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EU Circular Economy Package: A Challenging Yet Important Impulse

An Analysis of the Impact of Key EU Sustainability Policy

By Adriana Sonia Neligan

The European Commission aims to push forward the concepts of "recycle, repair and re-use" and waste avoidance with its Circular Economy Package. The rationale behind a circular economy is to keep resources in use for as long as possible by looking at the complete life cycle of a resource – from extraction to product design, production and consumption to waste management. The aim is to minimize both material input and waste generation by resource-saving product design (eco-design) and by recycling and re-using products and materials turning waste into a resource again.[1] To comply with the Package many EU countries will need a completely new waste treatment system, and many companies will need to re-think some established business models. For businesses, the transition to a circular economy will likely include costs and risks, but can also lead to new business opportunities for companies making and exporting circular economy-relevant products and services. This issue of *Director Notes* evaluates the EU Circular Economy Package by providing facts on the status quo of circular economy efforts and outlining some of the risks and opportunities for companies.

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Implications for company boards

A circular economy can only be implemented with the involvement of all state and non-state parties alike, in particular of the private sector. The industrial sector plays a key role as a source of investments, as a driver of technological development and innovation that makes better and more careful use of natural resources. Since a thriftier use of materials can both save costs and reduce the dependence on imports, companies also have a self-interest to increase material efficiency.[2] The following are reasons company directors should understand the recent developments related to the Circular Economy Package:

Anticipating regulation

Corporate leaders getting ahead of upcoming policy changes, regulation, pricing of externalities and demands of external stakeholders by incorporating the circular economy into their business models can take a leading role here. Being an early-mover not only offers competitive advantages but can also serve as proof points for policy makers. In addition, the traditional "take-make-waste" model might also not be in line with long-term corporate sustainability strategies anymore. Circular economy measures can also help companies to fulfil their goals in accordance with the Paris Climate Agreement and the UN Sustainable Development Goals.[3]

Stakeholder pressures

External stakeholders often also play a key role in pushing the circular economy to the top of the corporate agenda. On one hand, government agencies and regulators are setting requirements. In the case of the EU Circular Economy Package the responsibility requirements do not only affect the waste management sector but also other sectors with the broadening of the eco-design criteria, enforced extended producer responsibilities and targeted measures for food, construction, industrial, mining waste and secondary raw materials. On the other hand, customers, NGOs, local communities and investors might increasingly embrace sustainability issues, which also needs to be addressed by company boards.[4]

Business model disruption

Moving from the traditional "take-make-dispose" economic model to a circular economy that is regenerative by design can disrupt current business models and even whole industries. A circular economy is a new way of looking at the relationships between markets, customers and natural resources. Corporate boards have to evaluate how the circular economy transition could play out in their industries and need a perspective on how to prosper in a circular market and what circular opportunities are available. In addition, company leaders assume accountability to their shareholders for how they design the business toward more resource independence and resilience to address risks of resource scarcity and fluctuating commodity prices.[5]

With specific business strategies industry leaders can foster circularity across the life-cycle of materials, beginning in the design phase with how and what materials are sourced and with keeping materials within the economy longer by enabling re-use, re-manufacturing, recycling and raising the durability of goods. Re-manufacturing and recycling are relevant business operations leading to changing and adapting business models.[6] In certain sectors, re-manufacturing or shifting the model of product-selling to services are some of the examples with tangible benefits.[7] Moving towards a circular economy involves a complex transformation process strongly enforcing relevant innovations, investments and other transition costs to enable business model innovations and new ways of collaboration.

Risk management/shareholder responsibility

For corporate boards this involves looking at risk and opportunities carefully to formulate their long-term strategies and governance adequately. Corporate boards should examine the business case for the circular economy from a risk management standpoint. Since the costs for circular activities compared to traditional activities are often higher, the business case is frequently linked to acquiring new customers, strengthening existing customer relationships or opening new markets.[8]

The proposal for an EU Circular Economy Package, published in December 2015, consists of a legislative part and an Action Plan (see Table 1 for an overview).

Legislative part: a slow decision process

European waste legislation is currently being revised considerably to get away from a linear economy of extracting, using and dumping raw materials.

In December 2017 a provisional agreement on the four legislative proposals on waste, revising six pieces of EU legislation, was reached in a final Trilogue meeting between the EU Council, Commission and Parliament. The revised legislation was approved by the EU parliament in mid-April 2018 and is up for final adoption by the EU Council. Since the draft has already been informally agreed with the Council of Ministers, it is unlikely that additional changes will be made.[9]

The key elements[10] of the revised legislation include:

- **Introducing new waste-management targets regarding re-use, recycling and landfilling** The main points of discussion were the actual EU-wide targets as well as the appropriate calculation method. As a compromise, binding recycling targets for municipal waste have been now agreed at 55 percent by 2025, 60 percent by 2030 and 65 percent by 2035.[11]

Table 1: **The Circular Economy Package**
Brief overview

	Legislative Part	Action Plan
Aim	Harmonization of the EU legislative framework on waste	Measures to "close the loop" by intending to tackle all phases in the lifecycle of a product
Contents	Amendment of six pieces of waste legislation: 1. Waste Framework Directive 2. Packaging Waste Directive 3. Landfill Directive 4. Directive on electrical and electronic waste 5. Directive on end-of-life vehicles 6. Directive on batteries and accumulators and waste batteries and accumulators	The action plan complements the legislative proposal and includes an action timeline and a plan for a monitoring framework for the circular economy
Key elements	• Clearer definitions of key waste concepts and harmonized calculation methods for recycling and re-use rates • New binding EU targets for recycling and re-use of municipal waste (55% by 2025, 60% by 2030, 65% by 2035) and packaging waste (65% by 2025, 70% by 2030)[a] • Binding cap on landfilling to 10% of municipal waste by 2035[b] • Stricter requirements for the separate collection of waste; reinforced implementation of the waste hierarchy through economic instruments and additional measures for member states to prevent waste generation • Minimum requirements for extended producer responsibility schemes	• Eco-design working plan for 2016-2019 to promote durability, reparability, upgradeability, design for disassembly, recyclability and re-usability of products, in addition to energy efficiency • Strategy on plastics in the circular economy, addressing avoidance, recyclability, biodegradability, and microplastics • Quality standards for secondary raw materials to increase the confidence of operators in the single market • Report on Critical Raw Materials • Actions to reduce food waste • Monitoring framework of a circular economy • Options to address the interface between chemical, product and waste legislation • Revised regulation on fertilizers to facilitate the recognition of organic and waste-based fertilizers in the single market and support the role of bio-nutrients • Series of actions on water re-use

a. A time derogation of five years will be allowed member states which recycled less than 20 percent or landfilled more than 60 percent in 2013.

b. A time derogation of five years will be allowed member states which sent over 60 percent of waste to landfill in 2013.

Source: Own compilation based on EU Environment Council (2016)[12], European Commission (2017)[13], Council of Europe (2017)[14], European Commission (2018)[15].

- **Harmonizing calculation methods for targets** Another aim of the EU Commission has been to harmonize the measuring of recycling and re-use rates in the European Union as the methodology of determining recycling rates has varied across Europe, with four methods currently applicable. The new calculation method switches the point of measurement of the weight of material from collection (or the first sort) as is widely common in the EU (and used in Germany) to the input of the final recycling facility, after all sorting has taken place. For Germany, for example, the reported 66 percent recycling rate would drop to between 47 and 52 percent.[16] The agreement, however, only goes part of the way toward measuring real recycling as an exemption allows member states to declare materials as recycled even after an early waste sorting stage by estimating the losses occurring after first sorting operations that will be deducted.
- **Strengthening provisions on waste prevention and extended producer responsibility** The legislative part of the Package includes strengthened provisions around extended producer responsibility (EPR), which signifies that a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle. It makes the manufacturer of a product responsible for the entire life cycle of the product and especially for the collection, take-back, sorting, recycling and final disposal. This approach incentivizes producers to design products that last longer and can be more easily recycled or re-used after their original use (eco-design) by internalizing treatment and disposal costs. Such a responsibility may be merely financial but can be organizational as well.[17] The EU Waste Directive, which already implemented the EPR concept in 2008, is revised to offer some long-overdue clarification regarding the "rules of the game" for producers subject to national EPR laws.[18] Since the effectiveness and performance of EPR schemes differ significantly between EU member states, the revised legislation will set minimum requirements for extended producer responsibility schemes. Producers of products under these schemes must bear responsibility for the management of the waste stage of their products. Producers will be required to pay a financial contribution calculated on the basis of the treatment costs. In addition, mandatory EPR schemes for all packaging by 2024 have also been in introduced in EU legislation.[19]

Action Plan: a general orientation

The Action Plan with its 54 measures integrates different policy areas, e.g. waste and product policy, by looking at the entire product life cycle and not only the waste aspect.

The Action Plan aims to make the recycling of products easier by factoring in recycling and re-use concepts in the production phase and product design stage. This wide approach not only affects the waste disposal and recycling industries. It also makes other sectors more responsible for their waste, as the two interconnected concepts of eco-design and extended producer responsibility become more prevalent.

> The European Commission wants companies to consider waste avoidance during the development of a product.

Eco-design

Since up to 80 percent of the environmental effects of a product can already be specified during the design phase, the European Commission wants companies to consider waste avoidance during the development of a product. Eco-design takes into account the environmental impact of products throughout their whole life cycle in the design phase. It aims to design products requiring the sustainable and minimal use of resources and maintaining the utility and hence the value of products, their components and materials within material cycles for as long as possible. Eco-design facilitates high-quality recycling of materials at the end of a product's life by considering concepts of sharing, repairing, remanufacturing, refurbishing and recycling at the design phase. In addition, cleaner material cycles can be achieved by substituting hazardous substances in products and processes.[20]

The Package intends to use existing instruments better, e.g. the Eco-design Directive instead of introducing further instruments. To date the EU Eco-design Directive only focuses on energy efficiency and excludes reparability, durability and recycling of products. The Eco-design Working Plan 2016-2019 expands the focus of future eco-design measures beyond energy efficiency to possible circular product requirements such as reparability, upgradeability, design for disassembly, information and ease of re-use and recycling.[21]

Targeted strategies

In addition, the Action Plan introduces targeted activities for food, construction, industrial and mining waste and for secondary raw materials. In January 2018 several new strategies were presented, including an EU strategy for plastics; an assessment of an improved interface between chemicals, product and waste legislation; a monitoring framework for the circular economy; and a report on critical raw materials and the circular economy.[22] In the case of plastics, for example, with its first EU-wide strategy for plastics the European Union aims at reducing the leakage of plastic in the environment by transforming the way products are designed, manufactured, used and recycled. The Action Plan calls for all plastics packaging to be recyclable by 2030.

Moving up the waste ladder

Some EU member states are better prepared for this shift of paradigm than others, but there is no recognized way of measuring how effectively different countries will undergo the transition.[23] This section aims to help close this gap by looking at recent trends in waste treatment and the attainability of the EU targets at the different levels of the waste hierarchy.

Prior to the 2015 Package, existing EU waste policies have already contributed to moving towards a circular economy. There are policy measures favoring recycling and some circular economy-relevant concepts have been established.[24] The Waste Framework Directive (2008/98/EC) sets out the basic concepts and definitions related to waste management, such as definitions of waste, recycling and recovery. It also included two recycling and recovery targets for 2020: 50 percent of municipal waste and 70 percent of construction and demolition waste. In addition, the waste management hierarchy became a priority for waste legislation and policy in the EU member states.[25] As a first priority, waste should be avoided. Strictly speaking, this is not a waste policy since it has more to do with improving manufacturing methods and influencing consumer demand for greener products and less packaging. The EU Commission acknowledges this by extending its approach in the Action Plan to other policy areas. After waste avoidance, waste management should follow the cascade of first re-using and then recycling waste. If this is not an option waste should be used for energy recovery. As a final resort waste should be disposed of. To get EU member states to move up the waste hierarchy, the EU Circular Economy Package is going to set binding recycling and landfilling targets (see Table 1).

No clear shift to the top priority of waste avoidance

The highest priority in the waste hierarchy is to reduce the amount of waste generated at source and to reduce the hazardous content of waste. However, over the past decade in the EU, empirically no clear shift to producing less municipal waste can be observed. Between 2005 and 2016 the total amount of municipal waste in the European Union decreased by only 4 percent. Yet, the EU has been able to reduce the waste intensity – the total volume of municipal waste per Euro gross domestic product (GDP) over the past decade. The European Union has therefore been able to decouple the generation of waste from economic growth partly due to improved material efficiency. Within the EU-28 municipal waste generated varied considerably in 2016, ranging from 261 kilograms per capita in Romania to 777 kilograms per capita in Denmark, reflecting differences in consumption patterns and economic wealth, but also in municipal waste collection and management. In comparison to these figures and the EU average of 482 kilograms per-head, municipal waste generation in the United States is relatively high at 735 kilograms (2014).[26]

Slow switch from landfilling to recycling

Landfilling of municipal waste has clearly dropped in the EU-27 states, from 43 percent in 2005 to 24 percent in 2016. Yet, 10 member states still transport more than half of their municipal waste to landfills. Only seven member states already meet the 2035 target of 10 percent landfill waste as they dump at most one-tenth of their municipal waste on rubbish kips. In parallel, incineration – mostly for energy recovery – rose from 19 percent to 28 percent over the same period.

Recycling[27] has become more important in the European Union: EU recycling rates increased from 32 percent to 46 percent between 2005 and 2016. Yet, more progress is needed to reach the target of 65 percent by 2035. By comparison, the United States increased its recycling rate from 31 percent in 2005 to 35 percent in 2014.[28]

Which countries are on track to meet the recycling targets?

Chart 1 shows which EU member states are on track to achieve the first recycling goal of 55 percent by 2025. The chart plots states' average annual increases in recycling between 2005 and 2016, and the annual increases required by 2025 to reach the first recycling goal.

Germany currently leads the EU recycling hierarchy with 66 percent of its municipal waste being recycled, significantly higher than the EU average of 46 percent. In fact, Germany is the only country that has already achieved the required 2035 target of 65 percent according to the current calculation method.

Including Germany, there are 10 countries currently on track to meet the first recycling goal of 55 percent, assuming they keep up their recycling efforts of the past decade. All other countries will have to increase their recycling rate at a faster pace than observed over the past decade in order to reach the first recycling goal.

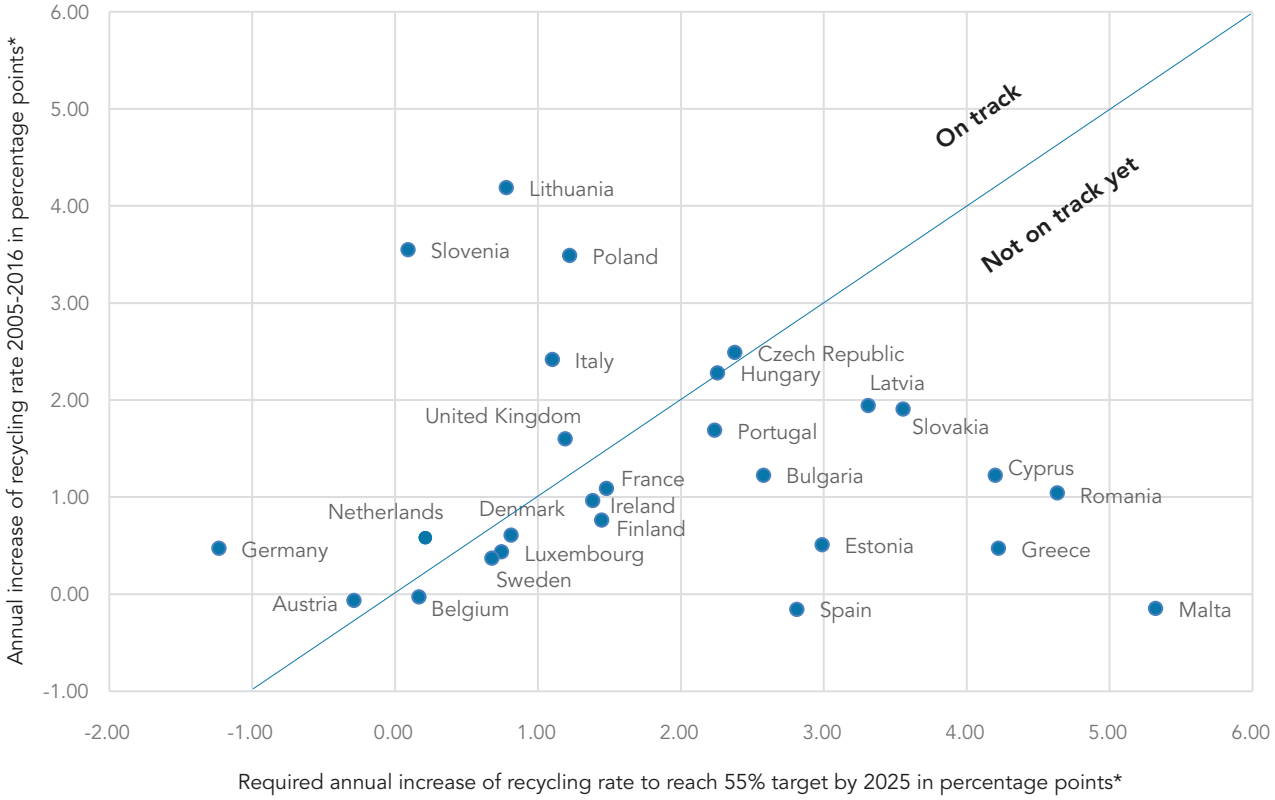
The chart underscores the fact that an EU-wide move towards more recycling is only realistic if low-level recycling countries install new waste management infrastructure to comply with strict targets. This is especially critical for countries such as Malta, Romania, Greece, and Cyprus, which have recycling rates below 20 percent.

Moving the point of measurement for recycled materials to what is effectively recycled will have implications on recycling rates in the EU, making it harder - including for Germany - to reach the targets. Yet, it remains to be seen how the exemption rule would affect such rates.

Chart 1

EU countries on track to meet 2025 recycling target

In percentage points



On track: recycling rate can grow slower than in the past decade to reach the 2025 target.
Not on track yet: recycling rate has to grow faster than in the past decade to reach the 2025 target.
EU-27 (without Croatia), Ireland and Portugal: 2014; Slovenia: 2015

*Annual increases and required increases in percentage points are calculated for Ireland and Portugal in comparison to 2014 and for Slovenia in comparison to 2015 as no more recent data is available.

Sources: Eurostat[29], own calculations

The wider picture: Moving beyond waste management

A circular economy is much more than managing waste since it is also concerned with how much material is brought into the system and used. The Action Plan integrates other relevant aspects by looking at the entire product life cycle. Improving data availability is another target, which has been addressed now with the recently published monitoring framework. The framework is composed of a set of 10 key indicators to cover each product phase as well as economic aspects. Yet, our knowledge base is still fragmented, in particular in relation to the minimization of losses, which is a main feature of a circular economy.[30]

The main ways of enhancing a circular economy are:

To reduce material input: Better eco-design, more efficient production processes, using new materials and technologies or developing new business models are ways to improve material efficiency. Between 2000 and 2016 resource productivity, measured by GDP divided by domestic material consumption, increased steadily (+41 percent) in the European Union (with the exception of a dip in 2011).[31]

To use material more than once: A higher amount of secondary materials substituting for primary raw materials avoids extraction of primary materials. There are many examples where metal recycling rates are already very high: steel and base metals such as copper and lead. In the European Union the cyclical use rate, which measures the contribution of recycled materials to overall materials demand, was 11 percent in 2014. Yet, it varies substantially in the member states from 1 percent in Greece to 27 percent in the Netherlands.[32]

If the European Union wants to accelerate the transition to a circular economy, the Action Plan must be concretized to unlock the potential towards more resource efficiency and recyclability and to remove obstacles for developing secondary raw materials markets. An important factor is the recyclability of materials, which can be factored in when designing the product (eco-design), but should not be over-regulated by specific product requirements.

Innovation

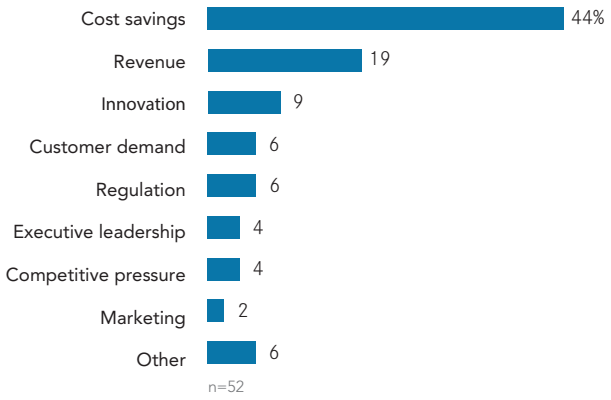
Eco-innovations toward changing and adapting business models are a key element in the transition towards a circular economy as they can provide solutions by improving environmental performance throughout product life cycles, while rethinking supply chains and minimizing waste generation.[33] At the individual company level, innovations that foster the reuse or more economic use of resources can also contribute to business strategies to make the company less dependent on scarce resources, increase operational efficiency, drive further innovation, and enable new offerings that attract customers and deepen existing relationships.[34] Producing plastic regranulates are just one example for a product innovation substituting virgin materials with recycled materials.

Companies point to cost savings, revenue, and innovation as the main drivers for pursuing circular economy initiatives.

A recent report from The Conference Board examines lessons learned and best practices from companies that are pursuing circular economy business strategies. In addition to in-depth case studies, the report includes results from a survey of more than 50 senior sustainability executives.

Chart 2

What is the main driver for your circular economy initiatives?



Source: Business Transformation and the Circular Economy: A Candid Look at Risks and Rewards, The Conference Board, May 2017, p. 2

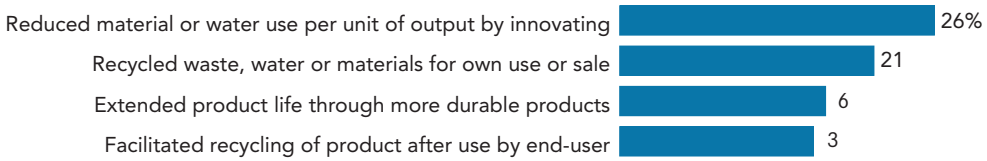
Circular innovations play key role for formulating a circular strategy in companies from the outset. Yet, there can be different levels of innovations with increasing complexity. For many companies it makes sense to start with the least disruptive change in form of circular process innovations, which involves the development and implementation of new or improved production, logistic or recycling methods. Product innovations are more difficult because it touches more areas of the organization and might require additional internal but also external know-how and resources. Most challenging are business model innovations as it can change the entire value cycle, including how products are marketed or sold to customers.[35]

The need to redesign products and materials for circular use and aiming for higher resource efficiency will trigger a large innovation drive across sectors.[36] There is still upward potential for circular innovations in EU businesses. According to the Community Innovation Survey[37] which covers results for 22 of the EU Member States, almost every other EU enterprise reported some form of innovation activity during the period 2012-2014. More than half of all innovative EU enterprises reported that their innovations had environmental benefits irrespective of whether these were within the enterprise or when goods and services were consumed or used by end-users. Some innovative firms already focus their innovations on environmental aspects such as recyclability, durability and resource efficiency after use by the end user or within the enterprise (Chart 3).

Chart 3

Innovations facilitating recycling, durability and material efficiency

Innovations with environmental benefits in percent of innovative enterprises, EU*, 2012-14



* Excluding Belgium, Ireland, Spain, France, the Netherlands and the United Kingdom.

Sources: Eurostat (Community Innovation Survey) [38]

The megatrend digitalization is also an important innovation driver as digital data, automation, digital user interfaces and networking form the basis for innovative systems for preventing, reducing and eliminating pollution.[39] To tap the potential of the technology and digital revolution corporate boards currently face the challenge of making digital networking a core component of their business strategy.

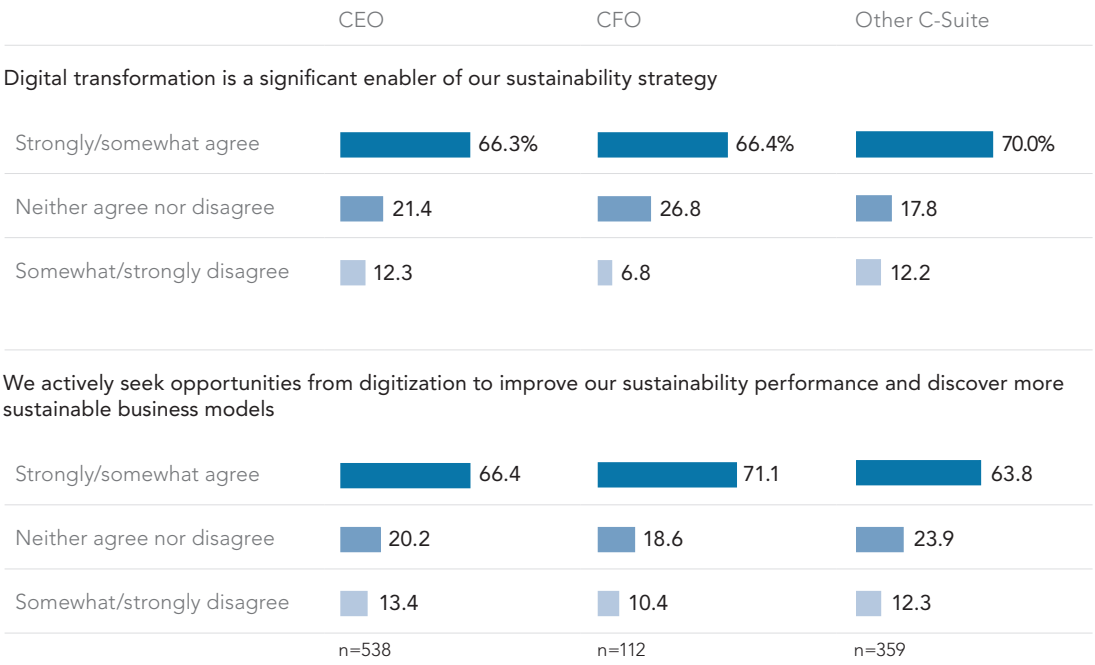
One striking finding from a recent survey is that manufacturing companies in Germany with a highly developed digitalization strategy are also frontrunners on the road to improve material efficiency. These companies more frequently use material efficiency measures intensively, are more likely to recognize further potential savings and their efficiency-saving approaches are also clearly more often highly digitalized. Industrial companies with a highly developed digitalization strategy make considerably more intensive use of new techniques and optimization approaches in manufacturing processes and also rather avail themselves of new materials or new business models than companies without a digitalization strategy.[40] Hence, developing an extensive digitalization strategy can also enhance circularity in businesses.

Digital transformation plays an important role in advancing circular economy strategies and sustainability initiatives more broadly.

Results from a survey by The Conference Board of more than 500 CEOs reveal that two-thirds of CEO respondents agree with the statement that "*digital transformation is a significant enabler of our sustainability strategy.*" The same number of CEOs say their organizations "*actively seek opportunities from digitization to improve their sustainability performance and discover more sustainable business models.*"

Chart 4

Digital technologies and digital transformation are having a significant positive impact on sustainability strategies.



Source: C-Suite Challenge 2018, The Conference Board, p. 38.

Costs

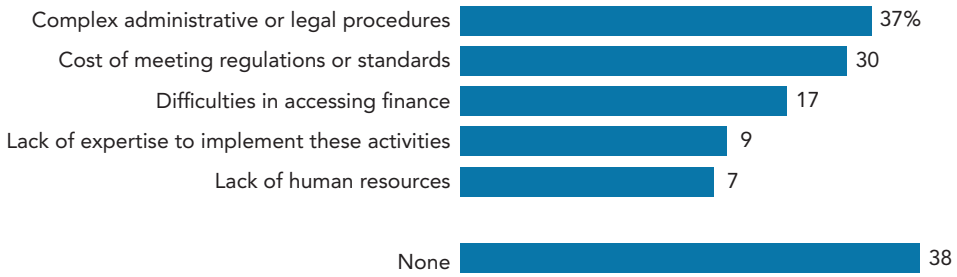
Turning into a circular economy can create an opportunity for economic and industrial renewal. Yet, it will also involve considerable transition costs. Today few corporate leaders know to what extent their future markets will be orientated towards circularity, making long-term investments difficult.[41] With its targets and ambitions the EU Circular Economy Package now gives a first indication of how the European Union wants to become more circular, allowing a better analysis of necessary investments and possible trade-offs for corporate boards.

Companies undertaking circular activities very often face bureaucratic challenges including costs, which corporate boards have to take into account in their circular strategy. A Eurobarometer survey exploring activities by small and medium enterprises (SMEs) in relation to the circular economy in 2016 shows that around seven out of 10 SMEs realized at least one circular economy-related activity. Around 60 percent encountered a problem during the implementation. In most countries complex administrative or legal procedures and the cost of meeting regulations or standards were here the most prevalent issues (Chart 5).

Chart 5

Main issues encountered while undertaking circular-economy relevant activities

Share of SMEs undertaking at least one circular-economy relevant activity in percent, EU, 2016*



* Excluding Belgium, Ireland, Spain, France, the Netherlands and the United Kingdom.

Sources: Eurostat Flash Eurobarometer 441 [42]

The lack of a clear idea about costs as well as about required investment and the lack of expertise were the main reasons given by European SMEs for not having undertaken any circular economy-related activities.

If planning a circular strategy, company leaders need to take into account that circular thinking requires innovative thinking, which might need specific know-how, collaboration and resources not yet available in the company. In addition, even though businesses are keen to take action, they often do not know where or how to begin.[43] The lack of a clear idea about costs as well as about required investment and the lack of expertise were the main reasons given by European SMEs for not having undertaken any circular economy-related activities, according to the Eurobarometer survey.[44]

The implementation of circular economy activities requires investment. Hence, planning company security and good business conditions are relevant issues for corporate boards to move towards a circular economy. For European SMEs the Eurobarometer survey shows that only a minority found it difficult to access finance for their circular economy-related activities. In the majority of the cases they were even able to self-finance them. Other sources of financing were rarely used, except for standard bank loans. Yet, lack of information on financing possibilities could prevent enterprises, in particular SMEs, from taking steps towards green innovations supporting a circular economy. Although half of the European SMEs have not searched for information on accessing finance, according to the Eurobarometer survey 30 percent of those who searched for information believe that there is a lack of such information in their country.[45]

Conclusions

Setting EU targets are a key impulse to move all EU member states towards more recycling and less landfilling. Since only a few member states are on track to meet the goals yet, the targets are a way to enforce the restructuring of the waste management infrastructure in many countries. This in turn can lead to new business opportunities for companies making and exporting circular economy-relevant products and services.

The recent agreement on revised EU waste legislation is an important step forward to ensure planning and investment security. Otherwise it is difficult for corporate boards to initiate further necessary investments in recycling technologies and capabilities. In addition, minimal bureaucracy, good access to finance, capacity building and specific expertise are key to not impede relevant activities. There is still untapped potential for more eco-innovations and for the use of digital solutions to speed up the transition towards a circular economy.

This Director Notes report is adapted from "Two years later: The EU Circular Economy Package – An Update, IW Policy Paper No. 9 (2018).

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41 Ellen McArthur, see note 5 and https://resource-recycling.com/recycling/2018/02/27/opinion-keys-realizing-circular-economy-packaging/.

42 European Commission (EC), European SMEs and the Circular Economy, Euroflash Barometer 441, (2016).

43 The Boston Consulting Group, note 3.

44 Some 10,618 small and medium-sized enterprises employing 1 to 250 employees in manufacturing, services and the industry sector were interviewed within the European Union. 93 per cent consisted of small enterprises (1-9 employees) (see European Commission, note 42).

45 EC, see note 42, and https://ec.europa.eu/environment/ecoap/indicatorsbusiness-operations_en.

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