

First reflections on building blocks for the design on a possible EU Mission on the New European Bauhaus

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I. Why a New European Bauhaus Mission?

The European Union is moving ahead with its goals to achieve climate neutrality by 2050 and reduce CO2 emissions by 55% in 2030, as well as to deliver on circular economy and to protect biodiversity. The New European Bauhaus (NEB) has been a part of this agenda for the past three years, namely to contribute to reduce emissions and enhance circular economy in the built environment and to leverage the power of culture, art and creativity for the transition.

The Covid-19 crisis, and later the Russian aggression to Ukraine have underlined the need for stronger strategic autonomy, for an accelerated pace of transformation, and for increased resilience. The increased number of extreme weather phenomena provide clear evidence of the need for urgency to act for climate mitigation and adaptation, and for deepening the green transformation of industries and neighbourhoods. It is for this reason that the EU has mobilised an unprecedented financial support package for the twin transition: the EU Budget, including the four dedicated Horizon Europe Missions to the Green Deal, the additional Recovery and Resilience Facility and the substantial relaxation of state aid rules.

A lot has been done so far, the legislation is proposed and in many instances already adopted, but more needs to be done in implementation and investment. Research has to be intensified, existing research and innovation results need to be translated in practice and scaled up and remaining challenges need to be addressed, including:

Challenge 1: Europe has set a major ambition to be a world leader in green transformation, but can industry follow with sufficient R&I and scaling up at the necessary speed? The EU's ambition in clean tech and climate innovation should be matched with industrial leadership in the respective sectors, to provide solutions for circularity and sustainability worldwide while strengthening Europe's open strategic autonomy. However, while R&I in emission reduction technologies has progressed in key

industry sectors, such as automotive, Europe lags substantially behind when it comes to research and innovation on the circular and regenerative economy as well as its scaling up. The construction sector, which touches citizens' daily life, could be one of the most competitive avenues for EU

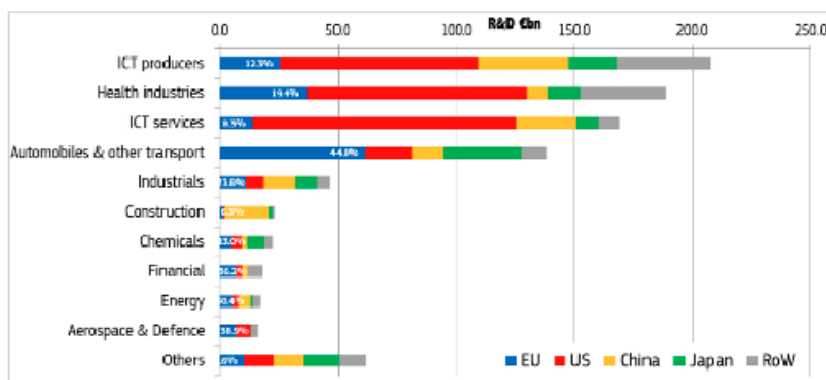


Figure 1: R&I intensities by sector group and selected region/country. Source: The 2021 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD

world leadership in circularity and regenerative approaches. Buildings continue to be responsible for half of all extracted materials, 40% of the total energy consumption, and of one third of water consumption and waste generation in the EU (Bauhaus Earth, 2023). Construction has a very low R&I intensity worldwide—with the possible exception of China (Figure 1).

Currently, the construction sector is the second largest of the EU's 14 industrial ecosystems - in both employment and economic terms - and an important contributor to the economy and social wealth

(see figure 2). A mission focused on circularity and regeneration, blending high tech with no tech¹, could bring the EU at the forefront of sustainable bio-based materials and green architecture leadership. While substantially reducing the environmental impacts of the built environment, it would also bring deep transformation to EU's neighbourhoods and create new business opportunities and provide solutions that could be scaled up globally. The mission could build on existing initiatives in Member States such as the European Wood Policy Platform (woodPoP) for upscaling wood policy cooperation in Europe.



Figure 2: The Construction sector in the EU

Challenge 2: climate change is accelerating, and the pace of transformation needs to follow. Scientists predict escalating risks with warming and demonstrate that exceeding 1.5°C will trigger irreversible hazards for life on Earth. On the global level, the measures taken so far are not enough.

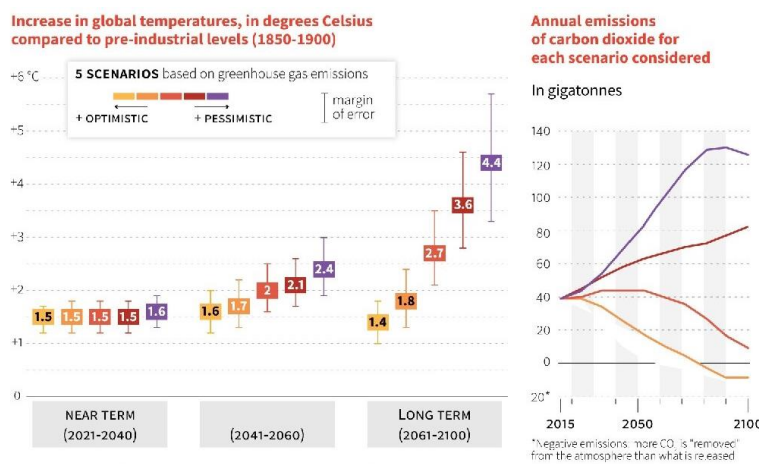


Figure 3: Global Warming Scenarios, COP26. Source: Intergovernmental Panel on Climate Change (IPCC)

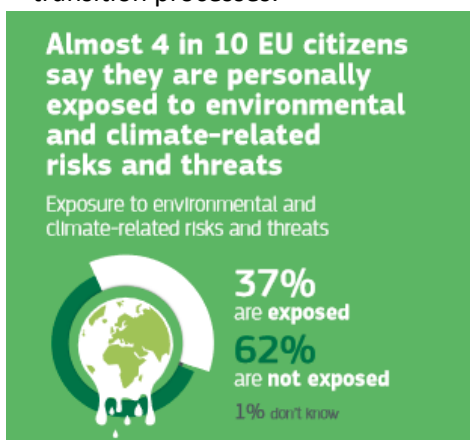
To stay below 2 degrees, we would have to limit the carbon dioxide content in the atmosphere to a maximum of 450 ppm. Global emissions would have to fall to zero well before 2050, which seems more and more impossible. This is why we will probably first overshoot, and then work our way back. To enable this scenario, emissions must not only lower down to net zero, but become negative so as to reduce the level of CO₂ in the atmosphere and restore the Earth's system to a safe state.

To enable climate restoration, we need to work with nature, not against it. Acting on the built environment, the most significant emitting and waste generative sector, is our silver bullet to succeed. New solutions based on bio-economy that combine high-tech with no-tech (nature-based) will present

¹ *No tech* refers to solutions that rely solely on natural phenomena and human actions. For example, defining a building's orientation for maximum solar gain, based on the shape and topography of the site, already strongly increases the potential for passive heating and cooling.

new opportunities for the construction sector. Here the proposed Mission could also build on the NEB Academy, where research and training actions are set up to develop and promote new materials and upskill the construction sector to work with bio-based materials.

Challenge 3: As climate change deepens existing social and territorial inequalities, it also risks eroding trust in democratic institutions. The European Union has suffered significant economic losses due to extreme weather conditions and climate-related hazards. We see these growing and aggravating every year. These losses disproportionately affect people in vulnerable situations and marginalised communities. To this adds the impact of the Covid-19 crisis and more recently of the Russian aggression to Ukraine, which puts pressure on resources, raises the cost of living, but also leads to fear against green transformation, despite significant investment mobilised at European level. To counter damaging narratives that put people against the planet, the EU must fulfil its commitment to accelerate a fair green transition without leaving anyone behind, and create opportunities for new, inclusive business models, for job creation and for culturally aware and people-centred governance of transition processes.



The New European Bauhaus has been exploring innovative approaches to policy making for three years, mobilising citizens' creativity and strengthening their confidence in the transformations to come. With its strong focus on transdisciplinary conversations, it wants to enable culture and technology, innovation and design, engineering, craft, the arts and science to work hand in hand to create a better tomorrow. The Ukrainian government is already exploring this; in the NEB capacity building program citizens and local governments work hand in hand to reconstruct in a green and inclusive way and the government has included NEB principles in their digital tool for reconstruction.

Figure 4: More than one third of EU citizens claim to be exposed to climate-related risks and threads. Source: Eurobarometer

II. The proposed NEB Mission: a vision for tomorrow's neighbourhoods

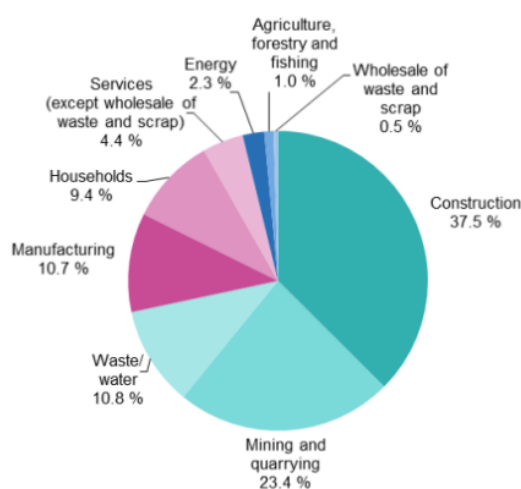
General objective: Revitalise European neighbourhoods with Design for Sustainability and Inclusion.

The proposed NEB Mission will revitalise European neighbourhoods, placing inhabitants at the heart of the transformation. Working with and for neighbourhoods will provide a horizon for democratic decision-making to tackle citizens' disconnect with the implementation of the green transition in their neighbourhoods, increase ownership and legitimacy, and generate the scale needed to catalyse the green transformation in the construction industry, in financing models and on the ground.

There are three reasons why neighbourhoods are the right scale to work on. First of all, the neighbourhood scale is the right window for action, where results can immediately be implemented, seen and felt, and where different policy areas can be merged into a holistic approach. While the implementation of EU policy may take years before its results are visible on the ground, over the past three years the NEB has functioned as an open and living laboratory, accompanying both targeted local actions and a wider, radical change of mind-sets. The proposed NEB Mission will build on this experience to accelerate the green transition and provide new innovative and adaptable solutions. The first NEB lighthouse demonstrators established in 14 locations all over Europe are already working towards realising targeted transformations in neighbourhoods. Demonstrators such as the

NEBhourhoods project implement actions directed at the integration of commercial and residential buildings into material cycles and at addressing structural deficits of existing buildings using prefabricated wood elements or reused building components.

Second, in line with the Renovation Wave, the proposed NEB Mission acknowledges that the circularity and the revitalisation of the built environment are closely linked to the cultural dimension of places. In other words, the way we shape our environment as a whole is an expression of our culture, cultural heritage, identity and diversity. Third, it is on the lowest, neighbourhood scale where change is seriously felt and the urgency of action is significant. The experience of the pandemic crisis led to a profound transformation of working, consumption and social habits and, consequently, of people’s interaction in the built environment. The recent rise of temperature levels, the floods, fires, droughts and increasing migration problems affect people’s homes. They are bringing to the surface a lack of infrastructural measures appropriate for the new situation, but also a lack of a new social fabric that could fit the coming century. The quality of housing and its surroundings, as well as their governance, at different scales (building, city, region), have been shown to exist in a fragile reality which has highlighted the need to pay greater attention to the living environment. There has been scarce research on the new dynamics affecting the relationship between transformation, built environment and society.



Specific Objective 1: Make Europe's construction ecosystem the world leader in circular and regenerative approaches, delivering key knowledge, technologies, skills, inclusive business models, and jobs for a fair green transition and EU’s strategic autonomy.

The construction sector assumes responsibility for 50% of the resources extracted in Europe and stands as the foremost contributor to the continent's annual waste output, comprising 37.1% of the overall total (Eurostat, Statistics Explained). The materials used in the built environment are dominated by non-renewable carbon-intensive

Figure 6: EU waste generation by economic activity of producers and households, 2020 (% share of total waste per capita) Source: Eurostat

minerals, such as concrete, steel, asphalt, sand and gravel. Today, the market share of the mineral-based materials is 98%². These materials often become recyclable only after the end of their lifecycle. As long as the demand for raw materials used in the buildings and infrastructures (in-use stocks with long lifetimes) exceeds the amount of materials that can be supplied from recycled or bio-based materials, primary extraction will continue³. In

2021, the EU’s overall material import dependency was 21.9%, but with the non-metallic minerals (such as sand and gravel) and biomass materials (that could be transformed to bio-based materials) the EU is rather self-sufficient⁴. Given that 85-95% of buildings in the EU are expected to still be standing in 2050, this is a sector, which requires significant and disruptive transformation. The

² DG Clima; Report on climate benefits of wood

³ Global extraction of materials has tripled since 1970, while waste generation is set to increase 70% by 2050. Over 90% of biodiversity loss and water stress is caused by resource extraction and processing.

⁴ Commission SWD Measuring progress towards circular economy in the European Union.

proposed Mission will work on the whole spectrum: from research and knowledge to skills and business models for this transformation.

Specific Objective 2: To ensure a people-centred governance of transformation processes, putting citizens, identity, belonging, cultural heritage and diversity and democracy at the centre of the green transition.

Political frameworks, regulations and funding alone are not enough on their own to trigger lasting change; people need to lead the profound lasting change of lifestyle and perspective that must take place. 75% of European citizens believe that climate change is the single most serious problem facing the world⁵. At the same time, the support of citizens for tackling climate change vanishes when the necessary changes affect their personal environment (e.g. costs linked to renovation, job loss and requalification, comfort). The difficulties to agree at EU level on issues such as phasing out of the combustion engine or the nature restoration law are clear examples. In addition to this, an increasing proportion of citizens doubts the power of democratic institutions to achieve meaningful change⁶.

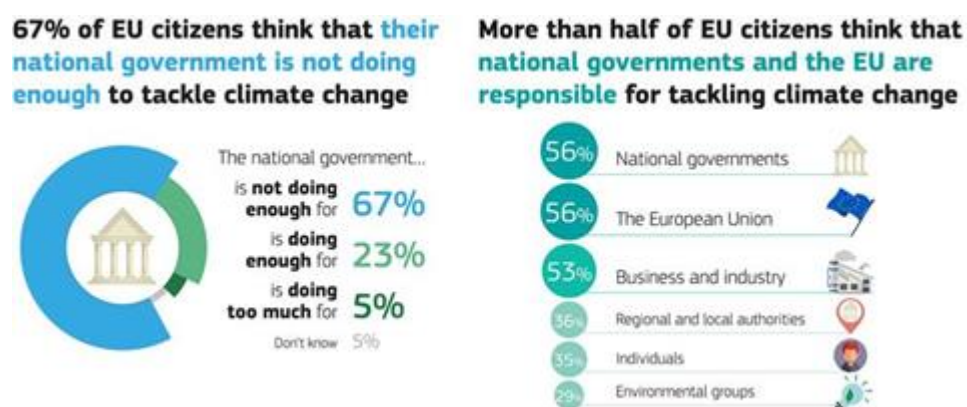


Figure 7: Citizens attitudes to climate change. Source: [Eurobarometer](https://ec.europa.eu/eurostat/web/waste/data/database)

As climate change deepens existing inequalities, it also risks eroding trust in democratic institutions. To counter damaging narratives that put people against the planet and present climate policies as the cause rather than the solution to economic hardships, the EU must fulfil its commitment to accelerate the green transition without leaving anyone behind. The proposed Mission will work on both the attitudes and behavioural elements for the green transition, as well as on new knowledge, governance models and conditions for adoption.

Specific Objective 3: To boost public and private investments in R&I, support innovative funding practices and finance new business models; allowing R&I to be scaled up in Europe and ensuring the circularity, affordability and cultural value of Europe's new and renovated built environment.

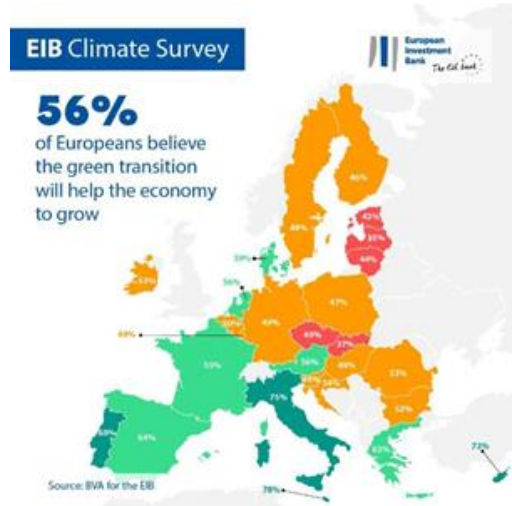
European R&I investments in the construction and materials sector are low and stagnate: only 3% of the total R&D investments of the top 1000 EU R&D investors go to the constructions and materials

⁵ <https://ec.europa.eu/eurostat/web/waste/data/database>

⁶ “Disenfranchisement, growing discontent, and the lack of a positive agenda combine into an erosion of trust in public institutions” (JRC Foresight report 2023)

sector. In China, this percentage is 15% and R&I investments in this sector show a fast growing trend (21% between 2020 and 2021)⁷.

Construction faces unique challenges in the shift to a circular economy: it brings together a multitude of manufactured products in different combinations for each project, each time using different actors



and supply chains. It is dominated by SMEs, with often limited capacity to invest in new technology⁸. Profit margins tend to be tight, and the risk of failure and even accidents is high, which contributes to an adversarial, risk-averse culture. This also contributes to an overall negative perception of the industry and problems attracting skilled workers including women.

In addition to this, current investment models are need to be adapted to support future-proof solutions in the built environment that combine highly sustainable features with other aspects that increase their acceptance, such as accessibility, affordability and

Figure 7: EIB Climate Survey

cultural relevance (e.g. identity, cultural heritage, sense of belonging). Novel funding approaches that mitigate this perceived risk and provide tailored and innovative models are key in leading to a more supportive financing environment⁹. The proposed Mission will work on increased access to funding, mitigating risks, and providing standards and guidelines.

III. Why a Mission is the right instrument

The EU missions are designed for addressing complex and interconnected issues in a focused and impactful manner (European Commission, 2021). The deepening of the green transformation of industries and neighbourhoods is such an interconnected and complex issue, that the New European Bauhaus can address by bringing sustainability, inclusion and quality together. It has built in the course of three years a track record of bottom up projects and a top-down enabling environment with supporting calls.

Today, the NEB initiative is implemented through a number of separate actions, from various policy angles and financing sources. The initiative has gained considerable interest from communities and companies alike. While the actions involving existing programmes have been widely acknowledged, there have been calls, notably by the European Parliament, to secure dedicated and stable financing proportionate to the level of ambition of the initiative. A NEB Mission would be the right means to bring coherence, direction, and strength for existing and future NEB-aligned actions to deepen the green transition and sustainability in the neighbourhoods. It provides a framework for concerted and targeted action at the right administrative level, accelerating research and co-creation of harmonious, sustainable and inclusive solutions for neighbourhoods and industry across the EU. The mission would

⁷ <https://iri.jrc.ec.europa.eu/scoreboard/2022-eu-industrial-rd-investment-scoreboard>

⁸ <https://iri.jrc.ec.europa.eu/scoreboard/2022-eu-industrial-rd-investment-scoreboard>

⁹ Two examples of innovative funding approaches to address market gaps/failures are the European Innovation Council and the Cultural and Creative Sectors Guaranty Facility, the latter managed by the European Investment Bank.

in this way take Renovation Wave commitments to a superior level of research and market development, access, affordability and acceptance.

This, in the end, would strengthen the competitiveness of the EU construction ecosystem, speed up the renewal of existing public spaces and amenities, and work on the development of new ones in line with New European Bauhaus thinking, fit for purpose for the Green Deal era.

IV. Added value, synergies and complementarities within Horizon Europe

The proposed NEB Mission would complement, but also give benefit to the existing Missions. It is transversal to four out of the five Mission Areas, namely 'Adaptation to Climate Change, including Societal Transformation', 'Climate-Neutral and Smart Cities', 'Healthy Oceans, Seas, Coastal and Inland Waters' and 'Soil Health and Food'.

While the existing missions – and many other sustainability policy efforts – target emission reduction, a **NEB Mission would complement these efforts by looking in depth at materials, circularity and regeneration** (e.g. reuse of secondary materials and building elements, built environment as a carbon sink, regenerative design and construction processes) **and their role for climate mitigation and adaptation**. This implies tackling a deep challenge for the economy and society, namely to develop new business models that are lasting and make circular economy a profitable game changer.

With a specific objective dedicated to bringing together tech, no tech (understood as natural resources) and people, the proposed NEB Mission will also address a current gap in Horizon Europe: **the integration of Social Sciences and Humanities to further explore and exploit the transformative potential of participatory practices and governance models that balance public and private interests alongside circular market mechanisms**. Addressing this knowledge gap can benefit the other Missions.

The NEB Mission will build upon the synergies already established with existing Missions¹⁰ and initiatives. As the content of the NEB Mission is developed, additional synergies and complementarities will be explored.

The proposed NEB Mission will also build upon existing synergies and complementarities with the relevant European Partnerships, among which the Joint Undertaking Circular Bio-based Europe (which is already supporting the NEB Academy) and Built4People partnership (also supporting the NEB initiative since 2021).

A Mission on the New European Bauhaus can bring a targeted, coherent and strong policy answer to the challenges listed above.

It would also be a first EU-wide policy measure to bridge green transformation with local democracy in neighbourhoods, deciding change with communities and neighbourhoods and ensuring that sustainability is not a luxury choice available just to some.

It would strengthen and deepen the transformation of one of the most polluting industries – the construction sector – making it a partner of change and addressing its innovation bottlenecks. With this clear focus on a circular and regenerative built environment, the Mission can pioneer new

¹⁰ For instance, in the 2021-2022 WP, a CSA funded under the Mission 'Climate-neutral and smart cities' is assisting cities with the integration of the NEB values in their transition towards climate neutrality. The Missions part of the 2023 work programme includes three topics aligned with the NEB: a NEB dedicated topic jointly launched by the Missions 'Climate-neutral and smart cities' and 'Adaptation to climate change', and two NEB contributing topics –one by the Mission 'A Soil Deal for Europe' Mission and another one by the 'Restore our Oceans and Waters' Mission.

products as well as industrial processes for adaptation, use and reuse of building material. It would also strengthen local democratic values and transformation processes around the green transition, improving dialogue as well as decision-making and evaluation processes, proving that profound change of economy and society can happen and at the same time strengthen the European democratic values.

V. Synergies across EU programmes and roll-out

The NEB initiative has acted as a connector and promoter both of ongoing initiatives and of the funding mechanisms and policy programmes that already exist. In total, nine EU funding programmes (Horizon Europe, European Regional Development Fund, LIFE, Digital Europe, Single Market Programme, COSME, Erasmus+, Creative Europe, European Solidarity Corps) are currently supporting the NEB initiative with a total budget of € 214,6M mobilised so far.

The proposed NEB Mission will build on several strands of action and financing to ensure fast and concrete results on the ground, as follows:

- It will continue to work with funding from various EU budget resources, complementing Horizon Europe investments in R&I (for knowledge generation, innovation, testing and demonstration). Specifically, Cohesion Policy will continue to be an important impetus to the New European Bauhaus Mission. For the period 2021-2027, all Member-States have included references to the New European Bauhaus in their Partnership Agreements, committing to invest in this area. The NEB projects currently financed under the European Urban Initiative (EUI), the pilot project on innovative finance to support small initiatives, as well as regions, the smart specialisation strategies, complemented by the partnerships for regional innovation can serve as inspiration and starting point for future projects supported under cohesion policy, bridging R&I and roll-out.
- Establish together with the Member States a dynamic pipeline of high quality projects that can ensure real impact and geographical reach across the EU. The proposed Mission could invest in the deep transformation of neighbourhoods where designated projects could be concrete forms of delivery. Such projects could be an opportunity to develop a dedicated roll-out model, which would allow the Mission to plan and integrate different types of funding, (on EU, national and regional level) and crowd in the highest amount of private investment possible.
- Build on the New European Bauhaus Lab, a virtual collaborative space, where already projects created by the community manage to develop solely based on private financing, using the NEB Lab as a framework for quality assurance and visibility to find investors and supporters. To support further access to private capital, the JRC is already developing with the European Investment Bank (EIB) (JASPERS) a set of investment guidelines on the NEB values. The guidelines will provide project developers with information on how to define and prepare projects that align with NEB, and how innovations in this policy field can be appreciated at their right level of risk, in view of investment.

VI. Annex: Intervention logic

Challenges	Objectives	Intervention areas	Research areas	Outcomes
General objective: Revitalise European neighbourhoods with Design for Sustainability and Inclusion				
<p>Challenge 1: Europe has set a major ambition to be a world leader in green transformation, but can the industry follow?</p> <p>Challenge 2: Climate change is accelerating, and the pace of transformation remains too slow.</p> <p>Challenge 3: As climate change deepens existing social and territorial inequalities, it also risks eroding trust in democratic institutions</p>	<p>Specific Objective 1: To make Europe's construction ecosystem the world leader in circular and regenerative approaches, delivering key knowledge, technologies, skills, inclusive business models, and jobs for a fair green transition and EU's strategic autonomy</p>	<p>Reduce the environmental impact of new build acting on processes, materials and energy use.</p> <p>Increase the usage of repurposed construction materials & elements to boost circularity in the building sector.</p> <p>Increase the adoption of high-quality, regenerative design solutions and technologies that can incentivise the restoration and the expansion of nature, looking at the scale of the ecosystem.</p>	<p>Re-use and alternative sourcing of construction materials</p> <p>Regenerative design and cutting-edge technologies, including AI</p>	<p>New materials, construction processes and business models/structures demonstrated and embedded in a more circular and regenerative construction ecosystem</p> <p>Existing standards refined and new standards developed inform regulations and public procurement</p> <p>Greater social acceptance for Green Deal policies, social ownership of green solutions and behavioural change to meet Green Deal targets.</p>
	<p>Specific Objective 2: To ensure a people-centered governance of transformation processes, putting citizens, identity, belonging, cultural heritage and diversity and democracy at the center of the green transition.</p>	<p>Improve citizens' knowledge about environmental issues, climate change, and sustainable practices, to the extent where they can actively and consciously participate in accelerating the green transition.</p> <p>Develop and implement governance models that can balance public and private interests with market mechanisms, while promoting placemaking culture in green transition.</p> <p>Provide tools, services and infrastructure for the common good – inclusive, affordable, safe and accessible for all.</p>	<p>Circular networks of care in neighbourhoods</p> <p>New, harmonized governance models at EU level</p>	
	<p>Specific Objective 3: To boost public and private investments in R&I, support innovative funding practices and finance new business models; allowing R&I to be scaled up in Europe and ensuring the circularity, affordability and cultural value of Europe's new and renovated built environment.</p>	<p>Increase private funding and fundraising opportunities, including philanthropy</p> <p>Increase access to funding for SMEs in the built environment to help needed transformations in our neighbourhoods</p> <p>Support a new set of standards for the development and transformation of living spaces.</p>	<p>Innovation to make R&I funding more holistic</p> <p>Innovation for making R&I funding more accessible.</p>	