EN 2023

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Special report

Circular economy

Slow transition by member states despite EU action

EUROPEAN
COURT
OF AUDITORS

Contents

Executive summary

I Traditionally, economies have tended to follow a linear 'take-make-dispose' cycle. A circular economy, however, preserves the value of products, materials and resources for as long as possible and minimises waste. For citizens, this means products that last longer and/or are easier to repair, upgrade, remanufacture, reuse or recycle. For businesses, it offers the potential for greater resource efficiency.

II A product's design determines around 80 % of its environmental impact. In order to minimise environmental impact, products and production processes need to be redesigned in accordance with circular-economy principles, in line with the EU priority of preventing waste generation.

III Resource efficiency has been on the EU's political agenda for more than a decade. The Circular Economy Action Plans form part of the Commission's strategies on the circular economy. In 2015, the Commission issued its first Circular Economy Action Plan, comprising measures to establish the supporting regulatory framework and policy orientation, allocate EU funding and monitor the EU's transition to a circular economy. In 2020, in response to the European Green Deal, the Commission issued a new action plan, building on the previous one and setting an aspirational target of doubling the EU's share of material recycled and fed back into the economy by 2030.

IV Our audit assessed whether Commission action had been effective in influencing circular-economy activities in the member states. We focused on the Commission's actions from its first 2015 action plan that were related to design and production. We examined the pace of member states' transition to a circular economy, the effectiveness of the Commission's enabling measures designed to support this transition, and the mobilisation of EU funds from a range of sources for the circular economy. Our report is intended to contribute to the ongoing challenge within the EU to reduce the environmental impact of economic activities. It should help the Commission improve its monitoring of the transition to a circular economy and to better target EU funding at circular design of products and of production processes – the most effective way of moving to a circular economy.

V Overall, we concluded that there is only limited evidence that the Circular Economy Action Plans, and in particular the actions regarding the circular design of products and of production processes, had influenced circular-economy activities in the member states.

VI On the positive side, since the publication of the first Action Plan, there has been an increase in circular-economy activities by member state governments. Nevertheless, the pace of progress remains slow. The EU's ambition of doubling its share of material recycled and fed back into the economy by 2030 looks very challenging.

VII The Commission's framework for monitoring the EU's transition to a circular economy did not fully capture all the key aspects, lacking specific indicators relating to circular design of products. We found that while the monitoring framework was under review at the time of our audit, the Commission's indicators did not comprehensively monitor overall transition progress.

VIII We found only limited evidence that the Action Plan enabling measures, designed to facilitate member states' transition to a circular economy by establishing policy orientation in areas such as innovation and investment, were effective. In line with EU legislation, member states should make sound use of EU investments by prioritising the prevention of waste.

IX In the 2014-2020 the EU planned more than €10 billion in funding for the transition to a circular economy. Despite the availability of the EU funds and overall support for a circular economy, the Commission and member states did not target funding effectively at investments focusing on the circular design of products and of production processes. The EU funding was largely used for waste management, which has less potential to reduce environmental impact. While there was more emphasis on the circular economy in the programming of the 2021-2027 period, member states can still choose to spend a substantial amount of EU funding on managing waste rather than on preventing it through circular design.

X We recommended that the Commission:

— improve its monitoring of member states' transition to a circular economy to facilitate informed decision-making about new policy, initiatives and actions; and

— analyse reasons for low take up of EU funding for circular design and consider scope for greater incentivisation.

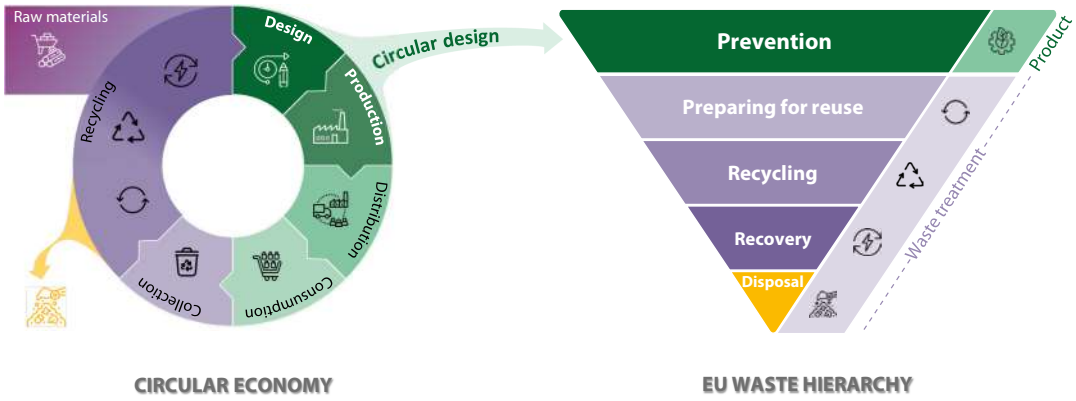
Introduction

Circular economy

01 The term 'circular economy' refers to the concept of preserving the value of products, materials and resources for as long as possible and minimising waste. This approach differs from a traditional 'take-make-dispose' cycle, and has significant advantages in terms of sustainability. For citizens, it means products that last longer and/or are easier to repair, upgrade, re-manufacture, reuse or recycle. For businesses, it offers a number of potential advantages, including greater resource efficiency and lower exposure to price volatility.

02 A circular economy encompasses a product's entire life cycle. However, as the Commission emphasises[1]: "A circular economy starts at the very beginning of a product's life. Both the design phase and production processes have an impact on sourcing, resource use and waste generation throughout a product's life". In order to minimise their environmental impact, products and production processes need to be redesigned in accordance with circular-economy principles, in line with the EU priority of preventing waste generation (see ***Figure 1***). Around 80 % of a product's environmental impact is determined by its design[2].

Figure 1 – Phases of the circular economy vs EU waste prevention



Source: ECA, based on Commission document "Cohesion policy support for the circular economy", June 2016; and on the Waste Framework Directive.

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1 Commission action plan on circular economy, COM(2015) 614.

2 Ecodesign your future: how ecodesign can help the environment by making products smarter, European Commission, 2014.

EU legislation's increasing emphasis on the circular economy

03 Resource efficiency has been on the EU's political agenda for more than a decade. In March 2010, the Commission adopted its Europe 2020 strategy[3], which included the priority "Promoting a more resource efficient, greener and more competitive economy". In 2011, the Commission published the 'Resource Efficient Europe' flagship initiative[4], a roadmap to make economic growth sustainable by decoupling it from the use of resources.

04 In July 2014, the Commission published a legislative proposal for a directive on reducing waste[5], which was accompanied by a communication on the circular economy[6] (the 'Circular Economy Package'). In March 2015, however, the Commission decided to withdraw its proposal, which had been criticised for focusing on waste policies and legislation rather than on specific proposals to improve the entire life cycle of products, and in particular to prevent waste.

05 The EU adopted a broad range of directives on the circular economy. The 2009 Ecodesign Directive[7] is the key piece of legislation for energy-related products as far as setting requirements for circular product design is concerned. Between 2015 and 2019, a number of directives[8] promoting circular-economy principles, including waste prevention and the prudent, efficient and rational use of natural resources were enacted by the EU legislators. Three of these directives were relevant for circular product design:

- the 2015 Restriction of Hazardous Substances directive;
- the 2018 Packaging and Packaging Waste Directive; and

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[3] Commission strategy for smart, sustainable and inclusive growth, COM(2010) 2020.

[4] Commission Roadmap to a Resource Efficient Europe, COM(2011) 571.

[5] Commission proposal for a directive on waste, COM(2014) 397.

[6] Towards a Circular Economy: A zero waste program for Europe, COM(2014) 398.

[7] Directive 2009/125/EC on ecodesign requirements for energy-related products.

[8] **(1)** Directive (EU) 2015/863 on replacing hazardous substances; **(2)** 2018/849 on end-of-life vehicles, (waste) batteries and accumulators and waste electrical and electronic equipment; **(3)** 2018/850 on the landfill of waste; **(4)** 2018/851 on waste; **(5)** 2018/852 on packaging and packaging waste; **(6)** 2019/771 on certain aspects concerning contracts for the sale of goods; and **(7)** 2019/883 on port reception facilities for the delivery of waste for ships; **(8)** 2019/904 Single Use Plastics Directive.

- the 2019 Single Use Plastics Directive.

06 Member states were still in the process of transposing these directives into their national law (see ***Annex I***).

07 Since 2020, the Commission has started systematically mainstreaming the sustainability requirements for circular product and production design in its legislative proposals, such as:

- a proposal for a sustainable product policy initiative[9];
- under the circular electronics initiative, a proposal for a common charger solution and a system to reward consumers for returning their old devices[10];
- a proposal for a revision of the Industrial Emissions Directive[11], including the incorporation of circular economy practices into upcoming 'best available techniques' reference documents (BREFs); and
- a review of the 2011 Restriction of Hazardous Substances Directive[12] and guidance to clarify its links with the 2006 regulation on the registration, evaluation, authorisation and restriction of chemicals (REACH)[13] and ecodesign requirements.

08 As of the end of 2022, with the exception of a new directive covering common chargers[14], which is due to be applied from December 2024, the legislation governing these initiatives was still in the process of being adopted. In February 2023, the Commission published its Green Deal Industrial Plan, which refers to the Circular

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[9] Commission proposal for the regulation on ecodesign requirements for sustainable products, COM(2022) 142.

[10] Commission proposal for the directive on the harmonisation of the laws relating to the market of radio equipment, COM(2021) 547.

[11] Commission proposal for the directive on industrial emissions, COM(2022) 156.

[12] Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

[13] Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), and establishing a European Chemicals Agency.

[14] Directive (EU) 2022/2380 on the harmonisation of the laws relating to the market of radio equipment.

Economy Action Plan in connection with their shared aim of setting the framework for the transformation of the EU's industry for the net-zero age[15].

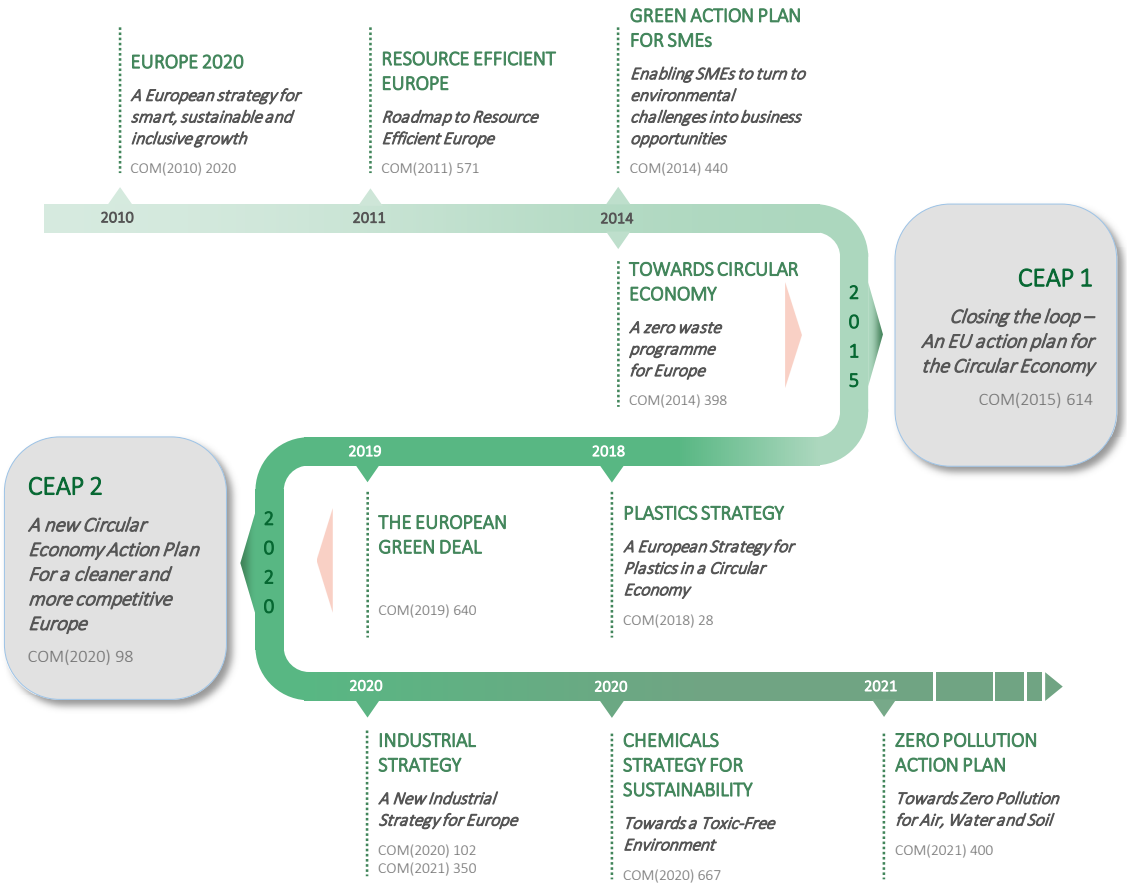
The Commission's Circular Economy Action Plans (CEAPs)

09 The Circular Economy Action Plans (CEAPs) form part of the Commission strategic framework for circular economy (see ***Figure 2***). These plans include four types of actions:

- ensuring the right regulatory framework (e.g. directives, implementing regulations);
- cross-cutting measures establishing policy orientation (known as 'enabling measures' in this report) in areas such as innovation and investment (such as developing horizontal testing schemes) to stimulate the transition to a circular economy;
- allocating EU funding to projects that accelerate progress towards circularity; and
- monitoring the EU's progress towards a circular economy.

[15] A Green Deal Industrial Plan for the Net-Zero Age, COM(2023) 62.

Figure 2 – EU strategic framework on circular economy



Source: ECA.

10 In 2015, the Commission issued its first Circular Economy Action Plan (CEAP 1)[16], comprising 54 specific actions. In 2020, in response to the European Green Deal[17], the Commission issued CEAP 2[18]. Building on CEAP 1, this plan comprises an additional 35 actions in support of a more circular economy. CEAP 2 also sets an aspirational target of doubling the EU's 'circular material use rate' (i.e. the proportion of material recycled and fed back into the economy) by 2030.

11 Both CEAP 1 and CEAP 2 support the transition to a circular economy by promoting sustainable production, consumption and resource efficiency for the benefit of businesses and citizens. The action plans set objectives for the circular design of products and of production processes (referred to as the 'CEAP objectives' in this report, see ***Figure 3***). Nearly a quarter (21) of the 89 actions contained in the two

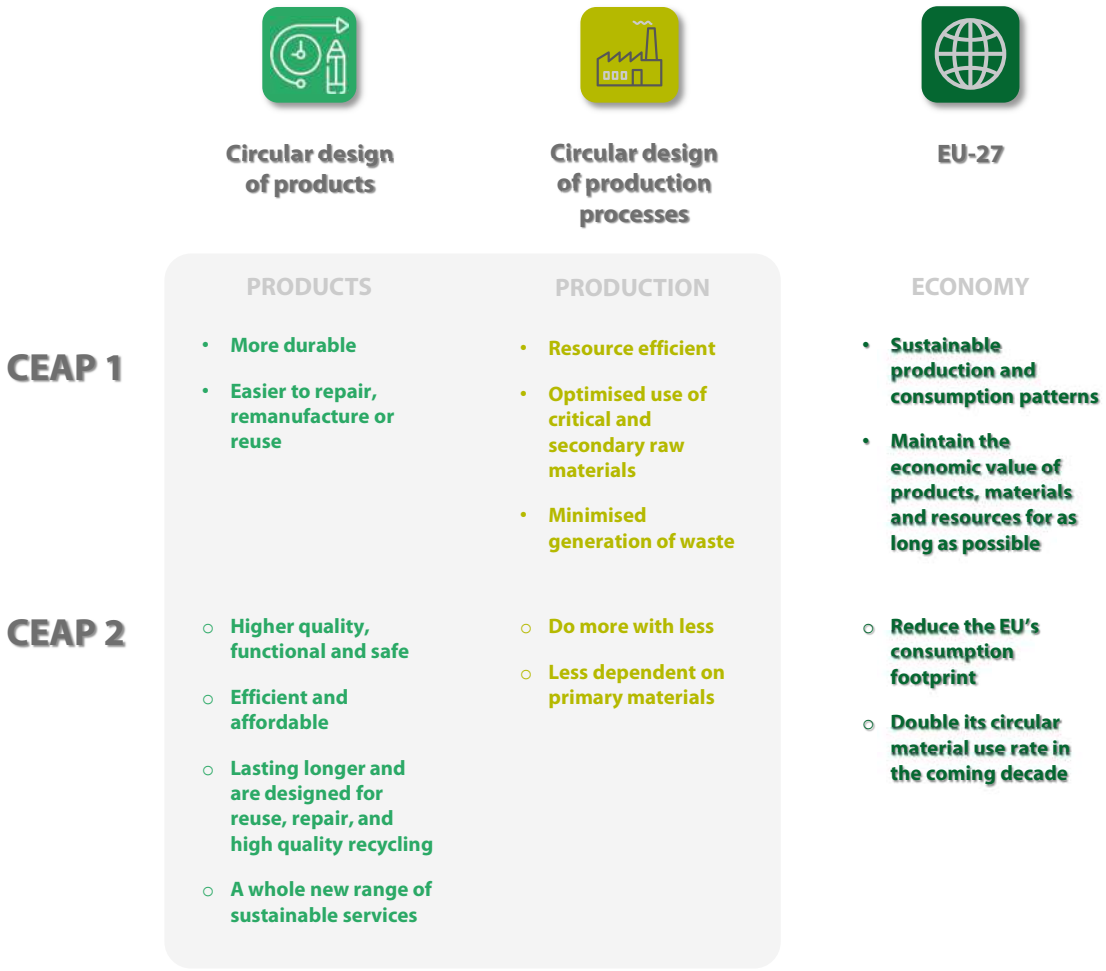
[16] Commission action plan on circular economy (CEAP 1), COM(2015) 614.

[17] The European Green Deal, COM(2019) 640.

[18] Second Commission action plan on circular economy (CEAP 2), COM(2020) 98.

action plans target the design and production phases and cover all four types of actions referred to in paragraph *09* above. *Annex II* provides a more detailed description.

Figure 3 – Objectives for circular design and transition to the EU circular economy from CEAP 1 and CEAP 2



Source: ECA, based on the CEAP 1 and CEAP 2 communications.

12 In CEAP 1, the Commission specified that cohesion policy should fund projects at local and regional level to promote waste prevention. For the 2014-2020 period, the Commission made available over €10 billion of EU funding for circular economy from the cohesion policy funds, primarily the European Regional Development Fund (ERDF), as well as other EU funds under both direct management (such as Horizon 2020, LIFE programme and the EU Programme for the Competitiveness of Enterprises and SMEs (COSME)) and indirect management (such as the European Fund for Strategic Investments (EFSI) and Finance for Innovators (InnovFin)).

13 Responsibility for implementing CEAP 1 and CEAP 2 lies exclusively with the Commission. Coordinating and monitoring the implementation of CEAP 1 was the responsibility of the Directorates-General for Environment (DG ENV) and Internal Market and Industry, Entrepreneurship and Small and medium-sized enterprises (DG GROW), under the supervision of the Secretariat-General of the Commission. For CEAP 2, DG ENV took over responsibility for coordination and monitoring.

14 Neither CEAP 1 nor CEAP 2 are binding upon the member states, and there is no requirement for them to have their own national circular economy strategies. However, the action plans do include legislative proposals that, once implemented, will create binding conditions. According to the Commission, "making the circular economy a reality will […] require long-term involvement at all levels, from member states, regions and cities, to businesses and citizens"[19].

[19] CEAP 1, p. 3.

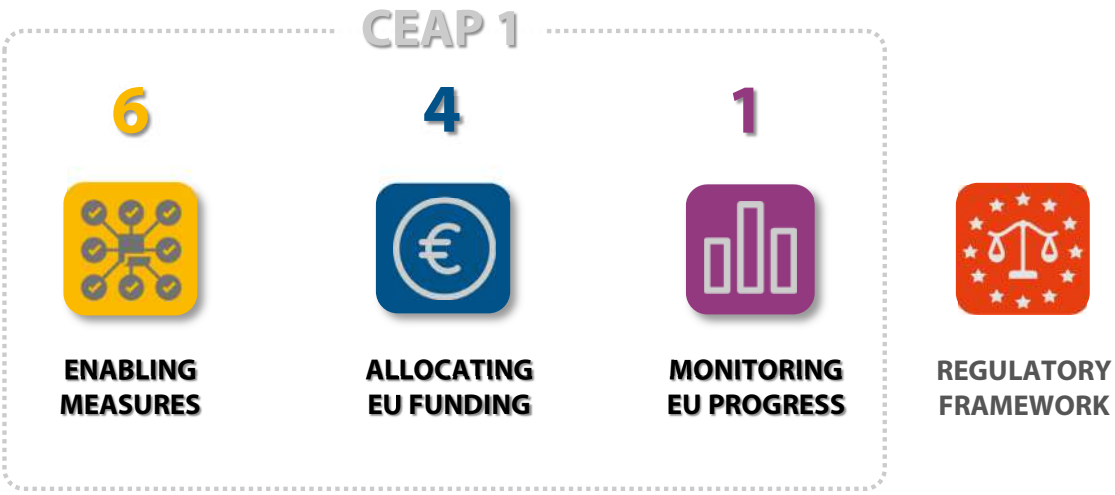
Audit scope and approach

15 Our audit assessed whether the Commission's Circular Economy Action Plans, and in particular the actions relating to the circular design of products and of production processes, (referred to as 'circular design' in this report) had been effective in influencing circular-economy activities in the member states. In particular, we examined whether:

- Circular-economy activities had increased in the member states since 2015;
- the CEAP 1 enabling measures on circular design had been effective in promoting member states' transition to a circular economy; and
- the Commission had been effective in mobilising EU funds to support the achievement of CEAP objectives, particularly those relating to design and production.

16 Our audit covers the period from 2014 until 2022. We focused on CEAP 1, as it was too early to assess CEAP 2 actions at the time of our audit. We covered 11 of the 21 total CEAP 1 actions relating to circular design (see ***Figure 4*** and ***Annex II***). We excluded CEAP actions linked to 'Ensuring the right regulatory framework', as the legislation for a number of key proposals was still pending adoption at the time of our audit (see paragraphs ***07***-***08***).

Figure 4 – CEAP 1 actions within our audit scope



Source: ECA.

17 We examined documentation and interviewed staff from the Commission's Directorates-General involved in the implementation of the CEAPs, Eurostat and the European Investment Bank (EIB). We also interviewed relevant stakeholders at international and member state level (including representatives of businesses) to corroborate our analysis of documents and information provided by the member states.

18 Within the cohesion policy funds, we focused on ERDF as the main source of financing for Small and medium-sized enterprises' (SMEs) transition to a circular economy. We selected three member states – Ireland, the Netherlands and Poland – to assess their progress towards a circular economy, their planned ERDF funding, and their strategic priorities. We based our selection on their progress in the transition to a circular economy (circularity rate), their planned ERDF funding, and on whether they had a national circular economy strategy, aiming to achieve an appropriate mix in terms of each of these criteria. We examined their national strategies, policy documents and implementation plans, as well their 2014-2020; and (where available) 2021-2027 ERDF programmes and national recovery and resilience plans (NRRPs). We held interviews online with member state authorities and beneficiaries of the selected projects.

19 From the list of projects provided by managing authorities in the selected member states, we selected five ERDF projects, which in our view had high potential to contribute to circular design (two each in the Netherlands and Poland and one in Ireland). We also examined three Horizon 2020 projects, three projects under COSME, one LIFE project and one EFSI project. Our aim was to assess the relevance of these projects and the extent to which they contributed to both the overall CEAP objectives and those objectives relating to circular design.

20 When preparing our audit, we carried out a survey of all ERDF managing authorities in the EU on the topic of cohesion policy funding for circular economy purposes. We used the results of this survey for a follow-up analysis of ERDF spending in the three member states selected. We also drew on the findings of our 2020 special report on ecodesign and energy labelling[20]; our 2022 special report on synergies

[20] Special report 01/2020: "EU action on Ecodesign and Energy Labelling: important contribution to greater energy efficiency reduced by significant delays and non-compliance".

between Horizon 2020 and cohesion policy funds[21]; and our 2023 review of EU actions to address hazardous waste[22]. When preparing our recommendations we also took account of the conclusions of our 2021 special report on performance-based financing in cohesion policy[23].

21 Our report is intended to contribute to the ongoing challenge within the EU to reduce the environmental impact of economic activities. It should help the Commission to improve its monitoring of the transition to a circular economy and to better target EU funding at circular design – the most effective way of moving to a circular economy.

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[21] Special report 23/2022: "Synergies between Horizon 2020 and European Structural and Investment Funds: Not yet used to full potential".

[22] Review 02/2023: "EU actions to address the increasing amount of hazardous waste".

[23] Special report 24/2021: "Performance-based financing in Cohesion policy: worthy ambitions, but obstacles remained in the 2014-2020 period".

Observations

Increasing focus on circular economy by member states, but slow progress and issues with monitoring

22 We examined:

- member states' progress towards a circular economy and whether it had accelerated after the publication of CEAP 1 in 2015;
- whether the Commission's action plans (CEAP 1 and CEAP 2), and in particular actions relating to circular product design, had influenced national strategies and plans to bring them in line with EU priorities; and
- whether the Commission, to facilitate the planning of future EU policies, had put in place a complete and comprehensive monitoring system to measure member states' progress in their transition to a circular economy.

Member states' progress towards a circular economy is slow

23 CEAP 1 included an action for the Commission to develop a monitoring framework to measure the EU transition to a circular economy (see action 15 from ***Annex II***). This framework used existing data from Eurostat and other official sources. It was delivered in 2018, and included the 'circular material use rate' indicator (see also paragraphs ***29***-***32***).

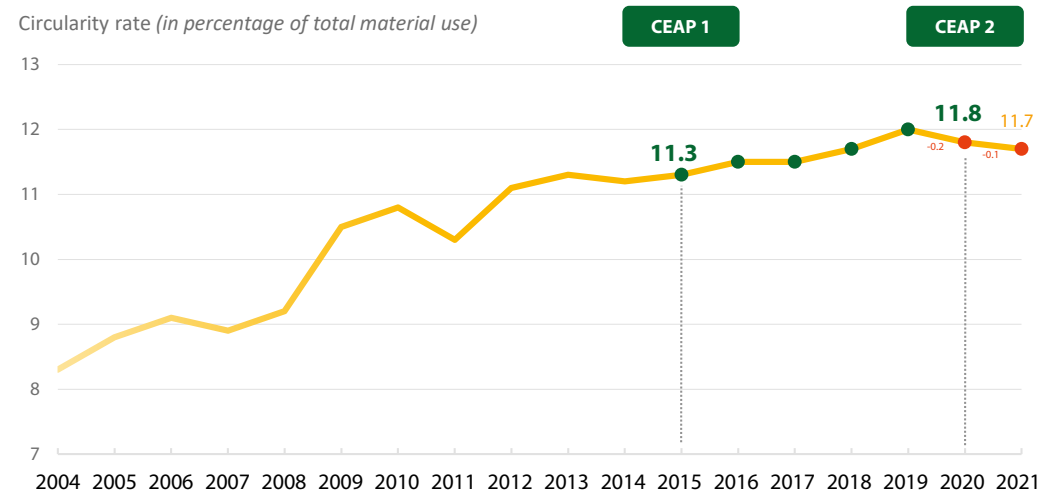
24 This indicator, also known as the circularity rate, measures the share of material recycled and fed back into the economy. Some international organisations[24] and national authorities view it as a proxy for countries' overall progress toward a circular economy. The Commission itself used this indicator for setting the CEAP 2 target for 2030 (see paragraph ***10***) and in its annual country reports to show member states' success in achieving the circular-transition objectives.

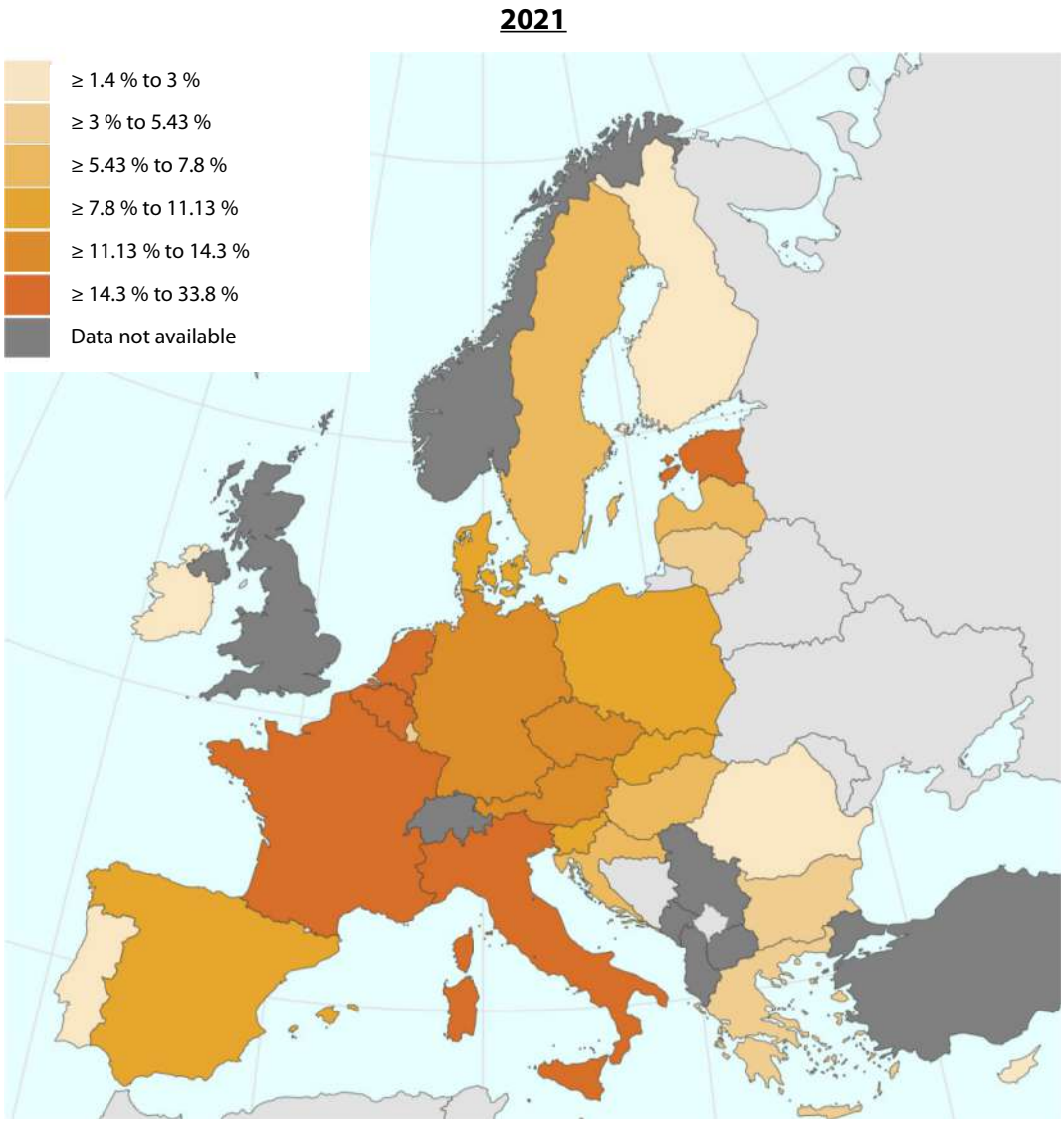
[24] E.g. "The OECD Inventory of Circular Economy indicators", OECD, 2021; and the United Nations Economic Commission for Europe (UNECE).

25 Eurostat has compiled the EU circularity rate since 2018 and was able to calculate the rate retrospectively going back to 2004. ***Figure 5*** shows that between 2015 and 2021, the average circularity rate for all EU member states (the 'EU-27') increased by only 0.4 percentage points. While the Commission's CEAP 2 objective is to double the 2020 circularity rate by 2030, the actual circularity rate has declined slightly since 2019. The 2021 EU circularity rate of 11.7 % is higher than the most recent global circularity rate which stands at 7.6 %, down from 9.1 % in 2018[25].

[25] "The circularity gap report 2023", Amsterdam: Circle Economy.

Figure 5 – EU-27 progress towards a circular economy

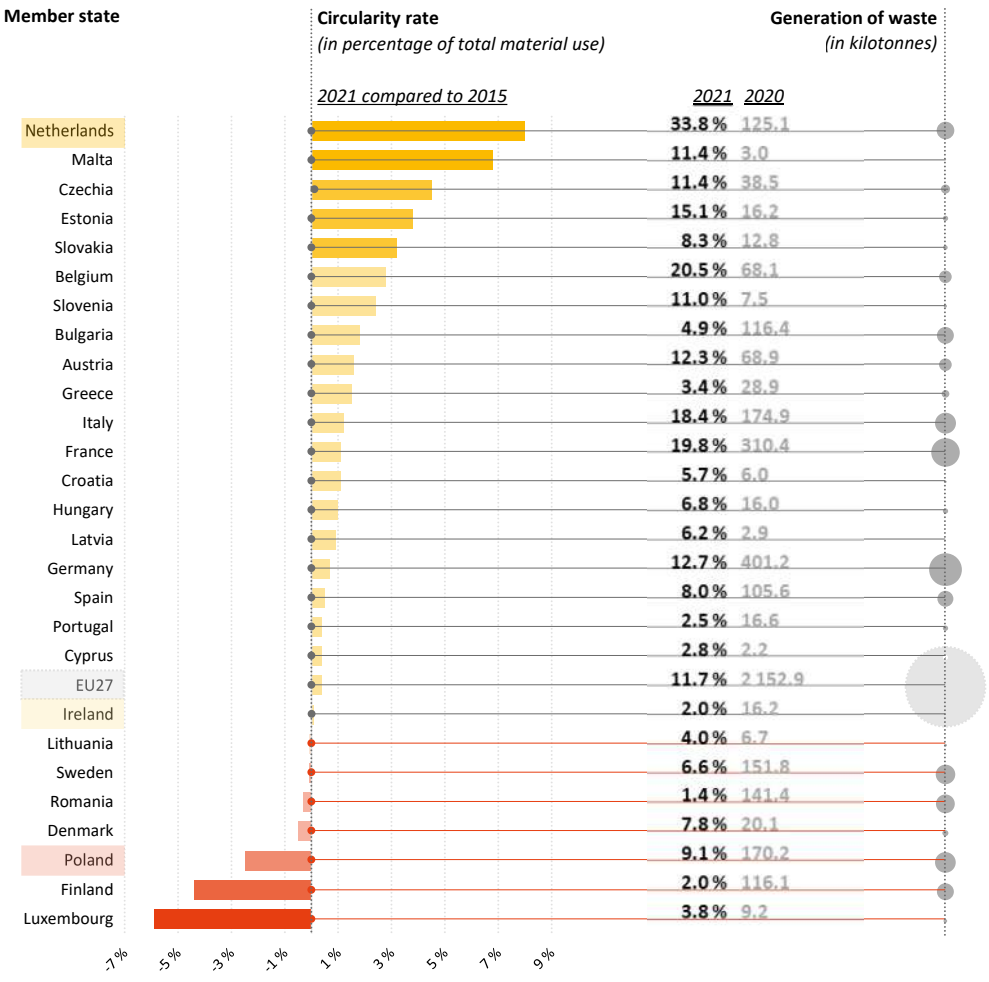




Source: ECA, based on Eurostat - circular material use rate. Design of the maps: Eurostat.

26 ***Figure 5*** also shows that there is significant variation in circularity rates among member states – some use many times more recycled materials than others. ***Figure 6*** shows the progress made by each member state between 2015 and 2021, and the amount of waste generated. Seven member states – including one we analysed in more detail (Poland) – regressed during this period.

Figure 6 – Member states' progress towards circular economy 2015-2021



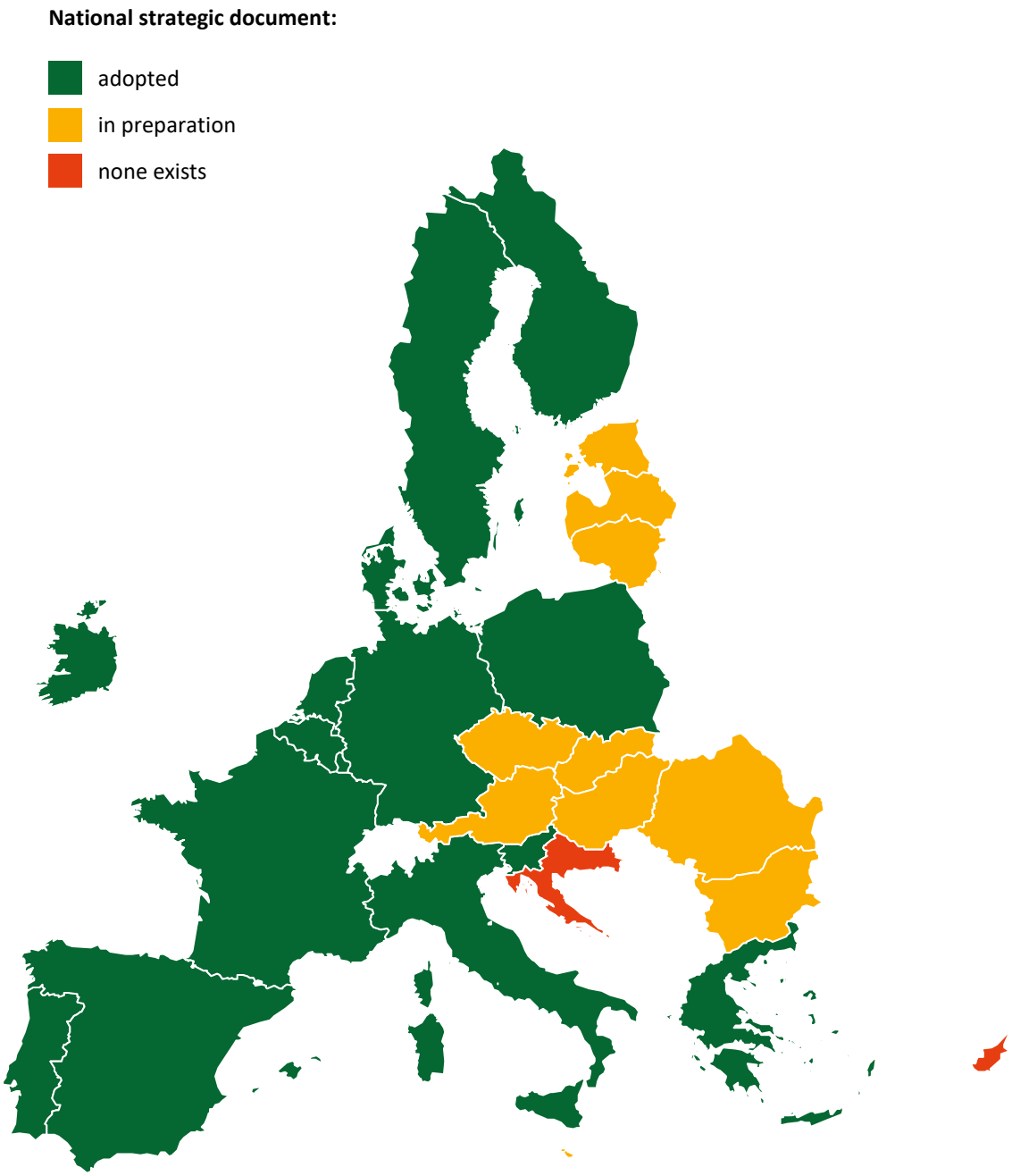
Source: ECA, based on Eurostat circular material use rate and Generation of waste.

Member states' circular economy strategies were influenced by CEAP 1

27 CEAP 1 did not require the member states to draw up a circular-economy strategy. However, the Commission encouraged member states to establish and adopt measures and/or strategies to complement and contribute to CEAP 1. We examined whether the member states' transition to a circular economy had accelerated in line

with the Council's expectations for CEAP 1[26]. By June 2022, nearly all EU member states had developed, or were in the process of developing, a national circular-economy strategy (see ***Figure 7***). Most of them were adopted after 2016. Some member states had even developed regional or city-level strategies.

Figure 7 – EU-27 national strategic documents on circular economy



Source: ECA, analysis based on information from the Commission as of June 2022.

[26] "Council conclusions on the EU action plan for the circular economy", Press release 367/16, paragraph 2.

28 ***Box 1*** describes the circular-economy strategies of the three member states we examined in more detail. The countries varied considerably in the timing of their strategy adoption. The content and detail of the strategic documents also differed. All elements included related to circular design; however, some emphasised less impactful stages of the product life cycle such as recycling or other forms of waste treatment. However, all the policymakers we interviewed acknowledged that both CEAP 1 and CEAP 2 had influenced their strategies and the underlying actions.

Box 1

The circular-economy strategies of Ireland, the Netherlands and Poland

The Netherlands' strategy, adopted in autumn 2016, set the goals of a 50 % reduction in the use of primary raw materials by 2030 and a fully circular economy by 2050. It covers aspects of all stages of the circular economy, including circular design, with direct references to CEAP 1.

In Poland, the 2019 *Circular Economy Roadmap* included actions relevant to the design and production stages of the circular economy, building on CEAP 1. In July 2022, the Polish government adopted its new *Productivity Strategy*, designed to guide future support for the transition to a circular economy in Poland. To measure the transition, the government decided to monitor different indicators from those used by the Commission (e.g. 'resource productivity').

In 2020, the Irish government adopted *Waste Action Plan for Circular Economy*, a roadmap for waste planning and management. Its key objectives were to shift the focus to removing or designing out harmful waste and extending the life of products and goods by reusing them and preventing waste occurring in the first place. In December 2021, the government adopted its *Whole of Government Circular Economy Strategy*, including the objective to increase Ireland's circularity rate above the EU average by 2030.

There are weaknesses in the Commission's monitoring framework

29 The aim of action 15 of CEAP 1 was to establish a framework to monitor key trends and patterns to understand various elements of the circular economy over time, help identify success factors in member states and assess whether sufficient action had been taken.

30 The Commission delivered the first version of the monitoring framework in January 2018, and has updated it regularly since. It comprises ten indicators

(see ***Annex III***), measuring progress in four areas: (1) production and consumption (2) waste management; (3) secondary raw materials; and (4) competitiveness and innovation. We found that there are no specific indicators relating to circular design of products.

31 The lack of specific design-related indicators was also pointed out by institutional stakeholders, such as the European Parliament[27] and the European Economic and Social Committee[28]. The European Environmental Agency has noted[29] that the framework lacks indicators on maintaining product value. Since 2020[30], the agency has been exploring new ways of assessing design, including the use of indicators, under its Circularity Metrics Lab initiative. The three member states we interviewed also underlined the importance of including indicators relating to product design. In their view, the framework focused on waste, reflecting a linear rather than a circular economy.

32 At the time of our audit, the Commission was reviewing its circular economy monitoring framework. However, the new indicators from the draft presented to us during the audit do not fully address the weaknesses that we observed regarding circular product design. In addition, DG RTD has selected a research project funded under Horizon Europe to develop and test alternative indicators measuring progress in the transition to a circular economy. This project, with EU funding of €850 000, is designed to bring together the latest thinking in environmental statistics to track circularity at all levels and set benchmarks for policy, including funding. The Commission has started exploring synergies with its current monitoring framework.

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[27] Parliament draft motion for a resolution pursuant to Rule 133 of the Rules of Procedure on monitoring framework for the circular economy, B8-0000/2018, paragraph 3.

[28] Opinion of the European Economic and Social Committee on the Commission's monitoring framework for the circular economy, NAT/722-EESC-2018-00464, paragraph 3.3.

[29] Briefing of the European Environmental Agency on monitoring the circular economy, 23/2021.

[30] "Bellagio Declaration Circular Economy Monitoring Principles", 2020.

Limited evidence that CEAP 1 enabling measures were effective in promoting member state's transition to a circular economy

33 The 11 CEAP 1 actions included in our audit scope included six enabling measures supporting circular design (see the action list in ***Annex II***). The Commission planned to:

- assess the possibility of an independent testing programme for planned obsolescence (action 5);
- develop an improved knowledge base and support for SMEs on substituting hazardous substances of very high concern (action 6);
- establish an open, pan-European network of technological infrastructures for SMEs to incorporate advanced manufacturing technologies into their production processes (action 7);
- guide the circular economy in the EU using 'best available techniques' reference documents (BREFs) (action 8);
- consider how to improve the efficiency and uptake of the Eco-Management and Audit Scheme (EMAS) and the pilot programme on Environmental Technology Verification (ETV) (action 9); and
- engage with stakeholders in implementing CEAP 1 through existing fora in key sectors (action 10).

34 We assessed each of these measures, grouping the fourth and fifth measures together, to establish whether they were in line with the CEAP 1 objectives for circular design, and whether they delivered outputs that contributed to member states' transition to a circular economy.

The Commission concluded that detecting planned obsolescence was not feasible

35 Planned obsolescence is the practice of artificially limiting a product's useful life at the design stage, so that it becomes obsolete after a predetermined period. Replacing these products uses additional resources, energy, etc. Eliminating planned obsolescence is clearly in line with the CEAP 1 objectives for circular product design. In response to continued interest from the Council and the European Parliament, the Commission set itself a 2018 deadline for assessing the possibility of an independent testing programme to detect and counteract planned obsolescence.

36 In 2017, The Commission concluded that no *ex post* testing scheme could pinpoint intentional product obsolescence. It decided instead to develop a different scheme to detect 'premature' rather than 'planned' obsolescence (i.e. one that did not target ill intent on the part of manufacturers), with an allocation of €5 million under Horizon 2020. Out of two proposals, one project was selected from the relevant call to deliver this testing scheme, with a planned EU contribution of €5 million.

37 We examined the project's documentation and interviewed its beneficiary. At the time of our audit the project was ongoing and due for completion in April 2023. We observed that the intended testing scheme would cover circular product design factors such as durability, reparability, adaptability and upgradability of four product groups (washing machines, dishwashers, smart TVs and mobile phones). However, it would not detect ill intent on the part of manufacturers, thus would not fulfil the intention of the related CEAP 1 action to "prepare an independent testing programme under Horizon 2020 to help the identification of issues related to possible planned obsolescence".

The extent of uptake of support for substitution of hazardous substances was unclear

38 The amount of hazardous waste generated in the EU has increased continuously since 2004[31]. As regards the substitution of such hazardous substances, the Commission funded two COSME projects (with an EU contribution of €346 000) to deliver this CEAP 1 action supporting SMEs. The concept of both projects was in line with CEAP objectives to deliver safer products. They aimed to facilitate and disseminate best practice on the substitution of certain chemical substances by improving the 'partnership opportunities database', managed by the Commission's Enterprise Europe Network. The Commission also identified seven other LIFE-funded individual projects (with an EU contribution of €8.2 million) relating to the substitution of hazardous substances, including three (with an EU contribution of €4.3 million) that started after CEAP 1 was published (see paragraph ***77*** and ***Box 5***).

39 Beneficiaries of these COSME projects reported that all the deliverables were achieved. However, at the time of our audit, we obtained no evidence that the projects' recommendations for closer collaboration had been implemented or had led

[31] Review 02/2023: "EU actions to address the increasing amount of hazardous waste".

to greater use of the database by SMEs or other interested parties to deliver safer products.

The contribution of projects supporting access to advanced manufacturing technologies was limited

40 Under CEAP 1, the Commission planned to support SMEs in accessing innovative technologies. It financed two projects to deliver this CEAP 1 action, both relating to online platforms and support for SMEs in upgrading their production processes. The first project was financed under the Horizon 2020 programme (with an EU contribution of €4.9 million) and the second project via a COSME service contract (with an EU contribution of €2 million). Both projects were completed as planned and all their deliverables were reported as achieved.

41 Both projects covered the type of technologies that support CEAP 1 objectives for the circular design of production processes. Although unrelated to circular product design, both clean technologies (under the first project) and advanced manufacturing technologies (under the second project) addressed aspects of sustainable resource consumption and minimising waste generation through production processes.

42 However, these two projects covered only a small number of SMEs, and the extent to which the proposed technological solutions have been implemented was also limited. The Horizon 2020 project only supported 53 SMEs, and, in the COSME project, only 22 out of the 102 SMEs initially supported decided to proceed to the final implementation phase, initiating just 85 of the 356 proposed innovative solutions.

BREFs, EMAS and ETV had a modest impact on the sustainability of production processes

43 The CEAP 1 enabling measures included two additional actions aimed at increasing resource efficiency and reducing waste generation, in line with the CEAP 1 objectives for circular design of production processes. As one of these actions (action 8 from ***Annex II***), the Commission decided to use BREFs documents to promote best practice in a range of industrial sectors from 2016 onwards (see ***Box 2***).

Box 2

‘Best available techniques’ reference documents (BREFs) and conclusions

The development of BREFs is designed to draw conclusions on ‘best available techniques’ for industrial processes, which the Commission then publishes as its implementing decisions. Their aim is to prevent and control industrial emissions and pollution. These conclusions are legally binding and national authorities must consider them when setting environmental performance levels for some industrial installations and issuing the corresponding permits.

These BREFs and conclusions had already been used to implement the 2010 “Industrial Emissions Directive”[32].

44 However, we found that during CEAP 1 (from 2015 until 2019) the Commission included additional guidance on the circular economy in only eight BREFs. The other 15 BREFs, which were due for review during this period, were not updated. This guidance was not systematic, as only two of the eight best available techniques included relevant quantitative targets.

45 Under CEAP 2, the Commission intended to provide the legal basis for a more systematic coverage and analysis of the circular economy in BREFs. The Commission presented this legal basis via its proposal for the new Industrial Emissions Directive[33].

46 The second action looked at how to improve the efficiency and uptake of the Eco-Management and Audit Scheme (EMAS) and Environmental Technology Verification (ETV) programme (action 9 from ***Annex II***). EMAS, introduced in the 1993[34], is a voluntary EU environmental management scheme to enable organisations to evaluate, report and improve their environmental performance. In the context of circular economy, it promotes resource efficiency. Although the scheme was introduced by an EU regulation, registration is voluntary for organisations.

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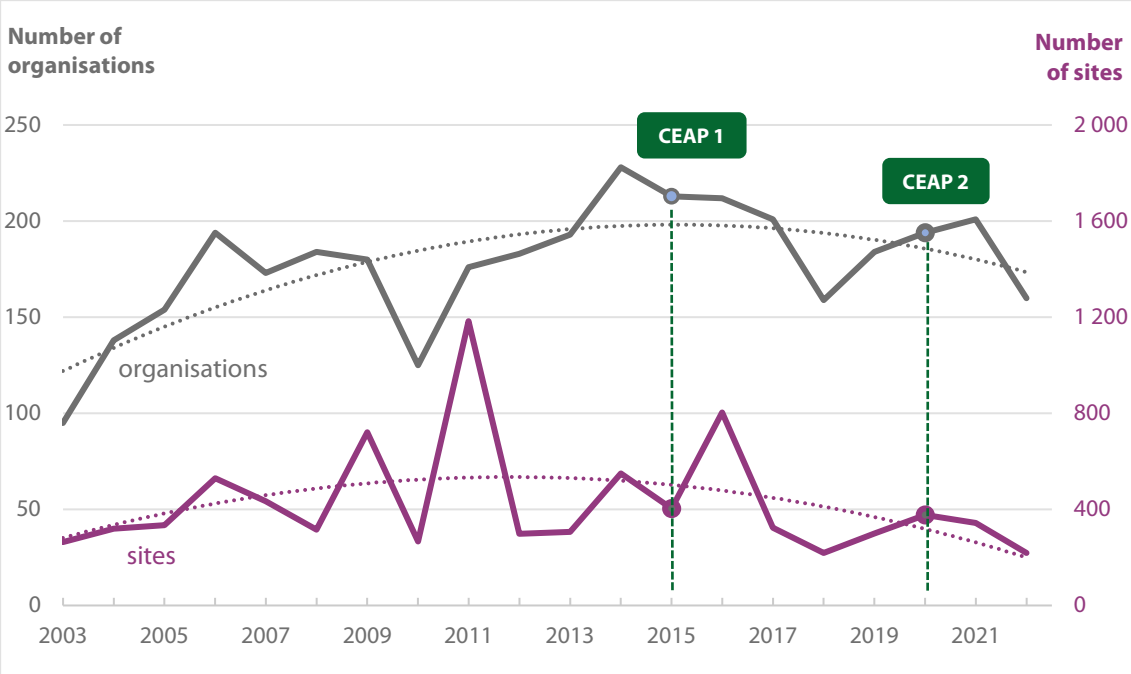
[32] Directive (EU) 2010/75 on industrial emissions.

[33] Commission proposal for a directive amending the 2010 directive (EU) 2010/75 on industrial emissions, COM(2022) 156.

[34] Regulation (EEC) No 1836/93 ‘EMAS’, revised by Regulation (EC) No 761/2001 ‘EMAS II’ and in Regulation (EC) No 1221/2009 ‘EMAS III’.

47 Under CEAP 1, the Commission intended to increase the uptake of EMAS. However, between 2016 and 2018 and after 2020, the number of new registrations decreased (see ***Figure 8***). In December 2022, the number of active sites of organisations registered in EMAS was 14 000, compared to the 23 000 initially projected for 2015[35]. Although registered organisations generally benefitted from EMAS in environmental terms, they struggled to reduce their waste generation and material consumption, which even increased in some cases[36].

Figure 8 – New EMAS registrations between 2003 and 2022



Source: ECA, based on the Commission EMAS register.

48 The ETV is the EU's voluntary service programme designed to help innovative environmental technologies to access the market. It was launched by the Commission in 2011[37], started operating in 2013 and was due to continue until 2016 (later extended to 2017). It allowed SMEs to verify the technical and environmental performance of new technologies they developed and have it certified by means of a 'statement of verification'.

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[35] Commission proposal for an amendment of EMAS regulation, COM(2008) 402, p. 5.

[36] Commission fitness check on EMAS regulation, SWD(2017) 253, p. 29, paragraph 7.2.1.

[37] COM(2011) 899, Commission communication, 'Innovation for a sustainable Future – The Eco-innovation Action Plan (Eco-AP)'.

49 Under CEAP 1, the Commission planned to examine how to improve the efficiency and uptake of the ETV pilot programme. In its 2020 evaluation, the Commission identified scope to simplify the scheme and do more to communicate it to the market. Overall, 123 ETV verifications were initiated and 47 technologies obtained statements of verification, including 15 technologies that featured material efficiency aspects relating to the circular economy. We found no evidence that any of these were actually applied in production processes. In November 2022, following an internal assessment, the Commission decided to discontinue its work on the ETV programme.

The Commission engaged with stakeholders through existing fora

50 To engage with stakeholders through existing fora, the Commission and the European Economic and Social Committee established the European Circular Economy Stakeholder Platform in March 2017. The platform aimed to improve interaction between stakeholders in terms of knowledge, cooperation, expertise, identifying barriers and promoting policy dialogue on the topic of the circular economy. Its activities included a policy dialogue via annual two-day conferences and its own website with information on the circular economy.

51 The Commission held five annual conferences (except in 2021 due to the COVID-19 pandemic) and considered them its flagship annual stakeholder events. We participated in the March 2022 event in Brussels, and noted that it was clearly focused on sustainable products, emphasising the importance of circular design and the upcoming legislative changes (see paragraphs ***07***-***08***). Once adopted, these laws will then need to be applied in the member states, with enforcement and targeted EU funding, to achieve their intended impact. Regarding the website, we checked whether the information about strategic framework for the three member states was up to date. This was not the case, also because the Commission depended on member states' voluntary feedback to provide this information.

EU funding was available to support transition to circular economy but little used for circular design

52 We examined whether the EU funding during the 2014-2020 period had been allocated to circular-design projects that could contribute to the transition to circular economy. We also examined whether the Commission promoted the use of the available funds (whether under direct, shared or indirect management), and whether the projects supported were relevant. Finally, we examined whether the Commission

was able to track the funding supporting such projects and the contribution made by these projects to CEAP 1's overall objectives and to those relating to circular design.

53 The EU's waste legislation[38] highlights that "waste prevention is the most efficient way to improve resource efficiency and to reduce the environmental impact of waste". Member states should make sound use of EU investments by prioritising prevention (e.g., via circular design), in line with the EU waste hierarchy. CEAP 1 specified that cohesion policy should fund projects at local and regional level to promote waste prevention. In our view, the same priority should apply to the funds directly and indirectly managed by the Commission.

The Commission planned significant EU funding for circular economy

54 The Commission committed to promoting the use of the range of EU funding (see paragraph ***12***), by including actions in CEAP 1 relating to the targeted outreach for the cohesion policy funds and EFSI and advancing innovation through Horizon 2020 under the "Industry 2020" topic – see actions 11 to 14 from ***Annex II***.

55 According to the 2019 CEAP 1 implementation report[39], the EU planned more than €10 billion in funding for the transition to a circular economy (to invest in innovation and support adaptation of the industrial base) between 2016 and 2020 period. The bulk of this funding was provided via the cohesion policy funds (ERDF and Cohesion Fund – see ***Figure 9*** and ***Figure 10***). The Cohesion Fund generally funded for environmental projects relating to sustainable development and energy, mainly waste management infrastructure, whereas the ERDF supported research and innovation and environmentally friendly production processes. We therefore focused our analysis on the ERDF.

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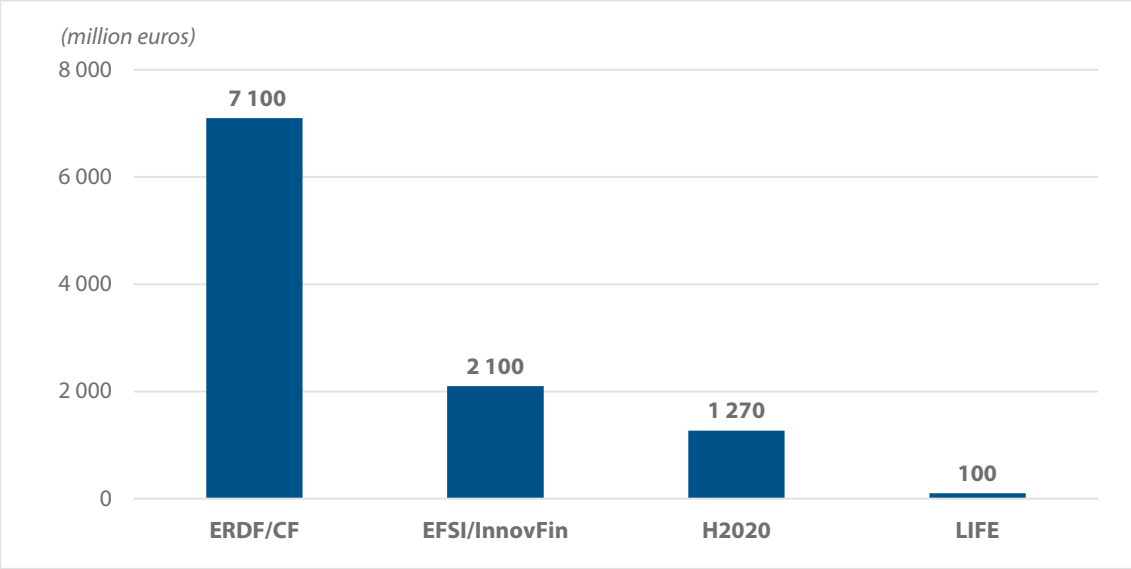
[38] Directive No 2018/851 on waste; and Directive No 2018/852 on packaging and packaging waste.

[39] COM(2019) 190, Commission communication on the implementation of the CEAP 1.

Figure 9 – Planned EU funding for circular economy until 2020



Source: ECA, based on the 2019 Commissions Implementation Report of CEAP 1.

Limited use of cohesion policy funds for circular-design projects

56 CEAP 1 highlighted the importance of research and innovation opportunities for circular economy under cohesion policy and planned to help member states and regions to increase the uptake of EU funds (action 11 from ***Annex II***).

57 The cohesion policy funds are under shared management between the Commission and the member states. They are governed by the Common Provisions Regulation (CPR). Adopted in 2013, the CPR for the 2014-2020 period[40] did not specifically mention the circular economy. However, under the ERDF Regulation[41], two of its priorities were particularly relevant for investments helping the transition to a circular economy: 1.b "promoting investment in product and service development" and 6.g "supporting industrial transition towards a resource-efficient economy, promoting green growth, eco-innovation and environmental performance management in the public and private sectors".

58 However, the Commission did not have accurate information on the share of the spending under these two (or other) investment priorities allocated to investments for

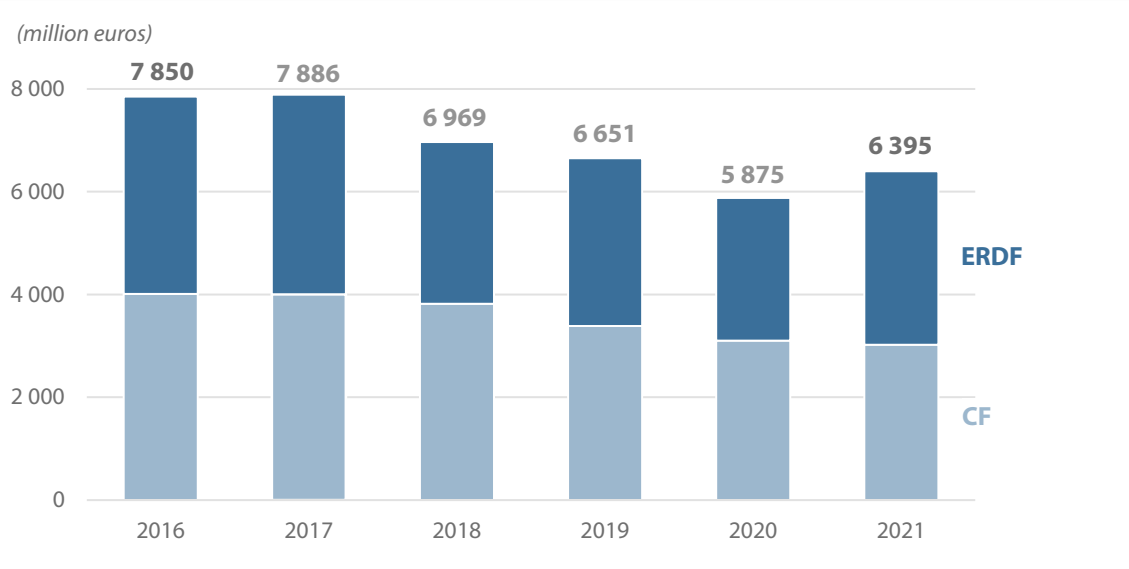
[40] Regulation (EU) No 1303/2013 laying down common provisions on the ERDF, ESF, CF, EAFRD and EMFF.

[41] Regulation (EU) No 1301/2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal.

circular economy purposes (or even the specific phases), as the regulations did not require member states to provide financial information about the allocations to these investment priorities. There is no specific category of action ('intervention field') related to this. As a result, it also has no means to assess whether there has been any increase in planned ERDF spending on the circular economy as the result of CEAP 1 action.

59 According to the 2019 CEAP 1 Commission implementation report, 75 % of the planned €7.1 billion in cohesion policy fund spending on circular economy related to the implementation of EU waste legislation. We analysed the four intervention fields used by the Commission in its implementation report to identify measures relevant to the circular economy. This analysis showed that the planned spending by member states for the 2014-2020 period decreased after CEAP 1 by 19 %, with a fall of €1.5 billion between 2016 and 2021 (see ***Figure 10***).

Figure 10 – Annual update of cohesion policy spending planned for 2014-2020 in relation to circular economy[1]



[1] The annual update starting year is 2016 – the first year after publication of CEAP 1 and in line with the information on investments presented in the Commission's 2019 CEAP 1 implementation report.

Source: ECA analysis of the member states' planning, based on the Commission's data.

60 In 2018[42], the European Parliament called on the member states to better integrate the circular economy into their operational programmes and urged the Commission to help them in that respect. During our audit, the Commission confirmed

[42] European Parliament resolution on cohesion policy and the circular economy, P8_TA(2018)0254, paragraphs 1 and 33.

to us that it had communicated the possibility of using cohesion policy funds in this way, but that it did not specifically promote the inclusion of such investments in the member states' programmes. This was also acknowledged by the managing authorities in the three member states we examined. Their operational programmes were adopted before the publication of CEAP 1, and with some exceptions in the Netherlands, they did not include calls directly related to the circular economy.

61 Against this background, we could not easily identify ERDF-funded projects related to circular design. In the three member states we examined in more detail, together with the managing authorities we identified over 1 000 projects, under 10 operational programmes, relating to the circular economy. Most of these projects did not fall within the four intervention fields used by the Commission to monitor spending on circular economy (see paragraph ***59***). As of 2021, the total ERDF contribution (€27 million) allocated to those projects at the time of our audit that we identified in the three selected member states, was substantially (around 38 %) lower than the planned EU contribution (€71 million) to these operational programmes identified by the Commission (using the same four intervention fields).

62 We also found that neither the Commission nor authorities in the selected member states had information about the contribution made by these 1 000+ projects to CEAP 1 objectives. Our analysis of these projects showed that 206 of them related to investments in circular design, with a planned ERDF contribution of €130 million. We analysed five of these 206 projects (two in Poland, two in the Netherlands and one in Ireland): only one concerned circular product design. However, this project was discontinued and the other four did not ultimately realise their potential to contribute to the circular economy (see ***Box 3***).

Box 3

Circular-economy projects we examined in the member states

In Poland, the first project we examined involved building a modular apartment system out of used sea-freight containers – a new type of circular design product. The ERDF supported the beneficiary in preparing his application for financing to implement his idea under a Horizon 2020 call. This application did not succeed and the project was discontinued. The second project involved the launch of a new mass production process and product, and a solution for reusing manufacturing waste. However, we found that the beneficiary was now actually generating more plastic waste due to the increased capacity of the new line, and was continuing to send waste for incineration.

In the Netherlands, the first project we examined involved accelerating the circular transition in the construction sector by using renewable raw materials, reducing the sector's consumption footprint and making it energy self-sufficient. However, the project was discontinued due to environmental objections to the construction permit. The second project involved developing an innovative technology and related production line to recycle old tyres into high-quality carbon black (a virtually pure form of carbon usually produced by the incomplete combustion of fossil fuels) and energy, with reduced energy consumption and pollution. The project faced several problems during implementation, including a fire at the plant, and at the time of our audit the construction of the new plant was on hold.

The project we examined in Ireland supported collaborative research between companies and academics on innovative projects, including through investment in eco-innovation. The project delivered its planned results – the testing and trialling of recycled raw materials. However, the objectives of project were limited to patenting the new technology and did not extend to commercialisation or dissemination of the study results.

63 In CEAP 2, the Commission stated that it would ensure that all regions would benefit from the transition to a circular economy by offering them support to implement their strategies and projects, through the cohesion policy funds, the new Just Transition Mechanism and urban initiatives (action 19 from ***Annex II***). The 2021-2027 CPR[43] sets five policy objectives, the first two of which also refer to the transition to a circular economy. In addition, there are specific objectives for each fund: the ERDF and the Cohesion Fund support the transition to a circular economy under two specific objectives. However, the monitoring indicators and enabling

[43] Regulation (EU) No 2021/1060 laying down common provisions on cohesion policy funds, Annex I.

conditions for the 2021-2027 period, as set out in the CPR and supporting legislation, are limited to waste collection and processing; the monitoring system does not provide any specific information on circular design nor require cohesion policy funding to be targeted at the relevant investments[44].

64 In Poland, all four managing authorities we interviewed confirmed that the drafts of their post-2020 programmes contained circular-economy actions, including specific actions relating to ecodesign and resource efficiency. In the Netherlands, two of the four managing authorities we interviewed stated that they were allocating EU funding to circular-economy actions, although not specifically for the design and production stages. In Ireland, both of the managing authorities we interviewed stated that, at the time of our audit, they were not planning to include circular-economy actions in their programmes. Information on the specific amount allocated for the transition to a circular economy is not yet available, as the programming negotiations for the 2021-2027 cohesion policy funds were ongoing at the time of our audit.

65 The Commission also confirmed to us that it had encouraged the member states to use the Recovery and Resilience Facility (RRF) to support the transition to a circular economy when negotiating the NRRPs. Our analysis of the NRRPs of the three member states covered by our audit showed that Poland and the Netherlands had included measures to support the transition to a circular economy whereas Ireland had not, and none of the three NRRPs included support for circular design.

The Commission mobilised Horizon 2020 funding for the circular economy, but with limited impact in member states

66 Horizon 2020 was the EU's research and innovation funding programme in the 2014-2020 period, with a budget of nearly €80 billion. Action 13 in CEAP 1 identified Horizon 2020 as a potential source of funding for the transition to circular economy, in line with its focus on innovation.

67 The Horizon 2020 work programme for 2016-2017 included the 'Industry 2020 and the circular economy' focus area, the continuation of a previous initiative relating to waste. Following CEAP 1, the Commission allocated over €650 million under this 2016-2017 initiative for "innovative demonstration projects" that supported the EU's objectives on the circular economy and industrial competitiveness. The initiative was

[44] Regulation (EU) No 2021/1058 on the ERDF and on the Cohesion Fund, Annex I. Regulation (EU) No 2021/1060 laying down common provisions on cohesion policy funds, Annex I.

designed to cover a wide range of industrial and service activities, as well as a pilot approach to help innovators facing regulatory obstacles.

68 We found that, in practice, less than half of the total Horizon 2020 investment in this focus area was requested for projects relating to circular economy: €327 million on 54 projects (see ***Box 4*** for an example of one of these projects) out of a total €704 million on 127 projects. The underlying calls included topics other than the circular economy. According to the Commission's study on lessons learnt from Horizon 2020[45], this limited the overall visibility of circular-economy projects funded in this focus area as well as affecting synergies with other parts of the programme.

Box 4

Horizon 2020 project on a circular economy model for products in the automotive, furniture and building sectors

One Horizon 2020 project we examined focused on processes for ecodesigned products, with an EU contribution of €9.6 million. The overall objective was to achieve greater re-use, upgrading, refurbishment and recycling of products, parts and materials, in order to increase resource efficiency and reduce in waste.

The project was completed in November 2021. The Commission considered that the project achieved most of its objectives, developing new products from a mix of waste materials and a wide range of prototypes. The Commission also stated that the work carried out had an impact on SMEs, as it would enable them to enter markets, without financial risks, with innovations that were not possible before.

However, we consider that most of the expected outcomes were not achieved. There was no evidence that the project achieved its planned level of material recovery (80 %); there is no direct calculation of the proportion of parts ultimately reused (the target was 65 %); and the 60 % reduction in residual waste could not be verified due to the lack of baseline data.

The project ended with the installation of prototypes, but the planned large-scale deployment did not materialise, either in the development of solutions or in the acceptance of prototypes and materials on a large scale by the final customers. The Commission's lessons-learnt exercise also highlighted lack of uptake as a key issue to be tackled in the post-2020 Horizon Europe programme.

[45] European Commission, Bening, J., Bergmans, J., Bieszczad, S., et al., *Opportunities and challenges in targeted funding of Research and Innovation: lessons learnt from the Horizon 2020: focus areas and implications for Horizon Europe missions*, 2021.

69 In the 2018-2020 work programme, the Commission introduced a new focus area dedicated to the circular economy: "Connecting economic and environmental gains – the Circular Economy". This focus area had a ring-fenced additional budget of €941 million, which was subsequently increased to €994 million.

70 We found that the lack of systematic monitoring of Horizon 2020 funding and of projects' contribution to the circular transition made it difficult to assess their effectiveness. Following a one-off exercise in connection with our audit, the Commission provided indicative information on how much of the Horizon 2020 funding could be attributed to circular economy (see paragraphs ***68***-***69***), without specifying how much of it related to circular design. Our analysis of these projects related to circular economy showed that around 50 % of Horizon 2020 funding contributed to circular design.

71 The Commission's 2017 interim evaluation report[46] provided only its preliminary conclusion on the overall progress of Horizon 2020 towards its general objective, including resource efficiency. Projects completed at the time of this evaluation represented only 0.6 % of the funding allocated for the three first years of the programme. The final implementation report had not yet been published at the time of our audit.

72 The successor to Horizon 2020 for the 2021-2027 period is Horizon Europe with a budget of €95.5 billion. The circular economy is referred to, directly or indirectly, in four of Horizon Europe's six themes or 'clusters' (cluster 1 'Health', cluster 4 'Digital, industry and space', cluster 5 'Climate, energy and mobility', and cluster 6 'Food, bioeconomy, natural resources, agriculture and environment'). Circular design is covered mainly by cluster 4, with expected impacts including ecodesigned products and services and sustainable-by-design advanced materials and technologies.

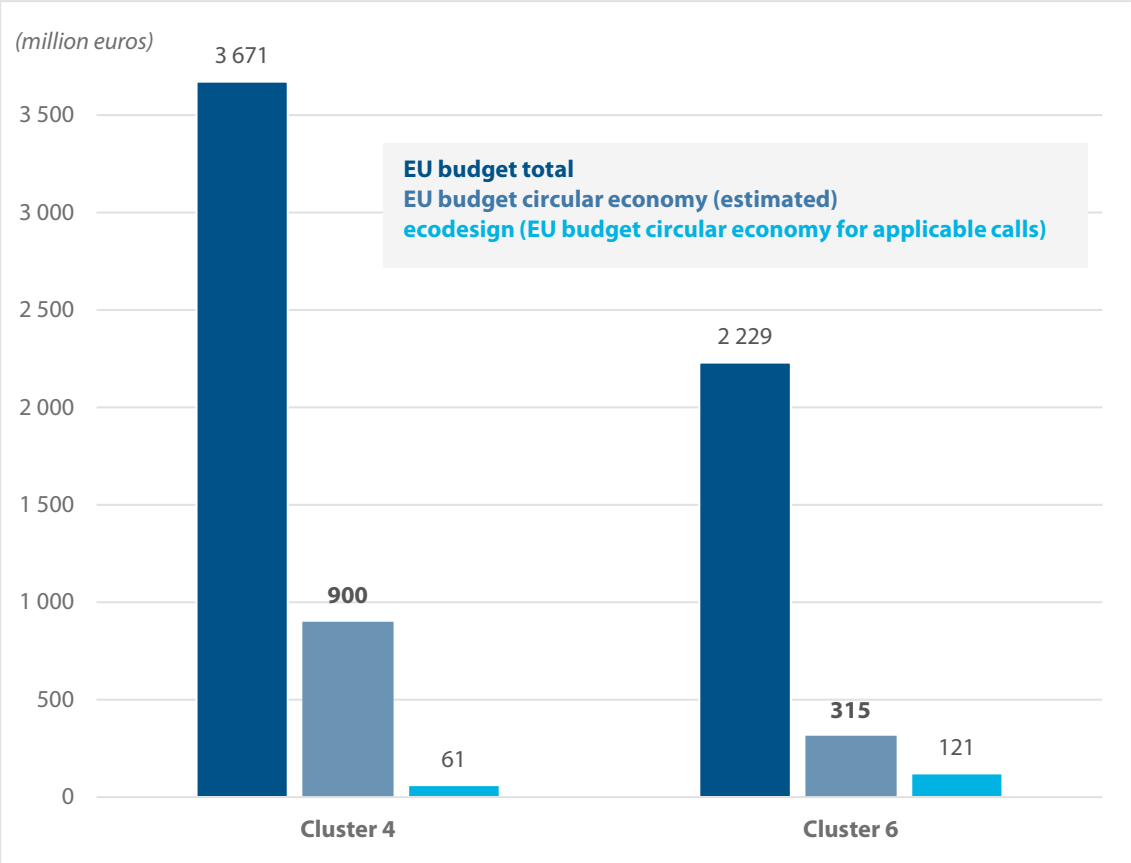
73 In the 2021-2022 Horizon Europe work programme, we found that around 25 % (€900 million) of the final budget for cluster 4 and around 14 % (€315 million) of the final budget for cluster 6 contribute to the circular economy. This two-year work programme therefore provides for almost as much circular-economy investment (€1 215 million) as the entire Horizon 2020 programme (€1 332 million).

74 The Commission provided us with a list of specific calls from these two clusters that included circular-design aspects (but were not specifically dedicated to circular

[46] "Interim Evaluation of Horizon 2020", Commission's staff working document, 2017.

design). These calls accounted for only 3.1 % of two clusters' combined budget under the 2021-2022 Horizon Europe work programme (see ***Figure 11***).

Figure 11 – Horizon Europe 2021-2022 work programme



Source: ECA, based on Commission data.

75 The Horizon Europe strategic plan 2021-2024[47] refers to the issue of large-scale deployment of EU-funded research solutions, highlighted in ***Box 4***. However, solutions relating to circular product design may often require further development because of their relative immaturity and the additional investment needed before they can be used by businesses. The solutions may also be affected by the limitations in downstream synergies between Horizon 2020 and Cohesion policy programmes that we observed in our recent audit (see paragraph ***20***).

[47] "Horizon Europe Strategic Plan (2021 – 2024)", Commission, 2021.

LIFE funded circular-economy projects, but their share related to circular design is not known

76 The LIFE programme is the EU's funding instrument for the environment and climate action, with an initial planned budget of €3.4 billion. With the exception of action relating to hazardous substances (see paragraphs ***38***-***39***), CEAP 1 did not include any specific action dedicated to LIFE investment in circular-economy projects. According to the Commission's 2019 CEAP 1 implementation report, between 2016 and 2020, LIFE invested at least €100 million in more than 80 projects contributing to the circular economy.

77 For the 2014-2020 period, we identified two LIFE sub-programmes and 249 projects relating to the circular economy with financing totalling €421 million – 12 % of the total LIFE allocation for that period. The LIFE monitoring and evaluation system does not require the Commission to provide information on how many of these projects related to the circular design stage.

78 We examined one of these 249 projects, which relates to the substitution of hazardous substances with financing of €1.4 million under the 2014-2017 LIFE work programme. While the project did not clearly result in reduced resource consumption, it supported CEAP 1's objectives on safer products, which is likewise promoted by CEAP 2 (see ***Box 5***).

Box 5

LIFE project to replace hazardous material in paints

The project involves research and development into 16 new paint formulations, in which toxic chemicals are replaced by a natural organoclay. It includes the development of an online platform on which professionals (including SMEs) and the public can obtain the new paint formulations and use them for free for the first year.

We noted that this project lacked performance indicators on resource efficiency. Since the weight of the renewable material used will be three times that of the toxic biocide being replaced, in this case delivering a safer product would not contribute to a reduction of resources measured by the weight of the raw material used.

79 As was also the case with Horizon 2020, we found that the lack of systematic monitoring of LIFE funding and of projects' contribution to the circular economy made it difficult to assess their effectiveness in contributing to CEAP objectives for circular

design (see paragraph ***77*** on the lack of Commission information on projects related to circular design). For example, the call for proposals under which the project described in ***Box 5*** was selected made reference to the indicator "reduced resource consumption other than energy", which is clearly relevant to CEAP 1's objectives. However, this indicator was not used for this specific project and was abandoned during implementation of the call. The Commission replaced it by two other indicators, "preparation for re-use" and "recycling", which are less relevant to resource efficiency.

80 The 2021-2027 LIFE programme is intended to complement public and private innovation funding for the transition to a circular economy. Its 'circular economy and quality of life' sub-programme, which specifically but not exclusively finances projects on circular economy, has an overall budget of €1 345 million, of which €700 million has been allocated for the period until 2024. The LIFE work programme[48] for 2021-2024 provides further details on projects to be supported under this sub-programme, focusing on those "which are safe and sustainable by design, on circular and sustainable production and consumption as well as actions to increase repair, reuse, remanufacturing and recycling of materials and products".

81 We found that the priority topics for 2021 and 2022 and the related calls under this sub-programme included investments relating to circular design (i.e. implementation of 'design for the environment' solutions, including circular design, to improve durability, reparability, reusability, upgradability, recycling and use of recycled content in new products).

COSME provided little support for circular design objectives

82 COSME is the 2014-2020 EU programme for the competitiveness of SMEs, with a budget of €2.3 billion. One of its general objectives, to strengthen the competitiveness and sustainability of SMEs, included support for transition to a circular economy. The target for the corresponding impact indicator was to increase the proportion of SMEs producing environmentally friendly (ecodesigned) products that use fewer resources[49].

83 According to the 2019 CEAP 1 implementation report, the Commission did not allocate COSME funding to measures relating to the circular economy and/or circular design. During our audit, however, the Commission identified three COSME projects

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[48] Commission implementing decision on the adoption of the multiannual work programme for the years 2021-2024 for the LIFE programme, C(2021) 4997.

[49] Regulation (EU) No 1287/2013 on COSME programme, article 3.

relevant to the two CEAP 1 enabling measures (with an EU contribution of €2.4 million – see paragraphs ***38-42***).

84 COSME's 2017 interim evaluation report[50] did not address whether the programme was helping to increase the number of SMEs producing ecodesigned products; nor did the report's section on alignment with other EU initiatives refer to CEAP 1. Its 'Outlook' section, on potential improvements, suggested making the programme more responsive to the EU objectives on sustainable and inclusive growth, for example through the promotion of the circular economy.

85 At the time of our audit, the 2014-2020 COSME programme's final implementation report was not yet available. For the 2021-2027 period, the competitiveness and entrepreneurship parts of COSME have been integrated into the Single Market Programme, with a total budget allocation of €1 billion (compared to the €920 million under COSME) as part of a wider initiative to improve the functioning of the EU's internal market. The Single Market Programme Regulation[51] includes references to the circular economy and ecodesign in its list of eligible actions.

EFSI support for circular design was limited by market demand

86 The European Fund for Strategic Investments (EFSI) was launched in 2015. It was a joint initiative by the Commission and the EIB with the aim of unlocking €315 billion of investment by addressing market gaps and mobilising private capital. The fund provided repayable financial support (in the form of loans, guarantees and equity investments) to economically viable projects in key sectors, including to those projects with a higher risk profile than ordinary EIB activities.

87 Under CEAP 1, together with the EIB and the European Investment Advisory Hub (EIAH), the Commission carried out targeted outreach activities to encourage applications for EFSI funding, and support the development of projects and investment platforms relevant to the circular economy (action 14 in ***Annex II***). According to the Commission's 2019 CEAP 1 implementation report, €2.1 billion of financing was planned through the EFSI and the InnovFin between 2016 and 2020 to accelerate the transition to a circular economy.

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[50] "Interim Evaluation of the COSME Programme, Final Report", Commission, 2017.

[51] Regulation (EU) No 2021/690 establishing the Single Market Programme.

88 Although the EFSI Regulation[52] included the possibility of supporting projects relating to circular economy (including circular design), it did not include any specific circular-economy criteria that could have been used to prioritise the selection of projects related to circular design. However, between 2016 and 2019, the Commission and the EIB held a series of workshops on the topic of green investments (including on resource efficiency), which were relevant to CEAP 1's objectives. As part of the targeted outreach activities, the EIAH launched the Circular City Centre[53], together with a Funding Guide, with the aim of raising awareness of the circular economy, and supporting the development of circular economy projects.

89 The Commission did not require the EIB to monitor or report specifically on the use of EFSI financing for the circular economy. Our analysis found that, of the 675 EFSI projects signed up until June 2022 for a total of €60 billion, 29 projects, with EFSI financing totalling €1.9 billion (3.1 %), were related to the circular economy. Only three of these 29 projects, with total financing of €113 million, related to ecodesign. The EIB attributed the limited number of circular design projects to the demand-driven nature of the EFSI. Neither the EIB nor the Commission had any information about how these projects contributed to CEAP 1's objectives on circular design.

90 We examined one of these three projects, which promoted higher local use of waste paper and renewable packaging materials, in line with EU waste legislation[54]. We concluded that although this project did not relate to the circular design of a particular product, it contributed to the CEAP 1 objective on resource-efficient production processes.

91 For 2021-2027, the EFSI has been succeeded by the new InvestEU programme, which CEAP 2 mentions as a source of funding for circular-economy projects. The InvestEU Regulation[55] refers to the circular economy as an area for investment, particularly prioritising key sectors that have the most potential for circularity. Although this legal framework is more specific than the EFSI's framework about supporting projects relating to the design and production phases of circular economy,

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[52] Regulation (EU) No 2015/1017 on the European Fund for Strategic Investments, the European Investment Advisory Hub and the European Investment Project Portal, amended by Regulation (EU) No 2017/2396.

[53] https://advisory.eib.org/about/circular-city-centre.htm.

[54] Directive 2004/12/EC on packaging and packaging waste.

[55] Regulation (EU) No 2021/523 on InvestEU.

the uptake of these instruments still depends on market demand, which is stimulated by the EIB's and Commission's targeted outreach and advisory activities.

Conclusions and recommendations

92 Overall, we conclude that there is limited evidence that the Commission's Circular Economy Action Plans (CEAPs), and in particular the actions regarding the circular design of products and of production processes, were effective in influencing circular-economy activities in the member states.

93 Since the publication of the first CEAP in 2015, there has been an increase in circular economy activities by member state governments. At the time of our audit, nearly all EU member states had developed, or were in the process of developing, a national circular-economy strategy which referred to CEAP and related EU policy and included circular design to some degree. However, and despite EU legislation incentivising EU funding for the circular economy, the circularity rate increased only by 0.4 percentage points between 2015 and 2021. Moreover, progress varied substantially among member states. Against this background, the EU ambition to double the circularity rate by 2030 looks very challenging (see paragraphs ***23***-***28***).

94 The Commission's framework to monitor the EU transition to a circular economy did not capture all the key aspects. It lacked specific indicators for circular product design, the phase which determines most of its environmental impact (see paragraphs ***29***-***32***).

Recommendation 1 – Improve monitoring of member states' transition to circular economy

The Commission should analyse how to better take into account key aspects of circular economy, in particular circular product design to improve the monitoring of member states' progress in transition to a circular economy and facilitate informed decision-making about new policy, initiatives and actions.

Target implementation date: 2024.

95 The first CEAP included a range of enabling measures, designed to facilitate member states' transition to a circular economy by establishing policy orientation in areas such as innovation and investment. We found limited evidence that these measures effectively contributed to member state's transition to a circular economy. At best, they had only a modest impact. While there was strong interest from other EU institutional stakeholders in detecting planned obsolescence, the Commission

concluded that a testing scheme to detect ill intent on the part of manufacturer was not feasible (see paragraphs ***35***-***51***).

96 In 2014-2020, cohesion policy funding was mainly used for waste management, which has less potential than circular design to reduce environmental impact. Despite the availability of EU funding and overall support for the transition to a circular economy, the Commission and member states did not target funding effectively at investments focusing on circular design. While there was more emphasis on the circular economy in the programming of the 2021-2027 period, member states can still choose to spend substantial amounts of EU funding on managing waste rather than on preventing it through circular design (see paragraphs ***52***-***65***).

97 Of the funds managed directly by the Commission in 2014-2020, Horizon 2020 was the biggest contributor to circular-economy initiatives. Although it granted EU financing to projects relating to circular design, the research solutions it delivered had a relatively low level of maturity, which hampered their immediate application by businesses in the member states. Another barrier to their uptake was limited synergies between Horizon 2020 and the cohesion policy programmes (see paragraphs ***66***-***75***).

98 The LIFE programme financed a number of projects on circular economy, but the LIFE monitoring and evaluation system does not require the Commission to identify those relating to circular design. The EU programme for the Competitiveness of Enterprises and SMEs provided little relevant funding, and the support for circular design from the European Fund for Strategic Investments was affected by limited market demand (see paragraphs ***76***-***91***).

Recommendation 2 – Analyse reasons for low take up of EU funding for circular design and consider scope for greater incentivisation

Given the potential impact of circular design on the environment, the Commission should analyse why EU funding in both shared and direct management has not led to more projects focusing on circular design. As part of this analysis, it should consider the scope for providing more incentives for the development of such projects targeting circular product design under cohesion policy.

Target implementation date: 2024.

This report was adopted by Chamber II, headed by Mrs Annemie Turtelboom, Member of the Court of Auditors, in Luxembourg at its meeting of 10 May 2023.

For the Court of Auditors

Tony Murphy
President

Annexes

Annex I – Transposition of EU directives relevant to circular economy adopted during CEAP 1

Directive	Transposition deadline	Commission timeliness & completeness check	
		Status	List of member states
2018/849 on end-of-life vehicles, (waste) batteries and accumulators and waste electrical and electronic equipment	5.7.2020	**24** completed	AT, BG, CY, CZ, DE, DK, EE, EL, ES, FI, FR, HU, IE, IT, LT, LV, MT, NL, PL, PT, RO, SE, SI, SK
		3 late (4 active infringement procedures)	AT BE, HR – partial LU – under examination
2018/850 on the landfill of waste	5.7.2020	**24** completed	AT, BG, CY, CZ, DE, DK, EE, EL, ES, FI, FR, HU, IE, IT, LT, LV, MT, NL, PL, PT, RO, SE, SI, SK
		3 late (3 active infringement procedures)	BE, HR – partial LU – under examination
2018/851 on waste	5.7.2020	**23** completed	AT, BG, CY, CZ, DE, DK, EE, EL, ES, FI, FR, HU, IE, IT, LT, LV, MT, NL, PL, PT, RO, SE, SK
		4 late (4 active infringement procedures)	BE, HR – partial LU, SI – under examination

Directive	Transposition deadline	Commission timeliness & completeness check	
		Status	List of member states
2018/852 on packaging and packaging waste	5.7.2020	**24** completed	AT, BE, BG, CY, CZ, DE, DK, EE, EL, FI, FR, HU, IE, IT, LT, LV, MT, NL, PL, PT, RO, SE, SI, SK
		3 late (3 active infringement procedures)	ES, HR – partial LU – under examination
2019/771 on certain aspects concerning contracts for the sale of goods	1.7.2021	**21** completed	AT, BE, BG, CY, DE, DK, EE, ES, FI, FR, HR, HU, IT, LT, LU, LV, MT, NL, PT, RO, SE
		6 late (6 active infringement procedures)	CZ, EL, IE, PL, SI, SK
2019/883 on port reception facilities for the delivery of waste from ships	28.6.2021	**12** completed	EL, CY, ES, HR, HU, IT, LT, LU, MT, PT, RO, SK
		15 late (16 active infringement procedures)	BG – partial BE, DE, FI, SE, SI, PL – partial and under examination AT, CY, CZ, DK, EE, FR, IE, LV, NL – under examination
2019/904 on reduction of the impact pf certain plastic products on environment	3.7.2021	**13** completed	AT, BG, CY, DE, EL, ES, HU, IT, LT, NL, RO, SE, SK
		14 late (12 active infringement procedures)	BE, CZ, FI, HR, LV, MT, PT, SI – partial EE, IE, LU, PL

Directive	Transposition deadline	Commission timeliness & completeness check	
		Status	List of member states
OVERAL seven directives	passed deadlines	**141** completed **46** late (25 %) **48** active infringement procedures	

Source: ECA, based on the Commission data as of July 2022.

Annex II – List of the Commission's CEAP 1 and CEAP 2 actions related to circular design[1]

#	Action	Co-leading DG	Group of actions according to CEAP	Examined projects
	CEAP 1			
1	Emphasis on product requirements related to the circular economy under the Ecodesign directive (multisector), and implementing regulation (incl. televisions and displays) proposal	DGs ENV-GROW-ENER	Production	-
2	Ecodesign work plan 2015-17 and request for standards on material efficiency including Ecodesign requirements on durability, reparability and recyclability of products	DGs GROW-ENER	Production	-
3	Analysis of the possibility to propose horizontal requirements on repair information provision in the context of Ecodesign	DGs ENV-GROW-ENER	Consumption	-
4	Examine options and actions for a more coherent policy framework of the different strands of work of EU product policy in their contribution to the circular economy	DGs ENV-GROW-ENER	Production	-
5	Assessment of the possibility of an independent testing programme on planned obsolescence	DGs ENV-RTD-JUST	Consumption	1 x H2020
6	Develop an improved knowledge base and support to SMEs for the substitution of hazardous substances of very high concern	DG GROW	Production	1 x LIFE 2 x COSME
7	Establishing an open, pan-European network of technological infrastructures for SMEs to integrate advanced manufacturing technologies into their production processes	DG GROW	Production	1 x H2020 1 x COSME

#	Action	Co-leading DG	Group of actions according to CEAP	Examined projects
8	Guidance of the circular economy in the EU best available techniques reference documents (BREFs) for several industrial sectors (multisector)	DG ENV	Production	-
9	Examination on how to improve the efficiency and uptake of the EU Eco-Management and Audit Scheme (EMAS) and the pilot programme on environmental technology verification (ETV)	DG ENV	Production	-
10	Engagement with stakeholders in the implementation of this action plan through existing fora in key sectors	DGs ENV-GROW	Innovation and investments	-
11	Targeted outreach and communication activities to assist member states and regions for the uptake of cohesion policy funds for the circular economy	DG REGIO	Innovation and investments	5 x ERDF
12	Support to member states and regions to strengthen innovation for the circular economy through smart specialisation	DG REGIO	Innovation and investments	-
13	Initiative "Industry 2020 and the circular economy" under Horizon 2020	DGs GROW-RTD	Innovation and investments	1 x H2020
14	Targeted outreach to encourage applications for funding under EFSI, and support the development of projects and investment platforms relevant to the circular economy	DGs ENV-GROW	Innovation and investments	1 x EFSI
15	Development of a monitoring framework for the circular economy	DGs ENV-GROW-ESTAT	Monitoring	-

#	Action	Co-leading DG	Group of actions according to CEAP	Examined projects
	CEAP 2			
16	Legislative proposal for a sustainable product policy initiative	DGs ENV-GROW-ENER	A sustainable product policy framework	-
17	Circular Electronics Initiative, common charger solution, and reward systems to return old devices	DG CNECT-GROW-ENER	Key product value chains	-
18	Review of the Industrial Emissions Directive, including the integration of circular economy practices in upcoming BREFs	DG ENV	A sustainable product policy framework	-
19	Supporting the circular economy transition through cohesion policy funds, the Just Transition Mechanism and urban initiatives	DG REGIO	Making the circular economy work for people, regions and cities	-
20	Review of the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment and guidance to clarify its links with REACH and Eco-design requirements	DG ENV	Key product value chains	-
21	Updating the Circular Economy Monitoring Framework to reflect new policy priorities and develop further indicators on resource use, including consumption and material footprints	DGs ENV-ESTAT	Monitoring the progress	-

[1] The colours used in this table reflect ECA's classification of different types of CEAP actions: regulatory framework, enabling measures, allocating funding and monitoring EU progress, (see ***Figure 4***).

Source: ECA, based on CEAP 1 and CEAP 2.

Annex III – The monitoring framework for the circular economy

#	Indicator (group)	Relevance	EU legislation and policy (examples)
Production and consumption			
1	EU self-sufficiency for raw materials	The circular economy should help to address the supply risks for raw materials, in particular critical raw materials.	Raw Materials Initiative; Resource Efficiency Roadmap
2	Green public procurement	Public procurement accounts for a large share of consumption and can drive the circular economy.	Public Procurement Strategy; EU support schemes and voluntary criteria for green public procurement
3a-c	Waste generation	In a circular economy waste generation is minimised.	Waste Framework Directive; directives on specific waste streams; Strategy for Plastics
4	Food waste	Discarding food has negative environmental, climate and economic impacts.	General Food Law Regulation; Waste Framework Directive; various initiatives (e.g. Platform on Food Losses and Food Waste)
Waste management			
5a-b	Overall recycling rates	Increasing recycling is part of the transition to a circular economy.	Waste Framework Directive
6a-f	Recycling rates for specific waste streams	This reflects the progress in recycling key waste streams.	Waste Framework Directive; Landfill Directive; directives on specific waste streams
Secondary raw materials			
7a-b	Contribution of recycled materials to raw materials demand (including circular material use rate)	In a circular economy, secondary raw materials are commonly used to make new products.	Waste Framework Directive; Ecodesign Directive; EU Ecolabel; REACH; initiative on the interface between chemicals, products and waste policies; Strategy for Plastics; quality standards for secondary raw materials
8	Trade in recyclable raw materials	Trade in recyclables reflects the importance of the internal market and global participation in the circular economy.	Internal Market policy; Waste Shipment Regulation; Trade policy

#	Indicator (group)	Relevance	EU legislation and policy (examples)
Competitiveness and innovation			
9a-c	Private investments, jobs and gross value added	This reflects the contribution of the circular economy to the creation of jobs and growth.	Investment Plan for Europe; Structural and Investment Funds; InnovFin; Circular Economy Finance Support Platform; Sustainable Finance Strategy; Green Employment Initiative; New Skills Agenda for Europe; Internal Market policy
10	Patents	Innovative technologies related to the circular economy boost the EU's global competitiveness.	Horizon 2020

Source: ECA, based on COM(2018) 029.

Abbreviations

BREF: Best available techniques' reference documents

CEAP: Circular Economy Action Plan

COSME: EU programme for the Competitiveness of Enterprises and SMEs

CPR: Common Provisions Regulation

DG ENER: Directorate-General for Energy

DG ENV: Directorate-General for Environment

DG GROW: Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs

DG JUST: Directorate-General for Justice and Consumers

DG REGIO: Directorate-General for Regional and Urban Policy

DG RTD: Directorate-General for Research and Innovation

EFSI: European Fund for Strategic Investments

EIAH: European Investment Advisory Hub

EIB: European Investment Bank

EMAS: Eco-Management and Audit Scheme

ERDF: European Regional Development Fund

ESTAT: Eurostat

ETV: Environmental Technology Verification

NRRP: National Recovery and Resilience Plans

REACH: Registration, evaluation, authorisation and restriction of chemicals

SME: Small or medium-sized enterprise

Glossary

Circular economy: Economic system based on reusing, sharing, repairing, refurbishing, remanufacturing and recycling materials in order to minimise resource use, waste and emissions, notably through the circular design of products and of production processes.

Cohesion Fund: EU fund for reducing economic and social disparities in the EU by funding investments in member states where the gross national income per inhabitant is less than 90 % of the EU average.

Ecodesign (circular design): Approach to design that minimises environmental impact at all stages of a product's life cycle.

European Economic and Social Committee: An advisory EU body, which acts as a forum for civil society organisations.

European Green Deal: EU growth strategy adopted in 2019, aiming to make the EU climate-neutral by 2050.

European Investment Advisory Hub: A platform combining all investment advisory services and technical assistance for applicants for support from the EFSI.

European Investment Bank: EU bank, owned by the member states, which provides financing for projects in support of EU policy, mainly in the EU, but also externally.

European Regional Development Fund: EU fund that strengthens economic and social cohesion in the EU by financing investments that reduce imbalances between regions.

European Structural and Investment Funds: The five main EU funds which together support economic development across the EU in the 2014-2020 period: the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development, and the European Maritime and Fisheries Fund.

Horizon 2020: The EU's research and innovation funding programme for the 2014-2020 period.

InnovFin Advisory: A service of the EIB providing guidance on how to structure research and innovation projects in order to obtain better access to finance.

InvestEU: Mechanism to mobilise private investment in projects of strategic importance for the EU.

Just Transition Mechanism: EU instrument promoting the move to a climate-neutral economy and supporting the communities and regions most affected financially by the transition.

LIFE: Financial instrument supporting the implementation of the EU's environmental and climate policy through co-financing of projects in member states.

Planned obsolescence: The practice of designing products to have a limited lifespan so that consumers have to buy new ones.

Product life cycle: The phases in the life of a product, from the acquisition of the raw materials needed to make it through to its eventual disposal at the end of its useful life.

Programme for the Competitiveness of Enterprises and SMEs: EU programme to help small businesses access new markets.

Recovery and Resilience Facility: The EU's financial support mechanism to mitigate the economic and social impact of the COVID-19 pandemic and stimulate recovery, while promoting green and digital transformation.

Secondary raw materials: Recycled materials that can be used in manufacturing processes instead of or alongside new or unused materials (known as **primary raw materials**).

Small or medium-sized enterprise: A size definition applied to companies and other organisations, based on the number of staff employed and certain financial criteria. Small enterprises have fewer than 50 staff, and turnover or a balance sheet total not exceeding €10 million. Medium-sized enterprises employ fewer than 250 staff, and have turnover up to €50 million or a balance sheet total up to €43 million.

Replies of the Commission

https://www.eca.europa.eu/en/publications/sr-2023-17

Timeline

https://www.eca.europa.eu/en/publications/sr-2023-17

Audit team

The ECA's special reports set out the results of its audits of EU policies and programmes, or of management-related topics from specific budgetary areas. The ECA selects and designs these audit tasks to be of maximum impact by considering the risks to performance or compliance, the level of income or spending involved, forthcoming developments and political and public interest.

This performance audit was carried out by Audit Chamber II Investment for cohesion, growth and inclusion spending areas, headed by ECA Member Annemie Turtelboom. The audit was led by ECA Member Iliana Ivanova, supported by James Verity, Head of member's office and Ivan Genchev, Attaché in member's office; Niels-Erik Brokopp, Principal Manager; Rafal Gorajski, Head of Task; Agota Krenusz, Paloma Munoz Mula, Dieter Böckem, Joanna Laskowska and Katarzyna Solarek, Auditors. Michael Pyper provided linguistic support.

From left to right: Paloma Munoz Mula, James Verity, Iliana Ivanova, Rafal Gorajski, Agota Krenusz.

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PDF	ISBN 978-92-849-0595-9	ISSN 1977-5679	doi: 10.2865/36180	QJ-05-23-190-EN-N
HTML	ISBN 978-92-849-0560-7	ISSN 1977-5679	doi: 10.2865/560064	QJ-05-23-190-EN-Q

A circular economy preserves the value of products, materials and resources and minimises waste. A product's design determines around 80 % of its environmental impact. We found only limited evidence that the Commission's two Circular Economy Action Plans, in particular in terms of the circular design of products and of production processes, had been effective in influencing circular economy activities in the EU. We recommend that the Commission analyse reasons for the low take up by member states of EU funding for circular design and consider how to provide more incentives for this, and improve its monitoring of member states' transition to a circular economy.

ECA special report pursuant to Article 287(4), second subparagraph, TFEU.

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