strategic Foresight Report. https://commission.europa.eu/strategy-and-policy/strategic-planning/strategic-foresight/2023-strategic-foresight-report_en. Additional annual investments of over €620 bn are needed to meet the objectives of the Green Deal and REPowerEU and €25 bn for the Digital Transition.

[9] Visunesa, R., et al. (2020). The role of Artificial Intelligence in achieving the Sustainable Development Goals. Nature Communication, Vol. 11, Article 233. https://www.nature.com/articles/s41467-019-14108-y

[10] European Commission (2022). The Digital Economy and Society Index (DESI). DESI Index 2022 Report, p. 48. https://digital-strategy.ec.europa.eu/en/policies/desi

[11] European Commission (2023). Communication from the Commission – Digitalizing the energy system – EU action plan. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022DC0552&qid=1666369684560

[12] European Commission (2023). Communication from the Commission – Grids, the missing link – An EU Action Plan for Grids. https://energy.ec.europa.eu/publications/eu-action-plan-grids_en

2.2 Bring energy efficiency to the next level to increase resilience

While energy efficiency is unanimously recognized as the "first fuel" and essential for the EU's energy security, the EU is not on track to meet its 2030 target. A recent report by the European Environment Agency (EEA)[13] shows that the average annual pace of reduction in energy consumption seen in the past 10 years will need to be up to nine times faster to meet the 2030 energy efficiency target. The EU must therefore scale energy efficiency much faster.

Siemens' recommendations:

- **Apply the energy efficiency first principle in all sectors, especially in industry:** Dedicated measures should be designed for the industry, which still accounts for 38% of total final energy consumption and 47% of CO_2 emissions (including emissions from electricity and heat).

- **Electricity grid:** Existing grids should be used and optimized to the fullest. Efficiency of existing electricity grids should be addressed to reduce unnecessary redundancy and losses and unlock existing capacity that can be used immediately.

- **Address system efficiency with a dedicated Action Plan:** System efficiency was introduced in the Energy Efficiency Directive, and its potential should be leveraged. Specific measures are needed, starting with the definition of metrics to measure system efficiency as well as a renewed energy system integration[14] strategy, to include other sources of energy like green hydrogen.

- **System efficiency at local level** must be encouraged, which requires an updated regulatory framework, allowing the development of larger local energy communities and harmonized local flexibility markets.

- **Digitalization and flexibility of the energy system as key enablers to system efficiency:** The correct and timely implementation of legislation with flexibility provisions should be prioritized by 1) taking infringement measures on the partial implementation of the Clean Energy Package; 2) closely monitoring the implementation of the revised Energy Market Design; and 3) implementing measures to reduce the time to connect distributed energy resources to the network.

2.3 Prioritize electrification with a European Electrification Act

To be carbon neutral by 2050, the European Union's electrification rate must jump from 23% today to 50 – 70% by 2050[15]. To achieve this, direct electrification must be prioritized, wherever possible, especially in end-use sectors (transport, industry, buildings).

Siemens' recommendations:

- **Propose a European Electrification Act:** Set an overall electrification target of 35% of final energy use across the EU by 2030, as supported by the Electrification Alliance[16].

- **Include sub-objectives per key sector:** Focus on mobility (including buses and trucks), electrification of industrial heat processes and buildings, including electrical installations. Progress on electrification objectives should be tracked in National Energy and Climate Plans.

- **Deliver on the Greening Corporate Fleet Initiative:** In the EU, six out of ten cars sold are company cars[17]. This could accelerate the electrification of road transportation. We call on the next European Commission to deliver on its work program and propose measures to encourage the electrification of corporate fleets.

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[13] European Environment Agency (2023). European Union 8th Environment Action Plan. Monitoring report on progress towards the 8th EAP objectives 2023 edition, p. 12. https://www.eea.europa.eu/publications/european-union-8th-environment-action-programme

[14] European Commission (2020). Communication from the Commission – Powering a climate-neutral economy: An EU Strategy for Energy System Integration. https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2020:299:FIN

[15] Eurelectric Press Release (2021). Making power grids fit for the transition will create 500,000 jobs. https://www.eurelectric.org/news/pr-connectingthedots

[16] Electrification Alliance (2023). Manifesto – Priorities for the EU agenda 2024-2029. https://electrification-alliance.eu/wp-content/uploads/2023/10/231017-Electrification-Alliance-Manifesto.pdf

[17] DataForce (2020). Transport & Environment – Company Car Report. https://www.transportenvironment.org/wp-content/uploads/2021/06/2020_10_Dataforce_company_car_report.pdf

- **Electrification as a core aspect of the EU's 2040 targets:** When designing the EU's 2040 targets, we call on the European Commission to put a strong emphasis on direct electrification wherever possible – for renewable energy sources and energy efficiency.

2.4 Make the Circular Economy happen

According to the EEA[18], the EU struggles to reduce environmental and climate pressures related to production and consumption. An effective circular economy would solve these challenges by decoupling raw material consumption and waste generation from economic growth. Furthermore, it could create new business opportunities, add value for resource management and reduce the EU's dependency on third countries.

Siemens' recommendations:

- **Develop a Vision for EU Circularity:** 2025 will mark the 10th anniversary of the first EU Circular Economy Action Plan – a perfect moment to assess what has been achieved so far. The vision should provide adequate regulatory, financial and technical support to deliver on the ultimate objective: moving from a linear to a circular economy. This is only possible if collaboration is enabled (e.g., take-back systems, reverse value chain solutions) and investments are leveraged.

- **Harness the potential of the Single Market** to create more favorable market conditions for the circular economy, in particular regarding design, labeling, information requirements or extended producer responsibility[19].

- **Enhance the use of standardization and digitalization:** Modernizing and setting standards to calculate the environmental footprint of B2B products and services will help reach dematerialization targets, facilitate better comparability and support sustainable consumption.

- **Address the supply, reuse and recycling of critical raw materials and products** by ensuring that the regulatory framework supports resource-efficient solutions (e.g., additive manufacturing):

  - Set binding recycling rates and accelerate "end-of-waste" criteria to ensure recyclers can rely on sufficient end-of-life product streams and manufacturers on higher (quantity & quality) recovered materials.

  - Set a "reuse-as-produced" principle to ensure that products, components and materials can be reused, the environmental footprint is reduced, and circular business models can be supported.

- **Invest in circular economy infrastructures:** The investment gap is estimated at around €230 bn, but – if leveraged – EU circular markets could save 650Mt CO_2e per year – the equivalent of the combined emissions of France and Spain – and generate a market value of €1.5 tn in 2040[20]. With the rate of secondary raw materials being less than half of the agreed-upon 2030 targets and EEE consumption following a skyrocketing dynamic, we recommend investments in collecting and sorting infrastructures and recycling facilities.

2.5 Deliver on the promises of a toxic-free environment

The goal of zero pollution for a non-toxic environment by 2050 was set in 2021. However, we are reaching the end of the mandate, and three noticeable absentees remain: the revisions of REACH (Registration, Evaluation, Authorization and Restriction of Chemicals), RoHS (Restriction of Hazardous Substances in Electrical and Electronic Equipment) and WEEE (Waste from Electrical and Electronic Equipment). Besides causing uncertainty for companies, this delayed action increases the risk of missing this target.

Siemens' recommendations:

- **Modernize the WEEE II Directive**, turn it into a Regulation and reflect on increased product lifetime and data availability.

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[18] European Environment Agency (2023). European Union 8th Environment Action Plan. Monitoring report on progress towards the 8th EAP objectives 2023 edition, p. 10. https://www.eea.europa.eu/publications/european-union-8th-environment-action-programme

[19] Negative examples under the current mandate: flexibility granted to Member States for packaging labeling rules under the Packaging and Packaging Waste Regulation (PPWR), gold plating rules on green claims.

[20] Summa Equity (2023). EU circular markets could be worth EUR 1.5tn by 2040 and save 650 Mt CO_2e per year. https://summaequity.com/readings/eu-circular-markets-could-be-worth-eur-1.5tn-by-2040-and-save-650-mt-co2e-per-year

- **Review the REACH Regulation**: Ensure effective data transfer between suppliers and end users, streamline information requirements, and facilitate the Green Transition.

- **Clarify missing concepts:** Use the opportunity of the REACH and RoHS revisions to develop and streamline definitions in all EU legislation, in particular for the concepts of "substances of concern" and "essential use." In general, we recommend introducing definitions and concepts in primary legislation. As a transitional solution (until a definition is provided in the "new" REACH), we recommend setting sectoral rules for clarifying "suitable alternative substances or technologies" criteria.

- **Address environmental trade-offs and inconsistencies** when assessing existing or new legislation[21]. For this purpose, we recommend 1) to follow a risk-based approach for substance restrictions; 2) to assess their impact on chemical restrictions along the entire supply chain as well as on the Green and Digital Transition; and 3) to reduce complexity in chemical legislation avoiding double or contradicting legislation when regulating substances, mixtures or articles.

- **Be specific:** Always use unique substance identifiers, limit values and clearly defined references (e.g., homogeneous materials, first articles, complex objects) to limit misunderstandings and facilitate enforceability and assessments when regulating substances.

- **Account for substance data ownerships and enforcement options** when defining information duties for all actors along the entire value chain. The DPP (Digital Product Passport) can be of help here if implemented in the downstream direction.

2.6 Upgrade connectivity infrastructure as a backbone for competitiveness

Making use of the Industrial IoT (IIoT), Digital Twin and in a next step the Industrial Metaverse/Virtual Worlds (IMV) in the manufacturing, mobility or energy sectors will require seamlessly available and robust high-speed broadband connectivity (5G & 6G).

Siemens' recommendation:

- **Enhanced European Very-High-Capacity (VHC) Networks**, along with cutting-edge 5G (and 6G) as well as fiber technologies, are key in driving industrial competitiveness in Europe

Third Lever: Unleash Europe's Innovation and Skills

Technological innovation will be a key differentiator for the EU, to maintain and foster its global leadership. Urgent action is needed to allow innovation to flourish in Europe, starting with a regulatory environment that promotes rather than stifles innovation, especially in the digital space.

Main recommendations:

1. Foster ecosystems of companies and science in key industrial segments
2. Strengthen Public Private Partnerships for Research and Innovation
3. Build a strong Artificial Intelligence Ecosystem in Europe and beyond
4. Ensure a coherent and secure digital regulation framework
5. Promote collaboration to address the green and digital skills gap

3.1 Foster ecosystems of companies and science in key industrial segments

Not one organization has all the expertise or skills to develop the innovations needed for the EU's sustainable future. This is why Siemens supports open innovation that strengthens global collaboration as well as Research & Innovation

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[21] Examples: substance restrictions vs. circular economy; repairability vs. durability; energy efficiency vs. lifetime of products; cases of regrettable substitutions.

ecosystems. This ensures that strategic technologies that can positively impact society are developed more rapidly and at scale.

Siemens' recommendations:

- **Foster innovation and open ecosystems in key industrial segments:** e.g., in the Industrial Metaverse/Virtual Worlds, Simulation, Digital Twin, Artificial Intelligence, Network/Cloud/Edge technologies and Cybersecurity. Complementary to the cross-border R&I ecosystems under Horizon Europe, Member States and Regions should focus on local collaboration between companies and academia in regional ecosystems with a clear thematic focus. Siemens has been doing so for several years in a network of local Research & Innovation Ecosystems (RIEs) around the globe[22] that now totals 16.

- **Promote knowledge sharing between the science and business communities** for dissemination, allowing stakeholders to benefit from Research & Development & Innovation (R&D&I) results and facilitate the transfer of results from science to business.

- **Invest in Research & Development (R&D), open technologies and start-up-friendly ecosystems.**

- **Intensify the EU's international cooperation in Research & Innovation** with even more countries that are relevant and trustful players for the Green and Digital Transition, inviting local companies and science to joint ecosystems and inspiring international activities.

3.2 Strengthen Public Private Partnerships for Research & Innovation

Siemens supports Public Private Partnerships (PPP) as a key instrument in maintaining a strong Research & Innovation landscape throughout the EU. These partnerships should be a priority in upcoming European framework programs.

Siemens' recommendations:

- **Allocate a higher budget to Public Private Partnerships** in Research & Innovation.

- **EU Framework Program 10 (FP10)** should provide future partnerships with a coherent funding architecture, ideally in coordination with other funds like the successor of the Digital Europe Program.

- **FP10 should reduce the administrative burdens of PPPs** as beneficiaries of funding and introduce more agile processes for participation as well as best practice sharing.

- **Specific focus needed on digitalization:** in particular on highly relevant "technology convergence" topics like the Industrial Metaverse/Virtual Worlds.

- **Another focus on future-proof technologies for a Green and Digital Transition** like Artificial Intelligence, Microelectronics, Advanced Materials, the Internet of Things, Data Spaces, Cloud/Edge, Industrial Metaverse/Virtual Worlds and Digital Twins, including the way forward to a Circular Economy that should include funding opportunities to develop recycling technologies for electronics and engineering plastics.

3.3 Build a strong Artificial Intelligence Ecosystem in Europe and beyond

Artificial Intelligence (AI) is becoming a key success factor for the competitiveness of our industry and the wider economy, with added value for citizens, higher productivity, improved corporate performance and economic growth.

AI is likely to have the largest economic impact on such sectors as manufacturing and the Industrial Internet of Things (IIoT) with an overall AI impact potential in Europe of up to €200 bn by 2030; mobility, with an AI impact potential of €300 bn; and smart health, with an AI impact potential of €105 bn. AI should be viewed as our companion, not as our enemy, to leverage the opportunities rather than focusing on the threats[23].

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[22] Siemens AG. Siemens Research and Innovation Ecosystem. https://ecosystem.siemens.com/researchandinnovation/siemens-research-and-innovation-ecosystems/overview

[23] European Commission. Industrial applications of Artificial Intelligence and big data. https://single-market-economy.ec.europa.eu/industry/strategy/advanced-technologies/industrial-applications-artificial-intelligence-and-big-data_en

Siemens' recommendations:

- **Adopt a holistic approach that encompasses business, education, research, ethics and international cooperation** to strengthen Europe's position in AI. In particular:

  1. Data access and data use:
  - Create guidelines and infrastructure for the secure exchange of data between organizations to improve training datasets for AI algorithms.
  - Use experimentation clauses and promote initiatives for the responsible use of data.

  2. Financing of start-ups and innovation:
  - Provide internationally competitive funding opportunities and support for young companies.
  - Improve and increase research funding, especially for AI to an internationally competitive level. Especially in comparison to the United States and China, there is need for improvement.

3.4 Ensure a coherent and secure digital regulation framework

Over the past years, we have seen a lot of digital regulations (Data Act, Cyber Resilience Act, AI Act) that pose a burden on European competitiveness. Industry will need sufficient time to implement the necessary changes to comply with the new rules. Any additional legislation or revisions in this field should be coherent with the existing rules and not create legal uncertainty.

Siemens' recommendations:

- **Coherent application of cybersecurity rules throughout the EU:** The European Commission should ensure a coherent application of the Network and Information Security 2 Directive (NIS 2) in all Member States. This will become even more important once companies must implement the Cyber Resilience Act.

- **Review of the General Data Protection Regulation:** avoid any contradictions with the EU Data Act and the Data Governance Act. Industry and small and medium sized enterprises (SMEs) may require guidance when it comes to applying these requirements.

- **Sectoral Data Spaces** must be constructed with sufficient stakeholder consultation to allow European companies to benefit from these new ecosystems. The roles of all relevant sectoral market stakeholders need to be clearly defined, including their responsibilities. Respective data sets need to be specified and data governance rules need to be in place including but not limited to compensation rules.

3.5 Promote collaboration to address the digital and green skills gap

To boost Europe's innovation performance and avoid a widening skills gap, Europe needs a future-oriented education framework based on lifelong learning, including re-skilling initiatives in the workplace. This can be achieved only through a collaborative and multi-level approach that brings together the EU, Member States, companies, academia, etc.

Siemens' recommendations:

- **Digital and green skills in education:**
  - Improve the quality and broad dissemination of digital and green skills teaching.
  - Leverage occupational training for continuing education and retraining.
  - Teach green and digital skills in school and earn credit toward a diploma.

- **Encourage lifelong learning – make sustainable employability possible:** Governments and businesses must push in the same direction to ensure lifelong employability in a rapidly changing job environment. In particular, modular micro-credential-based learning options should be expanded (short- and medium-term courses for various target groups, e.g., professional and academic tracks).

- **Treat digitalization as an opportunity and use it to help all:** Companies should support continuing education and lifelong learning of digital skills to shape the structural change in the labor market.

Fourth Lever: Scale and Focus Investment in Strategic Areas

The Green and Digital Transition will require massive investments: For the two transitions, the collective annual financing gap of EU Member States is estimated to amount to at least €481 bn until 2030[24]. Only a combination of public money, private investment and the leverage of European and national tools to direct investment flows in the right direction will make it possible. The ability of the EU to truly address the investment gaps will condition the success of its Green and Digital Transition.

Main recommendations:

1. R&D funding: make the goal of 3% of GDP for innovation a reality
2. Adopt a Green Investment Plan
3. Leverage the European Single Market to bridge the green premium gap
4. Align the EU's financing framework with Green and Digital Transition needs

4.1 R&D funding: make the goal of 3% of GDP for innovation a reality

Back in 2002, the European Council in Barcelona set an overall EU R&D investment target of 3% of GDP by the year 2010. Now is the time to deliver on our promises. The EU innovation performance still lags behind that of several global counterparts: Only 2.23% of EU countries' GDP is invested in Research & Innovation, falling behind the United States, China and Japan[25].

Siemens' recommendations:

- **Achieve 3% of the GDP on Research & Innovation by 2030.**

- **Dedicate at least €200 bn to Research & Development EU Funding** for the next EU Framework Program (FP10).

- **Focus on materials and technologies that benefit society and support the Green Deal goals:** Such as Industrial Metaverse/Virtual Worlds, Simulation, Digital Twin, Artificial Intelligence, Network/Cloud/Edge technologies, Cybersecurity, electrification-enabling technologies, energy efficiency, recycling-enabling technologies as well as safer and non-regrettable substitutions for most harmful substances.

- **Adhere to the technology neutrality principle:** Define the project goals and desired outcomes, e.g., WHAT but not HOW the technology should be designed.

4.2 Adopt a Green European Investment Plan

To achieve the 2030 targets, additional investments of 2% GDP will be required annually in energy and transport[26]. Funding from the Recovery and Resilience Facility will also end in 2026, and there is a need to set up a new funding mechanism to ensure a successful Green Transition. In particular, grids need massive investments, in view of growing future electrification needs: The Commission estimates that €584 bn is necessary for the electricity grids until 2030[27].

Siemens' recommendations:

- **Set up a new Green European Investment Plan** to fund the Green Transition and invest in clean technologies and needed infrastructure in electricity grids and buildings.

- **Particular focus should be placed on distribution grids:** 40% of Europe's distribution grids are more than 40 years old and need to be modernized[28], and 70% of variable solar and wind energy will be connected at the distribution

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[24] Bruegel (2024). Accelerating strategic investment in the European Union beyond 2026.
https://www.bruegel.org/report/accelerating-strategic-investment-european-union-beyond-2026

[25] Eurostat (2023). R&D expenditure. Gross domestic expenditure on research and development, 2022.
https://ec.europa.eu/eurostat/statistics-explained/index.php?title=R%26D_expenditure.

[26] Bruegel (2023). A new governance framework to safeguard the European Green Deal.
https://www.bruegel.org/policy-brief/new-governance-framework-safeguard-european-green-deal

[27] European Commission (2023). Communication from the European Commission – Grids, the missing link – An EU Action Plan for Grids.
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2023%3A757%3AFIN&qid=1701167355682

[28] Ibid.

level, as well as new electrified and flexible demand (heat pumps, EV, HVAC, etc.). For speed purposes, modernization efforts should also include the lifetime extension of already-installed equipment, e.g., through repairs or predictive maintenance.

- **Support investments in state-of-art smart grid technologies and software:** Investments in grids shall facilitate the adoption of software solutions with appropriate remuneration schemes supporting Operational Expenditures (OpEx).

- **Boost building renovations** to facilitate effective interaction of smart buildings within the new decentralized energy system and to significantly contribute to achieving the EU decarbonization objectives.

- **Leverage incentives and innovative business models**, such as Software as a Service (SaaS), notably in electricity grids.

4.3 Leverage the European Single Market to bridge the green premium gap

The Green Transition will entail new requirements for the European industry as regards its portfolio as well as investments in the decarbonization of its operations. This could put European companies at a disadvantage with industrial players from third countries. The ambition for more sustainable solutions and products must not be lowered – rather regulations should be coupled with incentives to reward sustainable products.

Siemens' recommendations:

- **Use public procurement to create demand for sustainable products:** Public procurement accounts for about 14% of the EU's gross GDP[29] and must play a role in creating demand for sustainable products and clean technologies. Several pieces of EU legislation (e.g., ESPR, Batteries Regulation, Construction Products Regulation, Net Zero Industry Act (NZIA)) refer to Green (and resilient, for the NZIA) Public Procurement criteria and targets: they should be implemented effectively and in the most efficient way, including the use of the Most Economically Advantageous Tender (MEAT) criteria.

- **Enable and encourage companies to pool purchases of green products** to facilitate economies of scale at the European level.

- **Shape an energy taxation system that supports decarbonized energy** by finalizing the Energy Taxation Directive, by taxing electricity at the lowest rate or by making a new proposal for the next mandate if no agreement is found.

- **Consider a European approach to eco-modulation** and incentives for products that have a reduced environmental footprint, such as a lower VAT for sustainable products based on ESPR-defined parameters and harmonized standards. Secondary materials should not bear the burden of recycling costs but be more attractive.

4.4 Align the EU's financing framework with Green and Digital Transition needs

The EU's budget will not be sufficient to match the massive investment needs: Private investors, financing institutions, companies and Member States will have to join forces to fund the Green Transition and allow the EU to scale its investment needs. Policy instruments like state aid or sustainable finance need to be refined to reflect this new reality and address needs.

Siemens' recommendations:

- **EU Taxonomy:** Focus future regulatory actions on 1) completing the EU Taxonomy with missing enabling activities; 2) addressing usability and interpretation challenges such as DNSH/Appendix C; and 3) aligning the EU Taxonomy with the EU's political targets to ensure that private investments are redirected toward relevant activities (i.e., energy efficiency, renewables, electrification, circular products, e-mobility, etc.).

- **Consider reviewing the EU's state aid framework** to increase aid limits to support the manufacturing of strategic clean and digital technologies.

- **Revise the General Block Exemptions** to facilitate the approval of net-zero strategic projects.

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[29] European Commission. Access to public procurement. https://single-market-scoreboard.ec.europa.eu/business-framework-conditions/public-procurement_en#:~:text=Public%20procurement%20accounts%20for%20about,non%2Ddiscrimination

Fifth Lever: Act as a Partner for European Industrial Trade Policy

Several changes affecting international trade cooperation have taken place in recent years. The impact of the global financial crisis, inflation, geopolitical tensions, Brexit, the coronavirus pandemic (COVID-19), supply chain bottlenecks, economic implications of the war in Ukraine and climate change – these events have influenced global trade flows, including those of European companies.

In a contested world, trade policy continues to play an important role in international cooperation and supports domestic policies around rules-based trading practices, economic security, trade instruments, reciprocity, openness, fairness and inclusion.

Main recommendations:

1. Support a rules-based multilateral trading system
2. Deliver on a proactive EU Trade Policy
3. Develop a coherent EU-China Strategy
4. Offer economic security without "outbound investment screening"

5.1 Support a rules-based multilateral trading system

A rules-based multilateral trading system is a key driver for growth and prosperity – and creates stability. Open and fair global trade and a level international playing field are crucial to stimulate competition and facilitate better prices and solutions for end customers.

Siemens' recommendations:

- **A reform of the WTO and the commitment of countries to strengthen the multilateral system** are essential to clarify current issues such as dispute settlement procedures, a comprehensive set of global trade rules and clear rules for cross-border data traffic (digital trade, WTO e-commerce moratorium).

5.2 Deliver on a proactive EU Trade Policy

The EU enjoys the status of a global trade powerhouse: It is the second biggest exporter of manufactured goods and services. Trade has undoubtedly driven growth figures forward for decades and contributed to Europe's rise as a global superpower. Trade is needed more than ever as a driver for growth in times of crisis. A proactive, results-oriented trade agenda should be pushed forward with a sense of urgency by business representatives.

Siemens' recommendations:

- **Speed:** We need more speed in the negotiations of Free Trade Agreements and faster ratification processes. Ongoing negotiations (such as EU-Mercosur, EU-Mexico, and EU-Australia) should be concluded as swiftly as possible. New partnerships (like EU-India) should be explored.
- **Indo-Pacific focus:** Promote the expansion of the EU's partnership with partners in the Indo-Pacific. The EU-India Trade and Technology Council and the EU-Japan Green Alliance could be building blocks for this.
- **Global Gateway:** Ensure that the Global Gateway financing efforts are both financially and administratively attractive for its partner countries and companies, investing in digital connectivity, deploying sustainable infrastructures across both hardware and software layers. It is essential for Global Gateway to be a driver for the Twin Transition – green and digital. Digital should be recognized and further used as an enabler of green transition in policies and investments across all regions and sectors, for the circular economy and decarbonization efforts.

5.3 Develop a coherent EU-China Strategy

The EU sees China as a partner for cooperation, an economic competitor and a systemic rival[30]. China has become less open to the world and is taking a more assertive posture abroad, resorting to economic coercion and export controls on critical raw materials.

The EU aims to reduce critical dependencies and vulnerabilities, including in its supply chains, and to de-risk and diversify where necessary. At the same time, the EU and China are each other's largest trading partners, and the EU continues to pursue cooperation with China on global issues, such as climate change, sustainable finance and bilateral issues.

Siemens' recommendations:

- **Develop a coherent EU-China Strategy** that takes the differences of the economic models into account, pursues the elimination of asymmetries in trade and investment conditions, ensures the effectiveness of European trade defense instruments and improves market access with fair and equal treatment for European companies.

5.4 Offer economic security without "outbound investment screening"

International companies not only operate in their domestic market, but also expand into new markets through investments. Simultaneously, the domestic market receives investments from foreign companies. Both types of investment drive innovation and new technologies, strengthen our economies, secure jobs – and help us promote economic prosperity.

The EU is aware of this reality and promotes an "Economic Security Strategy" that tries to maximize the benefits of its economic openness while minimizing the risks from economic interdependencies. Part of this strategy is the idea to introduce some form of "outbound investment screening".

Siemens' recommendations:

- Siemens considers the general introduction of outbound investment screenings not to be useful and practical. Further state intervention should be considered only in exceptional cases when serious security concerns are proven.

- **Governments should first review existing tools** – export controls and inbound investment screening – to address their concerns rather than creating new regulatory structures.

Siemens AG (Berlin and Munich) is a leading technology company focused on industry, infrastructure, transport, and healthcare. From more resource-efficient factories, resilient supply chains, and smarter buildings and grids, to cleaner and more comfortable transportation as well as advanced healthcare, the company creates technology with purpose adding real value for customers. By combining the real and the digital worlds, Siemens empowers its customers to transform their industries and markets, helping them to transform the everyday for billions of people. In fiscal 2023, the Siemens Group generated revenue of €77.8 billion, net income of €8.5 billion and employed around 320,000 people worldwide. Siemens AG is the 100% parent of Siemens Mobility GmbH, holds a majority stake in Siemens Healthineers AG and a minority interest in Siemens Energy AG.

Siemens was founded and grew in Europe. Today, its businesses are covering all 27 Member States, with more than 250 subsidiaries, including world-leading manufacturing sites as well as research and development hubs. Half of Siemens' workforce is located in the EU, with 145,000 employees creating more than one-third of the global revenues here each year (approx. €27 bn in 2023).

Further information is available on the Internet at www.siemens.com.

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[30] European External Action Service (2023). EU-China Relations factsheet. https://www.eeas.europa.eu/eeas/eu-china-relations-factsheet_en?s=166