

Greener and Closer? Leveraging Reshoring and Circular Economy practices to achieve EU sustainability goals

The EU's global value chains (GVCs) are evolving amid geopolitical shifts and environmental imperatives. This context is challenging, yet represents **a potential opportunity to align GVC resilience with sustainability**. If the EU shifts towards more regional GVCs, this could not only address supply chain vulnerabilities, but also bring down the high carbon footprint often associated with global production. **Moving production back or closer to the EU while expanding circular economy practices could reduce emissions, enhance supply chain security and stimulate green innovation**. However, market incentives often favor the least sustainable solutions, hindering circular initiatives and the transfer of green technologies. A successful transition depends on overcoming the technological, logistical, financial and regulatory barriers that currently favour more carbon-intensive GVCs. **Public policy measures are needed to incentivize more environmentally beneficial and circular approaches**.

Appropriate EU policies, adapted to current and potential GVC reconfigurations, could make a significant contribution to facilitating a global transition towards more sustainable and resilient economies. By **integrating environmental standards into trade policy, scaling circular initiatives, and facilitating the development and transfer of technology to decarbonize production** in its member states and key strategic partners, the EU can achieve these goals. These initiatives would also strengthen its role as a global trailblazer in the green transition. Achieving this ambition requires a holistic policy framework that encourages innovation, rewards sustainability and ensures that GVC restructuring and circular economy practices become integral to building a new, more sustainable economic model.

GREENING TRADE IN GVCs

1. The rollout of the Carbon Border Adjustment Mechanism (CBAM) **can reduce the EU's carbon footprint, but resource shuffling is a risk**, and the inclusion of indirect emissions is key to making it more effective.

Recent GVC reconfigurations have had major impacts on EU carbon emissions. Shifts in the geography of EU supply chains between 1995 and 2018 led to increased emissions. All these increases occurred in the period before the financial crisis (+23%). Since then, EU's carbon footprint has decreased by 21%, although GVC restructuring trends have actually continued to contribute to the growth of emissions by 6% and thus prevented a further fall in emissions. In both periods, indirect emissions were the main contributor to the changes. This underlines the need for **policy measures that encourage decarbonization – like CBAM - to cover intermediates**, as well as final goods.

CBAM, together with other regulations encouraging monitoring of the carbon impacts of GVCs like the Corporate Sustainability Due Diligence Directive (CS3D) and the Corporate Sustainability Reporting Directive (CSRD) will encourage shifts to low carbon sources. Such GVC restructuring has the potential **to reduce the EU's carbon emissions by between 14% to 25%**, with the greatest impacts seen in electronics, transport, textiles, and food.

Yet, there is a risk that GVC restructuring and reorientation of trade will undermine the effectiveness of EU regulations. Our analysis indicates that if the EU's shift to low carbon imports results in other importers shifting to dirtier suppliers, **CBAM's impact could be negligible or even negative** (a 0.5% increase in global emissions).

2. **Reshoring production** in the EU, especially in essential sectors, would result in **emissions reductions** as well as enhanced supply chain resilience.

Reshoring strategies in certain strategic products would generate significant reductions in the EU's carbon footprint, while affecting less than 1% of imports. Reconfiguring **iron and steel** supply chains could reduce the footprint by around **13 megatons of CO₂ (MtCO₂)**, while for **electric motors, batteries, and chips and circuits**, the reductions could be around **4 MtCO₂**.

However, there is a risk that such GV reconfigurations **increase emissions from some EU sources**. Past shifts in EU offshoring and reshoring, especially in mid- and low-tech sectors, led to significant increases in emissions in Eastern member states. If reshoring were to be **combined with decarbonizing Eastern and Southern Europe**, this would reduce emissions significantly. Thus, **securing the uptake of low carbon technology** in these countries is vital to reducing the carbon footprint of EU reshoring shifts. Financial support for renewable energy investments in key reshoring regions should be a policy priority.

3. **Clean Trade and Investment Partnerships offer a mechanism** to secure progress and help the EU leverage trade partnerships to support decarbonization.

Many key trade partners have expressed concern about the impact of CBAM and other measures, like the Deforestation Regulation, which seek to decarbonise trade. If the EU is to avoid trade conflicts over sustainability goals, it is vital to build trust. As highlighted above, CBAM can lead to reductions in the EU's carbon footprint, but if the measure is to have global impacts, it must be **accompanied by sustainable and balanced partnerships with key actors** in the EU's strategic GVCs.

No jurisdiction has the resources to ensure the transition to a low-carbon economy alone. While negotiating and transposing traditional free trade agreements has become very challenging, more focused agreements with clear win-win objectives should be easier to agree. The **Clean Trade and Investment Partnerships** proposed by the new Commission could include measures to secure mutual access to green technology and the critical raw materials vital to the green transition, as well as **support for sustainable investment and training** for the core skills which will underpin progress.

At the same time, the EU should leverage existing **trade agreements**, including through strengthening the trade and sustainability chapters, **speeding up the transfer of green technology, and building common carbon reduction goals**. This would create accountability across both EU suppliers and foreign partners, reducing the risk of carbon leakage and enhancing GVC resilience.

SUPPORTING CIRCULAR ECONOMY EXPANSION

4. **Investing in both skills and recycling/reconditioning technologies and capacities** is critical to scaling up the circular model across industries.

The shift to circularity involves **new occupations, novel production processes, and logistical systems**, many of which remain underdeveloped. **Circular intermediaries** can be vital to securing progress on core objectives like rolling out training, managing reverse logistics, and creating the new networks

required to underpin circular approaches. Public funding or co-financing models are needed to support the development of these vital actors.

Circular approaches need to scale up if they are to compete with the traditional linear economy. Increasing efficiencies and scale requires both **support for R&D** to bridge the remaining gaps in technological capacity, and the **promotion of collaboration across industries**. Each GVC should not have to build its own reverse logistics system. **Public support will be necessary** to build more efficient cross-sectoral solutions to collect and reuse end-of-life products.

Such efforts require funding. One pathway to secure new resources will be through the development of the EU level **Extended Producer Responsibility (EPR) schemes**, currently being discussed in the context of the revision of the **Waste Framework Directive**. Although these schemes can be helpful, experience in France suggests that the related '**eco-contributions**' need to be significant, while providing reductions for sustainable production. This is necessary both to secure adequate finance and to provide real incentives to producers of more durable, recyclable goods.

5. **Addressing barriers to circularity and waste flows across EU internal and external borders** can facilitate the recycling and reuse of materials at scale.

Attitudes to waste and recycled/reconditioned goods need to adapt to reflect the new reality that waste is often a resource. **Harmonizing regulations and creating an EU market for reconditioned goods and waste products** would allow circular models to become financially viable. Greater transparency would also improve viability. In this context, rapid deployment of **digital product passports** would support further roll out of take-back programs and reconditioning/recycling initiatives.

In addition, **cooperation should be expanded with neighboring regions**, particularly the pan-Euro-Mediterranean area. Barriers to moving end-of-life products across borders in this region could be addressed by **negotiating bilateral mutual recognition agreements** with key trade partners. Such agreements could also be integrated into the 'Clean Trade and Investment Partnerships' to be launched by the new Commission.

The plans to **review the rules of origin** of the EU's trade agreements provide the opportunity to incentivize the use of recycled and reconditioned products. For example, **recycled content could be excluded from the calculation of origin**, incentivizing products integrating circular approaches and increasing the market for recycled materials.

6. **Greater incentives and disincentives are needed** if circular economy practices are to become mainstream.

The market does not currently incentivize firms to prioritize circularity. Despite their negative environmental externalities, products made from virgin raw materials are often cheaper. This situation could be remedied if producers of less durable, harder-to-recycle products had to pay significantly **higher eco-contributions to fund end-of-life costs**.

Another option would be **to levy reduced VAT (or import tariffs) on reconditioned or second-hand goods**. This option has the potential to create real economic incentives for circularity. However, it would require consultation with trade partners, clear and unambiguous definitions of the goods to be covered, and detailed impact analysis to avoid unintended negative consequences.

Regulations imposing minimum standards are essential to driving the circular transition forward. **Ecodesign norms on the EU market** are potentially powerful tools to incentivize change, both within the EU and along its GVCs. Requiring all actors on the market to develop more durable, repairable, and ultimately recyclable products can foster real change across GVCs. However, carefully defining

the criteria for these norms will be key to their success. All of the potential levers for circularity discussed here **could be integrated into the proposed Circular Economy Act**.

ENCOURAGING GREEN TECHNOLOGY TRANSFER ACROSS GVCs

7. Multi-National corporations (MNCs) can play a critical role in reshaping GVCs and **transferring low-carbon technology to peripheral EU economies**.

Reshoring alone may increase territorial emissions slightly. In order to reduce the overall EU's carbon footprint it needs to be coupled with technology transfers, especially in energy and emissions-intensive sectors, as well as efficient energy use along production chains. A significant reduction in EU emissions through strategic reshoring to Eastern and Southern Europe can only be secured through **adequate transfer of decarbonization technologies**. The proposed **Industrial Decarbonisation Accelerator Act** is an opportunity to encourage EU and national policies to **support green investments**, especially in the most impactful sectors like electronics and basic metals, and indirect emissions-intensive sectors such as electricity.

8. MNCs need to focus on **providing support to subsidiaries**, especially in **emissions hotspots**, to ensure innovation secures emissions reductions.

Although MNCs are vital in driving low-carbon innovations, **subsidiaries may struggle to adopt high-standard technologies in new host countries** without policy support. By focusing on emissions hotspots in GVCs—such as energy-intensive production or material processing—MNCs can better reduce emissions across their supply chains, which, in turn, could increase the attractiveness of countries to inward investment. **Decarbonising electricity** and growing connectivity to secure a free flow of green energy across the EU's grid should be a priority in this context. Progress on greening the EU's energy infrastructure will also contribute to broader policy objectives like increasing autonomy and resilience. These objectives are closely related to several EU initiatives in the field of energy and climate, including the **REPowerEU Plan, the Fit for 55 Package, and the recently strengthened and amended Renewable Energy Directive** to speed up the European Union's clean energy transition.

9. MNCs need a **clear and predictable policy environment** to enable smart restructuring of their GVCs and adapt to geo-political threats

New EU regulations like the Corporate Sustainability Reporting Directive (CSRD) and the Corporate Sustainability Due Diligence Directive (CS3D) are forcing MNCs to address their exposure to risk within their GVCs. They are **reassessing their investment portfolios and supply chains**, seeking to identify the locations where further greening initiatives are likely to be challenging, as well as those where policy is more supportive of sustainable transitions. While new EU regulations are driving such reassessments of relocation decisions, **geopolitical instability, especially the ongoing war in Ukraine, continues to deter investment reshoring**, particularly to Eastern Europe. Thus, MNEs are adopting a wait-and-see approach, as they seek to balance sustainability concerns against geo-political risk and assess whether the CSRD will, in fact, have an impact on how financial markets value companies. Providing certainty in this context is vital. The **proposed Omnibus needs to be agreed** as soon as possible to give companies the certainty they need to plan their future production structures, while continuing to incentivise sustainable business practices.

SOURCES AND FURTHER READING

PROJECT NAME

Towards a World Integrated and Socio-economically Balanced European Economic Development Scenario (TWIN SEEDS).

COORDINATORS

Roberta Capello, Politecnico Di Milano, Italy; Giovanni Perucca, Politecnico Di Milano, Italy

CONSORTIUM

- | | |
|--|---|
| • AIT Austrian Institute Of Technology GMBH, Austria | • Universidad De Castilla - La Mancha, Spain |
| • Copenhagen Business School, Denmark | • Universita' Degli Studi Di Milano-Bicocca, Italy |
| • Erasmus Universiteit Rotterdam, Netherlands | • Uniwersytet Ekonomiczny W Poznaniu, Poland |
| • Old-Continent SPRL, Belgium | • Wiener Institut Fur Internationale Wirtschaftsvergleiche, Austria |
| • Rijksuniversiteit Groningen, Netherlands | |
| • Toulouse Business School -TBS, France | |

FUNDING SCHEME

HORIZON-RIA - HORIZON Research and Innovation Actions

DURATION

1 October 2022 – 30 September 2025

BUDGET

€ 2 707 496,50

WEBSITE

<https://twinseeds.eu/>

FOR MORE INFORMATION ON THIS BRIEF

Dr Louise Curran, TBS Education, France, l.curran@tbs-education.fr

Dr Thibaut Joltreau, TBS Education, Toulouse, France, t.joltreau@tbs-education.fr