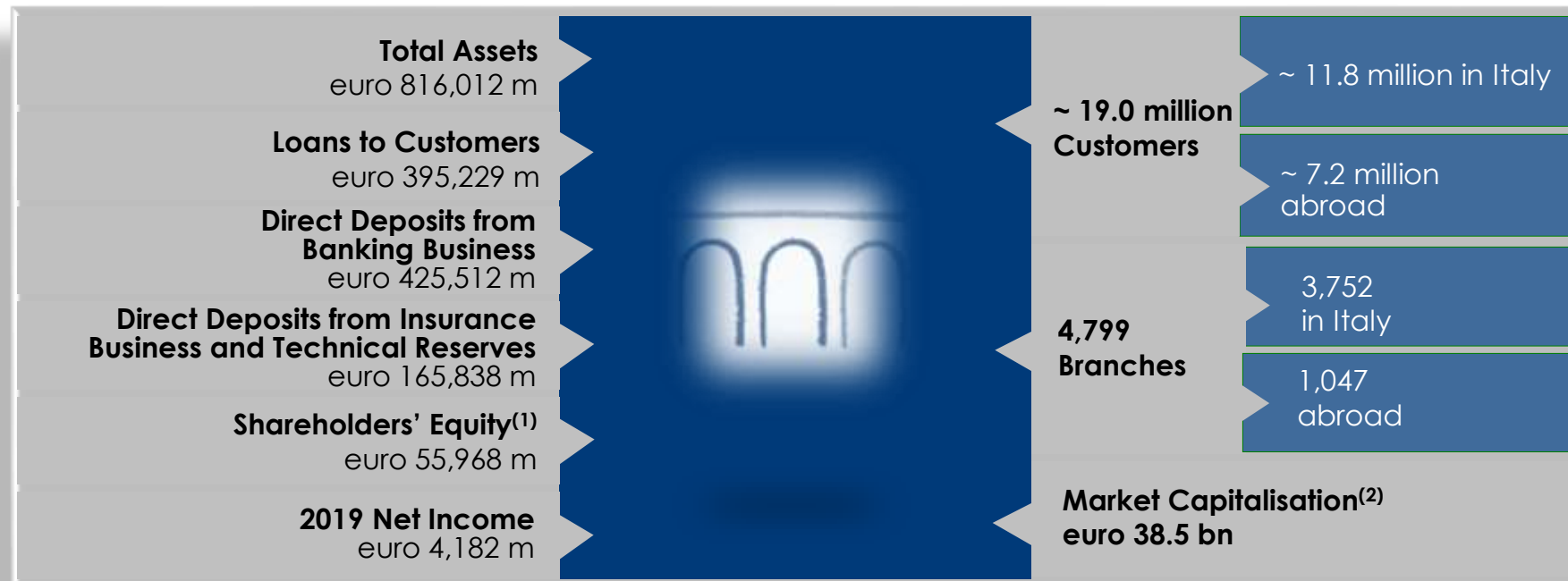




EUROPEAN GREEN DEAL

Roma, 25 June 2020

The Intesa Sanpaolo Group at a glance: financial highlights



Figures as at 31 December 2019

(1) Including Net Income

(2) As at 28 February 2020

Intesa Sanpaolo: Italian leader with European scale



Leader in Italy

- ❑ **Leader** in all segments **with a market share of 18%** in customer deposits and in customer loans;
- ❑ Leadership in most attractive products;
- ❑ **Strong capital base and asset quality.**



Unique Customer Reach

- ❑ **Largest domestic network:** approximately 3,800 branches, 15%⁽¹⁾ market share and 11.8 million clients;
- ❑ **Best branch footprint making the Group truly nationwide: market share \geq 12%(1) in 17 out of 20 regions;**
- ❑ **High penetration** of local markets: market share \geq 5%(1) in all the 107 provinces;
- ❑ **Particular strength in the wealthiest areas of Italy:** strong retail presence covering more than 70% of Italian household wealth.



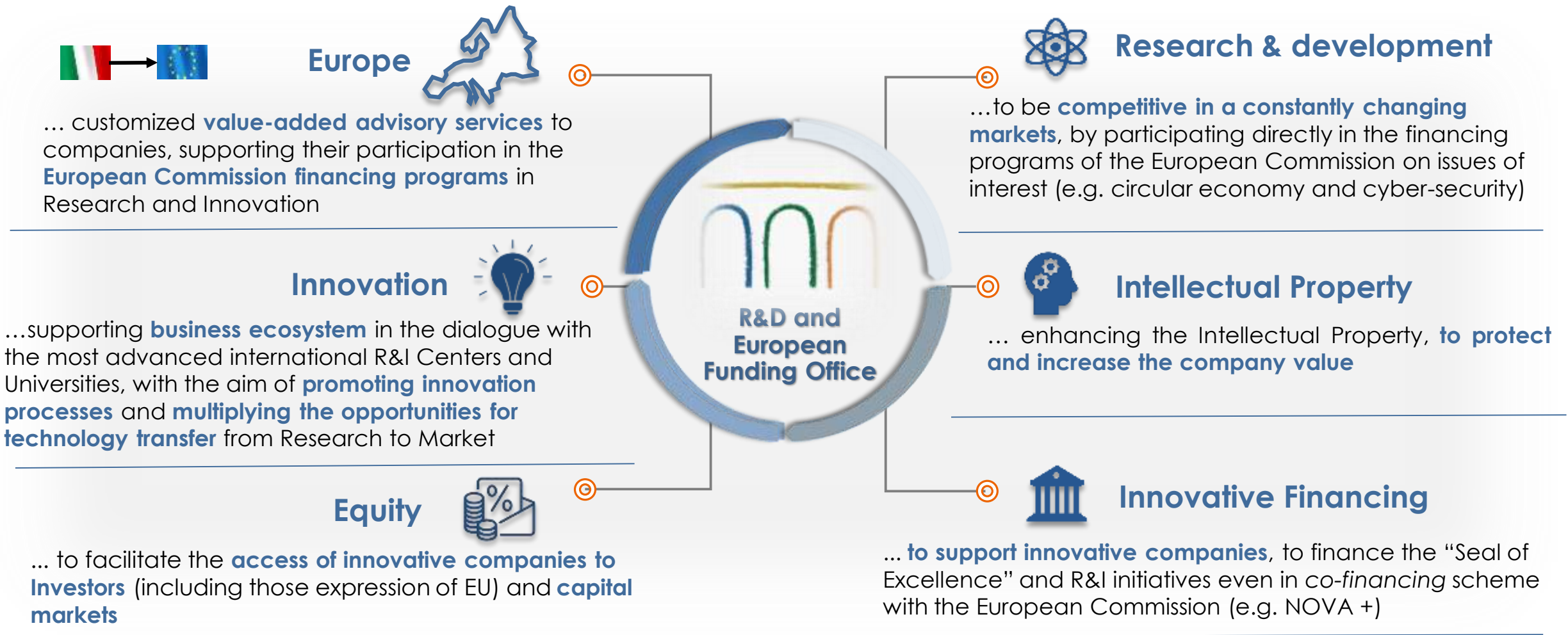
Strategic International Presence

- ❑ **Strategic international presence**, with approximately 1,100 branches and 7.3 million customers;
- ❑ **Subsidiaries operating in commercial banking in 12 countries** in Central Eastern Europe and Middle Eastern and North African areas;
- ❑ **International network of specialists in support of corporate customers across 25 countries**, in particular in the Middle East and North Africa, United States, Brazil, Russia, India and China.

Figures as at 31 December 2019
(1) Bank of Italy criteria, figures as at 30 June 2019

Intesa Sanpaolo: a leading investment Bank

... specialized in supporting **Research & Innovation** through a wide range of consulting services and in offering Corporate Finance to support enterprises in their business development and innovation processes



Intesa Sanpaolo and European Funds Advisory

- Intesa Sanpaolo oversees the innovation chain through its **dedicated high-value consulting unit “R&D and European Funds Advsostry”** supported by highly specialized professionals with a significant track record
- The consulting unit plays an important role in the **dialogue with the European Commission** and offers customized consulting services to its client companies **supporting their participation in European programs on Research and Innovation** funded by the European Commission

Intesa Sanpaolo

- 50 years of management of public funds for Research and Innovation
- Strong focus on high tech investments
- Team of experts specialized in technology and finance, accredited as EU experts**
- Both technological and financial evaluation of complex R&D initiatives/projects at national and European level (6th, 7th, FP and H2020)**
- Technological and industrial advisory** in order to support the knowledge/technology transfer and to enhance the Intellectual Property



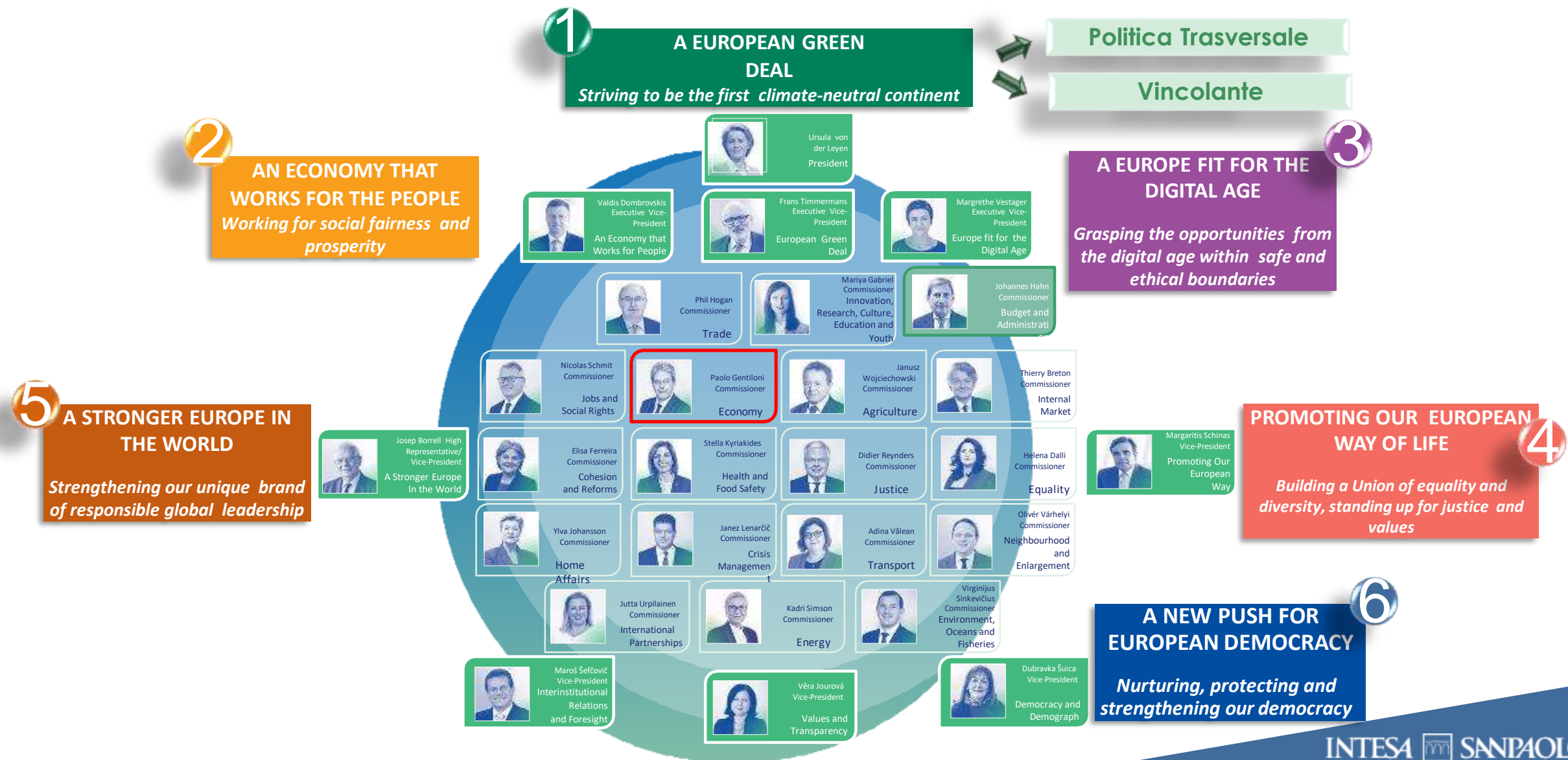
European Funds Advisory

- Information and monitoring services** on EU R&I policies and **funding opportunities**
- Mapping** of open and forthcoming **European calls for proposals** for research & innovation
- Training** on EU funding programmes (calls for proposals, ..)
- Support and supervision** for the presentation and management of **European projects**
- Scouting partner**
- Advisory** on the management and exploitation of intellectual property in partnership with **Barzanò & Zanardo and MITO Technology**
- Networking and support** in managing relations with the European Commission (i.e Project officer,...)



European Commission policies: the six ambitions for Europe

Ursula von der Leyen (DE, EPP) has presented her political guidelines that focus on 6 headline ambitions for Europe over the next five years and well beyond:



European Green Deal: Improving the well-being of people.

The European Green Deal Target

Climate change and environmental degradation are an existential threat to Europe and the world. To overcome these challenges, Europe needs a new growth strategy that transforms the Union into a modern, resource-efficient and competitive economy where:

- ❑ there are no net emissions of greenhouse gases by 2050
- ❑ economic growth is decoupled from resource use
- ❑ no person and no place is left behind

"The European Green Deal is our new growth strategy. It will help us cut emissions while creating jobs."

Ursula von der Leyen, President of the European Commission



"We propose a green and inclusive transition to help improve people's well-being and secure a healthy planet for generations to come."

Frans Timmermans, Executive Vice-President of the European Commission



Become climate-neutral by 2050



Protect human life, animals and plants, by cutting pollution



Help companies become world leaders in clean products and technologies

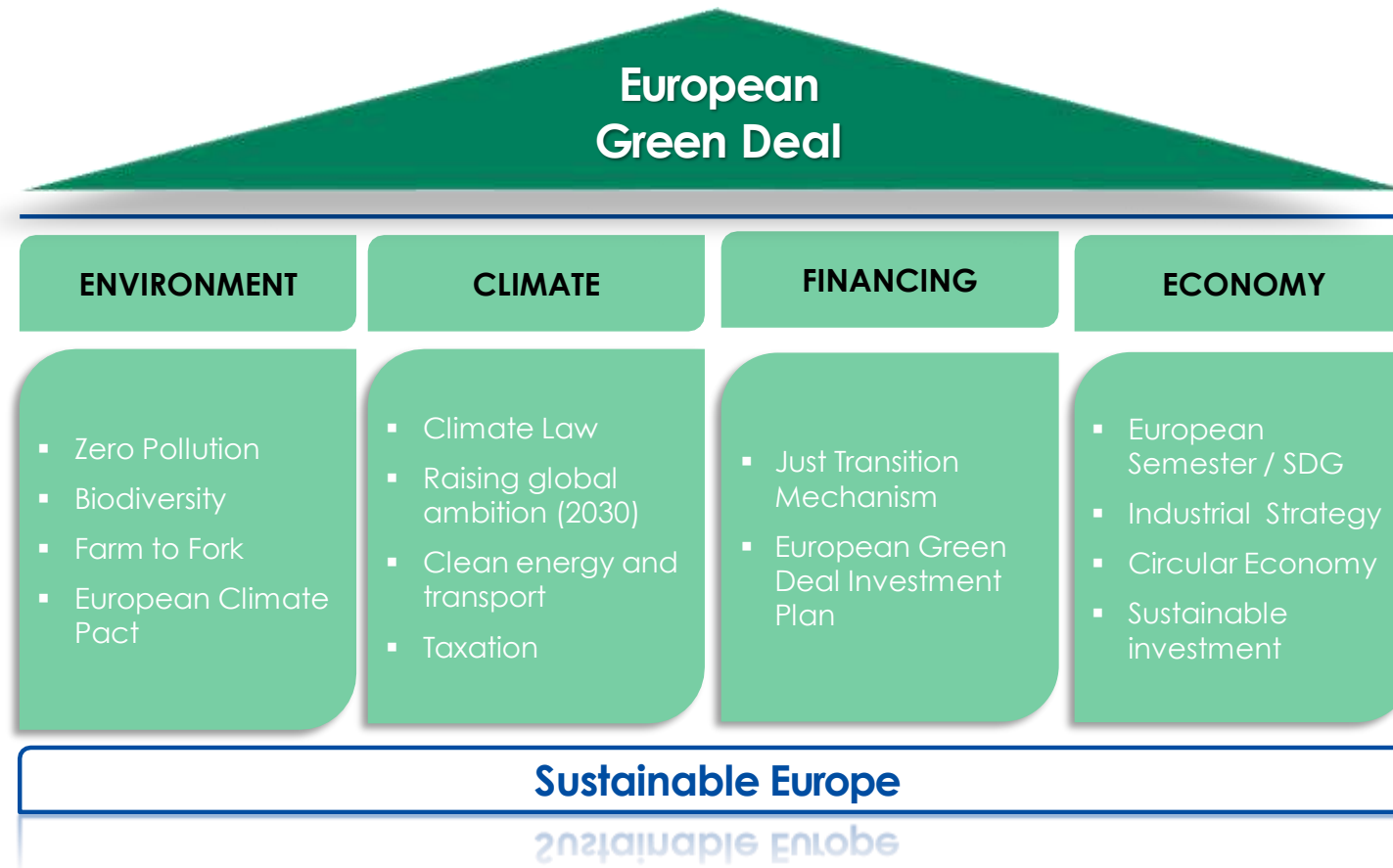


Help ensure a just and inclusive transition

The European Green Deal structure

The new Commission placed at the centre of its priorities the need to take immediate and drastic actions to fight climate change and to make **Europe climate-neutral by 2050**

The European Green Deal is a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use



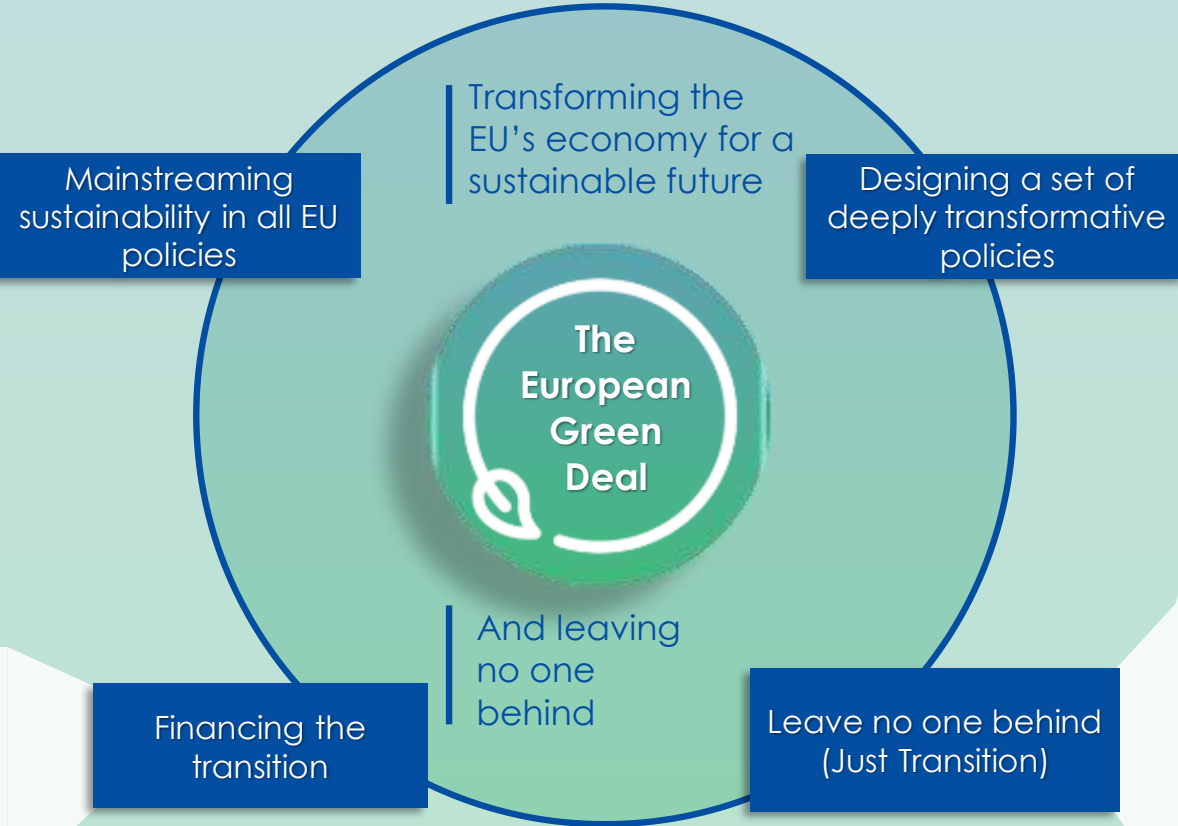
The long term vision

The Commission has already set out a clear vision of how to achieve climate neutrality by 2050. This vision should form the basis for the long-term strategy that the EU will submit to the United Nations Framework Convention on Climate Change in early 2020.

MOBILISING RESEARCH AND FOSTERING INNOVATION

- At least **35% of Horizon Europe funding** for climate solution
- Four **"Green Deal missions"** (related to climate change, oceans, cities and soil)
- **Partnerships** with industry and Member States
- Role of **European Institute of Innovation and Technology**
- Role of **European Innovation Council**
- **Data and digital infrastructure** in support of ecological transition

- **New Green Deal Call under Horizon 2020 worth €1 billion**
- Part of the European Green Deal Investment Plan – mobilising at least **€1 TRILLION of public and private investments**
- Major cross-cutting call to provide innovative solutions, demonstrate tangible results and reassure citizens that action is underway



- Increasing the EU's Climate ambition for **2030 and 2050**
- Supplying clean, affordable and secure **energy**
- **Mobilising industry** for a clean and circular economy
- Building and renovating in an **energy and resource efficient way**
- A **zero pollution** ambition for a toxic-free environment
- Preserving and restoring **ecosystems** and **biodiversity**
- From 'Farm to Fork': a fair, healthy and environmentally friendly food system
- Accelerating the shift to sustainable and **smart mobility**

To "leave no-one behind," the commission proposes a '**Just Transition Mechanism**' to help regions most heavily dependent on fossil fuels. The proposed **€100bn instrument has 3 legs:**

- A just transition fund that will mobilise resources from the EU's regional policy budget;
- The "InvestEU" programme, with money coming from the European Investment Bank;
- EIB funding coming from the EU bank's own capital.

Designing a set of deeply transformative policies

Increasing the EU's Climate ambition for 2030 and 2050

Supplying clean, affordable and secure energy

Mobilising industry for a clean and circular economy

Building and renovating in an energy and resource efficient way

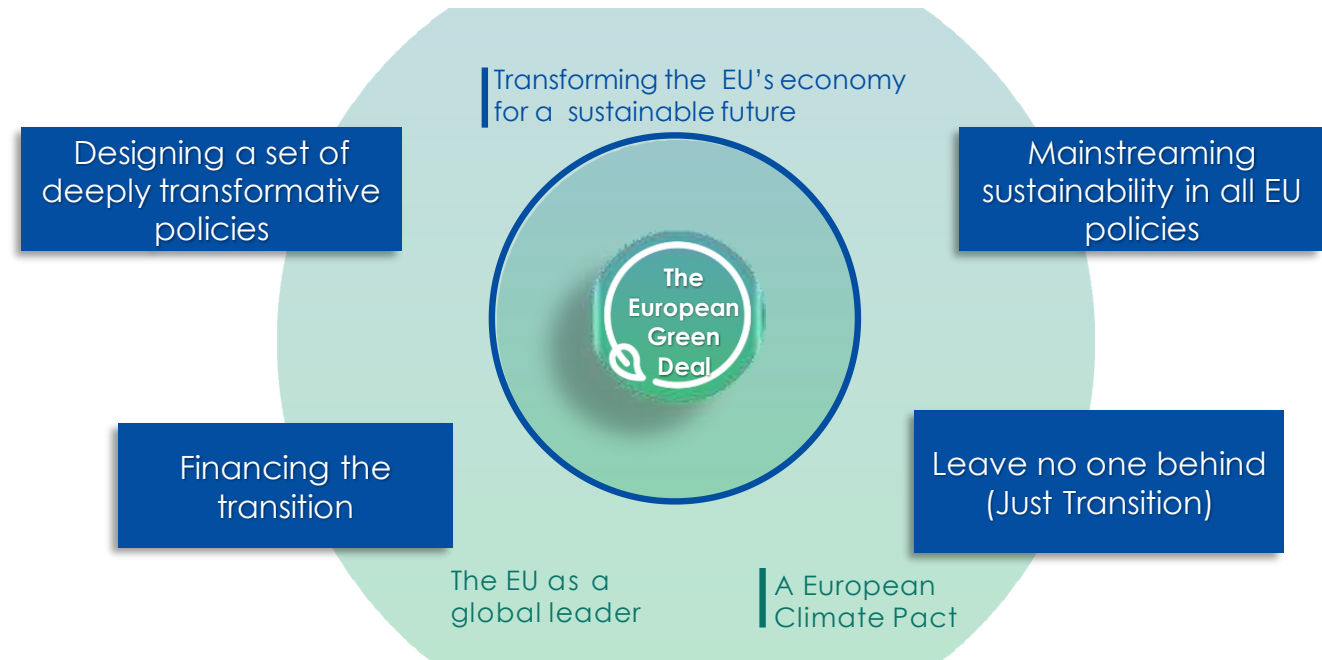
Accelerating the shift to sustainable and smart mobility

From 'Farm to Fork': a fair, healthy and environmentally friendly food system

Preserving and restoring ecosystems and biodiversity

A zero pollution ambition for a toxic-free environment

New measures on their own will not be enough to achieve the European Green Deal's objectives. In addition to launching new initiatives, the Commission will work with the Member States to step up the EU's efforts to ensure that current legislation and policies relevant to the Green Deal are enforced and effectively implemented.



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From 'Farm to Fork': a fair, healthy and environmentally friendly food system

Preserving and restoring ecosystems and biodiversity

A zero pollution ambition for a toxic-free environment

The European Commission will make proposals to increase the EU's climate ambition for 2030.

Relevant energy legislation will be reviewed and where necessary revised by June 2021. EU Member States will then update their national energy and climate plans in 2023, to reflect the new climate ambition.



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Decarbonising the EU's energy system is critical to reach our climate objectives.

Key Principles:



Prioritise energy efficiency and develop a power sector based largely on renewable sources



Secure and affordable EU energy supply



Fully integrated, interconnected and digitalised EU energy market



- **Interconnect energy systems** and better link/integrate renewable energy sources to the grid
- Promote innovative technologies and **modern** infrastructure
- **Boost energy efficiency** and **eco-design** of products
- **Decarbonise the gas sector** and promote **smart integration** across sectors
- **Empower consumers** and help Member States tackle energy poverty
- **Increase cross-border and regional cooperation** to better share clean energy sources
- Promote EU energy standards and technologies at **global level**
- Develop the full potential of Europe's **offshore wind** energy

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changing the way we consume and the way we produce

ELECTRONICS and ICT

 **Electrical and electronic equipment** is one of the fastest growing waste streams in the EU.

Two in three Europeans would use their digital devices for longer provided performance is not significantly affected.



 Products placed on EU market will be designed to **last longer, to be easier to repair and upgrade, recycle and reuse**.

Providing incentives for **product-as-a-service** companies will keep the ownership and responsibility for the product throughout its lifecycle.

TEXTILES


 Worldwide, a full truck of **textiles** is sent to incineration or landfilled every second. It is estimated that less than 1% of all textiles worldwide are recycled into new textiles.



 **Driving new business models** will boost sorting, reuse and recycling of textiles, and allow consumers to choose sustainable textiles. Ecodesign will apply to a broader range of products: clothes will be made to last longer.




PLASTICS

 **Consumption of plastics is expected to double** in the coming 20 years.

By 2050, plastics could account for 20% of oil consumption, 15% of greenhouse gas emissions, and there could be more plastics than fish in the ocean.



 **Single-use products** will be **phased out** wherever possible and replaced by durable products for multiple use.



Acting on microplastics - restricting intentionally added microplastics, increasing the capture of microplastics at all relevant stages of the product lifecycle.

FOOD and PACKAGING

 In 2017 packaging waste reached in Europe a record of **175 kg per inhabitant**.



 New legislative initiatives on reuse to **substitute single-use packaging**, tableware and cutlery by reusable products in food services, as well as targets for reducing packaging waste will be proposed.

WASTE

 Each citizen produces nearly **half a tonne of municipal waste per year**.



 Measures will be introduced for **waste prevention and reduction**, increasing recycled content, minimising waste exports outside EU. An EU model for separate collection and labelling of products will be launched.



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Start a 'renovation wave'

The construction, use and renovation of buildings require significant amounts of energy and resources, such as sand, gravel and cement.

➤ Buildings account for **40%** of energy consumed



Source: Eurostat, Energy balances 2019 edition, final energy consumption in year 2017.



The current rates of renovation of public and private buildings should at least double

Better energy performance of buildings

➤ Prices of different energy sources should incentivise **energy-efficient buildings**



➤ Design of buildings should be in line with the **circular economy**



➤ Increased **digitalisation**



➤ More **climate-proofing** of buildings



➤ Strict enforcement of rules on **energy performance of buildings**



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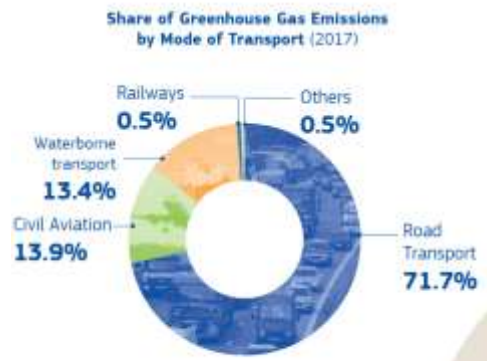
From 'Farm to Fork': a fair, healthy and environmentally friendly food system

Preserving and restoring ecosystems and biodiversity

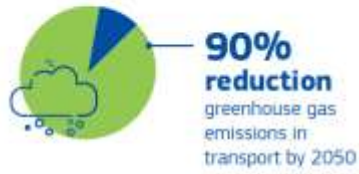
A zero pollution ambition for a toxic-free environment

Europe must reduce emissions from transport further and faster.

Transport accounts for a quarter of the Union's greenhouse gas emissions and these continue to grow. The Green Deal seeks a **90%** reduction in these emissions by **2050**.



Source: Statistical pocketbook 2019



- Go digital**
- Automated mobility and smart traffic management systems will make transport more efficient and cleaner.
 - Smart applications and 'Mobility as a Service' solutions will be developed.

Use different modes of transport

More freight should be transported by rail or water. And the **Single European Sky** should significantly reduce aviation emissions at zero cost to consumers and companies.



Prices that reflect impact on environment

- Ending subsidies for fossil-fuel
- Extending emissions trading to the maritime sector
- Effective road pricing in the EU
- Reducing free allowances to airlines under emissions trading

Boost supply of sustainable alternative transport fuels

By 2025, about **1 million** public recharging and refuelling stations will be needed for the **13 million** zero- and low-emission vehicles expected on European roads.

Alternatively fuelled cars and public recharging points in the EU



Source: European Alternative Fuels

Reduce pollution

The Green Deal will address emissions, urban congestion, and improve public transport.

- We need:**
- stricter standards on pollution by cars
 - to reduce pollution in EU ports
 - to improve air quality near airports

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Moving towards a more healthy and sustainable EU food system, a corner stone of the European Green Deal



Make sure Europeans get healthy, affordable and sustainable food



Tackle climate change



Protect the environment and preserve biodiversity



Fair economic return in the food chain



Increase organic farming



The **use of pesticides in agriculture** contributes to pollution of soil, water and air. The Commission will take actions to:

- ✓ **reduce by 50%** the use and risk of chemical pesticides by 2030.
- ✓ **reduce by 50%** the use of more hazardous pesticides by 2030.



The **excess of nutrients** in the environment is a major source of air, soil and water pollution, negatively impacting biodiversity and climate. The Commission will act to:

- ✓ **reduce nutrient losses by at least 50%**, while ensuring no deterioration on soil fertility.
- ✓ **reduce fertilizer use by at least 20%** by 2030.



Antimicrobial resistance linked to the use of antimicrobials in animal and human health leads to an estimated 33,000 human deaths in the EU each year. The Commission will **reduce by 50% the sales of antimicrobials for farmed animals and in aquaculture by 2030**.



Organic farming is an environmentally-friendly practice that needs to be further developed. The Commission will boost the development of EU organic farming area with the aim to achieve **25% of total farmland under organic farming by 2030**.

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A zero pollution ambition for a toxic-free environment

The new EU-wide Biodiversity Strategy will:

➤ Establish protected areas for at least:



30%
of land in
Europe



30%
of sea in
Europe

With stricter protection of remaining EU primary and old-growth forests legally binding nature restoration targets in 2021.

➤ Restore degraded ecosystems at land and sea across the whole of Europe by:



Increasing organic farming and biodiversity-rich landscape features on agricultural land



Halting and reversing the decline of pollinators



Restoring at least 25 000 km of EU rivers to a free-flowing state



Reducing the use and risk of pesticides by 50% by 2030



Planting 3 billion trees by 2030

Designing a set of deeply transformative policies

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Zero pollution

To protect Europe's citizens and ecosystems, the Commission will adopt the zero-pollution action plan to **prevent pollution of air, water and soil.**



Clean water

➤ Preserve **biodiversity** in our **lakes, rivers** and **wetlands.**



➤ **Reduce pollution** from excess nutrients thanks to the **Farm to Fork** strategy.



➤ Reduce particularly harmful pollution from **micro-plastics** and **pharmaceuticals.**



Chemicals

➤ **Protect citizens** against dangerous chemicals with a new chemicals strategy for sustainability for a toxic-free environment.

➤ Develop more **sustainable alternatives.**

➤ Combine **better health protection** with **increased global competitiveness.**

➤ **Improve rules on assessment of substances** launched on the market.



Clean air

➤ Review **air quality standards** in line with the World Health Organization guidelines.

➤ Provide **support to local authorities** to achieve cleaner air for our citizens.



Industry

➤ **Reduce pollution** from large industrial installations.

➤ **Improve prevention** of industrial accidents.

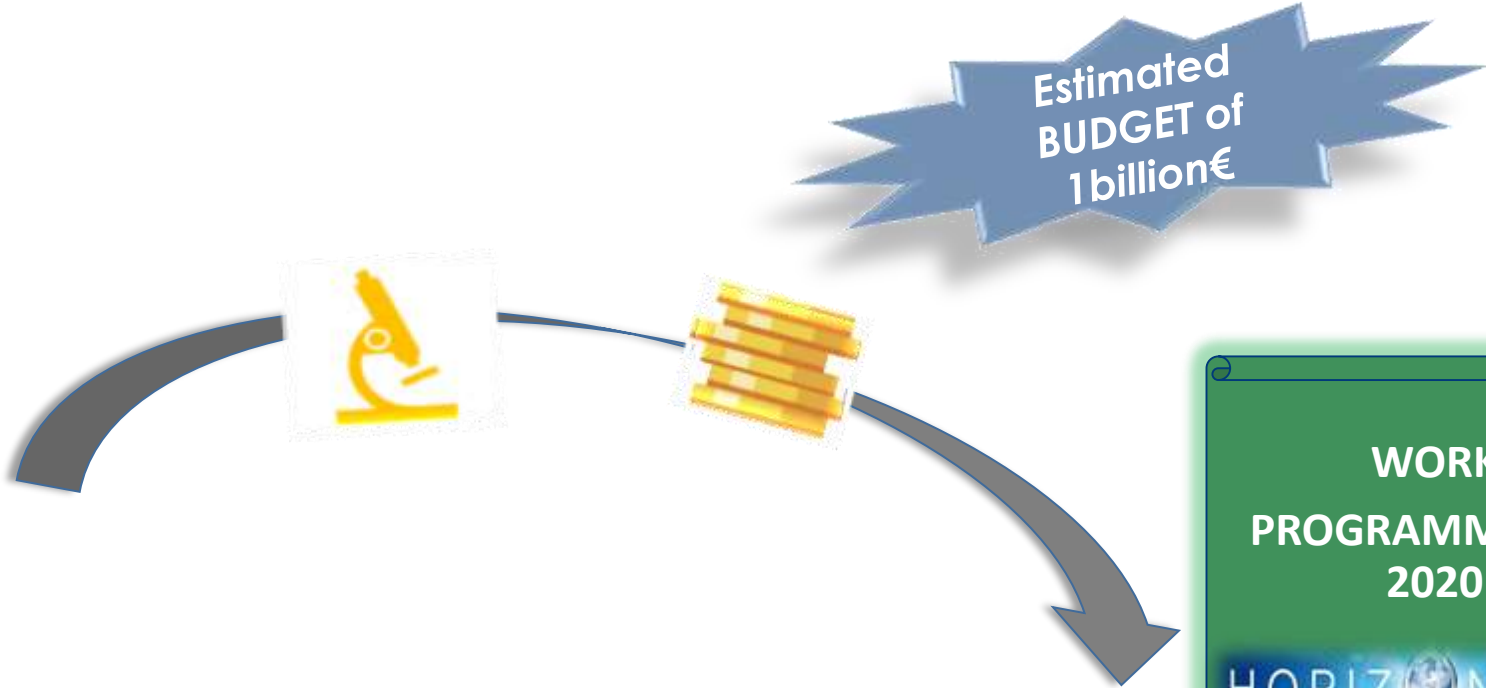
PREMISE

The need for **immediate** and **drastic** actions against climate change has also been explicitly acknowledged by the leaders of the EU Member States.

The EC announced in its Communication on the European Green Deal Investment Plan the launching of a **new call in support of the European Green Deal** thus demonstrating the contribution of research and innovation to this central priority of the new Commission.

The call will be part of the **Horizon 2020** work programme for 2020,

A EUROPEAN GREEN DEAL
Striving to be the first climate-neutral continent



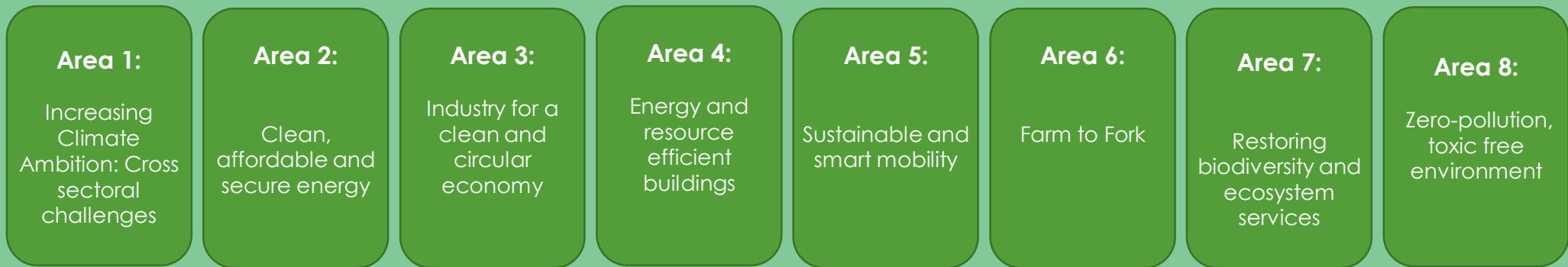
WORK PROGRAMME FOR 2020
HORIZON 2020

The “European Green Deal” call in Horizon 2020

The proposed call is different in structure and approach from previous Horizon 2020 calls. **It seeks to respond to the urgency** of the current situation and the ambition of the new Commission. It will seek to demonstrate the key ability of R&I to provide concrete solutions addressing the **8 European Green Deal work streams**, within a relatively short time frame.

GREEN DEAL CALL – H2020

MAIN PART OF THE CALL FOCUSING ON INNOVATIVE SOLUTIONS AND DEMONSTRATIONS



Area 9: Strengthening our knowledge in support of the European Green Deal

Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

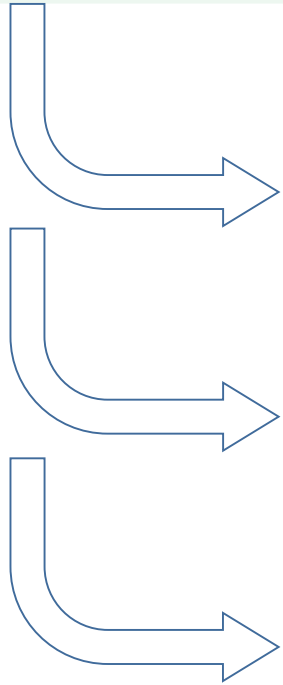
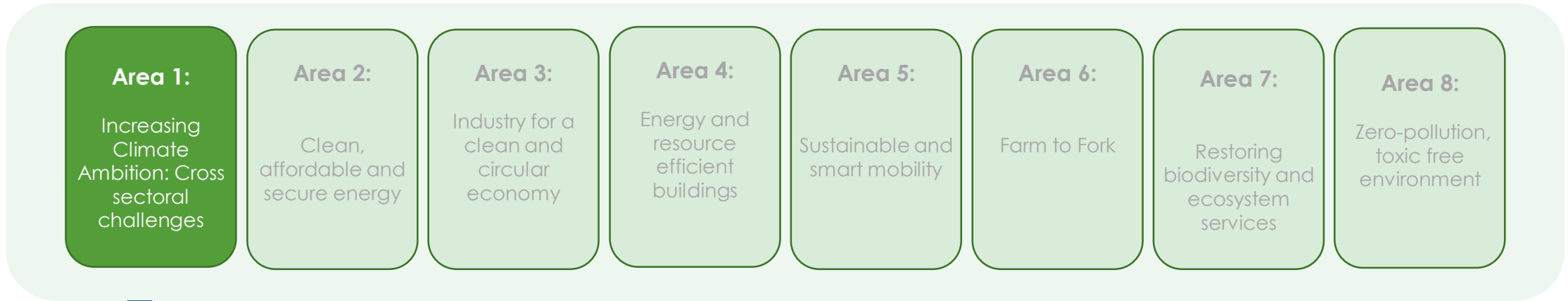
Area 11: Accelerating the clean energy transition and access in partnership with Africa

➔ More info at: https://ec.europa.eu/info/research-and-innovation/strategy/european-green-deal/call_en

Possible topics for GREEN DEAL call

AREA OF THE CALL	TITLE OF TOPICS	NUMBER OF TOPICS
Area 1: Increasing Climate Ambition: Cross sectoral challenges	Preventing and fighting extreme wildfires with the integration and demonstration of innovative means Towards climate-neutral and socially innovative cities Climate-resilient innovation packages for EU regions	3
Area 2: Clean, affordable and secure energy	Demonstration of innovative critical technologies to enable future large-scale deployment of offshore renewable energy technologies (with the possibility to address also hydrogen applications) Develop and demonstrate a 100 MW electrolyser upscaling the link between renewables and industrial applications	2
Area 3: Industry for a clean and circular economy	Closing the carbon cycle to combat climate change Demonstration of systemic solutions for the territorial development of circular economy	2
Area 4: Energy and resource efficient buildings	Building and renovating in an energy and resource efficient way	1
Area 5: Sustainable and smart mobility	Green airports and ports as hubs for sustainable and smart mobility	1
Area 6: Farm to Fork	Testing and demonstrating systemic innovations for sustainable food from farm to fork.	1
Area 7: Ecosystems and Biodiversity	Restoring biodiversity and ecosystem services	1
Area 8: Zero-pollution, toxic free environment	Innovative, systemic zero-pollution solutions to protect health, environment and natural resources from persistent and mobile chemicals Fostering regulatory science to address chemical and pharmaceutical mixtures: from science to evidence-based policies	2
Area 9: Strengthening our knowledge in support of the EGD	European Research Infrastructures capacities and services to address European Green Deal challenges Developing end-user products and services for all stakeholders and citizens supporting climate adaptation and mitigation A transparent and accessible ocean towards a Digital Twin of the Ocean	3
Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe	European capacities for citizen deliberation and participation for the Green Deal Behavioural, social and cultural change for the Green Deal Enabling citizens to act on climate change and environmental protection through education, citizen science, observation initiatives, and civic involvement	3
Area 11: International cooperation	Accelerating the green transition and energy access Partnership with Africa	1
Total number of topics		

The “European Green Deal” call in Horizon 2020: the topics

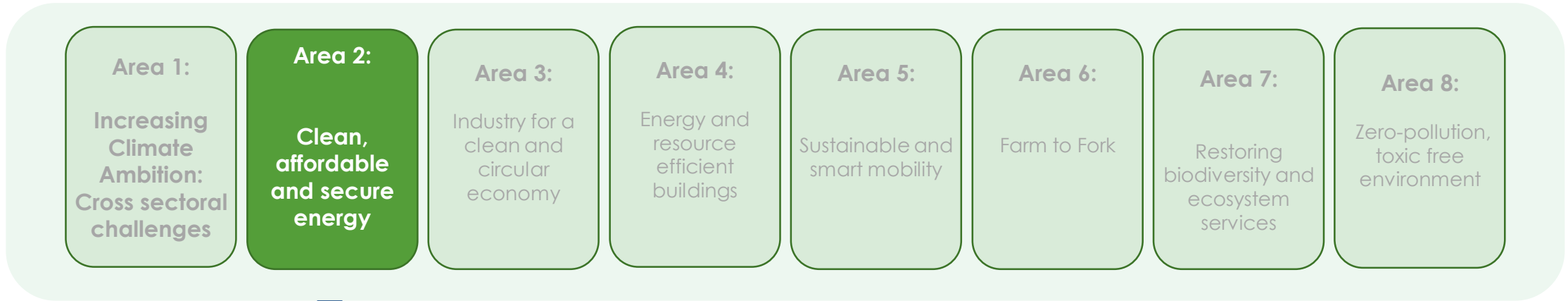


Topic 1: Preventing and fighting extreme wildfires with the integration and demonstration of innovative means

Topic 2: Towards climate-neutral and socially innovative cities

Topic 3: Climate-resilient innovation packages for EU regions

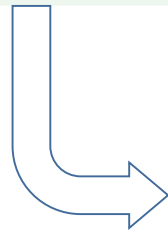
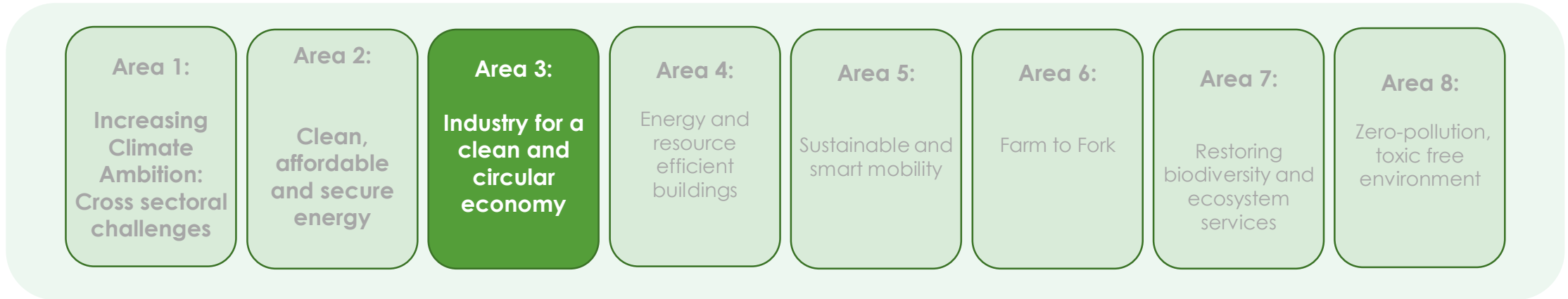
The “European Green Deal” call in Horizon 2020: the topics



Topic 1: Demonstration of innovative critical technologies to enable future large-scale deployment of offshore renewable energy technologies (with the possibility to address also hydrogen applications)

Topic 2: Develop and demonstrate a 100 MW electrolyser upscaling the link between renewables and industrial applications

The “European Green Deal” call in Horizon 2020: the topics

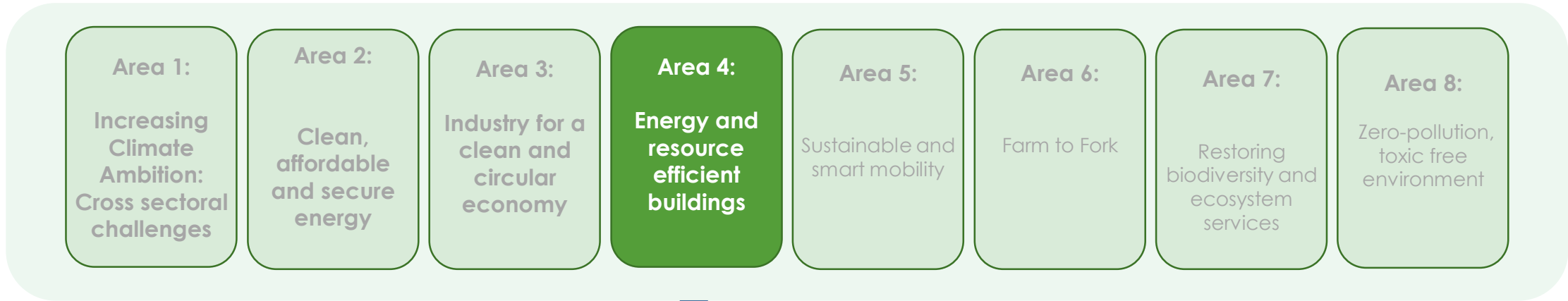


Topic 1: Closing the industrial carbon cycle to combat climate change



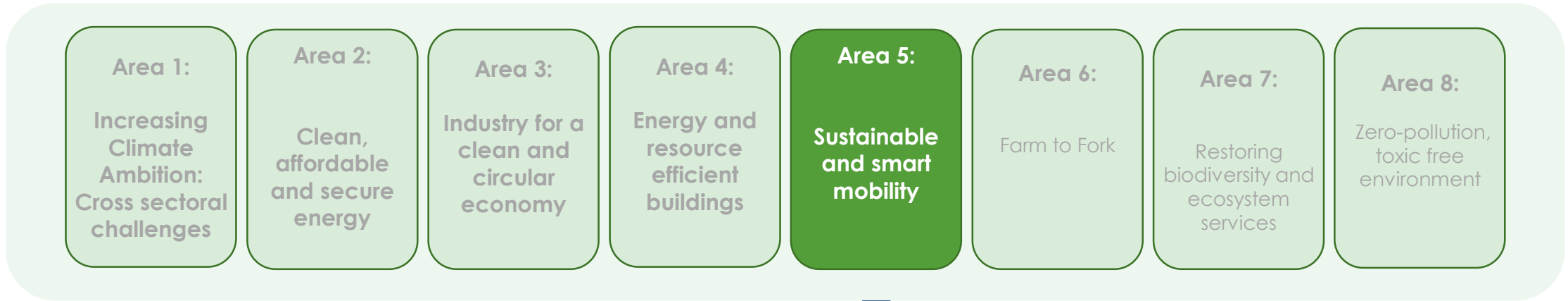
Topic 2: Demonstration of systemic solutions for the territorial deployment of the circular economy

The “European Green Deal” call in Horizon 2020: the topics



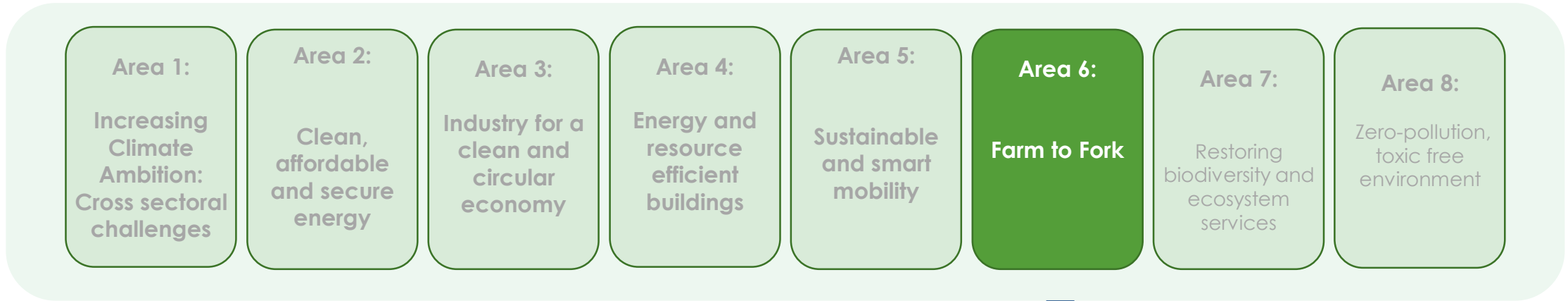
Topic: Building and renovating in an energy and resource efficient way

The “European Green Deal” call in Horizon 2020: the topics



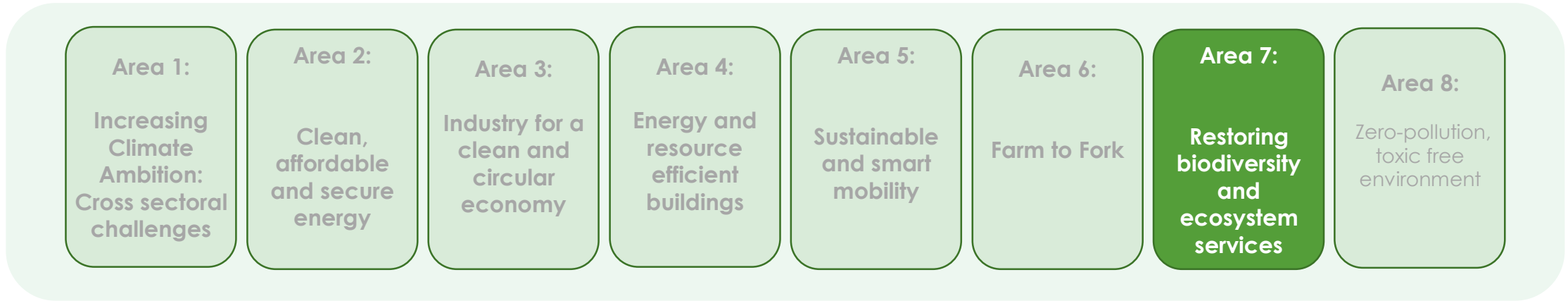
Topic: Green airports and ports as hubs for sustainable and smart mobility

The “European Green Deal” call in Horizon 2020: the topics

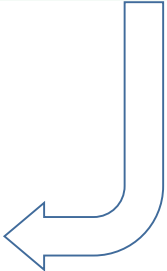


Topic: Testing and demonstrating systemic innovations for sustainable food from farm to fork

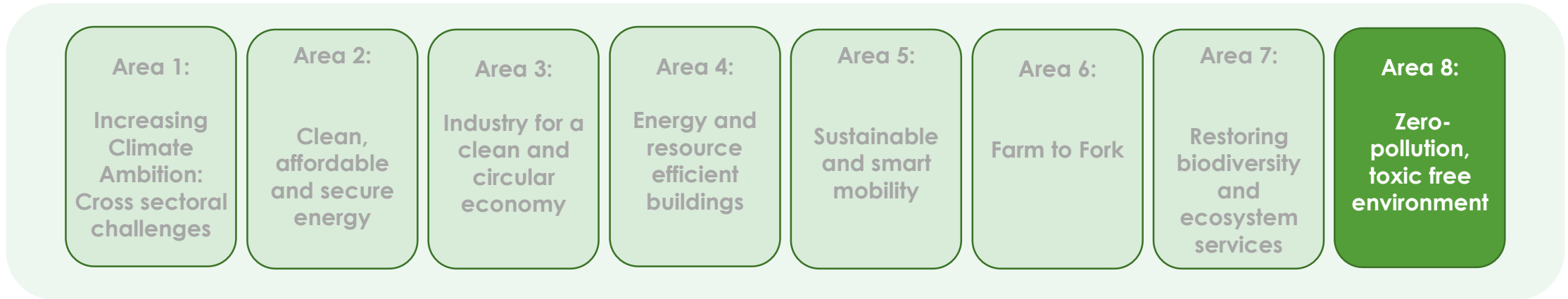
The “European Green Deal” call in Horizon 2020: the topics



Topic: Restoring biodiversity and ecosystem services

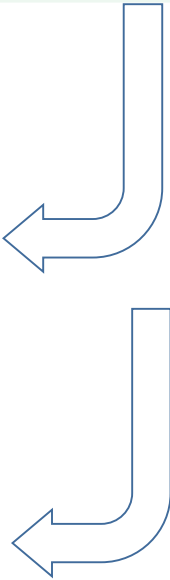


The “European Green Deal” call in Horizon 2020: the topics



Topic 1: Innovative, systemic zero-pollution solutions to protect health, environment and natural resources from persistent and mobile chemicals

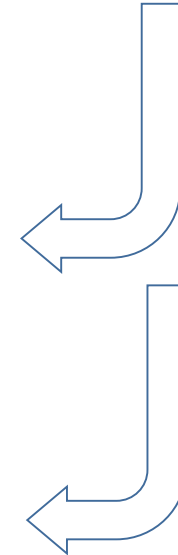
Topic 2: Fostering regulatory science to address chemical and pharmaceutical mixtures: from science to evidence-based policies



Area 9: Strengthening our knowledge in support of the European Green Deal

Reinforced R&I capacities and services to address European Green Deal challenges

Developing end-user products and services for all stakeholders and citizens, supporting climate adaptation and mitigation



Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

European capacities for citizen deliberation and behavioural change for the Green Deal

Empowering citizens to act on climate change through education, monitoring of their environmental impacts, and civic involvement



Area 11: Accelerating the clean energy transition and access in partnership with Africa

**Accelerating the green transition and energy access
Partnership with Africa**



Possible topics for Green Deal call

The call will largely finance innovation and demonstration projects (**Innovation Actions**): the details are under discussion in the Horizon 2020 Strategic Committee.

Area of the call	Link to topic
Area 1	Increasing Climate Ambition
Area 2	Clean, affordable and secure energy
Area 3	Industry for a clean and circular economy
Area 4	Energy and resource efficient buildings
Area 5	Sustainable and smart mobility
Area 6	Farm to Fork
Area 7	Ecosystems and Biodiversity
Area 8	Zero-pollution, toxic free environment
Area 9	Strengthening our knowledge in support of the EGD
Area 10	Empowering citizens for the transition towards a climate neutral, sustainable Europe
Area 11	Accelerating the clean energy transition and access in partnership with Africa

Timetable



3 June 2020

Deadline for giving your online feedback for the call



mid-September 2020

Formal adoption of Green Deal call as amendment to Horizon 2020 work programme 2018-20



mid-September 2020

Publication and opening of the call



22-24 September 2020

Opportunity to find potential project partners at the EU R&I Days

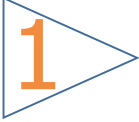



end January 2021

Deadline for submitting project proposals

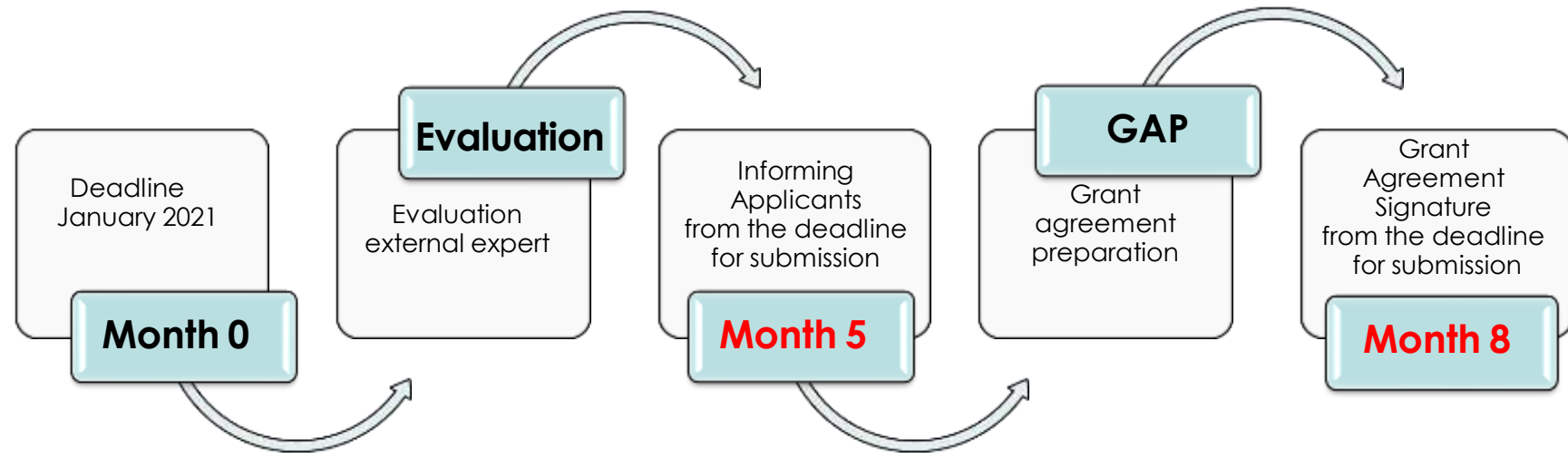
BUSINESS CASE

How to prepare a good proposal?

-  **1 Evaluation Process – basic principles and timeline**
-  **2 Before you start - tips and lessons learnt**

	RIA	IA	CSA
	<i>Research Innovation Action</i>	<i>Innovation Action</i>	<i>Coordination and Support Action</i>
Activities funded	Action consisting of activities aiming at establishing new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution.	Action primarily consisting of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services.	Action that improve skills, mobilise large – scale investments or facilitate EU policy implementation
Funding rate	EU funding rate:100%	EU funding rate:70% 100% for non-profit legal entities	EU funding rate:100%
Beneficiaries	Minimum 3 established in different EU Member States or in associated countries	Minimum 3 established in different EU Member States or in associated countries	Minimum 1 established in EU Member States or in associated countries

H2020 – Green Deal Calls



RIA/IA

Excellence

- Clarity and pertinence of the **objectives**
- Soundness of the **concept**, and credibility of the proposed **methodology**.
- Extent that proposed work is beyond the **state of the art**, and demonstrates **innovation potential** (e.g. ground-breaking objectives, novel concepts and approaches, new products, services or business and organisational models)
- Appropriate consideration of **interdisciplinary** approaches and, where relevant, use of stakeholder knowledge and **gender dimension in research and innovation content**

Impact

- The extent to which the output of the project would contribute to each of the expected **impacts** mentioned in the work programme under the **relevant topic**.
- Any substantial impacts not mentioned in the WP, that would enhance innovation capacity; create new market opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the environment, or bring other important benefits for society.
- Quality of proposed measures to **exploit** and **disseminate** the project results (including management of IPR), and to manage research data where relevant); **communicate** the project activities to different target audiences

Implementation

- Quality and effectiveness of the **work plan**, including extent to which the **resources** assigned to work packages are **in line with their objectives and deliverables**
- Appropriateness of **management structures** and **procedures**, including risk and innovation management
- Complementarity of the participants and extent to which the consortium as whole brings together the necessary expertise
- Appropriateness of the allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project to fulfill that role

CSA

Excellence

- Clarity and pertinence of the **objectives**.
- Soundness of the **concept**, and credibility of the proposed **methodology**.
- Quality of the proposed **coordination** and/or **support measures**.

Impact

- The extent to which the output of the project would contribute to each of the expected **impacts** mentioned in the work programme under the **relevant topic**.
- Quality of proposed measures to:
 - **exploit** and **disseminate** the project results (including management of the IPR), and to manage research data where relevant;
 - **communicate** the project activities to different target audiences.

Implementation

- Quality and effectiveness of the **work plan**, including extent to which the **resources** assigned to work packages are **in line with their objectives and deliverables**.
- Appropriateness of **management structures** and **procedures**, including risk and innovation management.
- **Complementarity of the participants** and extent to which the consortium as whole brings together the necessary expertise.
- **Appropriateness of the allocation of tasks**, ensuring that all participants have a valid role and adequate resources in the project to fulfill that role.

Call open - From September 2020
To January 2021



**Start early – a good proposal
needs time and evolution**

Demonstrate WHAT – WHY – HOW !

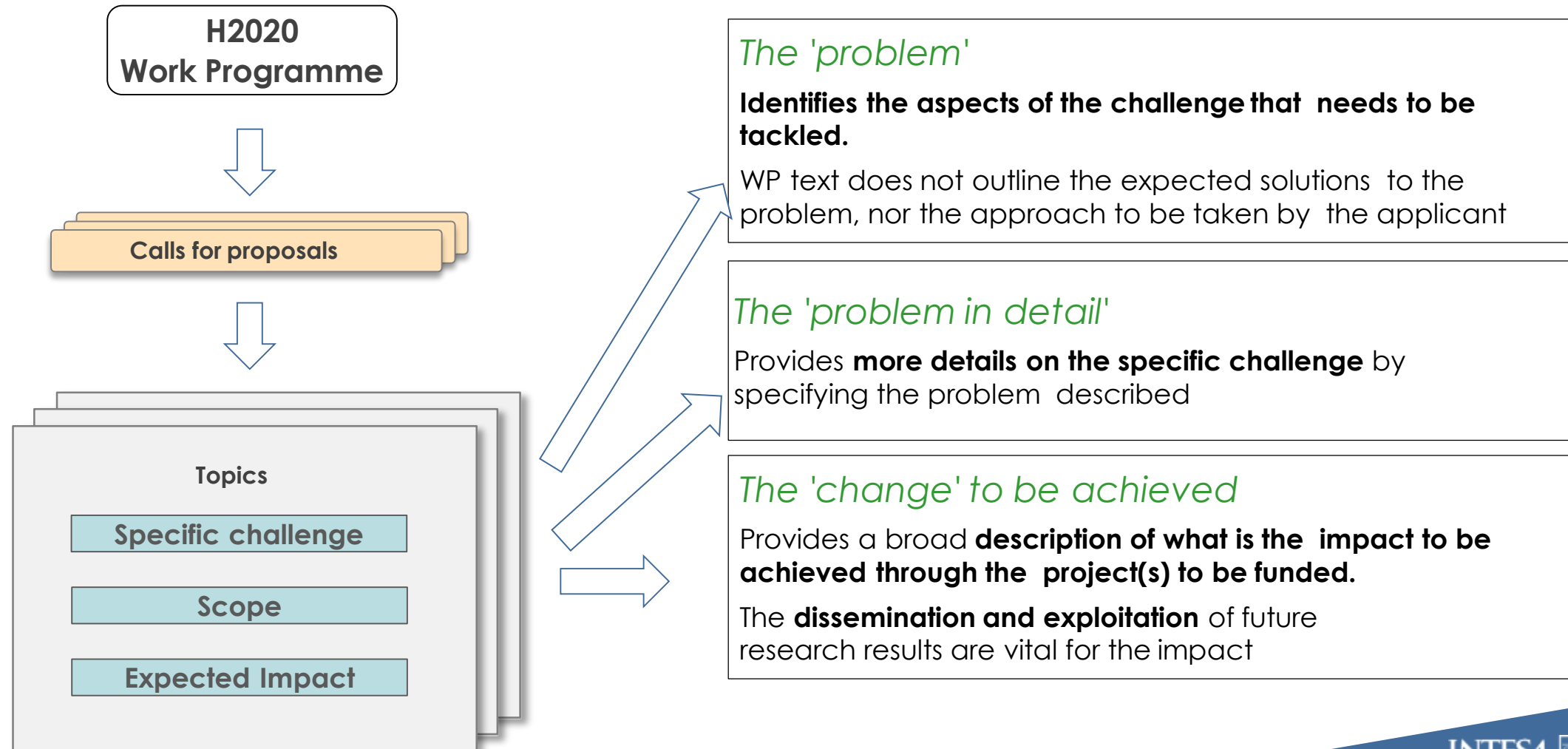
An **excellent idea** is the basis of a good proposal but is **not sufficient**....

The **expected impacts and implementation aspects are as important!**

The proposal should **excel in each single criterion!**

Be specific in your objectives and expected impacts and clearly demonstrate how you aim to implement and sustain them

Proposal should answer scope and expected impacts of the Call topic



Proposals have

2 parts

Both parts need to
be assessed

Page limitation:
50 or 70 pages for
Part B

(excessive pages
made invisible)

Part A

General Information – Abstract

Participants and contacts

Budget

Ethics

Call specific question – Open Research Data Pilot

Part B

Section 1: Excellence (objectives; relation to WP; concept & approach; ambition)

Section 2: Impact (expected impacts; measures to maximize impact which include dissemination & exploitation of results and communication activities)

Section 3: Implementation (work plan; management structure & procedures; consortium; resources)

Section 4: Members of the consortium

Section 5: Ethics and security

Area 1:
Increasing Climate Ambition: Cross sectoral challenges

Area 2:
Clean, affordable and secure energy

Area 3:
Industry for a clean and circular economy

Area 4:
Energy and resource efficient buildings

Area 5:
Sustainable and smart mobility

Area 6:
Farm to Fork

Area 7:
Restoring biodiversity and ecosystem services

Area 8:
Zero-pollution, toxic free environment

Green Deal's immediate priorities: “**reduce incidence and extent of forest fires**” and “**boost ability to predict and manage environmental disasters**”.

What is at stake:

- More EU citizens suffer directly & indirectly from wildfire impacts every year: hundreds of casualties, € 2 billions economic damages and millions of ha of forest and Natura 2000 areas ravaged - not only in South but also rising in Central, East and North EU
- Extreme wildfires as in Portugal (2017) and Greece (2018) will be more common, with negative effects on climate change (huge GHG), carbon sinks, biodiversity, air pollution
- Climate change increases wildfires' severity, extent of burned areas and length of the fire season in addition to unsustainable forestry, spatial planning and demographic changes

Objective of the topic

Accelerate R&I, integrate, adapt & demonstrate holistic solutions ready to up-scale / deploy at local/regional/national/EU and international level.

Targeted Impacts (by 2030 in EU)

- 0 casualties from wildfires
- 50% reduction in accidental/arson ignitions
- 55% reduction in wildfires emissions (2030)
- 50% Natura 2000 areas fire-resilient
- Stimulation of new bioenergy value chains
- Improved health (citizens, firefighters)
- Fire suppression within 24 hours
- Net climate-neutral in 2050
- 90% losses from wildfires insured
- Prescribed fire management use

Proposed activities:

- Environmental, climate & socio-economic research, forecasting & strategy (eg biomass)
- **Research, innovation & pre-deployment of better ground & aerial systems, techniques and capabilities (physical & digital) to prevent, predict, monitor, extinguish & recover**
- Proactive governance, large-scale & community-based risk assessments, education / training, preparedness & adaptation – key: citizens, forest sector, first responders. Tailor and demonstrate the integrated solutions on the field with end-users in pilot sites across Europe in different contexts (forest/bush/peat; wildland-urban interfaces/alpine/coastal; cross-border areas ...)

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Objective of the topic:

To design and construct new or retrofit existing buildings as zero-emission/zero-pollution, positive energy powerhouses. The multiplication of such buildings in green neighborhood “living labs” with additional urban functionalities (e.g. shared EV charging facilities) will enable the market and consumer uptake potential of the innovations.

Targeted Impacts:

- To accelerate the diffusion of the high efficiency zero-emission/zero-pollution, sustainable technologies and innovations needed for the full decarbonisation of the building sector. This will increase incentives for investment and economies of scale bringing down costs for all and it will create new business models and services, new usages, changed behavior.
- To enable an energy transition corresponding to a ‘just transition’ in the building sector, ensuring a healthy and safe living environment while supporting an increase of renovation rates. **Most importantly, leading to highly energy and resource efficient, cheaper to run “green neighborhoods” – a crucial advantage for the least well-off who can not afford to live in an energy inefficient way.**

Proposed activities:

- Scalability design of positive energy neighborhoods well embedded in the spatial, economic, technical, environmental and social context of the sites
- High energy efficiency building designs (incorporating thermal design and orientation), adapted to local environments; highly efficient building operation.
- **Innovative and more energy efficient integrated renewable electricity technologies in the buildings and urban service facilities.**
- **Innovative and sustainable highly energy and cost efficient RES heating and cooling solutions.**
- **Energy storage systems (e.g. using second life batteries from electric vehicles) without limiting the use of living space (e.g. neighbourhood optimized storage).**
- **Digital technologies for system monitoring at neighbourhood scale, as well as digital solutions to increase energy efficiency of building systems’ and appliances’ operation.**
- Education and training for sustainability, conducive to competences and positive behaviour/good habits for a resource efficient and environmentally respectful energy use.
- Accelerating innovation spread through involvement of the whole buildings value chain and coordination on standards and regulatory aspects for efficiency of buildings and heating and cooling technologies.

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Test, demonstrate and promote systemic solutions for up-scaling the restoration of biodiversity and ecosystem services

Targeted Impacts:

- Tested up-scaling of large-scale and urgent restoration actions on the ground, to prepare resilient ecosystems and their services at sea and on land
- Restoration actions are implemented which will enhance natural carbon sinks and reduce the effects of emissions, locally reverse biodiversity decline and improve the delivery of a range of ecosystem services (in the short- to long-term)
- Nature-based solutions are adapted, integrated and demonstrated in governance, financing, public procurement, economic development, infrastructure and regional strategic landscapes
- Demonstration of how restoration activities enable sustainable, climate-smart, inclusive, transformative approaches
- Value created for communities affected by transformative change through the restoration of their degraded terrestrial and marine environment
- Showcase how massive restoration can help enabling transformative change including of social and behavioural factors, which will be beneficial for biodiversity

Proposed activities:

- Restore degraded ecosystems at sea and on land at large scale
- Test innovative methods for upscaling restoration
- Replicate deployment of restoration towards resilient ecosystems and their services at regional, national and cross-border levels
- Address barriers to the implementation of nature-based solutions
- **Showcase in practice how to maximize synergies and avoid trade-offs between priorities for restoring biodiversity, mitigating and adapting to climate change**
- Support the development of specific demand and supply chains in restoring ecosystems
- Work for communities in transition affected by transformative change through the restoration of their degraded terrestrial and marine environment
- **Developing answers on how to frame transformational change, which supports a just transition by investing in nature, to explicitly help vulnerable regions and communities to improve their resilience when rapid changes in climate and environment, economies and social conditions occur.**
- Generate knowledge on how enabling transformative change can be beneficial for biodiversity and climate change, and bring this information into IPBES (Intergovernmental Science Policy Platform on biodiversity and Ecosystem) and IPCC (Intergovernmental Panel on Climate Change) processes

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The new Chemicals Strategy for Sustainability, proposed under the EGD, calls for the regulatory framework to rapidly act on the risks (underestimated) posed by combination effects of different chemicals to better protect both citizens and the environment against hazardous substances.

Objective of the topic:

This call topic aims at demonstration studies to show how innovative solutions can be **applied in risk assessment to identify, prevent and manage harmful co-exposures to industrial chemicals and pharmaceuticals.**

Targeted Impacts:

- Identification of most commonly encountered mixtures, their impacts on different parts of the ecosystem and human health, and implementation of solutions to reduce the most critical exposures;
- More targeted and innovative risk assessment of mixtures of chemicals and pharmaceuticals to better assess their presence in drinking water, soil, food and feed.

Proposed activities:

- Demonstration of innovative solutions to quantify and prevent the most harmful co-exposures to industrial chemicals and pharmaceuticals.
- Advanced solutions for the establishment of causality between co-exposures and effects
- **Development of targeted and non-targeted high-throughput technologies for screening, and advanced bioinformatics approaches, such as artificial intelligence and other data mining methodologies, to identify the most representative real-life mixture scenarios in humans**
- Identification of lead components in mixtures, responsible for the impact on human health and the ecosystems

Area 9:
Strengthening our knowledge in support of the EGD

Area 10:
Empowering citizens for the transition towards a climate neutral, sustainable Europe

Area 11:
International cooperation

Mobilisation and advancement of world-class capacities and resources such as those offered by European Research Infrastructures (RIs) **for energy storage and climate/environment observation.**

Targeted Impacts:

- Enabling breakthrough research and innovation in energy storage across the whole value chain and with a life-cycle approach
- Anchoring European RIs in an efficient and competitive research and industrial ecosystem for energy storage
- Strengthening the observation and monitoring of GHG emissions, ultrafine particles and air quality, in particular in and around urban areas
- Providing evidence for the development of sustainability strategies, taking also account of impacts on health
- Advanced, optimised and harmonised research services and data to address Green Deal objectives
- New advanced skills to exploit the most advanced instruments and resources for R&I addressing Green Deal challenges

The activities will focus on:

- Transnational and virtual access to advanced R&I infrastructures, including users' training and scientific and technical support and data analysis to accelerate the transition toward a decarbonised energy/transport EU system
- **Provision of integrated and customised services and innovative solutions for the observation and monitoring of GHG emissions, ultrafine particles and air quality, in particular in and around urban areas: interoperable data, tools/equipment and models for the scientific community and public authorities/decision makers**
- Development of synergies between research infrastructures and relevant local, European and global initiatives in different disciplinary areas, including health and social sciences

Grazie per l'attenzione!

ANNEX

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What is at stake:

- Cities occupy 2% of the planet's landmass, consume over 65% of the world's energy and account for more than 70% of the global CO2 emissions
- Cities and local communities can benefit from social innovation and EU R&I towards the transition to climate neutrality, leaving no one behind
- 75% of the European citizens live in cities and possibly 80% by 2050: Cities will play a crucial role in reaching the targets of the Green Deal

Objective of the topic: to support cities into using Green Deal-targeted social and technological innovation to co-create, test and implement holistic & integrated solutions with citizens and trigger changes in social practices and behaviour

Targeted Impacts:

- Climate neutrality by 2030 of the participating cities (and districts)
- Empower cities and local communities through social innovation to cross social tipping points and make the Green Deal happen
- Mobilise the demand (citizens' needs) to lead the transition to climate neutrality

Proposed activities:

- Support the development of climate action plans in cities (and local communities)
- Combine existing results of EU R&I with social innovation, and take advantage of the digital transformation to co-create and test solutions with local communities, including changes in social practices and behavior
- Establish a one-stop shop in partner cities to help them implement their climate action plans
- Support twinning and mentoring on Green Deal objectives between cities from different countries and different sizes and creating a European ecosystem of social innovation hubs and local communities making the Green Deal happen
- Support large scale pilots of systemic solutions combining technological, social, cultural, regulatory and/or financial aspects, inspired by good practices available at local, national and/or European level

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What is at stake:

- Every half-degree of global warming may inflict a new order of magnitude of harmful consequences on planetary health, economic and social cohesion. We need radical and transformative ways of building resilience to climate variability and change.

Objective of the topic: scaling up and demonstrating systemic, integrated solutions and technologies at a large scale is the way forward to trigger behavioral changes. Solutions that combine technological, business, governance, environmental and social innovation will contribute to the development of adaptation pathways tailored to the most vulnerable regions and communities to climate change.

Targeted Impacts:

- Accelerate transformative change across all regions and sectors of society
- Massive increase of community resilience and capacities to cope with unavoidable effects of climate change
- Specific EU Green Deal targets: *EU Adaptation Strategy – EU Forest Strategy – Farm to Fork Strategy*

Proposed activities:

Development of region-specific portfolios of solutions for climate action may include:

- **increase water efficiency in regions and enhanced planning for floods and droughts;**
- adapt to temperature increase with sustainable cooling solutions that decrease energy demand and reduce fatalities during heatwaves
- nature-based adaptation solutions for coastal defence infrastructures
- insurance innovations that incorporate a dynamic, long-term, and adaptive view of climate risk into modelling and pricing
- support to the development of coherent policy frameworks at regional level that give priority to the implementation of urgent and no-regret adaptation actions

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To decarbonise Europe, **clean renewable power production** must become the main source of energy. A Clean planet for all, provides estimates for the offshore wind capacity in Europe of 240-440 GW by 2050.

What is at stake:

This increase would represent a paradigm shift in the European energy system and require a modern infrastructure to transport offshore renewable energy power to onshore, including through the **option of power-to-X**. This buildout needs to be attained while also protecting the environment and biodiversity and **securing a just transition, all while ensuring cost-efficiency**.

Objective of the topic: There is a need for more efficient and cost-effective technologies using wind, wave and/or tidal resources, considering the potential of the different European sea basins.

Targeted Impacts:

- To accelerate the future roll-out of large-scale deployment of offshore renewable energy, considering market perspective and social, environmental and economic impacts.
- To accelerate the development of innovative critical offshore technologies for the realization of a clean renewable power production system needed to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050.
- To increase incentives for investment and economies of scale in offshore bringing down costs and it will create new business models and services

Proposed activities:

Demonstration of critical offshore renewable energy innovations at sea considering the efficiency, reliability and sustainability that is needed in all areas of the offshore renewable energy system notably:

- **Offshore renewable energy power generating systems:** innovative large scale integrated systems, floaters and substructures, mooring and anchoring systems specifically conceived for floating offshore considering the varied subsea conditions for floating offshore systems.
- **Grid infrastructure:** demonstration of innovative High Voltage Direct Current (HVDC) technologies and systems (like multi-vendor Multi Terminal HVDC (MT HVDC) systems, grid forming converter, and DC circuit Breaker); for floating renewable energy technologies innovative dynamic inter-device/inter-array cables and connections to converter stations at sea or offshore hubs have to be considered.
- **Power to X /storage systems:** innovative storage and/or green power to X (including hydrogen) systems to maximise the use of offshore resources. It shall address at least the offshore renewable energy power generating systems and the related energy system integration requirements, and may address grid infrastructure and/or power to X/storage systems.

Proposals shall address marine spatial planning (making multi-use of the seas possible), industrial design and manufacturing processes, installation methods, transport and operation & maintenance and supply chains.

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Demonstrate energy system integration through hydrogen: produce hydrogen from RES and use it in a commercial/industrial application (e.g. chemical or petrochemical industry)

Targeted Impacts:

- Establish a European industry capable of developing a novel 100MW electrolyser using a European value chain
- Increase the efficiency of the **electrolyser** reaching an energy consumption of 49 (ALK) to 52 (PEM) kWh/kg H2 at nominal power
- Increase the current density to 1 A/cm2 (ALK) or 3A/cm2 (PEM) and delivery pressure to 30 bar
- Reduce the plant's footprint by 30% thanks to the larger modules and the plant layout as well as the higher current densities
- Reduce the electrolyser CAPEX by 20% down to €480/kW and €700/kW for Alkaline and PEM electrolysers respectively

Proposed activities:

1. Develop modules of 4-5 MW (or larger) with reduced balance of plant, managing efficiently the input power, the output hydrogen streams and the heat flows, while ensuring the reliability of the system and reducing the footprint
2. Assemble the modules into a 100MW electrolyser system
3. Test and demonstrate the 100MW electrolyser in real life conditions, operating flexibly to harvest maximum renewable power and provide grid-balancing services, and supplying renewable hydrogen to a commercial/industrial application
4. Assess the performance and the durability of the electrolyser operating dynamically
5. Address potential safety issues

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Energy intensive industries, such as steel, chemicals and cement are key to Europe's economy, but they account for 20% of the EU's greenhouse gas emissions.

R&I is proposed on innovative catalytic materials and technologies using renewable energy driven conversion of CO₂ emissions into fuels, polymers and chemicals.

Targeted Impacts:

- Demonstrate technical and economic viability of renewable energy driven conversion of CO₂ as feedstock, at pilot plant level, to produce climate-neutral fuels, polymers and chemicals.
- Affordable and efficient production, storage and distribution of renewable energy carriers.
- Significant reduction of industrial CO₂ emissions (~200 Mt p.a. by 2050).
- Improvement of air quality by reducing the direct flue gas emissions.
- Contribution to industrial circularity and to meet the GHG emissions reduction target for 2030 and climate neutrality by 2050

Proposed activities:

- Develop and deploy highly innovative catalytic materials and renewable energy driven technologies for the production of synthetic fuels, polymers and chemicals from industrial waste gas emissions (CO and CO streams)
- with a 50% increase in the overall efficiency compared to the state-of-the-art
 - at a sufficiently large scale with a demonstrated cost effectiveness
 - with a demonstrated exploitability of the developed technology through the full value chain

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Objective of the topic

- ✓ Build sustainable, regenerative and just circular economy to reconcile with the limits and boundaries of our planet;
- ✓ focus on local and regional levels as suitable for closing material loops and creating sustainable circular ecosystems;
- ✓ **demonstrate concrete systemic solutions for the territorial deployment of the circular economy in at least three territorial clusters in Europe;**
- ✓ **facilitate their replication.**

Targeted Impacts:

Demonstrate R&I systemic solutions for the territorial deployment of the circular economy at the level of governance closest to citizens:

- increase the clusters' overall resource efficiency and reduce GHG emissions;
- increase circularity in clusters' key economic sectors;
- **create jobs and new business opportunities.**

Replication:

- lay the foundation for systemic solutions for the territorial deployment of circular economy in other areas;
- multiply the territorial economic, social and environmental benefits provided by each cluster to achieve policy targets at national and European level.

Proposed activities:

- engage, train, support, coordinate and facilitate the cooperation between key actors constituting each cluster: administrations, industry (including SMEs), scientific community and civil society;
- develop and demonstrate science, technology, governance, economic, social and environmental solutions to increase the circularity in key economic sectors such as waste, water, food, feed, wood, terrestrial and aquatic bio-based value chains, textile, plastics, electrical and electronic equipment, construction and buildings;
- ensure the exchange of relevant information and experiences within and across clusters and also with other actors not involved in the proposals.

Criteria:

- sustainability, inclusiveness, and social justice at the heart of each systemic solution;
- replicability potential of each solution is essential;
- totality of the territorial clusters should reflect a geographical spread within Europe and should be of different sizes and socio-economic structures;
- TRL 7-8 at the end of the project.**

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Objective of the topic:

To design and construct new or retrofit existing buildings as zero-emission/zero-pollution, positive energy powerhouses. The multiplication of such buildings in green neighborhood “living labs” with additional urban functionalities (e.g. shared EV charging facilities) will enable the market and consumer uptake potential of the innovations.

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- To accelerate the diffusion of the high efficiency zero-emission/zero-pollution, sustainable technologies and innovations needed for the full decarbonisation of the building sector. This will increase incentives for investment and economies of scale bringing down costs for all and it will create new business models and services, new usages, changed behavior.
- To enable an energy transition corresponding to a ‘just transition’ in the building sector, ensuring a healthy and safe living environment while supporting an increase of renovation rates. **Most importantly, leading to highly energy and resource efficient, cheaper to run “green neighborhoods” – a crucial advantage for the least well-off who can not afford to live in an energy inefficient way.**

Proposed activities:

- Scalability design of positive energy neighborhoods well embedded in the spatial, economic, technical, environmental and social context of the sites
- High energy efficiency building designs (incorporating thermal design and orientation), adapted to local environments; highly efficient building operation.
- **Innovative and more energy efficient integrated renewable electricity technologies in the buildings and urban service facilities.**
- **Innovative and sustainable highly energy and cost efficient RES heating and cooling solutions.**
- **Energy storage systems (e.g. using second life batteries from electric vehicles) without limiting the use of living space (e.g. neighbourhood optimized storage).**
- **Digital technologies for system monitoring at neighbourhood scale, as well as digital solutions to increase energy efficiency of building systems’ and appliances’ operation.**
- Education and training for sustainability, conducive to competences and positive behaviour/good habits for a resource efficient and environmentally respectful energy use.
- Accelerating innovation spread through involvement of the whole buildings value chain and coordination on standards and regulatory aspects for efficiency of buildings and heating and cooling technologies.

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Area 7:
Restoring biodiversity and ecosystem services

Area 8:
Zero-pollution, toxic free environment

Large-scale, real-life demonstrations of green airports, maritime and inland ports

Targeted Impacts:

- **Accelerated deployment of sustainable alternative fuels (including advanced biofuels, hydrogen, ammonia), electromobility, energy storage and waste heat recovery in ports and airports**
- On-site clean energy / fuel production and distribution (particularly green hydrogen and electricity) and increased alternative (bio-) fuel supply, on site electricity generation with refueling and re-charging capabilities
- **Zero-emission ports and airport operations by 2030**
- Reduced waterborne and aviation transport emissions and improved air quality at ports and near airports
- **Energy-efficient port and airport operations and buildings, green logistics, integration with other low-emission transport modes**
- Reduced emissions for cities and improved city integration for ports and airports

Proposed activities:

- **Pilot/demo plants of zero-emission energy production and supply at ports and airports (electricity, hydrogen, sustainable alternative fuels)**
- On-shore supply systems, storage, distribution and power/re-charging/alternative re-fuelling infrastructure for aircrafts and ships
- Large-scale, real-life high TRL demonstrations of green maritime and inland ports, of different sizes, across 3 airport dimensions: transport; energy supply; terminals
- Integration with operations and green logistics, innovative construction, dredging, infrastructures, effective and green land use
- **New tools and optimisation mechanisms for multimodal access, passenger and freight flows into / out of ports and airports, facilitating access and reducing traffic from / to the city**
- Non-technological framework conditions, new multi-actor governance and investment analyses

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Full title : “From farm to fork: testing and demonstrating high impact innovations to address food system challenges in a place-based context.”

Targeted Impacts:

An Innovation Action (IA), that calls for demonstration projects to test, pilot and showcase place-based, innovative system solutions to **4 pressing food systems’ challenges**, and resulting in 4 targeted impacts:

- (a) achieving climate neutral farms, and/or b) achieving climate neutral food businesses;
- reduction of pesticides, antimicrobials, fertilizers and harmful nutrients, towards zero pollution
- reduction of food loss and waste
- shifting to sustainable and healthy diets, sourced from land and sea.

Projects will:

1. maximise synergies and minimise trade-offs between the three dimensions of sustainability (social/health, climate/environmental and economic) & respect planetary boundaries.
2. address one of the 4 challenges & integrate the following elements:
 - Systemic approach at the basis of a plan to tackle the challenge: from identifying drivers and root causes of systemic challenge to assessing impact of solutions
 - Multi-actor approach, engaging partners to co-create, test and demonstrate solutions
 - Most appropriate mix of innovations: technologies, business models, governance models, and social innovations, taking into account the place- based context
 - An action plan for communication and engagement, in and beyond the regions where the activities take place

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Test, demonstrate and promote systemic solutions for up-scaling the restoration of biodiversity and ecosystem services

Targeted Impacts:

- Tested up-scaling of large-scale and urgent restoration actions on the ground, to prepare resilient ecosystems and their services at sea and on land
- Restoration actions are implemented which will enhance natural carbon sinks and reduce the effects of emissions, locally reverse biodiversity decline and improve the delivery of a range of ecosystem services (in the short- to long-term)
- Nature-based solutions are adapted, integrated and demonstrated in governance, financing, public procurement, economic development, infrastructure and regional strategic landscapes
- Demonstration of how restoration activities enable sustainable, climate-smart, inclusive, transformative approaches
- Value created for communities affected by transformative change through the restoration of their degraded terrestrial and marine environment
- Showcase how massive restoration can help enabling transformative change including of social and behavioural factors, which will be beneficial for biodiversity

Proposed activities:

- Restore degraded ecosystems at sea and on land at large scale
- Test innovative methods for upscaling restoration
- Replicate deployment of restoration towards resilient ecosystems and their services at regional, national and cross-border levels
- Address barriers to the implementation of nature-based solutions
- **Showcase in practice how to maximize synergies and avoid trade-offs between priorities for restoring biodiversity, mitigating and adapting to climate change**
- Support the development of specific demand and supply chains in restoring ecosystems
- Work for communities in transition affected by transformative change through the restoration of their degraded terrestrial and marine environment
- **Developing answers on how to frame transformational change, which supports a just transition by investing in nature, to explicitly help vulnerable regions and communities to improve their resilience when rapid changes in climate and environment, economies and social conditions occur.**
- Generate knowledge on how enabling transformative change can be beneficial for biodiversity and climate change, and bring this information into IPBES (Intergovernmental Science Policy Platform on biodiversity and Ecosystem) and IPCC (Intergovernmental Panel on Climate Change) processes

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The Zero Pollution Ambition for a Toxic-free Environment calls for rapidly addressing the risks posed by very persistent chemicals.

Objective of the topic:

This call topic aims at demonstrating innovative solutions to protect health, environment and natural resources from persistent and mobile chemicals, such as PFAS, a group of thousands of manmade chemicals that are widely used in various consumer and industrial products, to which citizens are exposed.

Targeted Impacts:

- Better understanding of a persistent pollution problem of human and environmental health relevance
- Better remediation and detection technologies
- Data for risk assessment, made accessible to policy making and risk communication

Proposed activities:

- **Research and development of remediation technologies of contaminated soil and water for persistent and mobile substances;**
- New methods to measure persistent and mobile chemicals in different media;
- Develop and carry out environmental and human (bio)monitoring of persistent and mobile substances;
- **Gather toxicity and toxico-kinetic information in order to allow characterising all risks to human health;**
- Develop best practices for the management of waste containing persistent and mobile substances

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The new Chemicals Strategy for Sustainability, proposed under the EGD, calls for the regulatory framework to rapidly act on the risks (underestimated) posed by combination effects of different chemicals to better protect both citizens and the environment against hazardous substances.

Objective of the topic:

This call topic aims at demonstration studies to show how innovative solutions can be **applied in risk assessment to identify, prevent and manage harmful co-exposures to industrial chemicals and pharmaceuticals.**

Targeted Impacts:

- Identification of most commonly encountered mixtures, their impacts on different parts of the ecosystem and human health, and implementation of solutions to reduce the most critical exposures;
- More targeted and innovative risk assessment of mixtures of chemicals and pharmaceuticals to better assess their presence in drinking water, soil, food and feed.

Proposed activities:

- Demonstration of innovative solutions to quantify and prevent the most harmful co-exposures to industrial chemicals and pharmaceuticals.
- Advanced solutions for the establishment of causality between co-exposures and effects
- Development of targeted and non-targeted high-throughput technologies for screening, and advanced bioinformatics approaches, such as artificial intelligence and other data mining methodologies, to identify the most representative real-life mixture scenarios in humans
- Identification of lead components in mixtures, responsible for the impact on human health and the ecosystems

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Mobilisation and advancement of world-class capacities and resources such as those offered by European Research Infrastructures (RIs) **for energy storage and climate/environment observation.**

Targeted Impacts:

- Enabling breakthrough research and innovation in energy storage across the whole value chain and with a life-cycle approach
- Anchoring European RIs in an efficient and competitive research and industrial ecosystem for energy storage
- Strengthening the observation and monitoring of GHG emissions, ultrafine particles and air quality, in particular in and around urban areas
- Providing evidence for the development of sustainability strategies, taking also account of impacts on health
- Advanced, optimised and harmonised research services and data to address Green Deal objectives
- New advanced skills to exploit the most advanced instruments and resources for R&I addressing Green Deal challenges

The activities will focus on:

- Transnational and virtual access to advanced R&I infrastructures, including users' training and scientific and technical support and data analysis to accelerate the transition toward a decarbonised energy/transport EU system
- **Provision of integrated and customised services and innovative solutions for the observation and monitoring of GHG emissions, ultrafine particles and air quality, in particular in and around urban areas: interoperable data, tools/equipment and models for the scientific community and public authorities/decision makers**
- Development of synergies between research infrastructures and relevant local, European and global initiatives in different disciplinary areas, including health and social sciences

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Provide more detailed information in space and time, relevant to **real-world decision-makers to identify which modes of production, consumption and lifestyle are compatible with climate resilience** and pathways achieving climate neutrality by 2050.

Targeted Impacts:

- Improved delivery of climate service delivery in the last mile of the value chain, across the priority sectors of the European Green Deal
- Increased accessibility of information on climate effects to citizens
- Improved quality of data and information on climate adaptation and mitigation
- Well characterised social and behavioural factors necessary for the climate transition
- Improved climate adaptation and mitigation solutions enabling overcoming societal and economic barriers
- Better informed citizens and stakeholders on options for climate action in their own communities, regions and sectors
- More opportunity for stakeholders to test adaptation/mitigation solutions on the ground

Proposed activities:

- Advancing climate science and models, and downscaling their findings to improve their user relevance
- Delivering the next-generation of climate services for end users (building on GEOSS and Copernicus services, in collaboration with ESA).
- Testing these services on demonstrations sites with the provision of guidance services.
- Making the above findings accessible to the public, going beyond existing tools in both scientific robustness and user relevance.
- Synthesising this knowledge by bridging the gap between the expert tools already generated by European science, and the stakeholders who are making decisions today that will both affect and be affected by climate change and its impacts.
- **Converting the mitigation pathways that are compatible with our climate goals into clear information on how production, consumption, infrastructure and lifestyle need to change.**

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Objective of the topic:

This topic supports the development of an EU integrated digital ocean, building on existing Copernicus, EMODNET, ERICs assets, addressing concrete cases in local or regional sea basins, and demonstrating their usefulness with regard to several of the Green Deal priorities

Targeted Impacts:

- Societal awareness and greater private and citizen engagement promoting cocreation of solutions with Member States
- Increased purposeful observation and modelling capacity and data sharing
- Higher integration of existing EU assets (data, techs, infras)
- Fact-based decision-making and implementation of legal requirements,
- Shared responsibility (gov, industry, citizens) to monitor and ensure sustainable marine economic activities and exploitation of ecosystem services (fishing, aquaculture, transport, offshore energy, ...)
- Allow assessments of ecosystems and habitats and development of biodiversity conservation strategies
- Achievements of Green Deal objectives with the help of digital tools in coastal areas and over ocean

Proposed activities:

- **Digital interactive replicas of the oceans and seas**
- Build on the integration of existing EU leading-edge capacities in ocean observation, forecasting and data warehousing with innovative IT technology
- Concrete cases in local or regional sea basins, demonstrating the use of digital twins with regard to several of the Green Deal priorities, integrated into national infrastructures
- Concrete cases: infrastructure vulnerability, development of mitigation, adaptation and replacement plans to deal with climate risks, optimisation of emergency responses to severe events, sustainable fishing, aquaculture, transport, offshore energy, ...
- **Continuous, timely, transparent monitoring**
- Identification and digital testing of possible solutions, what-if scenarios
- **Cover the whole knowledge value chain: sensors, modelling, big data and AI applications, user-based services**

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This topic covers two sub-areas: citizen deliberation and behavioural change with one project expected to be funded in each area..

Targeted Impacts:

- Ownership and engagement from people across Europe through citizen deliberation
- Behaviour change at both individual and collective levels through behavioural research
- Structured expertise, research and practice networks of the highest ethical and methodological standards across Europe on the above.

Proposed activities:

Projects retained will:

- Establish transnational networks of experts, researchers and practitioners
- Implement deliberation processes and behavioural research on priority issues to deliver on the Green Deal
- Ensure balanced overall coverage of EU and associated countries, associating national/local governments and administrations
- Establish independent boards of guarantors to ensure scientific soundness, ethical and unbiased character of these activities.

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The aim of this call topic is to empower and directly involve citizens in realising their personal impact on climate and the environment thus leading to a change in their behaviour, reducing their personal carbon footprint and taking action at societal level towards a more sustainable future.

Targeted Impacts:

- Improved citizens' engagement in addressing climate change and other human-induced actions harming the environment
- Strengthened climate issue awareness of new generation through education
- Accelerated change of citizen's behavior towards more sustainable patterns.
- Increased citizens empowerment in monitoring climate parameters through sharing the wealth of data they collect with their wearables

Proposed activities:

- Establish a competence framework on climate change and Green Deal implementation, which will serve as a reference tool for the MS, stakeholders, and NGOs to empower citizens to become engaged actors in the Green Deal. Concrete implementation of this framework will be encouraged on demonstration sites (e.g. in schools, universities and identified education communities).
- Engage citizens and education systems on climate-related issues, biodiversity, marine pollution and sustainable food through e.g. the European Ocean Literacy platform, the European Atlas of the Seas, citizen science, civic consortia, deliberative democracy initiatives, businesses, NGOs and municipalities
- Collect environmental data through individual devices (personal wearable sensors, app registering consumer behavior on carbon footprint, extreme weather community app, marine litter watch, etc.)
- Involve citizens in realizing their own environmental impact and empower them with concrete advice for behavioral change

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Empowering
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transition towards
a climate neutral,
sustainable Europe

Area 11:
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- All areas and topics of the Green Deal call are open to international cooperation. In addition to embedding international cooperation to the other topics, a separate topic is proposed with a focus on clean energy solutions in Africa and the Mediterranean.
- Reflecting the geopolitical ambition of this Commission and its renewed commitment towards Africa and its neighbour countries, this topic will provide impetus to the diffusion of innovative solutions to Africa and the Mediterranean, supporting their carbon and energy transition and the potential global impact towards carbon neutrality.
- Activities under this topic will include the setting up of dedicated platforms for supporting demonstration of clean energy transition involving a variety of public and private stakeholders at the national and local level while partnering with their counterparts from EU Member States.

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