

ACHIEVING 'GROWTH WITHIN'

A €320-BILLION CIRCULAR
ECONOMY INVESTMENT
OPPORTUNITY AVAILABLE
TO EUROPE UP TO 2025

EXECUTIVE SUMMARY



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An additional €320 billion of circular economy investment opportunities is available to investors in the European Union (EU) until 2025 that can be unlocked through modest action by policy makers or industry. This investment would put the EU on the path to seize the economic, societal, and environmental benefits of the transition to a circular economy and mitigate the mounting risks that reside in conventional industrial assets in an era of rapid change.

Shifting the EU towards a circular economy that is restorative and regenerative means moving away from today's wasteful use of resources. This transition would bring with it substantial economic, societal, and environmental benefits.¹ The time is ripe as the circular economy has now gained attention within the EU political landscape at the European Commission, Member State, regional, and city level. Additionally, certain corporations and investors are looking to shift towards more circular practices and investments as they realise the enormous business opportunity this presents.

One of the main barriers to fulfilling the true extent of these opportunities is the lack of investment. The circular economy has not yet become a mainstream investment area for the private sector, leaving the transition lacking in funds and therefore risking the realisation of its full benefits. While previous reports² have outlined long-term circular economy visions for the EU, this report focuses on identifying the 'next wave' of priority circular economy investments that could realistically be unlocked in the near term, and describes what the EU needs to do to capture them. It has eight key findings:

1 The circular economy offers ground-breaking, attractive innovation and investment opportunities, and the EU is uniquely placed to exploit them. The circular economy enjoys political and business support due to its many benefits for growth, employment, resource dependency, health, and environment. As such, making the transition to it is a key prerequisite in reaching many of the 17 Sustainable Development Goals (SDGs) that the EU officially signed up to in 2015.³ The circular economy provides a systemic shift in the industrial landscape, including product design, business models, resource flows, and value creation. It offers a different industrial logic that in the future will guide investment in physical and digital products and infrastructures. This shift also points towards the opening up of many attractive innovation opportunities, and will lead to the emergence of novel market segments and companies. It is enabled by, and highly synergistic with, the digital disruption that is now reshaping the industrial landscape, and offering opportunities for sharing, virtualisation, and remanufacturing. Specifically, the EU has the unique combination of scale, integrated markets (notably through the single market), and political and economic institutions that can facilitate an acceleration in the development of the circular economy. If successfully pursued, a transition to the circular economy could become a major source

of innovation and renewal for the EU economy over the next decades, and it could provide the EU with a new joint project to rally around – an important political opportunity for the Union to gain industrial leadership globally in an area that sits at the core of its strengths.

2 This comes at a time when the EU is in need both of industrial renewal and of attractive investment opportunities. The context of circular economy investments is a weakened European economy that has not fully recovered from the financial crisis, with corresponding stagnating industrial investments. Indeed, the role of industrial investments as an economic driver has decreased from on average c.7% of GDP between 2000 and 2009 to 6% of GDP between 2010 and 2015.⁴ Post-crisis recovery of EU investments versus other mature markets, such as Japan or the US, is lagging significantly. In addition, since the crisis, returns on capital investments within the EU have recovered only to levels similar to those of 2000. Trying to stimulate demand and investment, central banks have pushed interest rates to record lows, but the 75 largest EU corporates still held 40% more cash in 2016 than in 2010, interpreted by many as a sign of a perceived lack of attractive investment opportunities. This lack of investment seriously hampers the EU's industrial innovation and renewal, its future competitiveness, and it puts Europe's industrial core at risk of slow erosion.

3 Circular economy investment opportunities remain unrealised. There are niches related to the circular economy that enjoy rapid growth in investments, such as R&D for electric vehicles and autonomous cars or space sharing start-ups. However, the majority of circular opportunities, including car remanufacturing, car sharing, anaerobic digestion (AD), organic farming, and building materials reuse, still only constitute <10% of their respective markets, with conventional linear investment making up the remaining 90% to 100%. Waste management, the most 'traditional' circular investment area for which public statistics are available, has seen flat investment levels between 2009 and 2013 (the last year for which statistics are available). Some of the smaller circular opportunities (e.g. sharing of cars and houses) are growing rapidly, and there are also numerous policy successes that could well lead to additional investments (for example, the creation of an organic fertiliser market), but these are exceptions to a general pattern of underinvestment. In many cases, the key reasons seem to be: an uncertainty about which strategic direction the value chain is moving in; a set of policy barriers; transition costs; and, in some cases, a lack of awareness about circular opportunities and their benefits among company executives, who have been raised in a linear economy. The lack of underlying profitability is an issue only in some cases, and therefore does not seem to be the primary barrier.

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4 Ten attractive circular innovation and investment themes, totalling €320 billion through to 2025,

have been identified and could be unlocked with modest policy reform or action by industry.

These themes represent investments in the circular economy that were identified as needing modest intervention to achieve their full potential and to take off at scale. As such, these ten areas are potential innovation and investment 'hot spots' that policymakers and companies should work on jump-starting. They provide a new lens for building high-growth industrial investment portfolios. As can be seen in Figure 1, by 2030, these hot spots could create an additional 7% of GDP growth; reduce raw material consumption by an additional 10%; and reduce annual CO₂ emissions by 17% more than would be achieved within the current development pattern. The ten themes are all in line with the EU's long-term circular economy strategy.⁵ They are all fertile ground for innovation: for example, imagine if the EU transitioned its mobility system towards a shared, integrated mobility infrastructure instead of the current single-mode, single-owner system, this would lead to vehicles being designed and built to fit that system; different materials being used and reused; new service and access models; and a data-rich mobility environment in which new apps and systems would emerge to increase efficiency and convenience. The scope of this report encompasses mobility, food, and the built environment, as these value chains represent 60% of consumer spending and 80% of resource use; there are likely to be additional themes and opportunities that lie beyond this scope. However, these areas offer compelling cases:

a. €135 billion in the *mobility* system could be invested in: creating modally integrated shared mobility systems; transitioning to circular car designs; and ramping up the reverse value chain for vehicles through focusing on remanufacturing.

b. €70 billion in the *food* system could be invested in: fully regenerative agricultural practices; closing organic nutrient loops; scaling high-productivity indoor urban farming opportunities; and developing next-wave protein sources.

c. €115 billion in the *built environment* could be invested in: designing and constructing buildings based on circular principles; closing the loop on building construction and demolition materials; and building circular cities.

5 Circular economic investments offer resilience and transformation of those assets that otherwise might face being stranded or becoming redundant.

Powerful technology and market trends are underway with the potential to create unprecedented stranded assets across Europe. The shift from a linear to a circular industrial model presents a way to mitigate that risk. Two factors drive the risk of assets and companies being stranded: businesses relying on one-way volume flows (leaving them open to being damaged by higher asset utilisation, materials looping, and the cutting out of intermediaries) and businesses not carrying their environmental costs (this applies to much of the process industry, according to recent estimates). This is particularly the case for capital intensive, long-lived assets such as power plants; the major write-offs in the EU's utility industry over recent years show the

scale of the risk. However, unlike other transitions, the circular transition is more likely to take decades rather than a few years, and if the stranded asset risk is responsibly managed, our belief is that it can largely be avoided. Four principles of 'circular economy-compliant' investment have been developed and are presented in this report. Adopting these or similar principles would provide investors with a more thematic approach to investing not offered by 'modern portfolio theory' (MPT), which is often used to identify a diversified investment portfolio, but typically overlooks risks that run across seemingly uncorrelated assets.⁶

6 Policymakers at the European, national, regional, and city levels should take four roles: setting direction for the transition, removing policy barriers, facilitating cooperation and innovation along the value chain, and shifting public investment towards the ten themes.

a. Setting direction and showing commitment. One of the success factors of the ongoing clean energy revolution is its clarity of direction, something that has been lacking for the majority of the ten circular investment themes. As a result, too many investors take a 'wait-and-see' approach. Therefore, providing such direction is a crucial task for policymakers, be it through targets, strategies, public investments, consistent international trade agreements or industry convening. One implication of setting direction is to strive to level the playing field for circular business models.

b. Removing policy barriers. An inventory of regulatory change requirements to unlock the ten investment themes has been made and is presented in this report. As recent work of the Ellen MacArthur Foundation has highlighted, this includes addressing unintended regulatory consequences that prevent circular economy solutions from taking off, such as the current strict limitations on how food waste may be used or how remanufactured car parts can be utilised.

c. Creating platforms for dialogue, cooperation, and awareness creation.

From 2012 to 2014, the European Resource Efficiency Platform (EREP) was widely seen as central to the creation of the European Commission's first circular economy package in June 2014. It acted as an effective mechanism to attract attention, increase knowledge, gather input from relevant stakeholders, develop pragmatic solutions, and build support. Moving forward, we believe similar platforms – ideally separate ones for mobility, food, and the built environment – could serve a comparable purpose. Additionally, creating awareness, in both consumer and producer groups, of the possibilities and benefits of the shift towards a circular economy would be a key enabler.

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d. Focus public procurement, public circular economy investments, and existing subsidy regimes towards the ten themes.

For example, EU public funding from Horizon 2020 and the European Fund for Strategic Investments (EFSI) currently only partially overlap with the next wave of circular economy investment opportunities. Specifically, directing funds towards the hot spot innovation and investment themes within food and buildings is a major opportunity to increase returns on public investment (whereas there is a better overlap for mobility opportunities). Getting biorefineries, 3D printing of building elements, and urban food farms through the proof-of-commercial-concept phase are good examples of high-return opportunities for public investment. Moreover, providing fiscal incentives for the identified investment opportunities could be an effective way to stimulate investments.

7 **Company executives should move early and carve out their role within the ten investment themes, in parallel with scaling back from investments at risk of becoming stranded.** Participating in these themes will often require experimentation with new business models and partnerships, as many of the themes require changes from stakeholders along the value chain. Having consulted a wide variety of industrial companies, it is clear that many of them see the promising business opportunities within the ten themes. In the same way that the lean

operations lens allowed executives to see a whole new set of improvement options, the circular economy lens most often allows executives to see a new wave of opportunities. Again, generally companies operating within the EU are short on attractive investment opportunities, as their cash build-up signifies. Being a first-mover in this space often allows companies to secure the most attractive opportunities (the so-called 'low-hanging fruit') and as such make the most of profitable business options. In parallel, executives should shift business strategy and investments away from the resource-intensive business models most at risk of getting stranded.

8 The strong synergies between Europe's digital agenda and the circular economy transition should be captured.

The digital revolution is a crucial enabler for many parts of the circular economy transition, for example sharing, virtualisation, managing complex reverse logistics chains, and keeping track of valuable assets. At the same time, improving growth and employment – two important effects of a circular economy transition – are the ultimate aims of the EU's digital agenda. Currently, these strong mutual synergies are only partially captured. Specifically, the EU's digital agenda could strengthen three synergy areas, which are further explored in this report: intelligent assets / digital product IDs; open data material platforms; and setting up a measuring and evaluation system to track progress on the circular economy transition.

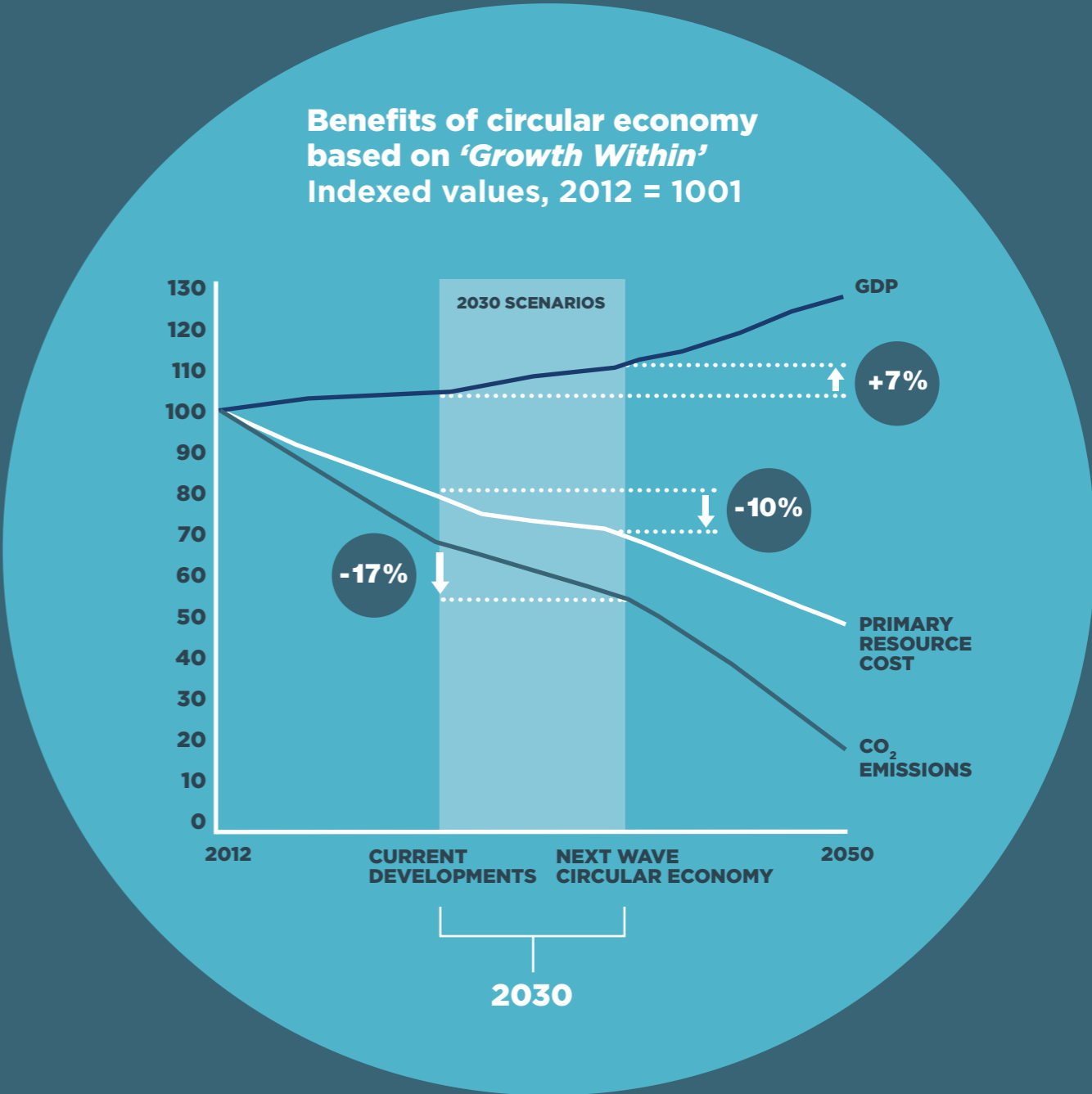
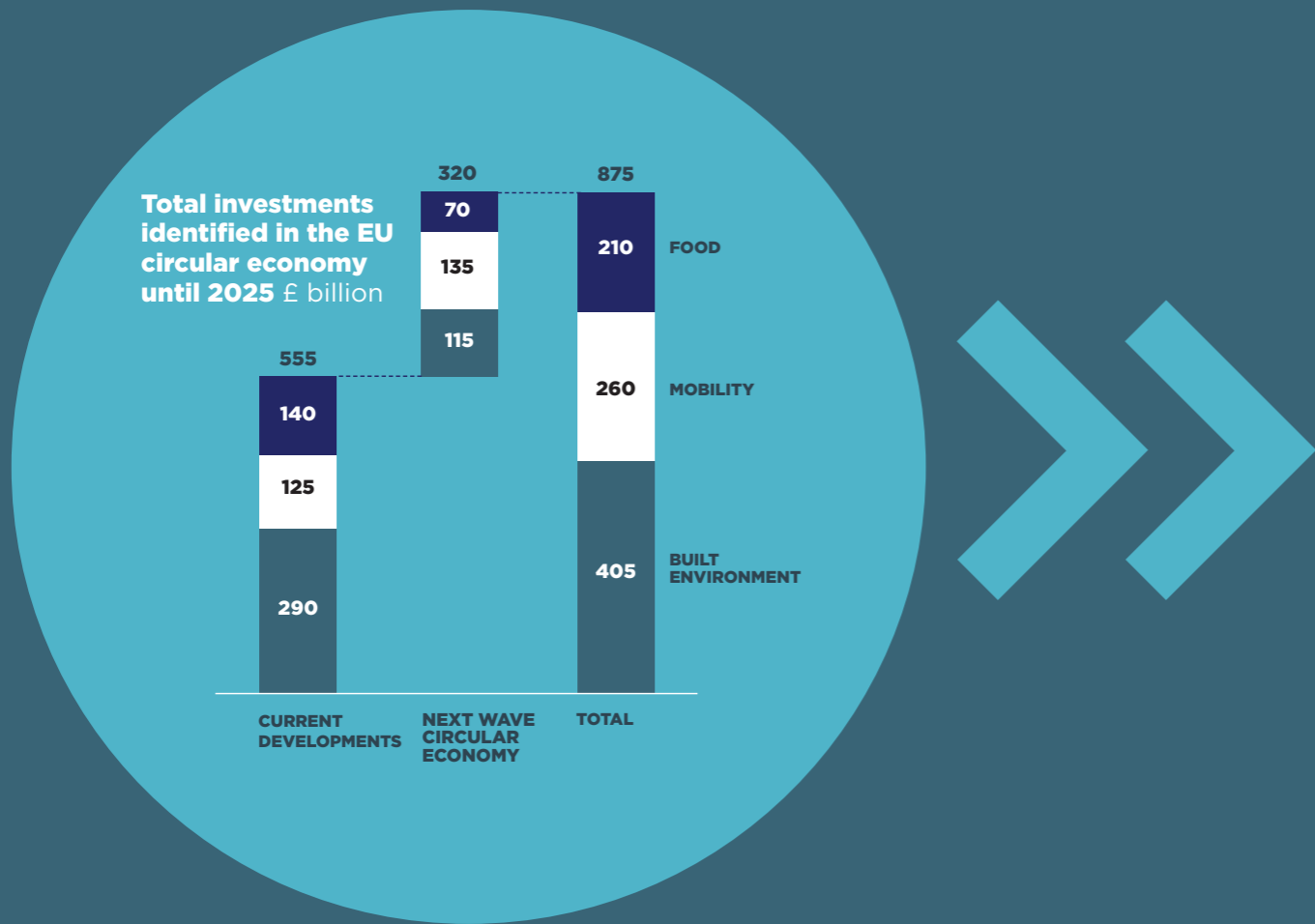
For all these reasons, the conclusion of this report is that increasing investments into the circular economy is a very attractive option for the EU's companies and policymakers, and a very achievable one. This agenda is hugely synergistic with the EU's societal, competitive, regional, environmental, and digital agenda. In terms of size and importance, the opportunity could even compare to the creation of the internal European market, or to a European 'Energiewende' (Germany's revolutionary transition to a low-carbon energy supply). Politically, it could provide the EU with a new industrial agenda that has a clear and positive message.

An EU-wide transition would also have impact far beyond its borders: it could create de facto global standards for product design and material choices, and provide other world regions with a much-needed blueprint. This would put the EU's political, as well as its corporate, leaders at the forefront of a major global industrial innovation.



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FIGURE 1
**INVESTMENTS
 REQUIRED TO ACHIEVE
 CIRCULAR ECONOMY
 BENEFITS**



1 Total impact across mobility, food and built environment value chains. 100% of 'Growth Within' impact assumed to be achieved, even though some levers - most notably dietary shift - are not driven by direct investments. Sources: 'Growth Within'; SYSTEMIQ.

