



European  
Commission

# ACCELERATING THE TRANSITION TO THE CIRCULAR ECONOMY

Improving  
access to finance  
for circular  
economy projects



Research and  
Innovation

## **Accelerating the transition to the circular economy – Improving access to finance for circular economy projects**

European Commission  
Directorate-General for Research and Innovation  
Directorate I — Climate Action and Resource Efficiency  
Unit I.2 — Eco-innovation

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# ACCELERATING THE TRANSITION TO THE CIRCULAR ECONOMY

Improving access to finance  
for circular economy projects

A report by the Informal Commission Expert Group  
“Support to Circular Economy Financing”

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## Introduction

EU circular economy policy<sup>1</sup> puts the EU economy on the road to transformation to an economic system that uses natural resources in the most efficient way, preserves the value of materials and products by using them circularly, and reduces the negative impact of economic activities on the environment and health. The EU sees the circular economy as an opportunity for resource-poor Europe to secure access to vital resources, maintain global competitiveness and ensure a high quality environment for Europe and the world. Applying circular economy approaches can cut EU industrial emissions, reduce the production of and exposure to hazardous substances and contribute to climate change mitigation<sup>23</sup>. With its truly symbiotic effects on the economy and the environment, the circular economy is a way of achieving certain UN sustainable development goals (SDGs).

The transition to a circular economy requires a radical change in the way we produce and consume. In a circular economy, products are designed for durability, upgradeability, reparability and reusability, with a view to reusing the materials from which they are made after they reach the end of their life. In the use phase, products are managed with a view to maximising their utilisation capacity and extending their useful life, thus maintaining their value for as long as possible. This is made possible by companies that develop new business models generating revenue streams from services rather than products while making a more efficient use of resources and/or giving new value to end-of-life products and materials. Consumers use products efficiently and discard them in such a way that they can be reused or, if this is technically or economically unfeasible, recycling operators turn them into secondary materials that can enter a new production-consumption cycle. This needs to be supported

by the whole ecosystem, from enabling technologies and infrastructures to a form of market organisation that facilitates collaboration along and across value chains and a form of governance and regulation that encourages companies to adopt circular approaches to social norms that make the circular production-consumption patterns socially preferable. This paradigm is in contrast with the linear economy which is based on the take-make-use-discard model. This is a model which maximises the amount of products produced and sold but does not focus on preserving the materials. Such an approach prevents effective collaboration along value chains and stimulates the throw-away consumer culture with its noxious environmental consequences.

Like with any systemic change, the transition to a circular economy requires several elements of the system to change simultaneously. The inertia and resistance of the current linear economic systems prevent the transition from occurring. Concerted actions by a host of stakeholders are needed. Government at all levels, businesses, innovators, investors and consumers all have to play their distinct roles and contribute to the process.

Depending on how effectively the stakeholders are mobilised and how quickly the necessary changes in different parts of the system occur, two scenarios can be imagined for the transition to a circular economy. In the first scenario, the changes are slow and superficial. The transition process leads to the harvesting of low hanging fruit, implementation in the early phase of the obvious and easy actions, and stagnation of the process in the later stage. In this scenario, the economic system stays essentially linear with circular companies and value chains operating in their niches and being the exception rather than the rule. The economic system is highly vulnerable to sudden shortages of critical raw materials and price volatilities on the markets and eventually suffers high opportunity costs for its unpreparedness. Environmental pollution continues to affect human health and ecosystems.

<sup>1</sup> For an overview of the 2015 and 2018 Circular Economy Packages, see, for instance [http://ec.europa.eu/environment/circular-economy/index\\_en.htm](http://ec.europa.eu/environment/circular-economy/index_en.htm)

<sup>2</sup> OVAM (2018), 'Seven messages about the Circular Economy and climate change'.

<sup>3</sup> Material Economics (2018), 'The Circular Economy – a powerful force for climate mitigation'.

In the second scenario, changes are well coordinated, fast and deep. More and more companies attempt to take advantage of the emerging economic opportunities of the circular economy approach opened by the transformative actions and involve their business partners upstream and downstream. The technology and business models mature and reach the optimal scale. The 'virtuous circle' process may reach the tipping point after which positive feedback leads to a further deepening and acceleration of the transition process. The circular approach penetrates value chains, markets and material streams, and even the conservative companies have to adapt and join the growing circular economy. By avoiding wastage and retaining valuable resources in the economy, the circular economy reduces the negative impacts on the environment, climate and urban and natural landscapes that result from raw material extraction and transformation, waste landfilling and incineration and thus leads to more sustainable growth. It also helps to generate new jobs, both high skilled and lower skilled.

To bring about this systemic change, the European Commission proposed a programme of actions that is summarised in the *2015 Circular Economy Action Plan*. Since the action plan's adoption, a legislative framework for a circular economy has begun to take shape. This framework includes reviewing waste legislation and some elements of industrial policy covering the manufacturing of products. Under the EU urban agenda initiative where the public, private and civil society sectors discuss, plan and implement concrete actions, the EU has created a number of collaborative mechanisms. These include the *European Circular Economy Stakeholder Platform*<sup>4</sup> and the *Urban Agenda for the EU Partnership on the Circular Economy*. During the current budgetary period, the EU has granted or plans to grant through the Horizon 2020 research and innovation programme almost EUR 2 billion in funding for research and innovation projects on the circular economy. Through the Cohesion Policy at least EUR 7.6 billion has been

granted for uptake of eco-innovative technologies among SMEs and for supporting the implementation of EU waste legislation. Other EU funding programmes, such as the European Fund for Strategic Investments (EFSI), the LIFE Programme or COSME have also funded circular economy projects.

Businesses and investors will have a key role in determining which of the above scenarios Europe follows. Those companies that identify the economic benefits of the circular approach in their respective areas of operation, turn them into business opportunities and implement viable projects will be the ones that generate profit and prove the value of the circular economy concept. These companies will need investors to finance their projects. It is estimated that EUR 320 billion will be needed between now and 2025<sup>5</sup> to implement projects that put the European economy on the path to transition.

Financing circular economy projects is not a trivial matter for investors, and both businesses and the financial sector perceive difficult barriers and see the other as responsible for failing to play their expected roles. The business sector's main argument is that the financial sector is not able to assess the benefits of circular approaches and exaggerates the risks associated with circular business models. The financial sector argues that circular economy projects applying new technologies and business models are inherently risky and therefore often not bankable. It is clear that at this stage the main challenge of financing the circular economy is the risk, its perception and its assessment by the different players.

To remove the barriers to financing the circular economy, the European Commission set up the Expert Group on Circular Economy Financing. The group brings together experts from financial institutions, the business community, government, innovators and civil society from several Member States. The group is expected to provide advice on

<sup>4</sup> <https://circulareconomy.europa.eu/platform/>

<sup>5</sup> <https://www.ellenmacarthurfoundation.org/publications/achieving-growth-within>

how these barriers could be removed. The experts have analysed the current situation and identified a number of specific barriers (see the background paper in Annex 1). They have also concluded that seven types of incentives have to be provided to overcome the problem — incentives related to markets, value chains, business models, product users, public policy objectives/societal goals, financiers and consumer demand.

In order to develop concrete solutions for introducing these incentives through actions by different stakeholders, the expert group worked in three subgroups. Each subgroup developed recommendations for one of the three targeted stakeholder groups — policy makers, financial institutions and circular economy project promoters.

This paper presents the summary of the discussions in the expert group and proposes three sets of recommendations that, if implemented, should together provide a framework that significantly improves access to finance for circular economy projects. The actions range from rather technical and short-term measures, e.g. to develop a definition of circular economy projects, to long-term and complex measures involving legislative changes at EU and national level. However, these recommendations should be seen as a whole, addressing the main problem — the risk associated with circular economy projects — from different perspectives and by different actors.

Despite being comprehensive these recommendations do not include all measures necessary for an effective transition from a linear to a circular economy. For example, experts discussed the role of education, and it was unanimously agreed that educating the general population is important if consumer behaviour is to change. It was concluded that issues of such a general nature fall outside the scope of this paper. Again, the guiding rule for setting the scope of the paper was to consider whether the measure helps to mitigate the financial risks of circular economy projects and has significant short or mid-term effects.

It is expected that the recommendations will contribute to the ongoing work of the European initiative on sustainable finance. The European Commission has adopted the action plan on sustainable finance<sup>6</sup> and proposed a number of measures to improve conditions for sustainable finance with a focus on financing climate change mitigation and adaptation as a matter of priority. This report and the Expert Group on Circular Economy Finance can provide valuable input when in future the work on EU sustainable finance is expanded to cover the circular economy.

The members of the expert group hope that the targeted stakeholders will consider the recommendations and implement them to the best of their ability so that the financing of the circular economy is unlocked, bringing benefits to businesses, investors, the environment and society as a whole.

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<sup>6</sup> For an overview, see [https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance\\_en](https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en)

## How to read this document

This report aims to help speed up the transition from a linear to a circular economy by improving the conditions for financing circular economy projects. For this, the report presents recommendations to three main stakeholder groups:

**Section 1:** Recommendations to financial institutions

**Section 2:** Recommendations to project promoters

**Section 3:** Recommendations to financial and non-financial policy makers

Each recommendation is presented in response to a general or specific problem that has been identified. It describes the actions that need to be taken, the main actors responsible for or capable of implementing the action, the role of EU policy makers and the expected impact of the actions.

**Annex I:** *How to get circular economy markets to work?* explains why it is necessary to move from a linear to a circular economy. The annex presents seven incentives that influence behaviour and decisions. When aligned, these incentives can help make the circular business approach the preferred one.

**The executive summary and the conclusions** give a concise overview of all the recommendations presented in the report and emphasise the importance of incentives to overcome barriers in the transition to a circular economy.

## Executive summary

The transition to a circular economy in the EU is at an early stage. The activities of economic operators are influenced by the systems that have been developed and optimised for the prevailing linear production and consumption systems. Regulations, markets, investment tools and practices, including financial risk assessment, are adjusted to linear models, and externalities linked to linear business models are largely not taken into account. This poses a problem for the emerging circular models, which have to contend with the challenge of accessing finance, as the financial sector sees circular projects as highly risky and often not bankable.

To improve the conditions for financing circular economy projects, the Expert Group on Circular Economy Financing analysed barriers and identified the main areas where incentives need to be provided. These areas include:

- ⊕ *Level playing field:* These will enable circular businesses to have a better chance of competing and succeeding in the market. They will result in better financing conditions for their businesses and fair access to markets.
- ⊕ *Value-chain collaboration:* different organisations in the value chain need to collaborate to optimise the circular solution, as resources and materials remain in a constant loop. This value-chain collaboration needs to be enabled and rewarded.
- ⊕ *Long-term value creation:* there should be actions to incorporate and reward product longevity in business models.
- ⊕ *Market participation:* end-users play a crucial role in the value chain to make products circular. Typically, this is the part in the value chain where products turn into

waste. There is a need to ensure better participation of consumers and end-users to change this behaviour.

- ⊕ *Integration of the public good:* the cost of negative externalities and the benefits of positive externalities need to be considered in order to allow circular companies to compete more fairly. On average, companies that price externalities contribute more to public goals and/or reduce societal costs.
- ⊕ *Finance knowledge build-up:* financiers who often struggle to quantify linear risks and fail to reward circular businesses need to know more about circular models. It is important that financiers and investors understand the differences in order to be able to correctly value the business model and its longer term economic potential.
- ⊕ *First mover's action:* market demand pull is part of the success of new business models. This demand pull works as a magnet for new entrants and/or current businesses to change their operational and commercial models.

Based on the analysis of barriers and incentives, the recommendations are addressed to three stakeholders groups — policy makers, financial institutions and project promoters:

## 1. Recommendations to the financial sector

- 1.1. Develop definitions, taxonomy and tools to measure the ‘circularity’ of projects by setting up a multidisciplinary working group of recognised experts with a clear mandate and working plan.
- 1.2. Analyse the risk of linear business models and adjust credit risk assessment methods to take into account linear risks.
- 1.3. Establish risk-sharing financial instruments and create a pool of experts available for financial institutions to assess the technological risk of innovative circular technologies.
- 1.4. Clearly label financial instruments fit for financing circular economy projects and increase awareness and knowledge of the circular economy within the financial sector.

## 2. Recommendations to project promoters

- 2.1. Identify circular sources of revenue and update the organisation’s strategy through a series of actions such as scanning existing processes, developing new business models, assessing risk, etc.
- 2.2. Take part in collaborative communities of circular economy practices to identify opportunities and form business partnerships to implement circular economy business models or projects.
- 2.3. Disclose the project’s environmental and social benefits through credible, standardised methods.

- 2.4. Increase the organisation’s internal capacity to design and implement circular economy projects by training staff and using external advisory services.

## 3. Recommendations to policy makers

- 3.1. Recommendations to financial policy makers
  - 3.1.1. Develop reporting standards for the linear risks of investments and companies and incorporate them into standard accounting practices. Ensure that linear risks are sufficiently evaluated and disclosed.
  - 3.1.2. Develop a definition of circular economy finance for use within the EU by classifying circular economy activities (developing a taxonomy) and setting criteria and benchmarks for the environmental performance of circular economic activities (linked to the recommendations provided under Section 1.1.).
  - 3.1.3. Establish technical and financial advisory services to support the development of business models for circular economy businesses or projects seeking finance.
  - 3.1.4. Prioritise the financing of circular economy projects and businesses within the *InvestEU* Fund.

### 3.2. Recommendations to non-financial policy makers

#### 3.2.1. Create favourable framework conditions for circular economy projects through specific policy actions:

- 💡 Develop metrics and indicators for the national, regional and corporate level.
- 💡 Set targets at national, regional and sectoral level.
- 💡 Map and eliminate subsidies to the linear model and consider setting up financial/fiscal incentives for the circular economy.
- 💡 Ensure that extended producer responsibility (EPR) schemes support eco-design for the repair and recycling of products placed on the market by modulating financial contributions paid by producers in order to foster repair activities and achieve an increasingly higher quality of recycled materials.
- 💡 Set the target date for ending landfilling in individual Member States or the whole EU and reduce landfilling rates.
- 💡 Set benchmarks for the circular aspects of products on the EU market. Reward the best performing products via fiscal and reputation tools.
- 💡 Perform a fitness check on all relevant policies and regulation.

#### 3.2.2. Make public authorities act as facilitators of a circular economy:

- 💡 Perform an analysis of the potential of having a circular economy at different geographical scales. Develop national and regional strategies for the circular economy and link them with regional development strategies.
- 💡 Link the circular economy with climate mitigation and industrial policies.
- 💡 Create collaborative platforms to

facilitate business collaboration on circular economy projects within and between value chains.

- 💡 Make the public sector apply circular business models, e.g. in public enterprises.
- 💡 Enable public authorities to ensure the financial viability of circular economy projects.
- 💡 Create markets for circular economy projects and products, e.g. via public procurement.

The relevant actors (financial players, potential project promoters and policy makers,) should take responsibility and implement the recommendations presented. The financial players are commercial banks and other private investors, the EIB and other multilateral development banks, national promotional banks and other public investors as well as consultancies, credit rating agencies, etc. Potential project promoters, who form an important group of actors, are businesses (from large corporations to SMEs) whose capacity to innovate and develop viable circular economy business models and concrete projects will be key to ensuring the success of the circular economy transformation process. Policy makers refer to governments at all levels including the EU institutions, and national, regional and local administrations.

**1.**  
**RECOMMENDATIONS  
TO FINANCIAL  
INSTITUTIONS**



Existing financial products offered by public and commercial financiers can already open up a world of opportunities for entrepreneurs who would like to develop a circular business. While large businesses are often capable of financing the circular transition internally through retained earnings, young and fast growing firms are often dependent on external financing for growth. Circular businesses or projects are considered more complex, thus resulting in higher risks compared to standard investment deals. This implies that investors would demand a higher premium on the capital they provide, a premium proportionate to the risk profile of the company or the project.

When measuring risk, two main factors have to be taken into account. The first is the creditworthiness of the borrower (or the risk profile of the project), while the second is the value of the collateral (e.g. underlying assets or contracts). As new circular business often does not have a strong track record, these companies can easily be labelled as highly risky. Often initial investments to innovate and access the market are high, which may have implications for margins in the short run but may lead to a quite profitable company in the longer run. The value of the collateral is measured by the market value of the company, where the valuation of assets (and their residual value) plays an important role. Asset valuation in a linear system is quite different from valuation in a circular system (with well-developed second-hand markets).

Many financiers are not familiar with the circular economy, and in particular with the correct assessment of risks (linear and circular) and opportunities, which hampers the bankability of circular economy projects and businesses. It is essential that more knowledge be developed (assessment guidelines and methods, associated indicators/metrics, etc.) and disseminated, and more training provided.

This section presents a set of key problems and recommendations for financial institutions and their partners to help them develop the necessary expertise to increase their investment appetite towards the circular economy and properly

deploy existing and potential new debt and equity instruments.

At the core of the problem lie the techno-economic appraisal, the assessment of the financial impacts of circular economy projects, and the availability of associated key indicators. Among other things, this will allow stakeholders (including project promoters) to better manage and assess circular projects and business plans, and as such increase their financing prospects (bankability).

The expert group has identified the following key problems:

- 💡 insufficient clarity on the financial/industrial scope of a 'circular economy' project (related to a definition and a taxonomy);
- 💡 lack of or insufficiently developed risk assessment methodologies for circular projects and businesses;
- 💡 how can a linear investment be made circular, by, for instance, changing an existing company's supply chain and production process to eliminate negative impacts on the environment and reach zero waste or by changing the eligibilities/requirements of new/existing financial instruments?
- 💡 how can a level playing field be created between linear circular investment decisions by including the financial and non-financial impacts of the project's delineation (externalities)?

These and other challenges will be addressed in the sections below.

## 1.1. Circular economy project definition, taxonomy and measurements

### Problem

In order to increase levels of financing to the circular economy, it is essential to develop a common understanding of what the circular economy is. This means first of all developing and agreeing on eligibility criteria (what makes a project/project component/business circular) for existing and new financial instruments, but also for monitoring purposes and for assessing the additionality of circular projects versus linear projects. This refers to the ability to measure the impact of a circular project, which may increase the project's prospects of being bankable.

More specifically, the absence of a commonly accepted and sufficiently inclusive definition (meaning a definition that recognises that circular projects do not need to be 100 % circular, but may have circular components) of what makes a project or project component<sup>7</sup> or business 'circular', and the measurement of the degree of circularity, needs to be addressed.

The lack of a commonly accepted and sufficiently inclusive definition and circularity measurement methodology hampers the transition to a more circular economy in multiple ways. Among other things, it hampers the development and access to (dedicated or non-dedicated) finance, credit risk assessment, and the transferability and replicability of projects and investments across regions and jurisdictions. During the expert group's work, the EIB published a first version of its circular economy guide — The EIB Circular Economy Guide: Supporting the circular transition (see the box in paragraph 1.1.2).

<sup>7</sup> E.g. leasing but only when leasing is not the standard business model of the industry/sector and there is an explicit life extension.

### Objective

Further build on existing definitions and taxonomies (like the EIB Circular Economy Guide or the Circular Economy Finance Guidelines developed by a consortium of Dutch banks comprising ABN Amro, ING and Rabobank with contributions from members of the FinanCE working group) and develop a widely accepted definition and taxonomy of circular economy projects and businesses. The definition and associated eligibility need to be sufficiently inclusive, as circular economy projects do not have to be fully circular but may have substantial circular components that by themselves are essential to the overall level of the project's circularity.

Develop a methodology that will enable the financial industry (and other stakeholders) to:

- 💡 identify circular economy investment opportunities;
- 💡 measure and quantify the 'degree' of circularity of a project and/or entity, and therefore the incremental economic, social and environmental impact of the circularity embedded in the project;
- 💡 evaluate and measure how relevant an entity's circular economy project is to that entity's transition to a circular business model;
- 💡 compare the circularity and linearity of projects and/or entities in terms of economic, social and environmental benefits: the incremental benefit of a circular project compared to a linear project;
- 💡 assess whether a linear project can be transformed into a circular one at a comparable risk and return level.

### Specific recommendations

Set up a multidisciplinary working group of recognised experts with a clear mandate and working plan for the problems presented above.

As a starting point, the Group should take stock of existing circular economy definitions, taxonomies, circularity measurements, and impact assessment methodologies. The Group could build on existing material, like the EIB Circular Economy Guide or the Circular Economy Finance Guidelines published by the Dutch Banks ABN AMRO, ING and Rabobank.

The circular economy definitions and the taxonomy used by the financial sector should be compatible with concepts used in EU and national circular economy policies and legislation and with the idea that an appropriate level of harmonisation is achieved across the EU financial sector. The financial sector should develop the definitions and taxonomies in close collaboration with or within the processes and platforms established for this purpose by policy makers as recommended in the complementary recommendation 3.1.2. Therefore this Group's work should be strongly coordinated with and build on the work already done within other relevant expert groups, like the Technical Expert Group on Sustainable Finance (TEG)<sup>8</sup>. The TEG is tasked with developing an EU classification system (taxonomy) to determine whether an economic activity is environmentally sustainable.

## Actors

The relevant actors may come from different segments of the financial sector, including commercial banks, national promotional and international development banks, investment funds as well as rating agencies and auditors, and in particular:

- 💡 experts in the measurement and assessment of green/climate and societal impact like green bond issuers, entities responsible for assessing the green and sustainability impact of these bonds (rating agencies (Moody's), Sustainalytics, etc.);
- 💡 experts from commercial banks active in the circular economy (e.g. Working Group FinanCE);

- 💡 experts from investment funds with a track record of investing in the circular economy (e.g. Circularity Capital);
- 💡 experts from national and supranational lending institutions, including the European Investment Bank with a track record in assessing and financing circular projects;
- 💡 national experts specialised in the legislation and circular economy initiatives being developed or implemented across the EU;
- 💡 European Commission circular economy experts.

## EU role

The initiative could be coordinated by the European Commission in cooperation with the EIB, and should involve the actors mentioned above. It would be developed in the framework put forward by the Commission in its proposal<sup>9</sup> on developing a sustainable finance taxonomy.

## Impact

It is expected that the impact of the suggested actions will:

- 💡 enable the financial industry to identify circular economy projects, project components, and entities;
- 💡 ensure a common, single standard and alignment between the financial industry and the other circular economy stakeholders (policy makers, regulators, corporates and public sector, research and technology organisations (RTOs, etc.), which is key to supporting the EU transition to a more circular economy;
- 💡 allow project promoters to identify and adjust their project design in order to qualify their project, or project component, as circular or circularity enabling;

<sup>8</sup> [https://ec.europa.eu/info/publications/sustainable-finance-technical-expert-group\\_en](https://ec.europa.eu/info/publications/sustainable-finance-technical-expert-group_en)

<sup>9</sup> COM(2018) 353 final

- 💡 enable all circular economy stakeholders to develop a sustainable and long-term circular strategy, with adequate long-term commitments of capital and resources. In particular:
  - ⊕ for the financial industry to develop a circular economy financing strategy;
  - ⊕ for project promoters (corporates and public sector) to identify and implement a circular economy transition;
  - ⊕ for circular businesses to prove they are circular;
  - ⊕ for policy makers to ensure consistency in policy making in different policy areas;
  - ⊕ for regulators to ensure that laws and regulations are consistent;
  - ⊕ for RTOs and other research organisations to have the necessary certainty that the (circular economy) research, development and innovation will have the desired impact.

## 1.2. Absence of a credit-risk assessment methodology fit for circular economy projects

### Problem

Circular economy business models and projects face a wide range of risks ranging from market/value chain risks, (e.g. supply of feedstock, volume and price, demand for products such as secondary raw materials) to technological risk (e.g. unproven technologies), operational risks, cash flow risks (e.g. delayed cash flows as a result of pay-per-use models), legal risks (e.g. maintenance and/or take back obligations, responsibilities in case of damage) and client risks (e.g. change in client base and behaviour).

A first step when deciding whether to finance a circular project or business is to assess the associated risks, which will be reflected in a higher required rate of return or risk premium. In view of the particularities of the circular economy, this is not straightforward. Assessing the risks of a circular project or business should be related to the assessment of its counterfactual, a linear economy project or business. Investors become increasingly aware of the linear risks as a result of the 'take, make, use, discard' model. Circle economy<sup>10</sup> refers to the exposure to linear risks like market risk as a result of resource scarcity or price volatility, operational risks like supply chain failures, or even reputational risks as a result of negative publicity and lower credit ratings.

The financial industry's tools to assess credit risk are often less sensitive to the specific nature of the risks posed by the circular component of projects or entire projects. This also applies to the assessment of the linear risks, especially for long-term financing.

1. Existing models insufficiently capture the specific financial profile (e.g. asset ownership, cash flow dynamics, depreciation) of circular economy business models and projects.
2. For the linear industry, they do not always identify the risks of remaining in the linear model (e.g. climate, societal, regulatory, tax, etc.), while for the circular industry, they fail to value the benefits/risk mitigants of circularity, often resulting in penalising effects.

### Objective

The objective is to deepen the understanding of circular versus linear risks and improve their assessment by developing new assessment methodologies and/or by fine-tuning existing ones. Linear investment propositions should be assessed by taking into account potential negative externalities, while circular economy propositions should take into account the longer terms

<sup>10</sup> <https://www.circle-economy.com/wp-content/uploads/2018/06/FINAL-linear-risk-20180613.pdf>

benefits and the positive externalities. Only this will result in a level playing field in which circular business will not be penalised because of incorrect presumptions.

### Specific recommendations

In response to the problems described above, the following recommendations can be made:

1. Assess the existing (linear) credit risk assessment methodologies in order to identify which linear financial metrics are most affected by circular projects and businesses. Subsequently, develop alternatives measures and/or suggest necessary adjustments to improve the comparability between linear and circular models in the different sectors (i.e. ensuring comparability of the financial metrics of circular and linear projects).
2. Recalibrate the risk measurement methodologies of linear projects and companies to take into account linear risk. Recalibrating should aim to identify, standardise and introduce in the methodologies a set of measurable and relevant parameters measuring linear risk (e.g. regulatory risk, raw material or component-related risk, environmental and social risks and liabilities, etc.) (i.e. accounting for linear risk).

### Actors

The actors are financial institutions that perform risk assessment as part of their operations as well as consultancies, rating agencies, auditors and other experts who assess and evaluate how well the financial institutions take risk into account.

### EU role

In view of the specialised nature of this work, it is suggested that the European Commission together with the EIB and other financial institutions facilitate the work of developing new risk assessment methods or improving existing ones. This could start with a mapping and analysis of existing risk assessment methodologies in the EU and a preliminary analysis of the extent to which

these approaches need to be adjusted. This work should be guided by a group of external experts and should be implemented in close cooperation with similar initiatives undertaken by the Working Group FinanCE and Circle Economy.

### Impact

The impact on mobilising finance for the circular economy is expected to be substantial. This work will lead to credit risk assessment methodologies that are fit for measuring the risk of circular economy business and associated financial models. It will allow for a true comparison of risks between linear and circular investment opportunities, lead to standardisation and ultimately reduce the barriers preventing access to finance for circular businesses and projects. One of the expected positive impacts of better assessing circular risks and in relation to that quantifying capital needs will be that financing circular projects will not always lead to increased requirements on capitalisation of financial institutions.

## 1.3. Addressing technology-related risks in a circular project or business

### Problem

Moving to circularity means that products have to be designed in such a way that they are easier to maintain, repair, upgrade, dismantle, remanufacture, or recycle and/or that less resource intensive materials have to be used. This is also valid for the production processes that need to be optimised to reduce the raw material needs and increase the re-use potential and recyclability of industrial and other products, by-products and waste streams. As a result, circular economy models are characterised by significant technological and operational risks (lack of track record, high ramp-up/implementation risks), very often combined with market uncertainties/risks. These risks and opportunities are in many cases not well understood by the financial

community, which in general still needs to catch up in terms of knowledge and overall affinity/comfort.

A substantial share of circular economy projects comes with significant technology and commercialisation risks (among other risks), hindering investments by the financial industry. More specifically:

1. the financial industry often does not have the resources to assess complicated technology risks, and even less so as new technologies become increasingly specialised (often referred to as 'knowledge asymmetry');
2. providing return-based finance requires a degree of certainty that the project/promoter is able to generate the cash flows (commercialisation prospects) needed to serve the expected investors' returns. In the absence of such commercialisation prospects or the correct assessment of such prospects, financing is not viable;
3. cost of capital: the financial industry has to cover the risks of their investment with the allocation of regulatory capital. Simply put, the higher the project risks, the higher and more costly the regulatory capital allocation requirement will be. Again, a correct assessment is important.

## Objectives

The objective of this action is to support the financial industry in de-risking technology/market risks by:

1. enhancing and applying the models public-private blending of financing;
2. obtaining access to expert knowledge that will help to better assess the technology/market outlook embedded in circular economy projects;
3. supporting research and innovation to constantly develop *Best Available Technologies* on implementing the circular economy.

## Specific recommendations

1. For objective 1, the financial sector should identify and explore the viability of alternative financial solutions that de-risk or redistribute the technology, commercialisation and sustainable development risks. The risk-sharing financial instruments should be able to absorb the technology and market risks associated with circular economy projects.

Technology-driven circular economy projects should be able to benefit from better access to first-of-a-kind financial instruments to show the operational effectiveness of unique/first-of-a-kind technologies towards broader commercialisation. An example of such an instrument is the InnovFin energy demonstration projects (EDF) facility that provides loans, loan guarantees and equity-type financing typically between EUR 7.5 million and EUR 75 million to innovative demonstration projects in the field of energy systems<sup>11</sup>. The instrument is deployed directly by the EIB in cooperation with the European Commission.

The risk-sharing instruments can be implemented with the participation of public funds through various public-private blending models (such as the InnovFin EDF facility referred to above). EU funds and programmes and national promotional banks and national public investment institutions should be in a position to de-risk circular economy projects, e.g. through the development of joint funds and investment platforms that crowd in private investors (see also recommendation 3.1.4. on the dedicated financial instrument).

2. For objective 2, explore the possibility of creating a pan-EU pooling of existing risk

<sup>11</sup> Source: <http://www.eib.org/en/products/blending/innovfin/products/energy-demo-projects.htm>

assessment expertise across the different fields of technology (potentially involving the specialised expertise in RTOs, competence centres, digital innovation hubs, etc.). This expert pool should be accessible to investors to evaluate project risk and assess technology and market opportunities for circular economy projects. At minimum, this should lead to the drawing up of a list of proven technology assessment service providers and the development of technology assessment guidelines for the use of these services. Also, demonstration projects are a means to prove success in certain circular economy projects, and this type of project should be encouraged.

3. For objective 3, exploit synergies between funds and dedicated measures coming from the financing model exercises, e.g. programmes such as Horizon Europe, Component 5 'Interregional Innovation Investments', Interreg Europe, the European Institute of Technology and other EU initiatives.

### Actors

The actors who need to implement this recommendation are private and public investment institutions, including commercial banks, private fund managers, international development banks, national promotional banks and public investment funds. For the recommendation on the pool of experts to perform circular technology assessments, the relevant actors are RTOs, technology verification institutions, technology centres and hubs, and specialised consultancies.

### EU role

The EU could stimulate the creation of de-risking instruments by using the EU funds and programmes to cover the risk component of these instruments. As discussed later under section 3.1.4, significant support to circular economy projects and businesses will be available from the InvestEU Fund, including the possibility to create specific risk-sharing financing instruments, building on the experience with the EFSI, InnovFin and

specific instruments like the Circular Bio-economy Investment Platform.

The EU could also play an important role in creating the pool of experts available to investors. The European Commission could take an initiative inspired by the results of the Horizon 2020 project 'Design and development of a tool to support and improve the decision-making process of investors for financing high-growth potential innovative SMEs'.

### Impact

The expected impact of the actions presented here is to act as a catalyst for investments in technology-driven circular economy projects. This would be achieved, on the one hand, by supporting financial institutions/investors with knowledge on a better technology/market risk assessment, and on the other hand, by reducing their exposure to risk through blended financial instruments.

## 1.4. Other factors influencing the bankability of circular economy projects and businesses

### Problem

As follows from the previous discussion, due to the presumed associated risks, circular economy projects or businesses, especially SMEs, face the challenge of having access to finance. In this section, we present some additional challenges, partially touched upon in the previous section.

1. The available financial instruments offered by commercial and non-commercial lenders are not always recognised by the market as being able to finance circular economy projects.
2. Often, project promoters, in particular SMEs, lack knowledge about what funding and

financial instruments are available and fit for circular economy projects/businesses (see also recommendations addressing project promoters in the next section).

## Objectives

The objective of the actions under this section is to further improve the bankability prospects of circular economy projects/businesses. The recommendations presented here should be read in conjunction with the recommendations presented above.

## Specific recommendations

1. In response to problem 1 above, the existing financial instruments and grants fit for circular economy projects should be clearly labelled, so that project promoters and investors in the financial industry are aware of which financing is available and fit for purpose.
2. In response to problem 2, consideration should be given to setting up mechanisms to help commercial banks and other investors better understand the circular economy. The possibility should also be considered of helping SMEs, for instance through national promotional institutions, to prepare the credit story and improve the bankability of sound circular economy projects. The European Investment Advisory Hub is already working with the national promotional institutions/banks to address in part this issue of greater bankability.

## Actors

The relevant actors to be involved in this action are commercial banks and other private investors, national promotional institutions and banks.

## EU role

The European Commission, in collaboration with the EIB, national governments and national promotional banks, and commercial investors, can play a pivotal role in implementing the recommendations.

## Impact

The impact of the actions presented above will materialise on different levels:

- 💡 improved awareness of existing fit-for-purpose finance will improve access to finance and potentially mobilise additional investments for the circular economy;
- 💡 identification of (the drivers of) the circular economy funding gap/access to finance challenges, and associated potential interventions may result in the development of financial instruments dedicated to the circular economy;
- 💡 the risk/return of circular economy projects will be adjusted to levels that can be financed via return-based market mechanisms;
- 💡 improved understanding and knowledge of the circular economy among commercial banks and other investors and support to project owners (particular SMEs) in developing their credit story may lead to the development of better business plans and the mobilisation of financing for the circular economy.



## 2. RECOMMENDATIONS TO PROJECT PROMOTERS<sup>12</sup>

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<sup>12</sup> In the context of this paper, a promoter is an individual or organisation that helps raise awareness, develops, and/or collects the necessary money for investment activities enabling the individual or organisation to become more circular, via its own activities, or via incentives to their own value chain stakeholders. According to this definition, every board member, investor, manager, employee is a potential promoter of a circular economy project. However, all of these stakeholders have their own specific interests, key performance indicators, knowledge, network, risk-taking profile.

The business and financial complexities inherent in many circular economy projects pose an additional challenge to project promoters when approaching investors or seeking finance. Project promoters, in particular SMEs, do not have the expertise and resources to structure and prepare a sound credit story to investors and improve their bankability prospects. As a result, projects that have the potential of being commercially viable fail to access finance or the right form of finance.

This section addresses specific recommendations to the large and diverse group of potential project promoters within all kinds of organisations (i.e. SMEs, midcaps, multinationals, governmental bodies, public-private partnerships, business clusters, NGOs, etc.). These are the key economic actors in the transition to a circular economy, as they typically are the main forces that shape the market for products and services, anticipating or responding to consumer demand, societal aspirations and public goods objectives.

The principal goal of project promoters should be to succeed in correctly identifying, conceptualising and developing circular economy business models and projects that are both economically sound and bankable, and congruent with a long-term development vision and strategy for the transition to a circular economy.

Awareness raising both of internal organisations and external stakeholders (including within and across value chains) is key in this context.

## 2.1. Identify new circular economy sources of revenue and/or review the organisation's strategy

### Problem

In the absence of external incentives or compliance requirements, many organisations lack the capacity, knowledge, expertise and support to initiate and drive the transformation to a circular economy and pursue the commercial opportunities associated with circular economy business models.

### Objective

Increase the capacity of project promoters to identify and understand circular economy business opportunities. Create the conditions for project promoters to initiate, facilitate and implement (innovative) circular economy projects.

### Specific recommendations

Each organisation has its own strategic and operational dynamics and business culture which determine the preferred 'direction' for creating and implementing the required changes supporting circular economy initiatives. The recommendations presented below are general and may need to be customised to different project promoters to reflect this diversity of approach and management culture:

- 💡 introduce and institutionalise management involvement at the highest level in defining/interpreting 'circular' as a strategic priority for business and operations, identifying and formulating measures that can be undertaken to introduce circular principles in the organisation and in the business model;
- 💡 review existing organisational and operational arrangements to assess the existing activities that have the potential to trigger circular behaviours and generate business opportunities;

- 💡 Explore and elaborate new business model options that incorporate:
  - ⊕ strategies to create circular value which act directly upon the material and product resources in the business model (e.g. repair, material recycling/upcycling);
  - ⊕ value proposition strategies which deliver circular value to customers (e.g. product-to-service system, asset sharing);
  - ⊕ strategies to create value through networks which support the involvement of actors beyond the company borders in order to achieve circularity across networks (e.g. industrial symbiosis, value chain collaboration).

To implement these recommendations, specific tools and management systems need to be developed. Some resources (e.g. [www.circulator.eu](http://www.circulator.eu)) are already available and could be used as a basis for further developments and methodological work leading to:

- 💡 circular strategies and visions which reflect the involvement and response of key staff and relevant value chain actors, e.g. clients, suppliers, governmental bodies, shareholders, stakeholders, etc.;
- 💡 cost-benefit models which evaluate circular and linear risks and allow comparison of alternative business scenarios;
- 💡 customisable action plans based on the collaborative involvement of key staff in the organisation and that enable implementation strategies to be optimised based on the resources available and expected market response;
- 💡 key performance indicators (KPIs) for goals and accountability that are consistent and aligned with sectoral, regional and/or country targets.

## Actors

Different actors are targeted by this recommendation at various levels of responsibility. Typically, the most effective actors could be committed individuals inside or outside the organisation who have both knowledge of the organisation's culture, networks and value chains and are motivated to drive change, and who can link the organisations' incentives to grow with the (business) opportunities within the circular economy.

## Impact

This recommendation will help to bring the mainstream activities of businesses/organisations into the circular economy, increase awareness and understanding of risks linked to the linear economy, increase the knowledge/information on the commercial opportunities and leverage points for circular change in businesses/organisations and enhance knowledge and capacities for implementing the necessary transformation processes leading to a circular business model.

In addition, this recommendation would help create new cross-cutting professional roles and functions able to trigger and manage change and develop concrete result-based actions and activities.

## 2.2. Establish collaborative arrangements across different organisations within and between value chains

### Problem

Organisations are in general reluctant to engage in collaborative partnerships and share business-related information with other businesses as a basis for developing circular economy business models and projects. This is due to the inadequate knowledge about circular economy opportunities and the

lack of capacity to identify and implement concrete actions and to the limited incentives to cooperate within existing linear value chains.

## Objective

Demonstrate the commercial value of collaboration within and between organisations to create circular behaviours and business practices. Collaborative actions, when properly designed, implemented and supported, maximise value and lead to an optimal allocation of risks, costs and profits across different business actors. In addition, such actions improve business resilience and mitigate the effect of market volatility.

## Specific recommendations

Contribute to the formation and strengthening of collaborative circular economy communities, partnerships and networks ('Communities of Circular Economy Practice') within economic sectors, value chains and regions as a means of increasing the knowledge base and sharing experiences on circular economy policy, strategy, business models and projects. The structure, duration and organisation of these 'Communities of Circular Economy Practice' could evolve in time depending on their specific purpose, which may include:

- 💡 promoting general awareness and a knowledge exchange between various circular economy stakeholders (e.g. on how to optimise the procurement of circular products and services by developing common quality/performance and commercial requirements);
- 💡 providing policy feedback jointly to public authorities and regulators on the removal of barriers to the development of the circular economy in specific geographical, sectoral or technological contexts;
- 💡 developing circular economy projects involving innovative technologies and business models (e.g. defining the value proposition, finding solutions to technological challenges, sorting out contractual arrangements between partners and with customers, financial modelling

and financing strategy, risk mitigation measures, etc.);

- 💡 experimenting with new types of collaborative cross-sectoral partnerships.

There are several examples of collaborative initiatives, which can be considered for replication or as a basis for further development:

- 💡 policy advice, the Circular City Deal (Netherlands): <https://www.circle-economy.com/dutch-cities-governments-and-businesses-commit-to-circularity-through-a-new-city-deal/>
- 💡 public-private partnerships, Circular Flanders (Belgium): <https://circularflanders.be>
- 💡 Green Deal on Circular Procurement (Belgium/Netherlands): <https://vlaanderen-circulair.be/nl/onze-projecten/detail/green-deal-circulair-aankopen> & <https://www.circulaironderneemen.nl/circles/green-deal-circulair-inkopen>
- 💡 circular business support programme (Belgium): [www.circulareconomy.brussels/?lang=en](http://www.circulareconomy.brussels/?lang=en)
- 💡 Circular Economy Business Support Service (Scotland): <https://www.zerowastescotland.org.uk/circular-economy/business-support-service>
- 💡 circular business model development, Fairphone as a service (Netherlands): <https://www.fairphone.com/en/2018/01/08/from-ownership-to-service-new-fairphone-pilot-for-companies/> and <https://www.circle-economy.com/access-over-ownership-the-road-to-fairphone-as-a-service/>
- 💡 SUN — Symbiosis Users Network, the first Italian network on industrial symbiosis, <http://www.sunetwork.it/>

## Actors

- 💡 Every organisation in a value chain, with a focus on the actors dealing with the design of products or services.
- 💡 Government bodies and a public-private-solution (PPS) structure/structures that can facilitate collaboration between companies (e.g. Industrial Symbiosis Platforms like NISP — <http://www.nispnetwork.com/> or ‘Symbiosis’, the first industrial symbiosis platform in Italy, <https://www.researchitaly.it/en/projects/industrial-symbiosis-towards-new-models-oriented-to-environmental-sustainability/>)

## Impact

This recommendation will help to bring the mainstream activities of businesses into the circular economy. It will increase awareness and understanding of the risks linked to the linear economy, increase knowledge/information about the opportunities and lead to a clearer identification of the leverage points for circular change in businesses. It will also enhance knowledge and capacities for implementing the necessary transformation processes leading to circular business models (at value chain level) with broader benefits for the economy as a whole (at regional/national level).

In addition to the positive impacts on knowledge creation, setting up collaborative partnerships and networks to prepare innovative circular economy projects can align business interests and improve the definition of roles and responsibilities between the various partners involved. The resulting optimisation of risk allocation can improve the economic viability and bankability of projects, with better access and conditions for financing, and make projects more attractive for investors.

## 2.3. Assess and disclose the environmental and social benefits

### Problem

Monitoring market, economic and financial parameters is a standard practice for businesses, including SMEs. However, the practice of measuring, assessing and making informed decisions based on the environmental and social impacts of business activities (products and services) is not yet consolidated especially for the life-cycle footprint of products and materials. Several methodologies are gradually emerging and increasingly being adopted. Most fail, however, to reflect risks and impacts associated with linear business practices and do not provide the tools to manage response actions and mitigating measures.

### Objective

To incorporate consideration of externalities in business and investment decision-making and to disclose the business, societal and environmental risks and benefits of circular activities and projects.

### Specific recommendations

- 💡 Develop reliable and standardised environmental and social impact assessment methods and tools applying systemic and life-cycle approaches.
- 💡 Measure, assess and disclose the environmental and social performance and track progress towards sustainability and business objectives.
- 💡 Develop dedicated guidelines and tools to support management decision-making processes in the organisation and facilitate evaluation by external stakeholders. Such methods/tools may include:
  - 📦 life cycle thinking & assessment (e.g. the EU product environmental footprint, PEF or organisational environmental footprint, OEF);

- ⊕ environmental management systems (EMAS, ISO 14000);
  - ⊕ corporate social responsibility schemes (e.g. ISO 26000);
  - ⊕ recognised product labelling schemes;
  - ⊕ cost-benefit analysis (CBA).
- 💡 Develop metrics and indicators that describe the social benefits of the organisation's circular activities from the perspective of the SDGs.

### Actors

Environmental and social assessment experts, corporate managers and purchasers, public procurement actors (government policy makers and purchasers in public organisations). In addition, investors, rating agencies, NGOs.

### Impact

The use of environmental and social impact assessment methods and tools applying systemic and life-cycle thinking will provide business managers and potential investors with better and objective information on the environmental and social performance of circular economy projects and business models and contribute to a better overall assessment of their economic viability and sustainability.

## 2.4. Develop internal capacity

### Problem

Organisations often lack dedicated internal resources with the necessary time, expertise and skills to lead and coordinate in the conceptualisation, preparation and implementation of circular economy strategies, initiatives and projects.

The lack of the required skills and expertise is particularly important as the availability of advisory

services specialised in the circular economy is limited in the market. As a consequence, organisations struggle to acquire and develop the necessary knowledge to identify and assess circular economy business opportunities and initiate innovative business models and projects.

Knowledge barriers include (among others):

- 💡 a rationale for a transition to a circular economy and the associated opportunities in the own sector/market of operation (cost-benefit analysis)
- 💡 assessment of risks linked to the linear economic model and their potential negative impacts on the environment and on the business (e.g. increased supply disruptions, price volatility of key materials and resources, technological obsolescence, changes in regulation, changes in consumer preferences, reputational risk associated with environmental impact)
- 💡 characteristics of circular business models and implications for both individual and value chain-oriented clusters of businesses, from the organisational, financial and commercial perspectives
- 💡 digital technologies supporting the circular economy
- 💡 certification systems and labelling schemes promoting circular economy principles
- 💡 legal and regulatory issues
- 💡 potential financing sources for investments.

### Objective

Raising the importance of the circular economy as a business and operational priority within companies by improving the capacity of managers at all levels to assess and initiate possible actions across all business processes which help to increase the level of circularity.

Induce knowledge-based strategic and commercial decisions informed by circular economy objectives and practices.

### Specific recommendations

💡 Support the development of internal capacities (e.g. training of staff) with the necessary knowledge and skills to lead and coordinate in the conceptualisation, preparation and implementation of circular economy strategies, initiatives and projects.

💡 Create internal incentives within companies that reward circular economy solutions.

💡 Allocate specific resources for the circular economy at (inter-)organisational level i.e. to coordinate and induce cooperation across the specific value chain and/or within the sector.

💡 Unlock the potential in universities, RTOs and other innovation bodies (e.g. the European Institute of Innovation and Technology).

💡 Access specialised counselling/advisory services offered by various public and private organisations (SME circular economy promotion agencies in the public sphere, chambers of commerce, the EIB and national promotional banks, private commercial banks, circular economy incubators, private consultancy firms, etc.) to help managers and key staff to:

⊕ identify the potential for using resources more efficiently, and increase the circularity of products and processes (e.g. through eco-innovation and eco-design) and assess the impact in terms of new revenues or cost savings for the company (and economic/social/environmental benefits for the wider society);

⊕ identify and assess linear risks that may affect the own business;

⊕ develop a strategy, roadmap, action plan for transitioning to a circular economy;

⊕ identify and develop new circular economy business models and projects to exploit the potentials identified;

⊕ prepare business plans and financial models;

⊕ identify financing sources and understand the financing conditions involved;

⊕ invest in research and innovation toward a circular economy.

Examples of advisory services offered to project promoters:

💡 Fit 4 Circularity (LuxInnovation, Luxemburg): <https://www.luxinnovation.lu/innovate-in-luxembourg/performance-programmes/fit-4-circularity/>

💡 The Circulator (VITO, Circular Flanders, TU Delft, Radboud University for the EIT Raw Materials): <http://www.circulator.eu/>

💡 Circle Scan (Circle Economy, The Netherlands) <https://www.circle-economy.com/circle-scan-2/#.WvmgdpVKUk>

💡 European Investment Bank (via European Investment Advisory Hub and InnovFin Advisory): <http://www.eib.org/en/projects/initiatives/circular-economy/index>

💡 Circularity Compass (Circular Flanders, Belgium) (<https://ce-kompas.vlaanderen-circulair.be>)

💡 Circular Economy Policy Research Centre: <https://vlaanderen-circulair.be/en/summa-ce-centre>

💡 Intesa San Paolo Circular Economy Lab in Italy

## Actors

Senior managers in the organisation, shareholders, sector associations and business leaders.

Consultants, universities, NGOs, and advocacy organisations.

## Impact

This recommendation will help to bring the mainstream activities of businesses and commercial organisations into the circular economy, increase awareness and understanding of risks linked to the linear economy, increase investment in innovation and collaborative projects, increase knowledge about the opportunities and identification of leverage points for circular change in businesses and enhance the knowledge and capacity for implementing the necessary transformation processes leading to a circular business model and economy.

### 3. RECOMMENDATIONS TO POLICY MAKERS



A supportive, well-functioning, non-distortive policy and regulatory framework is a key precondition for the transition to a circular economic model. Such a framework should be designed to enable the intrinsic value of materials to be preserved or enhanced along production systems and value chains and to minimise at the same time the level of inputs of virgin materials.

There are several examples of effective EU, national and regional policies which support the increasing 'circularity' of economic systems. However, there is agreement among the members of the Commission's Expert Group on Circular Economy Financing that the current policy and regulatory framework is not sufficient for circular economy business models and value chains to thrive.

A well-functioning policy and regulatory framework ensures a level playing field for circular economy business models by eliminating legacy subsidies that reward linear behaviours and by fully pricing in risks and externalities associated with the linear production and use of materials. Such a framework facilitates and accelerates the allocation of capital to circular investments and activities. It stimulates private sector finance and allows optimal leverage of public funding.

The following four principles should be considered when formulating these policy interventions:

- 💡 value preservation/creation;
- 💡 proportionality (to the level of externality);
- 💡 progressive dematerialisation;
- 💡 sensitivity to innovation.

In addition, any policy development should reflect the principle of additionality, which is the need to ensure that new policy interventions integrate with and support the effective and timely implementation of existing related policies or enhance their impact. In any case the circular economy policy should avoid rebound or distorting effects, particularly

with respect to other EU policy objectives to reduce greenhouse gas emissions and achieve the SDGs.

The policy changes should also reflect the adaptive capacity of the businesses and include appropriate phase-in and phase-out mechanisms.

The following have been identified as a priority for policy interventions and have the potential to encourage a greater allocation of finance to circular economy business models and systems:

- 💡 subsidies should be removed and the negative externalities of linear economic activities internalised; where this is not politically feasible, subsidies (in a suitable, non-distortive form) to circular economic activities proportionate to their positive externalities should be considered;
- 💡 public tools such as public procurement should be used to accelerate the market for circular economy products and services;
- 💡 public funds should be activated as a 'de-risking' instrument to mobilise more private capital for scale-ups with a circular scope, for instance;
- 💡 technical assistance should be provided to help businesses and local administrations understand linear risks and the economic and societal benefits of the circular economy;
- 💡 'response measures' which mitigate the economic and social impacts of communities, sectors and regions particularly exposed to the legacy of linear economic systems (e.g., mining) should be introduced;
- 💡 market-based mechanisms that reward circular models should be introduced in combination with well-conceived policy measures to ensure the market for secondary materials;
- 💡 priority should be given to policy interventions that comprehensively address multiple environment, social and governance risks.

## 3. 1. Recommendations to financial policy makers

### 3.1.1. Linear risk disclosure standards

#### Problem

The current 'linear' consumption model of take (extract), make (produce), use and discard poses inherent risks to the sustainability of markets and the companies that operate within them. Without the systematic recovery and reuse of materials, value chains remain dependant on the availability of cheap virgin resources. For an individual company, such linear business models, defined by the reliance on cheap virgin resources, can affect operations and overall profitability through multiple future scenarios, including disruptions in resource supplies, volatility in resource costs and decreasing costs of renewable/circular alternatives. Such scenarios have played out already, particularly in precious metals markets where the global supply of a number of materials (e.g. cobalt) is already facing increasing availability risks. As these risks are associated with linear business practices, they are referred to as 'linear risks'.

Most companies and financial institutions are typically not taking these linear risks into consideration in their business decisions, investment credit evaluations or reporting procedures. This is mainly because of the perception of current market stability and the time-tested success of linear business practices in adapting to changes in global markets. As a result, investors and consumers are largely unaware of the possible detrimental factors that these risks pose on the performance of their businesses or investments.

#### Objective

In order to trigger a shift to a circular economy, the full risk profile of current linear business practices

must be disclosed. By evaluating linear risks, the benefits of circular economy models can be better understood in relation to business-as-usual scenarios.

The main mechanism for articulating these risks would be through risk and credit evaluations conducted by financiers and investors to provide a better understanding of the strengths and weaknesses of linear or circular investments.

Specific incentives need to be created to address the inertia of current, well established and time-tested linear business practices, which do not incorporate linear risks in the financial evaluations.

#### Specific recommendation

Developing reporting standards for the linear risks of investments and businesses and incorporating them into standard accounting practices could help to ensure that linear risks are sufficiently evaluated and disclosed. The reporting standards would provide a methodology for corporates and financial institutions to identify the exposure to linear risks within their portfolios or operations.

Relevant recent work on the definition of linear risks can be found in the paper Linear risks by Circle Economy, PGGM, KPMG, EBRD and WBCSD, June 2018. The paper proposes an initial definition of 'Linear Risks' and a framework to help investors and businesses better understand the exposure to the effects of linear economic business practices, which will negatively impact an organisation's ability to operate in the market place.

Dedicated linear risk standards could build on current best practice within climate-related risk disclosure systems. A good example is represented by the standards developed within the Task Force on Climate-related Financial Disclosures (TCFD) to develop disclosure recommendations for risks related to climate change. The task force states its mission as, 'to develop voluntary, consistent climate-related financial risk disclosures for use by companies in providing information to investors, lenders,

insurers and other stakeholders.<sup>13</sup> Set up at the end of 2016, the task force presented its recommendations report on best methods and practices for disclosing climate-related risks in the summer of 2017. Companies and investors are now using these recommendations to incorporate climate risk disclosures in their reporting to shareholders and other stakeholders.

Stemming from the TCFD's recommendations, linear risk disclosures could be documented in terms of companies' governance, strategy, risk management measures, and metrics and targets used to evaluate the impacts of these risks. For metrics and targets, the linear risk standards would emphasise potential material impacts on companies' income statements and balance sheets.

## Actors

The actors for this action are financial regulators, policy makers and representatives of the financial sector. There are three groupings of relevant stakeholders that can play an active role in incorporating linear risk reporting into financial disclosure practices.

### 1. 2018 European Commission initiative on sustainable finance, including through the EU Technical Expert Group (TEG) on Sustainable Finance.

The TEG on Sustainable Finance was convened in July 2018 with the mission of defining the EU's approach to scaling up and reporting its finance for sustainable projects and initiatives, in line with the Commission's sustainable finance action plan<sup>14</sup>. The TEG has four areas of focus where it will develop: i) a taxonomy to define whether an activity is environmentally sustainable; ii) an EU green bonds standard; iii) benchmarks for low-carbon investment strategies; and iv) recommendations on how to improve corporate

disclosure of climate-related information<sup>15</sup>. As environmental sustainability and the circular economy are complementary concepts, integrating linear risk considerations in the TEG's working areas would help to make the group's outputs more comprehensive.

Linear risk discussions do not figure prominently in the TEG's work. We suggest that this be part of future discussions on sustainable finance at EU level. With respect to disclosure, the TEG's experts would develop recommendations on how to assess and communicate linear risks within companies' portfolios or operations. The goal would be to provide the guidance that corporations need to inform their shareholders and other stakeholders about their climate and resource-related risks, while demonstrating how their governance, strategies and business models mitigate these risks.

With respect to the future development of sustainability benchmarks, this would incorporate circular economy concepts into their development of benchmarks to measure the environmental sustainability of investment strategies. The resulting benchmarks would help to link corporations' reliance on materially intensive value chains, scarce resources or volatile commodity markets to the climate impacts of these value chains, resources and markets. Corporations that demonstrate higher levels of circularity in their operations or investments would therefore be more likely to meet the benchmarks.

### 2. Private sector integration of linear risk reporting through the International Financial Reporting Standards (IFRS).

Linear risk disclosures could be formally integrated into the IFRS. These standards

<sup>13</sup> <https://www.fsb-tcfd.org/about/>

<sup>14</sup> COM(2018) 97 final

<sup>15</sup> [https://ec.europa.eu/info/sites/info/files/business\\_economy\\_euro/banking\\_and\\_finance/documents/190110-sustainable-finance-teg-report-climate-related-disclosures\\_en.pdf](https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/190110-sustainable-finance-teg-report-climate-related-disclosures_en.pdf)

provide a common set of principles for companies to prepare and publish their financial statements. Companies would then be commonly required to examine their portfolios and operations to determine their exposure to linear risks, and to examine their mitigation measures. Similar to the proposed work with the EU TEG, linear risk disclosure standards would need to be developed with the IFRS Foundation, particularly their International Accounting Standards Board.

### 3. Introduction of linear risks reporting standards through central banks facilitated by the **Network for Greening Financial Systems (NGFS)**.

Central banks could play a critical role in disseminating linear risk reporting standards. Central banks define the financial reporting standards that companies registered within the country need to follow in preparing and publishing their financial statements. Central banks can expand on international best practices, like the IFRS, and put forward guidance to locally registered corporations to disclose their linear risks within their portfolios and operations.

The NGFS could facilitate the introduction of these standards through central banks. The NGFS is a collation of a growing number of central banks to 'enhance the role of the financial system to manage risks and mobilise capital for green and low-carbon investments.'<sup>16</sup> Within the EU, the central banks of Austria, Belgium, Finland, France, Germany, the Netherlands, Spain and the UK are members as are the Swedish Finansinspektionen (Sweden's financial regulatory agency) and the European Central Bank. The NGFS has a clear mandate to

develop the tools financial systems need to scale up finance for environmentally sustainable development, including the design and integration of climate and environmental risk analysis tools for supervisory practices. Linear risks and the potential development of reporting standards would fit well within this work stream.

### EU role

The EU can play a critical role in ensuring circular economy concerns are integrated into the ongoing work on environmentally sustainable finance. The EU could rely on the three ongoing initiatives mentioned above and their established expert capacity and ensure that circular economy considerations are incorporated into their mission and scope of work and create a clear linkage between environmental sustainability and value creation.

### Impact

Adopting standards for the disclosure of linear risks can help accelerate the transition of businesses to a circular economy. This is because first of all, companies that previously did not consider their exposure to the availability of critical resources or other linear risks begin to evaluate the sustainability and efficacy of their current business and risk management practices from a new perspective. By doing that, companies can then begin to consider circular alternatives to mitigate these risks. Second, investors can benefit from increased transparency and more complete information on the risks of their investments. This can act as an incentive for investors to invest in more circular practices as these can mitigate linear risk. Last, value chains would benefit from identifying their potential weaknesses due to linear risks. Value chain actors would be more willing to collaborate to address these weaknesses.

<sup>16</sup> <https://www.banque-france.fr/en/financial-stability/international-role/network-greening-financial-system>.

### 3.1.2. Definition of circular economy finance

#### Problem

The concept of the circular economy is increasingly refined thanks to the theoretical and analytical work conducted by several academic and research organisations. Still, the link between circular economy and investments and technologies is less established. There are companies that demonstrate how circular economy concepts can be embedded successfully into existing business models.

These companies are exemplary but do not reflect the current market understanding of circular economy approaches. One of the issues preventing a more widespread adoption of circular economy practices is that businesses and financial institutions lack a common framework for guiding whether an investment supports the circular economy or not. Without this definition or guidance, companies struggle to identify circular economy opportunities within their own portfolios or operations.

#### Objective

A clear definition of what constitutes circular finance, and therefore circular economy investments, needs to be developed to give markets and companies guiding principles for identifying and structuring their investments and business models. This definition needs to be specific in order to provide a clear scope of what constitutes circular finance, while providing sufficient flexibility for companies from all sectors to be able to customise this definition for their individual operations.

#### Specific recommendation

Further refine the definition for the circular economy at EU level and develop a definition of circular economy finance for use within the EU. This could be done in the form of a taxonomy of circular economy activities and benchmarks for their environmental performance. This should build on the most authoritative work on the circular economy and be compatible with and complementary to the ongoing work of both the TEG for Sustainable Finance and the initiatives of European banks.

#### Actors

A diverse group of stakeholders representing the financial and business communities needs to convene to develop a definition of circular economy finance that could be practically applied across all sectors. This can be done through the Technical Expert Group for Sustainable Finance.

One of the TEG's four areas of focus seeks to develop a clear taxonomy on what constitutes environmentally sustainable finance. Due to the linkages between the circular economy and environmental sustainability, incorporating circular economy concerns into this area of the group's work would contribute to its wider mission of providing the tools needed to scale up finance for environmentally sustainable investments in the EU. As a subset of the definition of sustainable finance, the TEG would develop a working definition and criteria for circular economy finance.

The TEG would have a head start on developing this definition, thanks to the **Circular Economy Finance Guidelines** developed by a consortium of Dutch banks comprising ABN AMRO, ING and Rabobank with contributions from members of the Working Group FinanCE that encompasses a large number of European financial institutions. The guidelines help to, 'create and stimulate a common understanding of circular economy finance.' These guidelines could form the basis for the development of the EU's definition through the TEG. The group would evaluate whether the guidelines provide an effective framework for codifying and identifying circular economy finance, offering refinements or improvements to the guidelines to fit the wider ranging needs of the EU. The resulting definition of EU circular economy finance would establish a common framework for businesses across the EU to guide their own identification and reporting of circular economy finance. An additional important source for this work is the EIB Circular Economy Guide, presented in Box 1.

The TEG is also working to develop EU green bond criteria to define activities that can be classified as 'green' to be financed through bond issuances. Within this work, the TEG could discuss how the

### BOX 1 - EIB Circular Economy Guide

The guide presents definitions of circular economy categories, criteria and project types, an overview of the EIB's lending activity, available financing products, instruments and services, and a discussion on project eligibility, screening and assessment. In total, 15 different circular project types are distinguished in four different categories: circular design and production, circular use and life extension, circular value recovery, and circular support.

The guide aims to:

- > promote a common understanding of the circular economy concept and related challenges and opportunities among the EIB's financial and project partners;
- > raise awareness of and promote circular solutions among project promoters and other stakeholders;
- > facilitate and harmonise due diligence of and reporting on circular economy projects by the EIB financial and project partners;
- > communicate the EIB's vision on how the EIB can further support the transition to a circular economy.

circular economy is one aspect of 'green', where green bonds could support circular economy activities specifically. The TEG could then develop a definition of what constitutes circular economy activities that could be financed through bond issuances, becoming a subset of the larger EU green bond definition.

Beyond the TEG, the multilateral development banks, including the EBRD and the EIB, have set up a cross-institutional working group to define and track climate finance among the banks. Like with the TEG, circular economy technologies and business models could be introduced in the working group's discussions to become a subset of what is defined as climate finance.

#### EU role

The European Commission should ensure that circular economy and resource efficiency concerns are included in the work on taxonomy for environmentally sustainable finance. Once developed, the EU can also use its international reach to disseminate

this definition more widely to pass on best practice beyond EU markets.

#### Impact

A common definition for the circular economy would be an invaluable tool for identifying circular economy investments. While companies have an increasingly good understanding of the concept of the circular economy, giving concrete expression to these principles in their business is less evident. A common and widely acknowledged definition of circular economy finance, which outlines the value chain solutions and business models that contribute to a circular economy, would give companies an idea of how the circular economy works in practice. Within the EU, this definition will be critical for tracking and reporting the EU's own investments in the circular economy. Beyond the EU, the definition would have global applications where governments, other institutions and any firm could learn from the EU's best practice to guide their own investments and policies.

### 3.1.3. Technical assistance for circular economy businesses

#### Problem

Gaining access to finance for circular business models and investments is an essential hurdle that needs to be overcome in the transition to a circular economy. Part of the challenge comes from the inability of businesses to clearly identify and communicate the benefits of their circular concepts in terms of profitability, risk mitigation and the increased sustainability of operations. Potential circular businesses often have limited capacity to articulate the benefits of their circular economy business models to financiers and investors. The strengths of circular businesses, such as decreased exposure to resource price volatility or a more consistent cash flow through product-as-service models, are not being embedded in the business plans and proposals shared with financiers.

This lack of capacity and experience in communicating circular economy benefits has a negative impact on financiers' perception of circular economy businesses. In using the same evaluative methods as a linear investment to articulate a circular economy project's benefits, businesses entrench the concept that linear business practices are the most profitable and present less risk. If circular economy businesses were able to provide more comprehensive assessments of their business plans to financiers that take into consideration the reductions of linear risks and increased stability of cash flows, then financiers would be able to understand the advantages of pursuing and supporting circular economy investments.

Companies also often lack capacity to identify circular economy opportunities in their current operations. Shifting away from linear production and consumption models requires firms to view their inputs and outputs from a different perspective in which materials and products are only a means to providing a service and where there is potential additional value to capture in all resource flows. Therefore, companies that could potentially benefit from adopting circular business models and tech-

nologies are unaware of the opportunities they are missing.

#### Objective

In order to overcome these issues, businesses must increase their capacity to identify circular opportunities in their operations, and assess and communicate the benefits of circular practices to financiers and investors. Circular business models and technologies often do not have sufficient levels of market penetration for firms to consider them as viable alternatives to current practices. Cost-effective e-waste recycling is a relevant example of a technology that has significant market value but is underutilised to date despite this fact. Recovering gold, copper and other metals from e-waste is now cheaper than extracting these metals from virgin sources in mines<sup>17</sup>. Despite these advantages, less than 20 per cent of e-waste today is properly recycled<sup>18</sup>. Businesses must have the tools and training needed to communicate the competitive advantages of circular economy investments in comparison to linear practices. The objective is to have a market of circular economy businesses that can successfully access finance to expand their operations due to their competency in and awareness of the inherent strengths of their circular economy approaches.

#### Specific recommendation

Establish technical and financial advisory services to support the development of business models for circular economy businesses or projects seeking finance that effectively capture and articulate the benefits of circular economy strategies.

Technical assistance for circular economy businesses should address multiple barriers to scaling up the use of circular technologies:

1. provide support to businesses to identify, disclose and where possible mitigate linear risks in their portfolios and operations.

<sup>17</sup> Zeng, Mathews and Li. 'Urban Mining of E-Waste is Becoming More Cost-Effective Than Virgin Mining.' *Environmental Science and Technology*. 52, 8, 4835-4841.

<sup>18</sup> *Global E-waste Recycling Sales Market 2018 and Industry Forecast 2025*.

Beneficiaries would receive training and expert input to assess their level of exposure to linear risks. Companies that already employ circular economy business models would receive support to communicate the benefits of these approaches to potential financiers using the mitigation of linear risks to demonstrate their competitive advantage. Technical and financial advice would help to make linear risk evaluations a mainstream part of companies' reporting and increase market understanding of the operational and potential financial benefits of pursuing circular strategies that mitigate these risks;

2. provide support for existing businesses to introduce circular economy technologies and business models in their operations. Companies would receive expert input to identify opportunities to extract additional value from waste streams and reduce their material intensity while increasing their ability to create value. Both larger corporates and SMEs should benefit from this support. Large corporates would be able to address inefficiencies or linear risks in their supply chains, while SMEs would have the potential to transform their business model to align with circular economy principles;
3. increase the capacity and market representation of start-ups pursuing circular economy business models. Circular economy technologies and business models have the ability to transform markets; however, young companies need access to capital in order to invest in and scale up their operations. Technical and financial advice will help start-ups to develop business plans focused on circular economy approaches to share with financiers. This support will promote the adoption of circular business models and technologies and increase finance for circular economy businesses;
4. make sure that SME organisations have the necessary capacity to provide specialised

advisory or counselling services to their members and SMEs in general to become more circular. Since SMEs would first turn to their own organisations to have support on how to go from linear to circular, it is important that SME organisations are in a position to respond to this demand in order not to delay the systemic change that the circular economy needs to take off.

## Actors

The most relevant actors for providing circular economy advisory services are public financial institutions such as multilateral development banks and promotional banks, specialised agencies, consultancies and experts as well as educational institutions such as technical universities. There are several potential avenues for these actors to provide technical and financial assistance to businesses seeking to adopt or scale up their use of circular technologies and measures.

1. The EU is currently in the process of establishing an ambitious investment support instrument -- InvestEU — that will combine the EU's equity, guarantee and risk-sharing instruments in a single fund. In conjunction with its investment mechanisms, InvestEU will also establish the *InvestEU Advisory Hub* that similarly consolidates previously available advisory programmes (e.g. European Investment Advisory Hub, InnovFin Advisory and ELENA) into a single initiative. The *InvestEU Advisory Hub* budget is EUR 500 million for advisory support divided between InvestEU's four windows and a cross-sectoral component for cross-cutting initiatives such as the circular economy.

This *InvestEU Advisory Hub* can provide the technical assistance to help businesses to adopt circular economy measures. Advisory services can be channelled through the EIB, national promotional banks and institutions or multilateral development banks to help businesses identify circular economy opportunities within their operations and

effectively communicate the competitive advantages of circular economy business models to financiers. The implementing partners, such as national promotional banks, provide the infrastructure necessary to connect with local businesses and have the in-house capacity to procure and monitor the effective delivery of technical and financial advisory services to beneficiaries.

Technical assistance for circular economy measures could fall under any of InvestEU's four windows, as the circular economy links to sustainable infrastructure, innovation and digitisation, SMEs and social improvements. Therefore circular economy advisory services should be included in the cross-sectoral component of the InvestEU Advisory Hub.

2. A dedicated technical and financial advisory fund could be set up at international level to help businesses to adopt circular economy practices. This fund would be independent from InvestEU, with a sole focus of scaling up finance for the circular economy. Similar to InvestEU, though, the fund would be channelled through the same set of implementing agencies (as the ones mentioned above), which can work directly with local businesses.

Given the linkages between the circular economy and efforts to address climate change, the funding for the technical assistance window could come from the EU emissions trading scheme auction. A specific portion of the carbon credits purchased would be allocated for channelling back into local business communities to support the adoption of circular economy measures.

Multilateral development banks like the EBRD and the EIB have experience in delivering similar technical and financial advisory programmes within their countries of operations. Based on the experience of the EBRD, a

dedicated technical advisory fund of EUR 50 million could leverage an additional EUR 7.5 billion in finance for circular economy initiatives — an indicative ratio of 1:150.

3. A network of local agencies and experts could be set up that businesses could access to receive technical and financial advice on introducing circular economy principles in their operations and investments. A publicly accessible network of circular economy experts would help businesses to connect with local professionals that can provide guidance and identify opportunities to introduce circular economy measures in their operations and mitigate linear risks.
4. The circular economy and resource efficiency could be included in the curriculum of Member State engineering study and vocational training programmes to develop a new class of circular economy professionals. Beneficiaries would build up the skills needed to help companies identify circular economy opportunities within their own operations and successfully introduce circular measures in their businesses.

## EU role

The EU would play a vital role in facilitating the provision of technical and financial advisory services to circular economy businesses. It could:

1. make the circular economy one of the priorities of the InvestEU Fund and Invest EU Advisory Hub. Implementing partners seeking to access InvestEU's resources would therefore need to incorporate circular economy considerations in their own business development strategies;
2. form within the dedicated technical and financial advisory fund an EU window for technical and financial advisory services on the circular economy. The creation of this standalone window, and its potential

source of funding from the emissions trading scheme auction, would be overseen and directed by the European Commission;

3. play a pivotal role in identifying and setting up a network of local agencies and experts that local businesses could access for advice on the circular economy. Drawing on the multiple expert groups and committees formed through the EU processes, specific experts for sectors relevant to the circular economy could be identified and listed in a database of professionals formally hosted and disseminated by the EU;
4. apply the appropriate tools such as the Structural or R&I Funds to help Member States to structure a training and educational programme for circular economy professionals.

### Impact

The strengthened technical and financial advisory services could increase the uptake of circular economy technologies and business models, while facilitating access to finance for circular economy businesses. This could have two major impacts. First, it could stimulate the market of circular economy businesses that employ similar strategies to gain competitive advantage using resource management. The market for circular economy technologies would then benefit from the increased economies of scale as technologies become more widely adopted. Second, it could help to communicate the benefits of circular economy approaches to financiers. Investors who currently prioritise support for linear business models would see the financial benefits of supporting circular investments. This would help to build financial institutions' and financiers' understanding of circular economy approaches and their understanding of the potential risks of supporting linear business models. In addition, a well-structured technical assistance programme could accelerate the emergence of new competences and skills and create growing market opportunities for providers of circular economy advisory services.

### 3.1.4. Dedicated financial instruments for the circular economy

#### Problem

Moving to a circular economy will require a significant increase in demand for finance to support circular economy businesses and products. The current volume of 'circular finance' is insufficient to support a transformation in how the value of materials is captured and preserved. While circular economy technologies and business models exist, they cannot reach the level of market penetration necessary to have an impact on the operations of value chains. In order to transform value chains, companies with circular economy business models and products need to be able to access finance to scale up their operations. Access to finance must be available across all sectors, as the transformation to a circular economy must take the form of a systematic shift as described in the introduction to this paper.

#### Objective

In the transitional period when the mainstream financial institutions are not fully willing or able to consider the potential of the circular economy and do not invest in circular economy projects, the objective is to ensure access to finance to a growing number of businesses that develop viable projects, although they will require a specific approach for managing financial risks. Public finances that aim to stimulate regional economies, job creation, infrastructure development and environmental mitigation could be deployed in such a way that they also support the circular economy. Ideally this is done through suitable financial instruments that are designed with the circular economy in mind, so all the important barriers and challenges to circular economy projects are considered in the design of the instrument.

#### Specific recommendation

Establish a dedicated proportion of finance within selected EU instruments, in particular the InvestEU, to support circular economy investments and businesses.

## Actors

The provision of circular economy finance could be channelled through the new or existing EU instruments. Specifically, a share of the EUR 38 billion InvestEU budget could be dedicated to circular economy investments. A combination of equity, guarantee and risk-sharing financial instruments could be introduced in InvestEU to target circular economy investments. The four windows of InvestEU all speak to the potential benefits of the circular economy. Therefore a common proportion of each window could be dedicated to supporting the circular economy. This is supported by the approach that determines the overall proportion of InvestEU for climate change and the environment, where 50 per cent of the sustainable infrastructure window must contribute to the EU's objectives on climate change and the environment, while a common 30 per cent target is applied overall.

If InvestEU finance for the circular economy follows this approach, where a common percentage of the fund's resources are dedicated to the circular economy, it should be done preferably as a dedicated allocation separate from the 30 per cent for climate change. Taking a cross-cutting approach to the allocation of circular finance across InvestEU's windows reflects the multi-sectoral realities of the circular economy, where its application cannot be defined solely within the label of sustainable infrastructure, innovation or SMEs.

The InvestEU circular economy funding would be disseminated through the instrument's designated implementing partners, namely the EIB group, national promotional banks and multilateral development banks. These institutions have both the capacity and the connections to local business communities to effectively deliver the circular economy finance to help companies apply or scale up their use of circular economy business models and technologies.

## EU role

As indicated above, the EU is in a specific position where it can use the EU budget earmarked for cohesion, regional development, investment

support, innovation support, environmental protection and others to support the circular economy while delivering on other objectives. The new EU investment instrument is particularly suitable for this purpose and could formally establish a specific proportion to be allocated to the circular economy to support scaling up the circular economy across all InvestEU's windows. The EU would need to ensure that proper monitoring procedures are in place within InvestEU to track and verify that the designated proportion of funding is supporting circular economy investments by using suitable taxonomies and monitoring tools, e.g. those developed by the EIB. These monitoring practices would also have to extend to the implementing agencies disseminating the InvestEU funds to report back to the EU on the use of proceeds.

## Impact

InvestEU and possibly other EU funds or instruments for the circular economy would help to scale up finance for circular economy businesses and products. The EU budgetary guarantee and its contribution to equity investments and risk-sharing instruments would help to leverage additional external finance attracted to the decreased risk of the investments. This would help to increase the market penetration of circular technologies and business models, with the goal of reaching a scale sufficient to have a meaningful impact on how supply chains operate and retain the value of materials. Businesses seeking finance for circular economy investments would also benefit from increased access to and availability of finance.

InvestEU's specific commitment to the circular economy would also send a strong signal to markets and businesses that the transition to a circular economy is at the core of the EU's priorities. Many businesses employing linear business models that might have benefited from the EU's financial instruments in the past will receive a strong incentive to shift to more circular operations in order to maintain their eligibility and access to EU funding. The same businesses would also see the InvestEU circular economy funding as a potential signal for additional EU action on the circular economy. If the EU intro-

duces circular requirements, disclosure standards or other circular policies, businesses heavily reliant on linear systems and business models could be challenged to reach compliance. This would act as an incentive for companies to be proactive in adopting circular models in order to avoid such scenarios.

## 3.2. Recommendations to non-financial policy makers

### 3.2.1 Development of a policy framework conducive to the circular economy

#### Problem

Public fiscal, industrial, environmental and regional policies do not yet provide a clear societal goal for the circular economy and a coherent definition of the role of different actors and affected stakeholders. Typically, economic operators tend to avoid risks of disruption and defer the costs of the initial changes that need to be made for the transition to the circular economy. They will continue in their business-as-usual practices as long as price signals favour the linear model. In the case of the market failing to give correct price signals, public policy should provide the right incentives. While there is a positive development, public policy does not yet stimulate sufficiently the changes in economic operators' behaviour. Most notably, the polluter-pays principle is not properly applied in the form of suitable market-based instruments to internalise the externalities associated with the linear material consumption.

For the shift to a circular economy to occur, important policy elements are missing:

1. the metrics are insufficient for measuring the progress towards the circular economy at EU, national and regional level or within individual sectors and supply chains, and for helping with the risk assessment of linear versus circular approaches;
2. the existing EU waste recycling and landfilling targets doubtlessly contribute to promoting material recycling. However, these are aggregated high-level national targets and often do not provide sufficient incentives for local authorities and waste producers (businesses and final consumers) to engage more strongly in achieving the targets and more generally in promoting the circular economy;
3. instruments that could give clear price signals to economic operators and make secondary materials more competitive are lacking. On the contrary, there are still subsidies that reward the linear model, and the price of primary materials do not internalise negative environmental externalities;
4. with the exception of some product categories (packaging, vehicles, batteries, electrical and electronic equipment), the extended producer responsibility (EPR) principle is not applied to the full extent in support of the circular economy. The responsibility of dealing with the collection and disposal of many end-of-life products and materials is allocated to the public authorities and not to their producers, which is against the polluter-pays principle;
5. in many EU countries, a significant proportion of recyclable materials is still either landfilled or incinerated, due to a lack of proper economic incentives for their separation and segregated collection at source, thus leading to the loss of valuable resources;
6. performance criteria and benchmarks for materials and products are absent: many products are still designed as single use, disposable, and non-recyclable and include hazardous substances, which prevents upcycling, reuse, or recycling. Many of these products enter the EU markets without any

barrier or price disadvantage. Information on the circular aspects of products is not available for downstream clients and consumers.

## Objective

Policy makers have many tools in hand to change the perception, attitudes and behaviour of economic actors, and set rules and requirements for products on the market in order to accelerate the transformation to a circular economy. Both at EU, national and regional level, the policy framework needs to be updated and, if necessary, transformed in order to have a coherent and comprehensive set of environmental, fiscal, industrial, and regional development policies. In this way, policy makers can stimulate economic operators to consider circular economy approaches and business models and apply them.

## Specific recommendations

1. In response to point 1 above, develop metrics and indicators to complement the existing macroeconomic indicators adopted at EU and sometimes at national level, in order to measure, monitor and benchmark the circular economy performance also at regional, local, sector and corporate level. Circular economy indicators should become a mainstream part of statistical reporting. The new indicators should as much as possible build on and complement the existing statistical and reporting systems.
2. In response to point 2 above, consider setting targets using suitable indicators as discussed above, possibly developing a cascade system of national, regional and sectoral targets. Where mandatory targets are not politically feasible, set non-binding aspirational targets that can serve as a basis for voluntary agreements with industries and/or facilitate the emergence of market-based compliance instruments. These new targets need to be reviewed in relation to existing commitments and obligations and need to pursue a growing level of ambition not only in terms of quantities but also in terms of quality, e.g. targets for the quality of secondary materials.
3. In response to point 3 above, map where EU and national fiscal policies provide subsidies and price signals in favour of the linear economy. On this basis, set in motion a process of reviewing and removing linear economy subsidies to create a level playing field for the circular economy. Consider fiscal incentives for the sustainable management of materials and products with a circular design, e.g. through VAT.
4. In response to point 4 above, expand the scope of extended producer responsibility schemes to additional products in order to raise funds for the waste collection and recycling of these products. Analyse where the existing EPR systems need to be modified in order to favour the production of high-quality secondary materials, e.g. via modulated fees. More importantly, use EPR schemes to encourage innovative business models with increasing levels of circularity which aim at increasing the integration of materials loops.
5. In response to point 5 above, consider setting ambitious EU or national target dates for ending landfilling. Reduce landfilling and incineration by applying increasing taxes on these activities and using the revenues from these taxes to fund the development of separate waste collection and management systems. It is important to calibrate the taxes well and accompany them with policy measures to increase the demand for recycled materials, so that waste diverted from landfills and incinerators is recycled and used as secondary raw materials.
6. In response to point 6 above, develop benchmarks for circular aspects of product performance, including benchmarks for durability, reparability, recyclability, minimum recycled content and hazardous substances content, and apply these benchmarks to

remove underperforming products from the EU market (e.g. via implementing measures of the Eco-design Directive that extend to non-energy related products). Stimulate the adoption of high performance products through fiscal and 'reputational' incentives (e.g. reduced VAT, eco-labels). Make the information about circular aspects of products available in business to business and business to consumers transactions through product information requirements (e.g. the product passports) or publicly accessible databases.

As a cross-cutting action, it is recommended to conduct checks and revisions of existing and planned relevant sectoral policies which may conflict with the objectives and actions described above. Contradicting policy provisions could introduce a bias in favour of the linear economy and reduce the effect of policy interventions which support long-term circular economy objectives.

### Actors

EU authorities as well as national, regional and local governments in Member States should urgently start the analytical work to identify the needs and opportunities for necessary policy changes and consequently start the political processes to introduce the required changes in the relevant sectoral policies and legislation. While the EU level policies and rules will focus primarily on internal market aspects, the national authorities will play a major role in setting targets, removing linear economy subsidies, designing effective incentives for circular products and services, setting effective EPR systems and accelerating the introduction of waste management practices which move away from landfilling.

### EU role

Policy makers at EU level have important competences in environmental, industrial and internal market policy and in some aspects of fiscal policy. A significant part of the necessary policy and regulatory changes will have to take place at EU level to ensure EU internal market harmonisation, e.g.

circular economy metrics/indicators, product circular requirements and information.

### Impact

A policy framework consisting of coherent sectoral policies, creating a level playing field and additional stimuli for the circular economy, will greatly reduce the risk associated with circular economy projects. Businesses and their investors will understand the long-term policy objectives. A clear regulatory environment providing certainty about regulatory requirements for products and their environmental performance will gradually ensure that circular projects are able to compete with linear ones. The reduced market and policy risks will reduce the financial risks of circular economy projects, thus making them more bankable.

## 3.2.2. Public authorities acting as facilitators of the circular economy

### Problem

When the market and regulation fail to generate favourable conditions for the transition to the circular economy, public authorities can play a critical role as facilitators of change. They may have the best information to identify the potential for the circular economy at different regional scales. They have the ability to bring together potential circular business partners who do not normally interact on the market. They can use public funds to create revenues for circular economy projects, as such funds can help achieve public objectives, e.g. through public procurement<sup>19</sup>. Public authorities currently rarely assume this facilitating role despite their unique position. Often, the public authorities are not aware of their potential role or may not have sufficient technical and human capacity and political support.

<sup>19</sup> Public tenders are usually focused on the procurement of new assets which exclude reused and upcycled materials and products. Public tenders are typically focused on price, not on the total cost of ownership/total cost of use and do not include 'externalities': including end-of-life, disposal costs.

## Objective

Public authorities at all levels should realise their unique position to influence the transition to a circular economy. They should invest in building capacity both internally and externally within the areas under their administration to enable and support circular economy projects. Promoting an organisational culture of 'circular economy enablers' will support the introduction of innovative models of public governance that stimulate the circular economy and improve service to the public.

## Specific recommendations

1. Undertake analyses of circular economy potential at the local, regional and national scales including major material flows, industrial capacities and new business models. Develop regional and national circular economy strategies that include collaboration with other countries and regions; on the regional level, ensure that regional authorities include circular economy opportunities in their smart specialisation strategies. Provide information to the business sectors to make it easier for businesses and especially SMEs to exploit the potential of the circular economy.
2. Link the circular economy to other societal challenges and transitions, such as climate change or industry 4.0, in order to create a coherent strategic environment for businesses and facilitate synergies across different public initiatives. As an example, public authorities can promote the introduction of advanced collection, sorting and recycling technologies, efficient materials processing technologies and production methods that support the integration of increasing circularity within new and existing business models, and they can facilitate the creation of new types of expertise and jobs. The positive externalities (reduced greenhouse gas emissions, electricity from renewable resources, etc.) should be recognised, favoured and rewarded. In turn, the circular economy can help improve the sustainability of the 4th industrial revolution and its acceptance by society.
3. Create collaborative and interactive platforms for closer connections between businesses that normally do not interact on the market. Develop innovative forms of collaboration within and between value chains and innovative ways of sharing the costs and benefits of circular economy projects between companies who otherwise have no market incentive to collaborate. Act as a guarantor if the risk for individual companies of being engaged in circular projects is too high<sup>20</sup>.
4. Introduce circular economy approaches in the public sector, e.g. by applying circular business models in public enterprises.
5. Allocate public funds to circular projects that bring significant benefits to the community to ensure that these projects materialise and are financially viable. This may include direct payments for public services but also indirect support such as guarantee schemes.
6. Stimulate demand and create new markets for circular products and services through public procurement. Apply lessons learned from experiments in the past (e.g. green deals on circular procurement in Flanders and the Netherlands).

## Actors

The national and regional authorities have a key responsibility in creating national and regional circular economy strategies and linking them to national and regional industrial development and innovation strategies. National, regional and local authorities will also play a critical role in developing innovative governance models and tools to facilitate circular economy collaboration between sectors and businesses. All public authorities who spend public funds through public procurement can play a role in creating markets for circular products. All public sectors with substantial annual spending, e.g. infrastructure,

<sup>20</sup> *Within the limits of State aid rules.*

defence<sup>21</sup>, health and education, should introduce circular economy procurement policies.

## EU role

The European Commission and other European institutions and organisations, including the Economic and Social Committee and the Committee of the Regions, could play a role in developing and disseminating circular economy principles, governance models and instruments for all levels of government and other public authorities. The Commission could take an initiative and apply its responsibility for coordination and programming (e.g. in the programming of the Cohesion and Structural Funds or R&I Funds) to influence the national authorities and disseminate best practices. EU funding could be used to support innovative projects in demonstrating the enabling role of public authorities. The EU institutions should also use their spending to set the example of circular economy procurement for other public authorities.

## Impact

If the public authorities and organisations assume the role of enablers, they can create the conditions for scaling up markets for circular economy products and services. Their intervention can also reduce the risk that goes with circular economy projects and make projects financially viable. The involvement of an organisation with a statutory role can by itself provide more certainty about the quality or viability of the project. Financial commitments by a public organisation may provide certainty for the financial revenues from the project and public procurement contracts typically present a lower risk of non-payment, which in turn facilitates access to finance and reduces risk for investors. Public enterprises whose objective is to deliver public service may be more open to circular economy projects because they look for long-term sustainability rather than any short-term maximisation of profit.

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<sup>21</sup> <https://www.eda.europa.eu/webzine/issue11/opinion/circular-economy-matters>



# CONCLUSIONS



The Expert Group on Circular Economy Financing has analysed the status of barriers to the transition to a circular economy in the EU. The experts have identified major challenges and, to address these challenges, have given their expert opinions and recommendations to the main stakeholders, including policy makers, financial institutions and project promoters.

The issue of risk and the unfavourable risk/revenues profile of circular economy projects dominated the discussions of the experts, regardless of whether they focused on policy, finance or business management. It seems to be counterintuitive that the approach that preserves the economic value of materials and products faces the problem of revenue generation and uncertainties, resulting in a high financial and financing risk. It is the experts' conclusion that circular economy projects are not necessarily inherently riskier than linear projects, especially from the long-term perspective. It is rather that the regulatory system, markets and financial risk assessment are distorted and biased in favour of the financing of linear projects. In order to correct this distortion, a number of incentives should be provided through a series of well-designed and coordinated actions. These are incentives for:

1. a level playing field: this will enable circular businesses to have a better chance of competing and succeeding on the market. It will result in better financing conditions for their businesses;
2. collaboration along the value chain: different organisations in the value chain need to collaborate to optimise the circular solution, as resources and materials remain in a constant loop;
3. the creation of long-term value: there should be a need to incorporate product longevity in business models;
4. market participation: end-users play a crucial role in the value chain to make products

circular. Currently, it is the part in the value chain where products often turn into waste. There is a need to ensure a better participation of these stakeholders to change this;

5. the integration of the public good: the cost of the negative externalities of the linear model and the benefits of the positive externalities of the circular model need to be considered in order to allow circular companies to compete more fairly. On average, these circular companies contribute more to public goals and/or help to reduce societal costs;
6. the build-up of finance knowledge: there is a need for better knowledge/understanding and adjustments with financiers. Often, circular businesses are significantly different. It is important that financiers and investors understand the differences to be able to value the business model correctly;
7. first movers: demand pull is part of the success of new business models. This demand pull works as a magnet for new entrants and/or current businesses to change their model. No matter how perfect a value chain is organised, if people are not willing to pay, there will be no viable businesses.

The expert group's list of recommendations on how to provide the required level playing field is comprehensive and their implementation will require long-term focused commitment and effort by a number of stakeholders. However, there is a logical sequence of actions. Certain recommendations have to be implemented before the next action. Some recommendations are rather specific and suggest a well-defined short-term action while others are more generic and suggest a process where the first steps should be taken soon and the process should continue in the long-term with specific actions to be defined later on the basis of the results of earlier actions. The experts recommend that stakeholders focus on the following actions as a high priority:

- 1. characterise circular economy projects through metrics and taxonomy.** Definitions, metrics, and taxonomy will enable better assessment of circular risks versus linear risks. Also, the social and environmental benefits of the circular economy should become explicit, quantifiable and disclosed and should be taken into account in financing decisions;
- 2. promote and clarify the enabling role of public authorities,** as they play a crucial role in the transition. Public authorities, on all levels, can provide incentives to promote circular economy models via, for example, public procurement, subsidies, taxation and funding. They have the legitimacy and means to reward positive externalities. Work also has to be undertaken to set circular economy performance requirements for products and services;
- 3. build capacity to make the transition to a circular economy.** Project promoters play an important role in creating circular business. The principal objective from a project promoters' perspective should be to succeed in correctly identifying, conceptualising and developing circular business models and projects that are both sound and bankable, and congruent with a long-term development vision and strategy for the transition to a circular economy. Awareness-raising both at the level of internal organisations and external stakeholders (including the value chain network) is crucial in this context. They can advise and improve the economic viability and bankability of projects; and visualise collaborative arrangements within the supply chain.

In order to help with the implementation of its recommendations, the expert group decided to pursue its work in the three priority areas listed above.

# ANNEX I: HOW TO GET CIRCULAR ECONOMY MARKETS TO WORK

## Preface

If there is one thing that is foreseeable in our current economies, it is that the dominant linear economy we have today is unsustainable in the (near) future. Our current rate of extracting materials from the planet and turning the products made from these materials relatively quickly into waste is beyond recovery. If we add to this development the growing number of middle class consumers, scarcity is around the corner. This leads to economic instability and damages for companies, consumers and countries.

This section provides a cross-sector perspective on the transition from a linear to a circular economy. Simply put, the transition does not start with finance but with business<sup>22</sup>, which means product design, relations within the value chain, how consumers need to play their part, etc. Then, the changes in doing business clearly have an impact on finance: risks are different, cash flow and other financial indicators are different, valuation is different, etc.

The core question here is ‘*how do we get circular economy markets to work?*’ because new circular concepts today need to perform in a dominant linear economy. In this section, we will conclude that we need to redirect our efforts at total seven different incentives<sup>23</sup>. As stated earlier, in the end it is not a question of *whether* our economies will gradually become circular but *how*. If we seek a smart transition, the alignment of the seven

incentives is key. And because these incentives are found in different parts of our economy, it is essential to coordinate their alignment. The more they are aligned, the more efficient our transition.

### 1. Introduction.

One of the big challenges of our economies is the anticipated shortages of virgin materials. The concept of a *circular economy* was first raised by environmental economists Pearce and Turner in 1989. They pointed out that a traditional open-ended economy was developed with no built-in tendency to recycle, which was reflected by treating the environment as a waste reservoir<sup>24</sup>. But Dame Ellen MacArthur — and her Ellen MacArthur Foundation, the most authoritative global network on this topic — brought awareness of the circular economy into the mainstream. While for decades this was mainly a scientific debate, she raised the topic to the level of politicians and business communities, also by making it a relevant economic theme<sup>25</sup> and connecting it to business leaders.

### 2. Setting the scene: exponential consuming

The conclusions mentioned at the end of the report were based on the same hypothesis: a growing world population combined with a growing average purchase power leads to higher consumption. With an economic model that is based on using mainly virgin feedstock, this will lead to increasing extraction. We all know that resources are finite

<sup>22</sup> *Business in this respect is not limited to the juridical boundaries of a single company but also encompasses the production process itself and the way businesses are organized, including the industrial symbioses.*

<sup>23</sup> *By ‘incentives’ we do not mean subsidizing circular economy activities. Instead we mean the theory of incentive structure: the set of rules that determine the decision-making of actors within a relevant system, as described in ‘D.D. Fehrenbacher, Design of Incentive Systems, Contributions to Management Science, DOI 10.1007/978-3-642-33599-0\_2, 2013’.*

<sup>24</sup> *David W. Pearce and R. Kerry Turner (1989). ‘Economics of Natural Resources and the Environment’. Johns Hopkins University Press.*

<sup>25</sup> *Ellen MacArthur Foundation (2012) ‘Towards the Circular Economy: an economic and business rationale for an accelerated transition’.*

and when the rate of consumption exceeds the planet's capacity to regenerate, finity changes from a hypothesis into a reality. This is hard to understand, or as stated by UNEP *'it is hard to envisage any ongoing supply problem arising from global depletion'*<sup>26</sup>. Of course this is not criticism of the extraction industry, knowing that they are improving on their sustainability performance. This is very important because in any scenario extraction remains necessary.

### 3. Resource challenges of the future

In our current economic model there is a strong correlation between GDP/purchase power and virgin material use. Exponential consuming will lead, in a business-as-usual scenario, to a number of different resource challenges. The impact of the resource challenges is related to (1) the number of virgin resources still present versus (2) the expected rise of extraction. Given the fact that the increase is mainly due to the rise of the middle class, these are especially the materials that are in products that 'new' middle class households spend their money on. They are often categorised in three parts: (i) houses (construction) and household appliances, (ii) food and (iii) mobility.

Resource challenges are not absolute. Merely looking at the chance of resources 'running out' leads to different economic risks per material and therefore per product.

Given this expected increase in material extraction, the number of supply risks will also increase sooner than forecasted and for more materials. For this reason there is broad consensus that if we want prosperity to be maintained, we need to decouple GDP growth from the extraction of virgin materials.

### Raw Materials Scoreboard

Mapping material flows in the circular economy shows that a large part of the EU's material use consists of construction materials, many of which are accumulated in long-life, in-use stocks. The economy's circularity could be improved by increasing the reuse and recycling rates of materials (production processes and products). However, materials contained in in-use stocks will only become available for recycling after decades or more.

There are not only more people on the planet, but our technological advancements also result in a much more intense use of materials for energy consumption, for instance<sup>27</sup>. Also, in usage we see that growth is anticipated in materials needed for a low carbon economy.

### 4. Will markets solve these resource challenges?

From the perspective of classical market theory, scarcity of resources will be solved through the economic mechanism of higher prices and therefore lower demand. But recent analyses of true price and true cost show that the price mechanism quite often results in non-optimal valuation, and therefore inefficiency in allocation<sup>28</sup>. One of the reasons is that markets fail to internalise externalities, especially if the consequences occur in the long run. These failures tend to be even stronger when property rights cannot be easily assigned to certain resources, like air or water. Some call this market failure, because of the limited responsibility of businesses. Others call it system failure, because only governments can be responsible for including external effects into price mechanisms. In the end, the impact remains the same: an optimal situation in the market

<sup>26</sup> UNEP, *International resource panel, 'Global material flows and resource productivity'* (2017), p 34.

<sup>27</sup> 'Raw Materials Scoreboard' (2016), European Commission, page 11.

<sup>28</sup> For instance, KPMG (2014). 'A New Vision of Value: Connecting corporate and societal value creation' or Trucost, see [www.trucost.com](http://www.trucost.com)

economy can lead to a suboptimal situation in a broader societal and environmental perspective.

### 5. Societal burden that comes with linearity

Remaining linear will continue affecting the environment, human health and societal welfare by increasing negative externalities from an unsustainable use of energy, water and land, and unsustainable waste management practices. The well-known example of Renault shows that **energy consumption** in production can be reduced by 80 % compared to conventional production using virgin materials<sup>29</sup>. And while the circular economy is not able to fully eliminate **water shortages**, it has the potential of saving 400 billion m<sup>3</sup> of water yearly, which is equivalent to 11 % of global water demand and almost the entire water consumption in the United States<sup>30</sup>. Another example is mining; when the economy becomes increasingly circular and more materials already mined are reused in one way or another, the negative impact of mining will decrease as well. And finally, rethinking the design of products in a more circular way will also make us rethink the way we use chemicals in our products (only 14 % of our global use of plastic, for example, is being recycled) and reduce **health risks**.

So a more circular economy will lower the societal bill, but despite the problem with externalities, they play a rather limited or no role in the decision making within our economy.

### 6. Macroeconomic impact; opportunities and linear risks

In addition to positive environmental and health impacts, a transition to a circular economy is also expected to have posi-

tive impacts on our macro economy. Many sources provide estimations on the impact of **GDP**, stating that more economic growth is achieved than in a linear way. Uncertainties are relatively high in these forecasts. But with a lot less uncertainty, there are other macroeconomic areas to consider where society as a whole can benefit from a more circular economy. For example, new technology improves the functionality of the product and it is often an enabler for the circular business model. A more circular economy is a more competitive economy, and therefore it improves the economy's **resilience**. Another example is resource use, which is strongly related to GDP. Decoupling GDP growth from material use also means reducing a country's **resource dependency**. With regard to the **labour** market, we often see that circular value chains are less material intensive and more labour intensive compared to their linear alternatives. We therefore see a shift towards lower material costs and higher labour costs. Another macroeconomic impact is the fact that, whereas the transition to a circular economy bears many risks, on the flip-side, linear businesses also face a number of **future risks** such as market risks, technological risks (risk of premature obsolescence), operational risks, regulatory risks and even reputational risks. And finally, new data on weather variations find a strong relation with **migration**: weather-induced conflicts in developing countries spill over to developed countries through asylum applications.

### 7. The devil is in the transition

Even if we can comprehend how a more circular economy will look and what the macroeconomic benefits are, the challenging question is how to get from A to B, or better from L to C. Change is not only required within the business itself and its business models but also within the value chains, in relation to the end-users, logistics, but also

<sup>29</sup> <https://group.renault.com/en/news/blog-renault/circular-economy-recycle-renault/>

<sup>30</sup> 'Less is more: Circular economy solutions to water shortages' (March 2017) - ING and Deltares.

within the (economic) system as a whole (education, regulation, financing). If these changes are not synchronised, circular businesses are unlikely to be viable.

A systemic change occurs when a 'change pervades all parts of a system, taking into account the interrelationships and interdependencies among those parts'<sup>31</sup>. The risk of these kinds of changes is that they are seen by the different stakeholders dominantly from their own perspective. When only some elements of the system change and others do not, the desired impact remains below its potential. Synchronisation and coherence are therefore key, including the collective responsibility experienced by all stakeholders.

## 8. Elements of a systemic change

To understand the transition, we need to identify the systemic elements that are necessary; they can enable the transition, catalyse and accelerate it. Unfortunately, however, it can also be the other way around: these elements can disable the developments towards a more circular economy when they are not positively aligned. Building on a first attempt to describe the elements of the circular economy transition, we will add a few elements, mainly looking closer at the very generic element of the 'business model'.

### 1. Elements within the real economy:

- ⊕ business model implications, including changing expertise within the business
- ⊕ technological solutions, design and materials
- ⊕ value chain alignment
- ⊕ consumer participation
- ⊕ logistics.

### 2. Enablers:

- ⊕ financiers

- ⊕ regulation (broad perspective, including the tax system for instance), including public authorities and the political environment
- ⊕ research, education and skills.

Businesses require fundamental changes in all their parts when moving away from a linear business model and towards a circular one. The change with the largest impact on the business itself and on the financing of the business is the change in the business model, which is essential when going circular. There are four reasons why the business models of circular businesses require change<sup>32</sup>:

1. resource control: need to access used products/materials downstream
2. collaboration between partners in the supply chain
3. services that capture products (product-as-a-service)
4. supply chain innovation.

The report of the FinanCE Working Group categorised circular business models into three groups: circular innovation, circular use and circular after-use models. The analyses showed that only the 'circular use' business model (shift from paying for ownership to paying for use) shows significant changes in finances/financing<sup>33</sup>.

### It is all about the incentives

In every aspect of the systemic transition, the default still is a linear business-as-usual approach. But in the end, the core driver for the transition can be reduced to incentives. These are the formal and informal rules that influence behaviour and decisions. Within each of the elements, we should look for incentives to make the circular business

<sup>31</sup> <https://systemicchange.wordpress.com/systemicchange/>

<sup>32</sup> Working Group FinanCE (2016) 'Money makes the world go round', p38-40.

<sup>33</sup> *Ibid*, p68.

approach the preferred one. Of course, this has to be within the limits provided for in EU competition law.

## 9. The role of incentives and the consequences for financing the (circular) economy

We see seven different categories of incentives needed for a successful transition. In all categories, as is often the case, money is an important enabler or disabler. If these seven incentives are not aligned, as mentioned before, the transition will be slower, less effective and finally more expensive. For this reason there is also a need for coordination and a logical order in the transition.

### 1. Level playing field incentives: the need for equal competitive conditions

A level playing field means that (at least) similar conditions apply, for instance in the legislation and in the tax system. With a level playing field, circular businesses will have a better chance of competing and succeeding on the market, and this will result in better financing conditions for their businesses. As stated earlier, circular solutions are innovative by nature and result in a higher risk profile. Because there is still no level playing field between the linears and the circulars, market opportunities for circular businesses are currently limited (adding additional risks to the innovation risk). Besides the linear mind set of financiers (see incentive 6), a non-level playing field also decreases the access to finance.

### 2. Value chain collaboration incentives: the need to align interests

One of the decisive factors of a successful transition to a circular economy is the alignment of interests of partners within the value chain. The different organisations in the value chain need to collaborate to optimise the circular solution. Whereas in a linear system the resources/

materials pass every part of the value chain only once, in a circular system resources/materials remain in a constant loop.

### 3. Long-term value creation incentives: the need for product longevity in business models

The current linear models within the economy are transaction based: when products move towards the end-user, a transaction — and payment — is made. An economy that is based on maximising profit with products with a margin strives to maximise sales and therefore transactions. There is little economic interest in a product's longevity. New business models should change this interest: the model should support the longer use of products.

### 4. Market participation incentives: the need for participation of end-users

The consumer or end-user is the part of the value chain where normally, after use, products turn into waste. In the circular model the product/materials need to return to an upstream part of the value chain. People are used to throwing away products after using them, and this habit needs to change in a circular economy. Especially when returning products/materials is complicated or time consuming, people are less willing to participate. Incentives, like a deposit, can help to internalise the desired behaviour.

### 5. Integration of public good incentives: the need to charge for externalities

As mentioned earlier, internalising the cost of externalities in consumption and production can help achieve public goals and reduce societal costs. These incentives would allow circular companies to compete more fairly as, on average, they contribute more to public goals and/or help to reduce societal costs. When a

circular value chain uses less energy in comparison to its linear alternative, a carbon price will make the circular products more competitive.

#### 6. Incentives to build up knowledge of finance: the need for better knowledge/ understanding and adjustments with financiers

If a circular business is significantly different — and it is — it is important that the financiers understand these differences to be able to value the business model correctly. For instance, if cash flows change substantially in the case of a circular use model (so the assets remain on the balance sheet), a few things happen to the company: (1) solvency will be lower, (2) the time shift in cash flows means extra credit risk, (3) customer loyalty is different compared to the linear transaction, (4) breakeven is at a different moment in time, (5) initial capital investment and financing is higher, etc. If a financier is unaware of the differences in the circular model and appraises this from the same perspective as the linear business-as-usual, the circular model will have a worse position than the linear model.

#### 7. First mover incentives: the need for launching customers

Often with innovative concepts demand pull is part of the success. This demand pull works as a magnet for new entrants and/or current businesses to change their model. No matter how perfect a value chain is organised, without people/organisations willing to pay, there will not be any viable business.

In summary, there needs to be a shift in focus on different incentives to treat the circular model fairly. The central question is ‘can we make the markets for circular products/services work?’ and the incentives

presented above are currently barriers. Or, in other words the given incentives are hindering prosperous circular business activity. The most effective transition path — in terms of pace, costs and minimising an unmanaged transition — is when there is a coordinated and parallel change of all seven incentives towards proper supporting circular business.

#### 10. The key playing fields and actors for a circular transition: (i) the business models and the role of businesses, (ii) the economic system and the role of policy makers/regulators and (iii) the financing strategy and the role of financiers

We see the need for changes on three levels to make the transition to a more circular economy a successful one:

1. within the businesses to alter their model to a circular business (think of the alignment within the value chain or the necessary competences — incentives 2, 3 and 4);
2. within the system to level the economic playing field to allow fair competition for circular business (think of the tax system, pricing externalities or public procurement, but also awareness raising and education at different levels — incentives 1, 5 and 7); and
3. within the financing industry to fairly value the circular business (think of adapted risk assessment or tailor-made solutions like value chain finance — incentive 6).

## ANNEX II: LIST OF EXPERTS

- ⊕ ASTER:  
Daniela Sani
- ⊕ Bank Gospodarstwa Krajowego  
Patrik Darowski
- ⊕ Bank of Valletta Group  
Mark Scicluna Bartoli
- ⊕ Caisse des Depots (CDC)  
Jacques Rosemont
- ⊕ DK finančno svetovanje, Darko Kovačič s.p.  
Rebeka Kovačič Lukman
- ⊕ European Bank for Reconstruction and  
Development  
Gianpiero Nacci
- ⊕ European Defence Agency  
Giorgos Dimitriou
- ⊕ European Environment Agency  
Stefan Speck
- ⊕ European Economic and Social Committee  
Janine Borg
- ⊕ European Investment Bank  
Shiva Dustdar
- ⊕ European Investment Bank  
Arnold Verbeek
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Christian Schempp
- ⊕ European Investment Bank  
Pia Nieminen
- ⊕ EIT Climate KIC  
Cliona Howie
- ⊕ ENEL  
Luca Meini
- ⊕ EURIC  
Emmanuel Katrakis
- ⊕ EXPRA  
Joachim Quoden
- ⊕ Finance Watch  
Mireille Martini
- ⊕ ICLEI Local Governments for Sustainability  
Philipp Tepper
- ⊕ Intesa Sanpaolo S.p.A.  
Massimiano Tellini
- ⊕ Municipal Waste Europe  
Vanya Veras
- ⊕ Ovam (Circular Flanders)  
Frans Dierck
- ⊕ PGGM  
Frido Kraanen
- ⊕ Rabobank  
Richard Piechocki
- ⊕ Rank OÜ  
Siret Talve
- ⊕ Repsol  
Íñigo Palacio Prada
- ⊕ Rijksdienst voor Ondernemend Nederland  
Caspár Bijleveld
- ⊕ Scholz Austria GmbH  
Peter Hodecek

- ⊕ Sitra, the Finnish Innovation Fund  
Mari Pantsar
- ⊕ SME United  
Guido Lena
- ⊕ SRIW  
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The transition to a circular economy is at an early stage in the EU. Regulations, markets, investment tools and practices, including financial risk assessment, are adjusted to linear models. Externalities linked to linear business models are largely not taken into account. This poses a problem for the emerging circular models, which have to contend with the challenge of accessing finance, as the financial sector sees circular projects as highly risky and often not bankable.

To improve the conditions for financing circular economy projects, the Expert Group on Circular Economy Financing analysed barriers and identified the main areas where incentives need to be provided. The recommendations are addressed to three stakeholders groups — policy makers, financial institutions and project promoters.

*Studies and reports*

