
The EIB and the new EU missions framework

Opportunities and lessons from the EIB's advisory support to the circular economy

By Mariana Mazzucato and Olga Mikheeva

November 2020

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Published by

UCL Institute for Innovation and Public Purpose (IIPP)

11 Montague Street

London, WC1B 5BP

ucl.ac.uk/iipp

This report can be referenced as follows:

Mazzucato, M. and Mikheeva, O. (2020). The EIB and the new EU missions framework: Opportunities and lessons from the EIB's advisory support to the circular economy. UCL Institute for Innovation and Public Purpose (IIPP), Policy Report (IIPP WP 2020-17)

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Acknowledgements

The authors would like to acknowledge the valuable comments received from Martha McPherson and Laurie Macfarlane.

Foreword by IIPP Founding Director Professor Mariana Mazzucato

The imperative of the green economic transformation should be put at the core of the economic recovery measures that are being designed to respond to the COVID crisis. Without addressing the role and types of finance needed, the discussion of ‘greening’ the post-COVID recovery risks being toothless. Europe has set ambitious climate targets in the European Green Deal and has committed to becoming the first climate-neutral continent by 2050. The Next Generation EU (NGEU) recovery package contains conditions with public investment in climate and digitalisation, and the size of the funds available is unprecedented. It is more necessary than ever to strategically align European economies with the climate mitigation targets. This means stronger alignment between financial policy, industrial strategy, innovation policy and fiscal stimulus.

The mission-driven approach to innovation adopted by the European Commission provides us with an opportunity for designing this alignment in a way that is focussed on challenges. Missions in Horizon Europe programme 2021-2027 bring the directionality of innovation and economic growth to the forefront. In this study, we look at the role of finance, and particularly of the European Investment Bank, in supporting the green and circular directionality within the context of mission-oriented innovation policies.

In the same way that growth has not only a rate but also a direction, financing growth is not neutral. The form finance takes has a direct effect on the economic activities that occur. A green transition requires patient, long-term, mission-oriented finance that will be able to crowd in multiple financial sources. Re-orienting financial flows into existing low-carbon technologies and structuring finance so as to broaden and develop the green technological frontier is a *sine qua non* of the green transition. Furthermore, innovation in digitisation and automation requires a direction for deployment—green policies can serve to create a demand pull for the ICT revolution, as ambitious as suburbanisation was for the mass production revolution.

Strategic mission-oriented finance can help build new forms of public-private partnerships and in this report, we consider the way(s) in which the European Investment Bank can structure its activities to form a dynamic process of crowding in private sector investments. Critically, this also requires strategic capacities developed in-house and driven by the notions of public purpose and missions-oriented finance.

We hope that the 'COVID moment' is one that can genuinely help us find ways to 'walk the talk' of stakeholder capitalism. Many governments have already included 'green' conditionalities in post-COVID support measures, and many more are designing the ways of incentivizing global industrial and financial players to reduce their carbon footprint and prioritise environmentally sustainable business models. Designing financial instruments to create a post-COVID economy that is more resilient, greener, circular and inclusive is the challenge we take on in this report.

Foreword by European Investment Bank President Dr. Werner Hoyer

It is with great pleasure that I express my gratitude to Professor Mariana Mazzucato and the UCL Institute for Public Innovation and Purpose for the insights and recommendations in this report on the EIB's potential role in delivering the EU's "Missions" under the forthcoming Horizon Europe programme.

As the EU's investment bank, the EIB is well placed to act as trusted adviser and financier in seeking to address the five societal challenges, or Missions, the European Commission has identified over the next decade – conquering cancer; seeking climate neutral and smart cities; ensuring adaptation to climate change; healthy oceans; and protecting soil health and food. The EIB is committed to the implementation of these long term and inspiring objectives in partnership with the European Commission.

As a key architect of the Missions framework, Professor Mazzucato is well placed to assess the Bank's role in delivering proven results in pioneering thematic areas – such as the move towards a more circular economy – and how this experience can serve the broader European agenda under the EU Missions framework.

Each Mission contributes towards the overarching goals of Europe's Green Deal at a time of extraordinary challenges at national, regional and global levels. The EIB's own Climate Bank Roadmap, anchored around its Paris Agreement commitments, mirrors the priorities of Europe's Green Deal and serves to further demonstrate the symbiotic relationship between the EU and its bank towards the achievement of shared goals and ambitions.

The report rightly highlights the importance of the EIB's advisory services in delivering the transformative change demanded by the Missions that are anything but business as usual. The EIB's in-house expertise and knowledge can serve to bring further coherence to the Missions by developing investment agendas comprised of tangible underlying projects aiming to contribute to the ultimate goal of each Mission.

The Missions and their associated investment agendas provide a clear opportunity for the EIB to capitalise on its long-standing financial, advisory and technical expertise to help future-proof Europe in key strategic areas of its economy and society.

On a more personal note, I look forward to continuing our cooperation with Professor Mazzucato in the delivery of the five Missions that stand out as beacons of hope in challenging times.

Foreword by European Commissioner Mariya Gabriel

EU Missions are a response to some of the most pressing societal challenges we are facing. From cancer to climate disruption, from polluted oceans and waters to climate neutral cities or soil health and food, the dimension of these challenges is enormous. The world is in an urgent need of ambitious responses. Missions aim to do that. They will provide concrete, transformational and systemic responses to these challenges based on clear goals, objectives and timelines.

Missions are a new tool for the European Commission. First, they are about connecting with European citizens. They include an important role for European citizens to take part in setting the agenda and to become part of the solution. Second, missions have a different way of looking at impact. Through a portfolio approach, the real impact is measured as the sum of all the different actions supported over the years. Together, these individual actions are expected to deliver on the missions' objective and achieve societal impact. Last, missions will be implemented in a fully holistic approach. In order to reach their potential, research and innovation will set the direction, but need to be complemented by an appropriate policy framework and investment strategies to ensure that solutions will also be implemented in practice. The European Commission will mobilise its funding instruments to support the implementation of the missions. However, these instruments alone will not be able to deliver societal impact. It is important to build the appropriate links with national and regional strategies, and to unlock private and public investments for full-scale deployment of solutions and catalysing better implementation of existing regulations. The basis of this is the development of credible investment strategies.

The recommendations in this latest report by Professor Mazzucato provide us with important guidance on how to create solid and reliable mission investment strategies. I am confident that the European Commission and the European Investment Bank will find inspiration in this report and that it can serve as a basis for cooperation to make missions a success.

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Our recommendations at a glance

This study was conducted in close collaboration with the Innovation Finance Advisory (IFA) team of the European Investment Bank (EIB) and DG RTD of the European Commission in the context of the joint EC-EIB InnovFin Advisory programme.

The objective of this study was to take stock of the activities of the EIB in the circular economy (CE). CE served as a case study to explore how the EIB, and its technical and financial advisory services, can support innovation and green growth, and actively contribute to future implementation of the missions areas set by the Horizon Europe programme.¹

The question of how to finance green innovation and the green transition could not be more timely as governments around the world are putting forward post-COVID economic recovery plans while incorporating climate-related policies therein. The European Green Deal contains a set of ambitious policy targets and tackling climate change has been ingrained in the mission-oriented approach to innovation taken by the European Commission.

This study shows that the EIB is well-positioned to support the further development and implementation of missions, not least as witnessed by the deployment of a variety of tools (financial and advisory) in facilitating the circular transition in Europe. By continuing to develop financial and technical advisory capacities, thereby building up a strategic knowledge base, the EIB's advisory services can play the role of catalyst and 'change agent' in new thematic areas, including missions. A strategic approach to advisory support can help the EIB build up and disseminate knowledge inside and outside the Bank, support project promoters and develop new financial instruments.

Advisory services, particularly the leading role of the InnovFin Advisory (IFA) in cooperation with the European Investment Advisory Hub (EIAH) (to be integrated under the future InvestEU Advisory Hub structure) and the Technical Departments of the Bank, represent a strategic asset and engine for knowledge creation that supports financial instruments and funds ecosystem development. This, in turn, allows the EIB to tailor finance towards the actual needs of new emerging sectors and this expertise can be an important input into the implementation of missions. This will help the EIB to remain fit for purpose and impactful, and to facilitate a market-shaping approach to the financing of innovation.

Based on this study, we put forth the following key recommendations for the EIB:

1. Build on existing expertise and further strengthen the EIB's in-house financial and, crucially, analytical (market intelligence, technical appraisal) capacities to ensure long-lasting commitment to the implementation and long-term financing horizon of missions.
2. Further enhance knowledge creation by utilising EIB/InnovFin Advisory's capacity for playing the role of a committed internal and external 'change agent', and further promote ecosystem-building and coordination among national and regional mission-relevant actors.
3. Build on existing risk-sharing mechanisms (e.g. EFSI, InnovFin) and further promote higher risk-taking by developing suitable patient, long-term, higher risk financial instruments.

Mission-oriented innovation policy, adopted by the EU, as well as investment programmes such as InvestEU and NextGenerationEU, provide a unique opportunity for the EIB to capitalise on its long-standing financial and technical expertise to help direct and 'shape' the European funding ecosystem to bring about a knowledge-based, green and investment-led economic recovery. It is our hope that the EIB, as the investment arm of the EU, seizes this opportunity and commits high-level strategic support and the necessary resources to support the European Commission in mobilising the capital and expertise needed to translate the missions areas into targeted (realistic) and bold (ambitious) investment plans.

Context and approach

Missions and the importance of risk finance

Mission-oriented innovation policy is reflected in the ongoing work of the European Commission (EC) on societal challenges – missions that will help direct research and innovation towards solutions to the greatest problems of our time, from the need to battle climate change to the need to build resilient health systems. The reports published by the Commission on Mission-Oriented Policy (Mazzucato 2018b) and Governance of Missions (Mazzucato 2019) informed the process of defining the missions policy agenda at the EU level, and underwent a large degree of stakeholder consultation.

Missions take directionality of innovation head on and consider how to govern the process so as to develop dynamic capabilities of public institutions at the Member State level (Kattel and Mazzucato 2018). This means redesigning instruments like grants, loans and procurement policy to fuel bottom-up innovation to target challenge-oriented missions, across a multitude of economic sectors and firm sizes. Such directionality is also enabled by a strategic take on financing policies.

Missions require patient, long-term finance, but also finance that is willing to take on higher risks: while some innovations are successful, many are not. Asking what forms risk finance should take, in order to steer a transition towards mission completion, is one of the key questions of this report.

While the investment programmes for the five missions are currently being designed by the EC, it is critical to consider the types of risk finance (both for high capital-intensive projects and for more venture capital-type finance for SMEs) that is needed for their successful design and implementation. There are various roles that public finance can play in helping shape and create new markets: from countercyclical lending to public venture capital, and ‘lender of first resort’ in the case of high-tech, high-risk firms (Mazzucato and Penna 2015b). **The financing question is also particularly apparent in the context of post-COVID recovery plans, which involve public spending of unprecedented magnitude. It is crucial to ensure that 672.5 billion EUR in loans and grants earmarked by the Recovery and Resilience Facility reinforce the EU’s ambitious green targets, set in the European Green Deal, as well as help channel finance into productivity-inducing, high-skill and R&D-intensive sectors and jobs.²**

The European Investment Bank (EIB), including the European Investment Fund (EIF), has been one of the main providers of long-term finance, as well as risk-sharing, and has been taking the lead in key policy areas, such as in climate action finance (by committing to dedicating 50% of financing to climate action by 2030) and finance for innovators (e.g. through the joint EC-EIB InnovFin Programme). The EIB is the lead implementing and advisory partner in the InvestEU Programme – one of the key components of the EU financing framework designed for 2021-2027. Further, the EIB has strategic analytical capacities in the form of technical appraisal and financial advisory expertise, which allows it to explore and significantly contribute to the 'knowledge creation' in priority policy areas, including the five missions areas. These often involve innovation at the technological frontiers and hence require thematic technical and financial expertise, and future-oriented market intelligence.

EIB's circular economy journey as a case study

One such priority policy area, which acts as the case study in this report, is the circular economy (CE) and this has intrinsic similarities with almost all the five missions. **The CE megatrend was selected as a thematic focus of this study³ because of its pivotal role in providing the 'direction' to growth in Europe, as well as its implications for the policy tools and forms of patient, mission-oriented finance.** Just like the missions, CE implies broad, cross-cutting conceptual premises, systems-based thinking with necessarily cross-sector and multi-stakeholder active engagement, and an emphasis on innovation and novel business models bringing a considerable degree of complexity and novelty for business firms, policy makers and financial actors alike.

The EIB has been supporting the CE through a variety of advisory and financing tools, and has developed a significant technical (residing within EIB's Project Department) and financial advisory (kick-started by InnovFin Advisory in cooperation with European Investment Advisory Hub) knowledge base. A committed approach to developing such a knowledge base, particularly within the InnovFin Advisory, has been instrumental in positioning the EIB as a proactive and important player in the field of CE, thus paving the way to explore how a strategic approach to knowledge creation and advisory support can feed into the financing of innovation, risk-taking and financing of missions in particular.

Glossary

Grand challenge is a difficult but important, systemic and society-wide problem with no 'silver bullet' solution.

Mission is a concrete target, an achievable step towards a grand challenge that contextualises projects.

Project is a single, isolated, clearly defined innovation activity with risky or uncertain outcomes.

Mission boards are one of the essential governance elements of missions. Interdisciplinary panels of independent experts were selected according to the five broad missions areas: cancer; climate-neutral and smart cities; soil health and food; healthy oceans, seas, coastal and inland waters; and adaptation to climate change and social transformation. The mission boards are responsible for developing the sets of concrete targets and activities in each of the five missions areas, by the end of 2020.

Governance of missions are the variety of enabling and coordinating mechanisms involved in the design, implementation and evaluation of missions. Mission boards are one example of such mechanisms. Other enabling and coordinating elements include research and innovation policies and agencies, related financing policies and institutions, design and assessment thereof, evaluation tools/models, and multi-level coordination between regional, national and European levels.

National promotional banks (NPBs) or National promotional institutions (NPIs) are public agencies tasked with providing long-term finance and/or other types of financing to the prioritised sectors and/or projects with higher risks, such as green, energy efficiency and digital transformation. NPIs act as policy agents in helping channel public finance into strategic and/or underfinanced sectors while providing complementarity to more short-term private financing. When acting as strategic investors, NPIs can help facilitate the creation of new markets where the private sector is not yet willing to invest. NPIs are expected to play a bigger role in the next EU budget 2021-2027 through voluntary participation in co-managing the InvestEU funds (subject to prior eligibility and pillar assessment by the Commission) together with the EIB.

The Green Deal is an ambitious set of policy measures and green targets adopted by the European Commission in December 2019 with the overall aim of making Europe climate-neutral (zero net emissions) by 2050. The Green Deal provides a roadmap for making a more efficient use of resources and for moving towards a clean, circular economy, for restoring biodiversity and cutting pollution. An integral part of the Green Deal is the New Circular Economy Action Plan (CEAP), adopted in early 2020, which includes a set of prioritised supply chains (e.g. food, textiles, plastics) and measures related to production and use of resources, consumption, waste management and recycling, as well as a set of indicators to help move towards circularity.

Circular taxonomy is the taxonomy of circular economic activities that would allow the development of a common understanding among financial institutions (and other stakeholders) of how to classify and appraise circular projects, and how to report and to assess circular risks. Similar to the sustainable finance taxonomy, the circular taxonomy will be developed by DG FISMA based on the categorisation system of circular activities published by the Commission earlier this year (EC 2020a). The EIB has contributed to the development of this categorisation system and has been using it internally (EIB 2019, 2020).

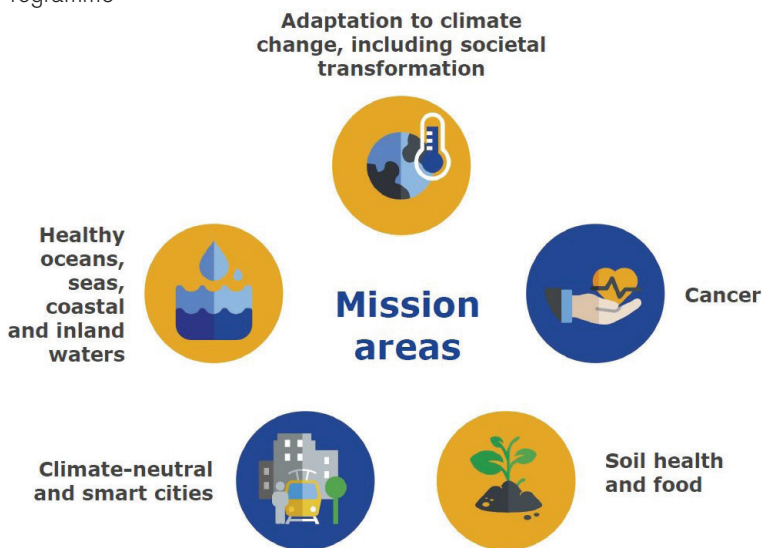
European missions policy framework

The Horizon Europe programme is one of the key European initiatives for the future. Horizon Europe features a new mission-oriented approach to research and innovation whereby innovation-led growth is directed towards solving concrete societal challenges. Behind the missions approach are systems thinking and the fundamental assumption that innovation is not only about growth, but also about its direction (Mazzucato 2018b). To enable such directionality of research and innovation towards tackling wider and complex societal problems requires the concerted efforts of policy makers, private stakeholders and citizens.

The five mission areas identified by the European Commission for the Horizon Europe Programme are:

- Cancer
- Climate-neutral and smart cities
- Soil health and food
- Healthy oceans, seas, coastal and inland waters
- Adaptation to climate change, including social transformation

Figure 1: Mission areas identified by the European Commission for the Horizon Europe Programme

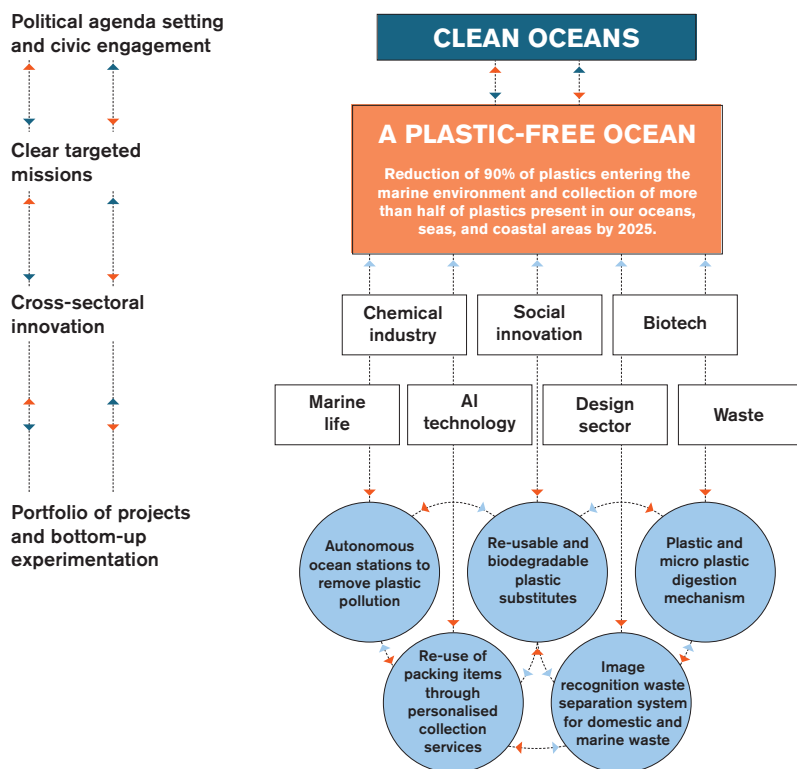


Source: European Commission

While setting the direction of innovation, a mission represents a wide range of projects and technologies, thereby encouraging cross-sectoral and multi-stakeholder solutions (Mazzucato 2019; Mazzucato and Dibb 2019). For example, to make the oceans free from plastic will require a wide range of research and innovation activities as depicted on page 18. A mission (e.g. a plastic-free ocean) represents a portfolio of actions and experimentation (e.g. on a project- and technology-level) directed towards generating multiple technological and organisational solutions. This also involves seeking synergies across sectors, technologies and policy domains, and therefore requires systems thinking, novel approaches to collaborations, social learning and deliberate governance mechanisms (Miedzinski et al. 2019). **Hence, a diverse set of funding instruments is needed: from grants to prizes, to financial innovation and novel financial instruments, to public procurement contracts and novel forms of combining public and private finance (Mazzucato 2018b).** In other words, directionality of innovation is enabled not only by clear policy targets, but also through strategic financing policies.

Missions also have an important role to play in national and regional economic strategies. A mission-based approach can help to ensure that industrial policies do not end up as a static list of sectors to support (Mazzucato et al 2019, p. 11). Rather than focusing on particular sectors – as in traditional industrial policy – mission-oriented policy focuses on problem-specific societal challenges, which many different sectors and actors interact to solve. The focus on societal problems, and new types of collaborations between public and private actors to solve them, creates the potential for greater spillovers than a sectoral approach. It was this approach that put a man on the moon, and lay behind the creation of the Internet and entire new sectors like biotechnology, nanotechnology and the emerging green technology revolution. **A mission-based approach to innovation and the financing thereof lays the long-term foundations for future growth.**⁴

Figure 2: Mission-oriented framework for clean oceans - to make the oceans free from plastic will require a wide range of research and innovation activities



Source: Mazzucato 2018b

Financing of missions, risk-taking and coordination

The successful financing and delivery of the missions will hinge on a combination of the following factors:

1. The clear articulation of the missions' objectives, related policy targets and investment needs – thereby setting the direction of innovation – by the mission boards (by the end of 2020);
2. Systematic learning, knowledge base build-up and dissemination, including through engagement with actors in the wider innovation ecosystem, to identify financing gaps and opportunities in missions areas and related sectors;
3. The provision of adequate risk-bearing capital in order to allow for the deployment of a full spectrum of financial instruments adapted to each mission in order to address funding gaps through the mix of public and private capital;
4. Given the dynamic and cross-sectoral nature of the missions, financing of missions requires a combination of extensive financial and technical (non-financial) expertise, which is also needed for subsequent evaluation of financial instruments; and
5. A strong coordination function (brokerage function) of the funding ecosystem specific to each mission, covering all key private and public sector players (including the EC, the five mission boards, the EIB, and national promotional institutions) to foster strategic engagement between the stakeholders, and enable risk-sharing and crowding-in private finance.

Mission-oriented finance implies creating and 'shaping' markets by channelling various types of finance to innovation through a variety of mechanisms, direct and indirect: a mixture of grants, guarantees and concessions, debt-based and equity-based instruments – all should aim at risk-sharing rather than 'conventional' de-risking (Mazzucato and Macfarlane 2017; Macfarlane and Mazzucato, 2018). This way various types of finance are deployed at different stages of technological and business cycles,

and provided to different actors, thereby helping to address specific innovation-related uncertainties and risks.

When public financial institutions, such as development banks, act as mission-driven investors, they often act as lead investors, which implies assuming various types of risks. The risk portfolio is also associated with the various roles state investment banks play: from a *countercyclical* role by providing finance throughout the swings of business cycles, to a *capital development role* by financing infrastructure, to a *venture capitalist role* and a *mission-oriented role* by acting as ‘investor of first resort’ to create new technological and industrial landscapes (Mazzucato and Penna 2015a, 2015b).

Mission-oriented finance steers the direction of innovation

Mission-driven financial institutions tend to provide financing programmes and instruments that aim to support projects and/or technologies related to particular challenges (e.g. renewable energy within the overall goal of greening the economy) rather than following ‘directionless’ mandates such as supporting ‘competitiveness’ or ‘economic growth’. The risk portfolio of mission-driven state investment banks is also reflected in the range of financial instruments that are designed for various areas of the risk landscape – **a more strategic approach to risk-taking is what enables public development banks to be more active in risk-sharing between public and private financing actors (Mazzucato 2019).**

Innovation is by definition uncertain, and facing such uncertainty and accepting failures when they happen implies effective risk portfolio management. An active approach to risk-taking also involves strategic planning and analytical capacities in terms of technologies being financed, actors within supply chains, new markets and phases of the business cycle. Climate change involves fundamental uncertainty and complex dynamics, which existing risk assessment and evaluation models are as yet unable to capture (Kedward et al 2020). In other words, risk assessment expertise requires a sufficient understanding of broader technological, macroeconomic and market trajectories that goes beyond single-project appraisal models.

Extensive expertise in technological appraisal and economic analysis developed in house (such as within the EIB) is what often constitutes

an important element of strategic investment decisions, while also allowing development banks to provide direct policy inputs to economic strategies designed by policy makers and to maintain a longer-term view on investment (Mikheeva 2019). Therefore, the financing of innovation requires continuous learning above and beyond the financing needs of the innovation ecosystem. **From the policy point of view, technology guidance and advisory services (e.g. technology transfer, business and financial advisory, and business incubation) is another policy instrument in the mix of mission-oriented policy tools (Miedzinski et al 2019).**

Importance of ecosystem development and coordination

Mission-oriented financing of innovation also involves new forms of collaboration, strategic engagement with stakeholders (public, private and the third sector), and the co-creation of technical knowledge and financial expertise (Kattel and Mazzucato 2018). State investment banks, including multilateral institutions, are often particularly well positioned for strategic coordination within an investment ecosystem through engagement with various stakeholders and financial (and non-financial) market participants. (Mazzucato and Penna 2015a, 2015b, 2016).

In the context of the EU multi-level financial governance and because public resources are limited, such multi-level coordination (European/national/regional) is key to the effective financing of the missions. (Mazzucato 2018b). Further, inter-programme coordination and coherence is needed, for example between Horizon Europe and InvestEU, which also emphasises investments into research and innovation, as well as further support to the circular transition.⁵ Moreover, coordination between various financial instruments has been growing in importance due to the fragmentation of financing channels for innovation in the EU (Mazzucato 2019).

Upcoming InvestEU programme

The next Multiannual Financial Framework (MFF) 2021-2027 pays particular attention to the synergies between funding and policy mechanisms, and the InvestEU programme⁶ aims to gather various financial instruments under one roof. Allowing national

promotional institutions a share in managing the InvestEU programme together with the EIB is another step towards a better coordination between national and European policy layers.

The recently published reports by the mission boards all emphasise the need for coordination of financial instruments and between the national/regional and European layers of funding, be it accessing health care across the EU (EC 2020d), creating a dedicated financial facility for organic farming (EC 2020e) or a wide variance in abilities of cities and municipalities to mobilise the necessary financing for climate action (EC 2020b). The blending of various financial instruments, including the mix of national and European funding, will be essential for increasing the multiplier effect of public funds by crowding in more private finance. Implementation and financing of missions require a well-structured financing framework and this is where state investment banks, particularly the EIB with its far-reaching coordinating powers, can significantly contribute to supporting such coordination in a strategic way.

The EIB can capitalise on its advisory services and play an important role in supporting such coordination (fulfilling several conditions for success) through:

- Its expertise in the design and blending of financial instruments;
- Its understanding of the investment climate and investor appetite;
- Its advisory expertise, which can help better understand the sector, technology-specific financing needs and market bottlenecks; and
- Its capacity to mobilise stakeholders in the Members States (such as NPBs/NPIs) and across their regions.

The EIB and its role(s) in supporting the circular transition in Europe

Case study reflections

In this section, we will discuss the EIB's journey in supporting the circular economy (CE) in view of identifying and showing parallels with the conditions for the successful delivery of missions presented and discussed earlier. **As mentioned above, CE was selected as a thematic focus of the study because of its role in providing 'direction' to the growth in Europe as well as its implications for the policy tools and forms of patient, mission-oriented finance.** Just like the missions, CE implies broad conceptual premises, systems-based thinking with necessarily cross-sector and multi-stakeholder active engagement, and an emphasis on innovation and novel business models bringing a considerable degree of complexity and novelty for business firms, policy makers and financial actors.

Clear formulated objectives, provision of adequate risk bearing capital (tying into factors 1 and 3: see above on page 20)

While looking at how the EIB can contribute to implementation of the EU missions, it is worth considering the EIB's firm commitment to the financing of climate action. Indeed, the EIB's support to the circular economy (CE) is integral to its environmental sustainability strategy and climate action financing. Climate finance also involves the deployment of various types of financial instruments. According to the annual monitoring of climate finance, the EIB has been most active in investment loans, as well as equity investments, while also providing lines of credit, grants and guarantees as part of sustainability finance (EBRD 2018). Similarly, the wide spectrum of CE projects financed by the EIB ranges from more traditional recycling to more innovative sharing and leasing business models, and amounted to about EUR 2.5 billion over the period 2015-2019 (EIB 2020b).

Development of a strong knowledge base and ecosystem coordination (tying into factors 2, 4 and 5: see above on page 20)

The EIB has developed a strategic knowledge base in the field of the CE. In addition to its in-house technical expertise, the access-to-market study developed in 2014-2015 by the InnovFin Advisory (IFA) team (as part of the InnovFin programme, managed by the DG RTD⁷) can be considered as a starting point — and a turning point — in the EIB's commitment to CE. Among the recommendations of this study, two were

successfully implemented: the eligibility criteria of the InnovFin financial instruments were expanded to enable the financing of business model innovation (thereby fostering systemisation and ecosystem development) and in 2016 the CE Finance Support Platform (chaired by the European Commission under VP Katainen), which now serves as a specialised knowledge exchange forum for CE experts across many sectors, was established.

CE involves many local and/or regional initiatives, and the 'localisation' of the value chain has direct spatial economic benefits by activating local demand and diversifying local economic activities. This further necessitates an appropriate coordination function and complementarities between the local, regional and national strategies and stakeholders, including in terms of financial support mechanisms (funding ecosystem development).

The broad dissemination of knowledge among the relevant stakeholders has led to increasing awareness (including inside the EIB) of the socio-economic and investment opportunities offered by the CE. More specifically, engaging through the CE Finance Support Platform and the FinanCE Working Group, the EIB's advisory team contributed to facilitating the development of an ecosystem of CE-relevant investors (PGGM and Working Group FinanCE 2016). EIB experts, led by the technical project department, also played the key role in developing the categorisation system of circular activities (EC 2020a) – the direct input to the circular taxonomy to be further developed by the Commission in 2020/2021.

Provision of tailored finance for the CE (tying into factors 3 and 4: see above on page 20)

In terms of financial support, larger circular projects (more than EUR 25 million) are supported through direct loans with fixed or variable interest rates. Smaller projects are financed through financial intermediaries (particularly local banks). Risk-sharing instruments intended for more innovative projects with medium to high-risk levels are assigned to the European Fund for Strategic Investment (EFSI) and the InnovFin programme (and, in the near future, to the InvestEU programme), which are both enabled by guarantees from the European Commission.

One of the most recent market-based instruments is the newly established European Circular Bioeconomy Fund (ECBF), a EUR 250

million private equity/venture capital fund aiming to invest in early stage innovative bioeconomy and circular bioeconomy companies and projects in the EU and Horizon 2020-associated countries. The EIB made a EUR 100 million cornerstone commitment to the ECBF under the InnovFin mandate in August 2020. The fund was initially recommended in the access-to-finance studies in the circular economy (EIB 2015) and in the bio-based industries (EIB 2017) developed by IFA. The ECBF aims to direct public (e.g. contributions from national promotional banks) and private (e.g. institutional and private investors) finance to high-tech firms in circular and bioeconomy areas.⁸ Market-based financial instruments are essential for providing a demonstrating effect to market participants and the ECBF serves precisely that function in order to crowd in different types of investors into the new field of CE.

Another type of 'market signalling' is provided by the EIB through joint financial commitments with the national promotional institutions (NPIs). The recently established Joint Initiative on Circular Economy (JICE) with EUR 10 billion to be invested by the EIB together with the five biggest national promotional banks (KfW, CDC, CDP, BGK, ICO⁹) and the Clean Oceans Initiative with some EUR 2 billion to be mobilised by the EIB and two promotional banks (AFD, KfW¹⁰) serve as the most recent examples.

Importance of in-house technical and financial advisory capabilities (relevant to factors 2, 3, 4 and 5: see above on page 20)

EIB's advisory services, and in particular the early work of IFA in the CE, have shown the importance of building in-house strategic, analytical and technical capabilities in emerging innovation areas. The advisory support takes various forms, ranging from specific advisory support to project promoters (pre-appraisal support such as business plan development/review) to the development of thematic expertise in emerging new sectors (such as CE), and financial instrument development and funding ecosystem development (e.g. by bringing together investors with project promoters/owners) (EIB 2015, 2017). More specifically, the EIB (IFA, the European Investment Advisory Hub (EIAH)¹¹ and its projects department) developed a finance-related knowledge base in the CE that contributed to the better understanding of linear versus circular risks and opportunities.

IFA's advisory work contributed to preparing CE projects for financing

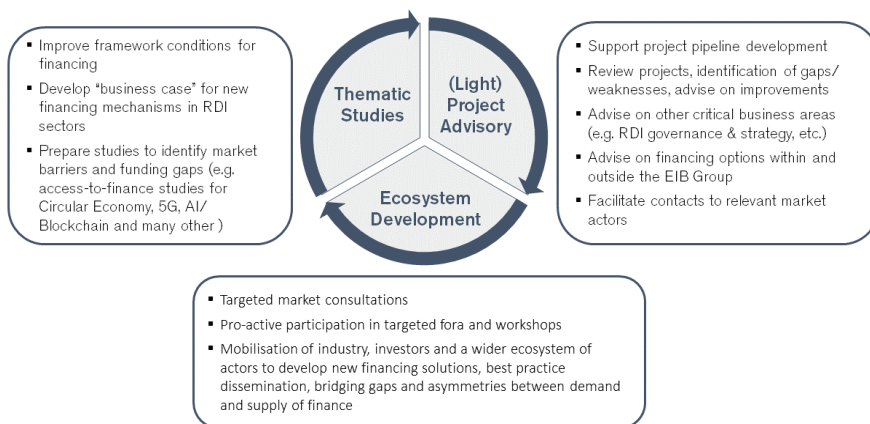
by the EIB as well as for tailoring existing instruments towards the needs of circular firms (e.g. by including circular business models in eligibility criteria). This has enabled the provision of tailored and high-risk capital to further enable the transition to the circular economy. Another example is the EIAH-led work (2019) for the Dutch agency Invest NL on designing a circular investment platform. This fund (currently under development) is expected to have a major impact on the financing of high-risk circular economy projects in the Netherlands.

Importance of a ‘change agent’ for committing to building up the needed knowledge base in concrete innovation areas (relevant to factors 2, 3, 4 and 5: see above on page 20)

The early engagement of IFA (through the EC-EIB InnovFin Advisory work programme) in the CE has helped the EIB to take an active and more strategic approach to the emerging area of CE, and play the role of a ‘change agent’. That is, besides building and disseminating the knowledge base in CE among external stakeholders (e.g. through the pilot project work with the Government of Luxembourg and joint initiatives with NPIs), IFA has been building a cross-departmental expertise within the EIB. Given the EC-EIB jointly designed mandate of the InnovFin programme, IFA has also served as an interface for interactions between the EIB and the Commission in the area of CE. The activities implemented by IFA range from knowledge creation (e.g. on financing gaps) and dissemination (e.g. through its networks) to identification of funding market gaps and the associated design of new financial instruments such as the ECBF, and the provision of advisory support to project promoters at pre-appraisal stage – see IFA’s activity profile on page 29.

Such a proactive approach and the long-term commitment to build extensive analytical capacities are crucial for supporting transformative innovations such as circularity, which involves going beyond assessment of ‘innovation risks’ (i.e. uncertainty of innovation outcomes). Indeed, remaining focused on ‘innovation risks’ is not enough as this creates a lock-in situation when ‘societal risks’ (i.e. various socio-economic externalities) remain disregarded, which reinforces conservative financing attitudes and less effective policy interventions (PGGM and FinanCE 2016).

Figure 3: Innovation Finance Advisory (IFA) - Current delivery modes



Source: EIB, Innovation Finance Advisory

To conclude, based on the circular economy case, the EIB has demonstrated the various roles it can play in financing innovation areas: from direct financing to re-financing through financial intermediaries to new financial instruments and advisory services. Therefore, the EIB can play equally various roles within the wider governance of missions. Existing synergies between the market intelligence, advisory and technical expertise that feed into the design of new financial instruments, adjustments to existing instruments and mobilisation of financing agents outside the EIB (both public and private) are important conditions for shaping the funding ecosystem around the financing needs of missions areas and related sectors. **This also requires further internal build-up and strengthening of EIB's advisory capacity (see also recommendations) as well as finding the right balance and types of activities split between internal, in-house, and external advisory support (outsourcing) – all with a long-term orientation/horizon, spanning beyond the seven-year EU programming/budgetary frameworks.**

The EIB and the governance of the EU missions

In the context of the EU missions, **the question of governance**, and particularly of financial governance, is essential. The Governing Missions report (Mazzucato 2019), published by the European Commission, emphasises the mechanisms of encouraging and coordinating risk-taking through a strategic take on the financing of missions in the EU. The EIB Group as a whole is well-positioned to help develop and actively shape such a strategic approach to the financing of mission-oriented innovation.

Leveraging the knowledge and expertise built up in various areas by the Bank's in-house advisory services, and the existing risk-sharing mechanisms, such as the EFSI and InnovFin programme, ensures that the EIB is well-positioned for moving towards higher risk-taking financial instruments (as already demonstrated in other areas such as the circular economy). It is recognised that early-stage public funding helps to create new markets and bring in private financial actors that are typically more risk-averse, as was the case with Breakthrough Energy Ventures Europe, launched by the European Commission, the EIB and the private entity Energy Ventures, whereby equity-based high-risk investments are made in new clean technologies with a long-term investment horizon and without expecting immediate returns.¹² A strategic and active take on risks allow investments to direct innovation more effectively towards mission-oriented projects by allowing the needed diversification of technologies across sectors. Therefore, risk-taking is one of the strategic functions public investments can play (Mazzucato 2019).

Risks vary, and need to be appropriately understood and measured. Therefore thematic access-to-market studies refer to the need to combine higher risk-taking instruments with the provision of technical and financial advisory services. This is true for clean-tech, digital and deep-tech companies that typically have a low leverage capacity, as well as high-tech RTOs (EIB 2016b, 2017b). Analytical capacities that allow public development banks to perform extensive pre-appraisal due diligence are also valued by private commercial lenders because future-oriented due diligence (as compared to evaluation of past performance) is substantially more difficult to perform (EIB 2016b). **Further strengthening of EIB's advisory support services can play an important role in building technical and evaluation capacities around the missions areas. This will feed into tailoring finance towards the needs of missions.**

It is also crucial for missions to be able to mobilise other types of investments. Crowding in various types of investments also requires learning and a certain degree of experimentation with the various types of finance (in terms of structure, maturities, etc.). **Building on internal analytical and advisory competences and knowledge, the EIB can contribute to exploring and developing business cases in missions-related thematic areas and can help to create market-demonstrating effects (e.g. as in the case of the European Circular Bioeconomy Fund and underling thematic studies conducted by IFA).** Further, by managing a diversified portfolio of financial instruments, public development banks, such as the EIB, help **crowd in private investments at different levels of risk.** Indeed, coordinating financial instruments is needed along the entire innovation chain, because missions bring together a wide range of technologies and research projects with each of them requiring a different type of financial support. It is therefore important to have a wide range of funding instruments tailored to various types of risks across various types and stages of innovative activities.

Finally, the EIB's capacity to **coordinate its extensive involvement in pilot projects** (such as European Innovation Council, CE Finance Support Platform, ECBF) adds to the capacity of the EIB Group to help overcome the fragmentation of the financing streams supporting innovation that currently exists at various levels within the EU. Through **strengthening engagement with the national actors** (particularly with national promotional institutions - NPIs), such coordination is key. In the context of the InvestEU programme, enhanced collaboration with NPIs is highly relevant, including for sharing analytical expertise, lessons learned and thematic knowledge stemming from advisory work. By doing this, the EIB will allow other actors in the funding ecosystem to leverage off its extensive analytical competences.

Key findings and recommendations

The study shows that the EIB Group (EIB and its subsidiary the European Investment Fund – EIF) is well-positioned to support the further development and implementation of the missions.

Advisory services, particularly the leading role of the InnovFin Advisory (IFA) across the innovation spectrum in cooperation with the European Investment Advisory Hub (EIAH) and the technical departments of the Bank,¹³ represent a strategic asset and engine for knowledge creation that supports financial instruments and the funding of ecosystem development. The IFA's support to circular economy projects, which ranges from project pre-appraisal to thematic funding gap expertise to stakeholder engagement, illustrates a committed and strategic approach to knowledge creation with long-term orientation. This, in turn, allows the EIB to tailor finance towards the actual needs of emerging sectors and this expertise can be an important input in the implementation of the missions. This will help the EIB to remain fit for purpose and impactful.

In order for the EIB to build on its competences in financing and knowledge creation through an effective use of its advisory services, the study puts forth a list of recommendations which should be viewed in the context of the 2021-2027 financing framework, but can extend – and generate important societal gains – beyond a single multi-annual budgetary timeframe. These recommendations will further enable the EIB and its advisory services to put in place the 'conditions' for a successful implementation of the missions.

Recommendation 1

Building on existing expertise, further strengthen the EIB's in-house financial and, crucially, analytical (market intelligence, technical appraisal) capacities to ensure long-lasting commitment to the implementation and long-term financing horizon of the missions.

Mission-oriented innovation and the financing thereof implies long-term orientation. Beyond its financing capacity, the EIB possesses strategic financial and analytical competences that can strengthen its contribution to the missions up to and beyond seven-year budgetary frameworks. Analytical competences in the form of technical and financial pre-appraisals, as well as financial advisory work performed by IFA (understanding thematic markets, technological cycles, business model

trends and related funding gaps, new financial instrument development and ecosystem building through stakeholder engagement), are essential for maintaining the long-term horizons in the funding ecosystem while designing, implementing and evaluating financial instruments.

As the financing arm of the EU, the EIB possesses an experienced in-house advisory team that is able to further strengthen market-based intelligence, thereby contributing to the continuous strategic dialogue between the various key EU institutional stakeholders (connecting the '(policy) dots' with a market perspective).

Recommendation 2

Further enhance knowledge creation by utilising EIB/InnovFin Advisory's capacity to play the role of a committed internal and external 'change agent', and further promote ecosystem building and coordination among national and regional mission-relevant actors.

The EIB possesses significant capabilities and expertise in crowding in public and private investments by leveraging off its extensive networks and by facilitating the creation of market demonstration effects. Thematic investment platforms (such as the European Circular Bioeconomy Fund) is one such market-based instrument that can be potentially scaled up in other thematic areas related to the five missions. By bringing tech entrepreneurs and various types of investors together, a thematic investment platform can serve the purpose of experimentation and providing market signals towards other types of investors. The creation of such investment platforms requires substantial thematic expertise and the EIB, through its advisory services, is well-positioned to further develop its thematic expertise in the missions areas and related sectors.

As can be seen from support extended to circular projects, InnovFin Advisory has been playing the role of a 'change agent' while acting as an interface between the EIB and EC in joint efforts to design finance for innovation, such as in the circular economy. Coordination of supranational, national and regional investment efforts is key to the effective implementation of the missions. The EIB is well-positioned to strengthen such coordination, especially through the network

of national promotional institutions (NPIs) in Member States. NPIs are predicted expected to play a bigger role in the MFF 2021-2027, especially through the InvestEU programme. The EIB, through its advisory services, is well-positioned to substantially contribute to making this partnership strategic through hierarchical coordination mechanisms, as well as more horizontal activities such as dissemination of knowledge and best practices, and thematic case studies.

Recommendation 3

Building on existing risk-sharing mechanisms (e.g. EFSI, InnovFin), further promote higher risk-taking by developing suitable patient, long-term, higher-risk financial instruments.

Mission-driven innovation spans various sectors and technologies, and therefore involves various types of risks. Technological experimentation requires risk-positive attitudes while placing technological and economical 'bets'. In order to steer the direction of risk-taking through financing (more) risky projects, the EIB has the capacity to enable the placement of 'more informed bets' (informed risk-taking as part of risk finance) by drawing on its market intelligence, knowledge of investment appetites and actors in the funding ecosystem, and technical expertise in various sectors.

Through its extensive technical expertise and advisory services, the EIB can play an important role in helping the European Commission and the mission boards make more informed decisions when deciding on risk-taking and investments in the missions areas. It is therefore important to implement the right mechanisms, in close cooperation with DG RTD and other EC DGs, in order to bring the EIB into the wider mission governance framework in an appropriate role, so that financing aspects are well-integrated into the missions investment agenda. The range of financial instruments already provided by the EIB as well as existing EIB-EC joint initiatives (such as the current InnovFin programme) allows the EIB to produce recommendations on the types and mix of financial instruments, especially when it comes to the risk-taking and overall risk portfolio required by each mission. Exploring effective ways of blending and coordinating different types of finance will be essential for the successful implementation of the missions, thereby future-proofing the

EU's financial instruments and ensuring their fitness for purpose. In the context of European multi-level financial governance, the EIB is well-positioned to strategically monitor (in the form of thematic studies and/or evaluations) the implementation and coordination of various financial instruments related to the missions.

List of abbreviations

AFD	Agence Française de Développement
BGK	Bank Gospodarstwa Krajowego
CE	Circular Economy
CEAP	Circular Economy Action Plan
CDC	Caisse des Dépôts et Consignations
CDP	Cassa Depositi e Prestiti
DG	Directorate General
DG RTD	Directorate General for Research and Innovation
DG FISMA	Directorate General for Financial Stability and Capital Markets
EC	European Commission
ECBF	European Circular Bioeconomy Fund
EFSI	European Fund for Strategic Investments
EIAH	European Investment Advisory Hub
EIB	European Investment Bank
EIF	European Investment Fund
EU	European Union
ICO	Instituto de Credito Oficial
IFA	InnovFin Advisory
JICE	Joint Initiative in Circular Economy
KfW	Kreditanstalt für Wiederaufbau
MFF	Multiannual Financial Framework
MS	Member State
NPB/NPI	National Promotional Bank/Institution
RTO	Research and Technology Organisation
SME	Small and Medium Enterprise

Endnotes

1. https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme_en#missions-in-horizon-europe.
2. <https://medium.com/iipp-blog/the-path-to-covid-recovery-the-urgent-need-for-the-eu-green-deal-and-a-new-approach-to-industrial-e91a4ad5ae7>.
3. Interviews were conducted with various departments in the EIB as well as with external stakeholders such as the European Commission, national promotional institutions, private financial institutions, financial experts and non-financial companies providing circular solutions and services. Policy reports, notes and other documents were reviewed and the emerging literature on the financing of CE was consulted.
4. UCL Institute for Innovation and Public Purpose (IIPP) has put this thinking into action in the European Commission's Horizon Europe funding programme, the UK government's Industrial Strategy through the IIPP-led UCL Commission for Mission-Oriented Innovation and Industrial Strategy (MOIIS), local industrial strategy for green growth in Manchester and the Scottish National Investment Bank.
5. The amended version of the InvestEU programme includes a stronger emphasis on support to the circular transition, in view of the newly adopted Green Deal, as reflected in the Confirmation of the Common Understanding: <https://www.consilium.europa.eu/media/38901/st07939-en19.pdf>.
6. Both EFSI and InnovFin will be succeeded by the InvestEU programme in the next MFF 2021-2027.
7. IFA, as an integral part of the InnovFin Programme launched in 2014, is formally tasked with project advisory and the implementation of the horizontal activities (access-to-finance studies to identify sector-specific funding gaps).
8. Circular economy, enabling technologies, biomass production, bio-based materials and performance biologicals.
9. Kreditanstalt für Wiederaufbau (DE), Caisse des Dépôts et Consignations (FR), Cassa Depositi e Prestiti (IT), Bank Gospodarstwa Krajowego (PL), Instituto de Credito Oficial (ES).
10. Agence Française de Développement (FR), Kreditanstalt für Wiederaufbau (DE).
11. EIAH and IFA are to be integrated into a single advisory division in the EIB in 2020/2021.
12. <https://www.breakthroughenergy.org/who-we-are/breakthrough-energy-ventures-europe/>.
13. To be integrated under the future InvestEU Advisory Hub structure in 2021.

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