

Focus on Entrepreneurship

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Regulations in the Circular Economy: How Can Environmental Protection Be Promoted While Simultaneously Strengthening Small and Medium-Sized Businesses?

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Summary

The establishment of a circular economy offers significant market potential for small and medium-sized enterprises (SMEs). At the same time, regulations create bureaucratic hurdles that place a particular burden on SMEs. The examples of steel recycling and the extraction of mineral raw materials demonstrate that ineffective policy conditions can lead to distortions in resource allocation. Specific procedural regulations can hinder operational flexibility, and government intervention in the market can be counterproductive. These examples are representative of other areas of the circular economy where regulations can lead to similar problems. Our analysis provides recommendations for policymakers and government agencies on how to design the regulatory framework.

The circular economy is the key to a sustainable industry. It promises resource efficiency, reduced dependencies, and new market opportunities – especially for small and medium-sized enterprises, which have traditionally had a strong presence in sectors such as steel recycling and the processing of mineral raw materials. The steel recycling sector generates annual revenues of €5.7 billion, and the aggregate industry which supplies and recycles mineral raw materials employs approximately 1,600 companies, most of which are small and medium-sized enterprises.¹

At the same time, regulations prove to have two sides to them. While they enable the emergence of new markets, they can also – to varying degrees – cause delays, costs, and uncertainties that can disproportionately affect SMEs. The key question is therefore: Under what conditions do regulations support the development of new markets, and when do they act as a barrier to SMEs?

Studies by the RWI - Leibniz Institute for Economic Research on steel recycling and the recycling of mineral raw materials illustrate the problem and point to potential solutions (RWI 2021, 2025; Rothgang, Dehio & Janßen-Timmen 2025). Methodologically, case studies were conducted that are based on interviews with stakeholders along the value chain.

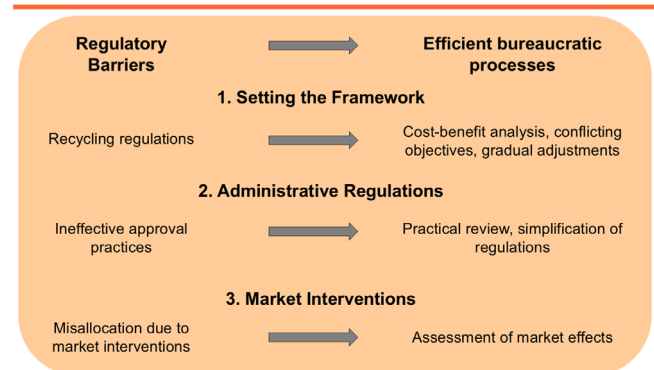
Key findings

These studies identify three types of regulatory impacts, each of which creates specific problems for SMEs.

First, ineffective regulatory frameworks for recycling create allocation distortions. Since 2015, the End-of-Life Vehicles Ordinance has required manufacturers and waste disposal companies to achieve a 95% recycling rate. However, this ambitious target is not being

met, as some vehicles are not disposed of properly. At the same time, the Substitute Construction Materials Ordinance is having unexpected effects on mineral raw materials: Strict quality requirements for secondary construction material classes are reducing the amount of recycling rather than increasing it. These cases show that additional regulation can be associated with lower recycling rates – a sign of potential for improvement in the regulatory framework.

Circular Economy: Barriers and Efficient Processes



Source: Own depiction.

Second, specific procedural regulations hinder operational flexibility. In steel recycling, semi-mobile scrap shears – flexible, modern technological units – must comply with state-of-the-art standards regarding noise and pollutant emissions. There are no clear regulations governing their trial operation without a permit, which results in investment delays and high costs without a corresponding environmental benefit. In the field of mineral raw materials, problems arise from lengthy permitting processes, external expert fees, overlapping testing requirements, and a lack of standardization.

¹ Federal Association of Mineral Raw Materials. [Rohstoffe - MIRO Bundesverband Mineralische Rohstoffe e. V.](#), accessed on July, 22 2026

Many such ineffective regulations can create challenges for small and medium-sized enterprises in both areas without providing any corresponding environmental benefits.

Third, selective market interventions lead to market distortions. Recently discussed export bans on scrap steel reduce incentives for collection and sorting but do not address the root cause: a lack of willingness to pay for processed steel scrap. This can lead to a loss of prosperity due to misallocation: resources are then not used where they would be most beneficial.

Regulatory burdens with little environmental benefit disproportionately affect SMEs

While large corporations have their own legal departments, expertise, and financial reserves to navigate within a complex regulatory landscape, SMEs lack these capabilities. The result is that bureaucracy not only costs money but also consumes time and stifles innovation - precisely the factors that define Germany's competitive SMEs. At the same time, the environmental benefits fall short of expectations. Ineffectively designed regulations can place a burden on companies without providing corresponding environmental benefits, thereby hindering the desired transition to a true circular economy. The RWI's studies cite numerous individual examples, although a detailed quantification of the costs was not the focus of the research.

Recommended actions

The development of recommendations for action in light of these observations is based on consideration of various levels of impact and potential interdependencies within circular economy systems. The objectives of these measures are to strengthen the innovative capacity of SMEs and to develop a circular economy:

1. Cost-benefit analysis regarding the framework conditions for recycling: Legislators should systematically conduct cost-benefit assessments for regulations governing material recycling that explicitly take conflicting objectives into account. Threshold values and quality standards – for example, in the building materials sector – should be set realistically and adjusted gradually. Regular evaluations ensure that requirements lead to improvements in the circular economy.

2. Simplification of administrative procedures: The permitting process requires a practical review aimed at significant simplification. This includes ex ante practical reviews conducted with experts from academia and politics to anticipate potential problems in advance. Standardizing assessment criteria and consolidating overlapping assessment procedures - such as environmental impact assessments – would shorten processing times. The introduction of a digital tracking system could also improve traceability while reducing the administrative burden. The focus should be on the added value of each individual regulation, considering the associated costs and environmental benefits.

3. Critical review of selective market interventions: Selective interventions, such as export bans, require a thorough assessment of their market and environmental impacts before they are implemented. Otherwise, discretionary measures can lead to misallocations and counterproductive incentive structures. Instead of lump-sum export restrictions, targeted instruments should be used to create incentives for the sorting and processing of secondary raw materials – for example, by internalizing environmental costs into material prices. This would better reward the actual quality of recycled materials without unnecessarily hindering trade.

Conclusion

Establishing a circular economy requires a regulatory approach that rewards business engagement rather than undermining it. Policymakers face the challenge of striking a balance between effective environmental goals and maintaining the competitiveness of SMEs. The circular economy will become a successful model only if SMEs remain capable of acting. The recommended actions aim to solve this challenge in a sustainable manner – equally for the benefit of both businesses and the environment.

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Further Studies:

Rothgang, M.; Dehio, J.; Janßen-Timmen, R. (2025): Volkswirtschaftliche Bedeutung der Stahlschrottrecyclingwirtschaft, RWI-Projektberichte.

RWI – Leibniz-Institut für Wirtschaftsforschung (2021): Die künftige Rohstoffversorgung der NRW-Industrie und Schritte auf dem Weg zur Kreislaufwirtschaft, Rohstoffstudie NRW und Fact Sheets. MWIDE 21-024, Düsseldorf.

RWI – Leibniz-Institut für Wirtschaftsforschung (2025): Rohstoffnachfrage 2045: Ressourcen sichern, Zukunft bauen. Perspektiven für mineralische Primär- und Sekundärrohstoffe, RWI-Projektberichte, Essen.

Imprint

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