



# HORIZON EUROPE

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## THE EU RESEARCH & INNOVATION PROGRAMME

2021 – 2027

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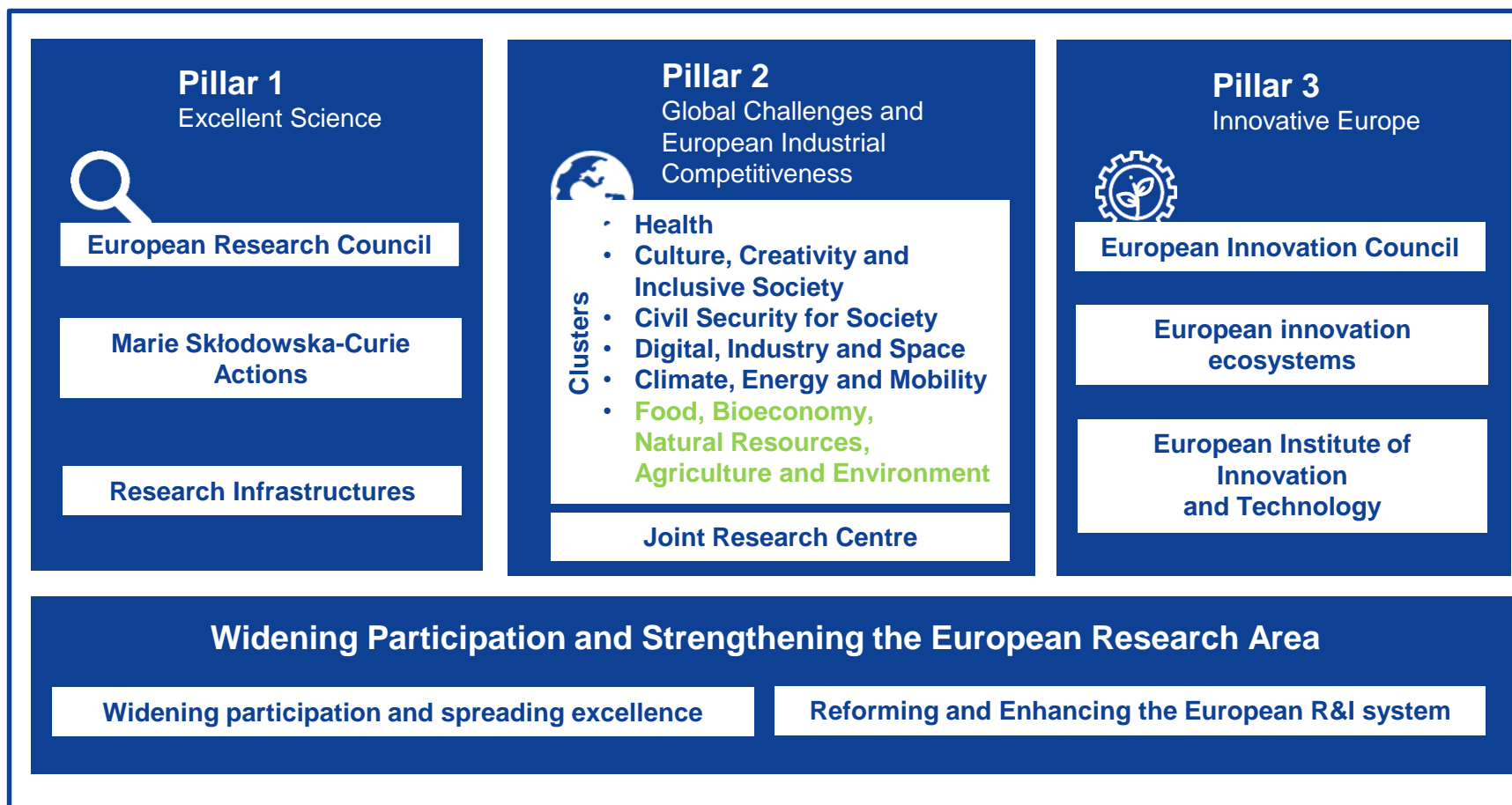
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HORIZON EUROPE CLUSTER 6  
FOOD, BIOECONOMY, NATURAL RESOURCES,  
AGRICULTURE AND ENVIRONMENT

# Research and innovation in the food systems transformation

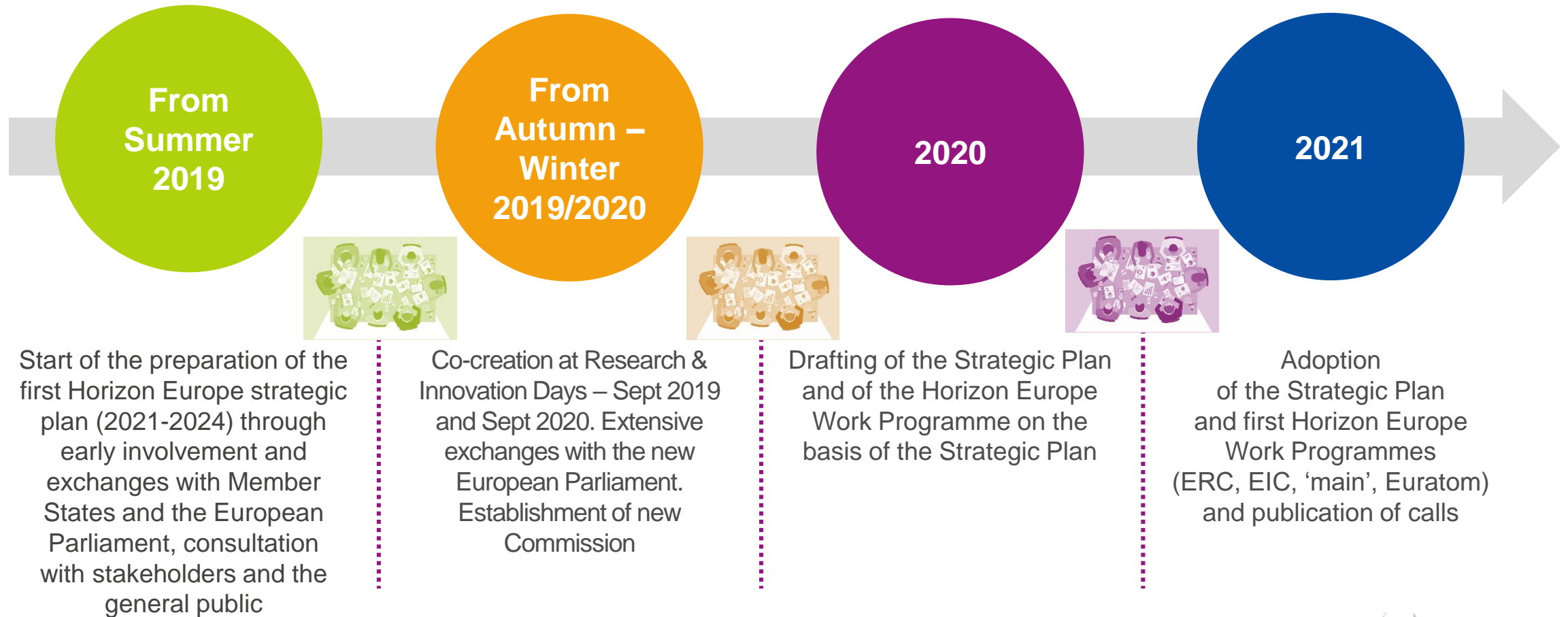


# Horizon Europe: structure & resources



**EUR 9 billion** under Horizon Europe  
for Cluster 6 “Food, Bioeconomy, Natural Resources, Agriculture and Environment”

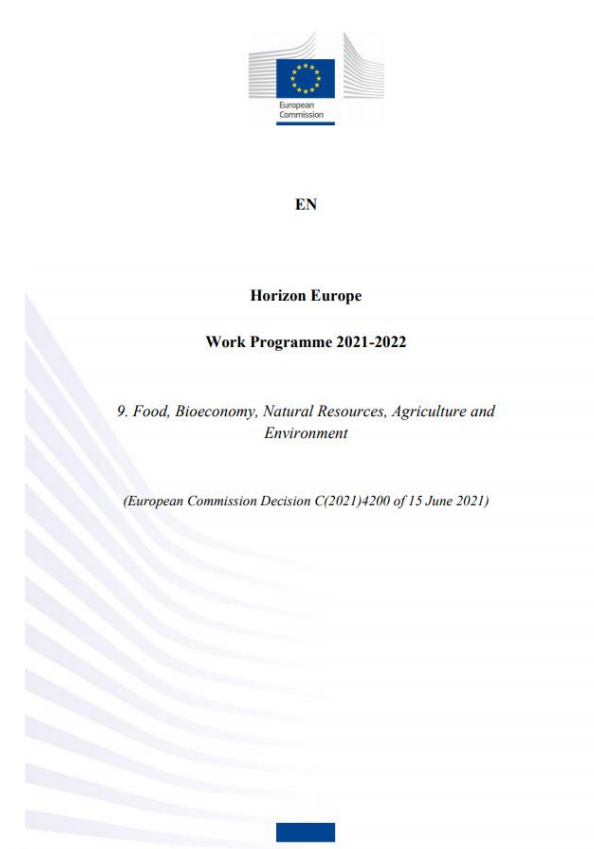
# Steps towards the first Horizon Europe Work Programme



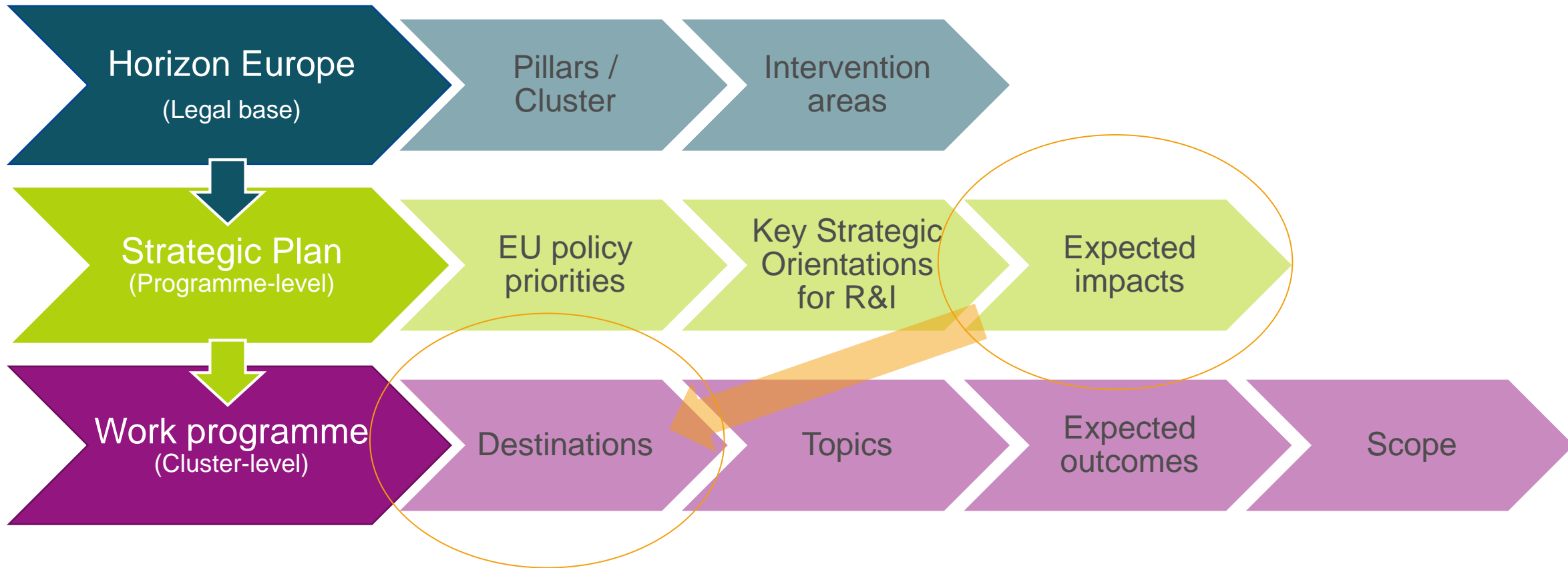
# Cluster 6 Work Programme 2021-2022: 15 June

CHECK THIS OUT!

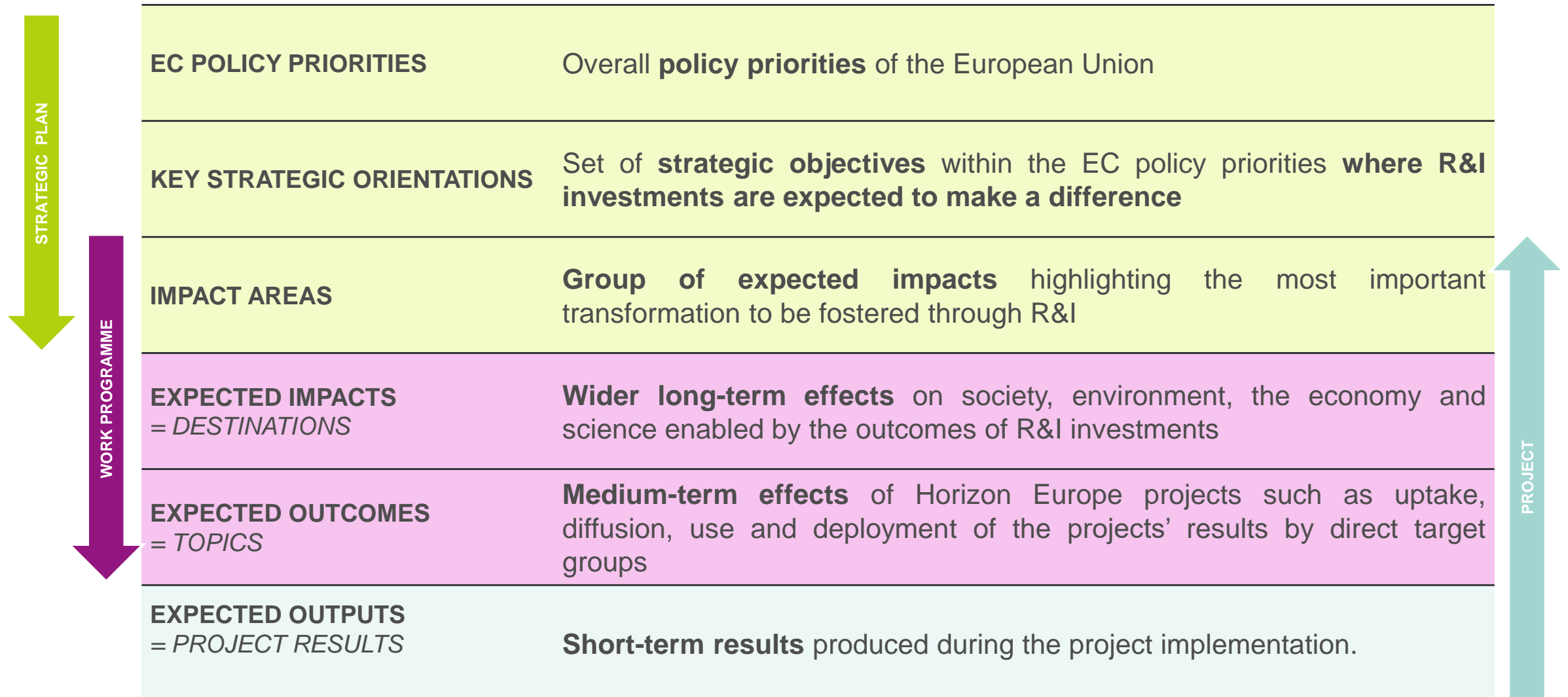
[wp-9-food-bioeconomy-natural-resources-agriculture-and-environment horizon-2021-2022 en.pdf \(europa.eu\)](https://ec.europa.eu/horizon/wp-9-food-bioeconomy-natural-resources-agriculture-and-environment-horizon-2021-2022-en.pdf)



# Horizon Europe: intervention logic



# Horizon Europe: terminology



# Strategic Plan: four key strategic orientations (KSO)

## KSO A

Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains to accelerate and steer the digital and green transitions through human-centred technologies and innovations

## KSO B

**Restoring Europe's ecosystems and biodiversity, and managing sustainably natural resources to ensure food security and a clean and healthy environment**

## KSO C

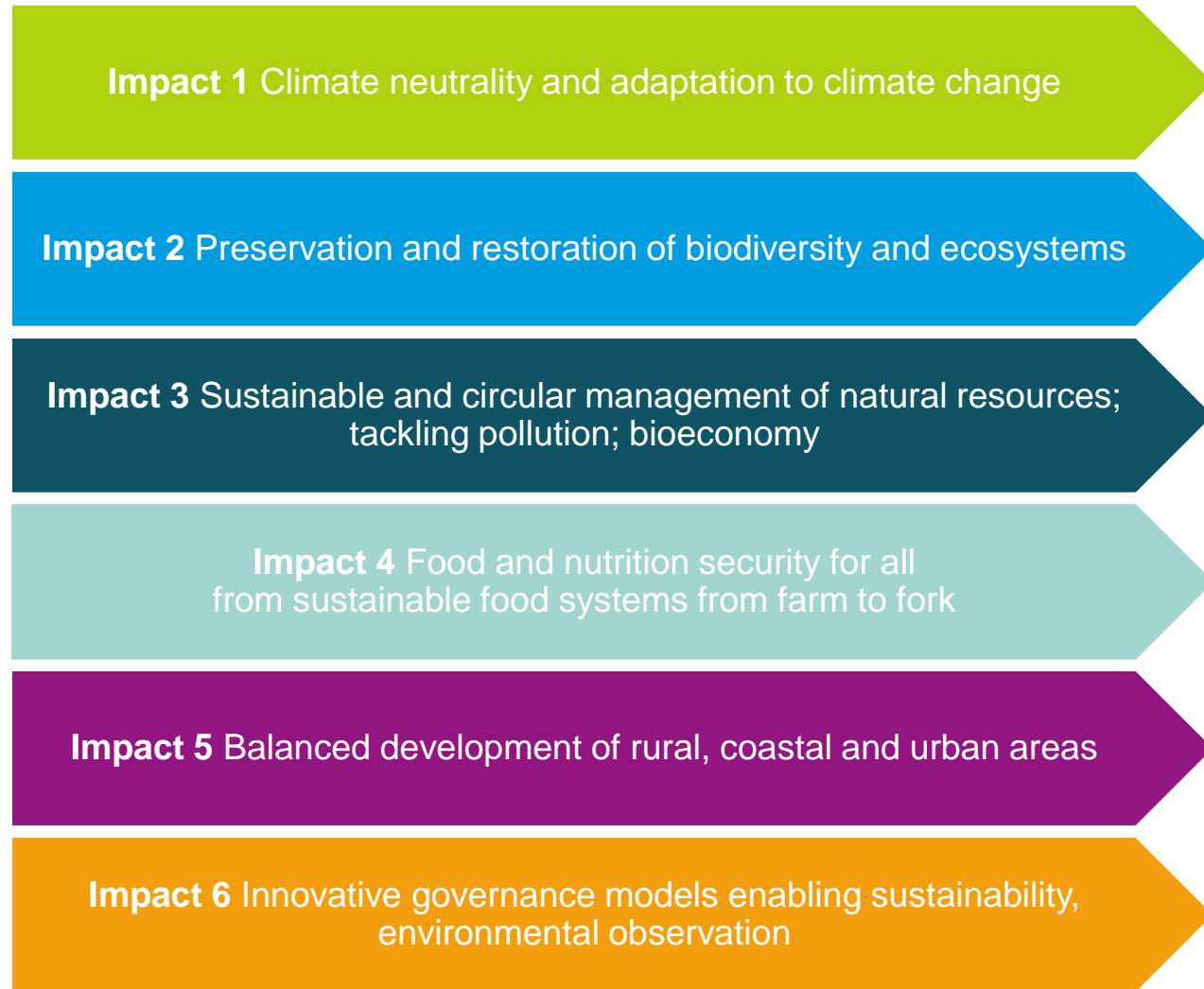
Making Europe the first digitally enabled circular, climate-neutral and sustainable economy through the transformation of its mobility, energy, construction and production systems

## KSO D

Creating a more resilient, inclusive and democratic European society, prepared and responsive to threats and disasters, addressing inequalities and providing high-quality health care, and empowering all citizens to act in the green and digital transitions



# Strategic Plan: Cluster 6 expected impacts



## Intervention Areas

Environmental Observation

Biodiversity and Natural Resources

Agriculture, Forestry and Rural Areas

Seas, Oceans and Inland Waters

Food Systems

Bio-based Innovation Systems in the EU Bioeconomy

Circular Systems

# From expected impacts to destinations...

## Strategic Plan

## Work Programme

**Impact 1** Climate neutrality and adaptation to climate change

- Destination: Land, oceans and water for climate action



**Impact 2** Preservation and restoration of biodiversity and ecosystems

- Destination: Biodiversity and ecosystem services



**Impact 3** Sustainable and circular management of natural resources; tackling pollution; bioeconomy

- Destination: Circular economy and bioeconomy sectors
- Destination: Clean environment and zero pollution



**Impact 4** Food and nutrition security for all from sustainable food systems from farm to fork

- Destination: Fair, healthy and environmentally-friendly food systems from primary production to consumption



**Impact 5** Balanced development of rural, coastal and urban areas

- Destination: Resilient, inclusive, healthy and green rural, coastal and urban communities



**Impact 6** Innovative governance models enabling sustainability, environmental observation

- Destination: Innovative governance, environmental observations and digital solutions in support of the Green Deal



CLIMATE  
PACT AND CLIMATE  
LAW



PROMOTING  
CLEAN  
ENERGY



INVESTING IN  
SMARTER, MORE  
SUSTAINABLE  
TRANSPORT



PROTECTING NATURE



STRIVING  
FOR GREENER  
INDUSTRY



# Cluster 6 & The European Green Deal



ELIMINATING  
POLLUTION



FROM FARM  
TO FORK



LEADING THE  
GREEN CHANGE  
GLOBALLY



ENSURING  
A JUST TRANSITION  
FOR ALL



MAKING  
HOMES ENERGY EFFICIENT



FINANCING  
GREEN  
PROJECTS



# Challenges to the EU food system

## SOCIAL SUSTAINABILITY



Healthier diets –  
reduce overweight



Improve  
animal  
welfare



Social rights  
workers in food  
chain



Food  
affordability

## ENVIRONMENTAL SUSTAINABILITY



Tackle climate  
change



Protect the  
environment



Preserve  
biodiversity



Reduce food losses and  
waste

Circular bio-based  
economy

## ECONOMIC SUSTAINABILITY



Fairer incomes for  
farmers & fishers



Just  
transition



New business & job  
opportunities

# Establish sustainable food systems that:



... **has neutral or positive environmental impact** of food production:

- preserving and restoring the land and sea-based resources
- mitigating climate change and adapting to its impact
- protecting land, soil, water, air, plant and animal health
- reversing the loss of biodiversity



... **ensures food security and public health:**

- ensuring access for everyone to sufficient, nutritious, sustainable food
- ensuring high standards of safety and quality, plant health, animal health and welfare



... **preserves the affordability of food**, while (a.o.):

- generating fairer economic returns and promoting fair trade
- fostering the competitiveness sector and leading the global transition towards competitive sustainability from farm to fork
- safeguarding occupational health and safety
- creating new business opportunities
- ensuring integrity of the single market
- so ultimately the most sustainable food becomes the most affordable



... **are robust and resilient**

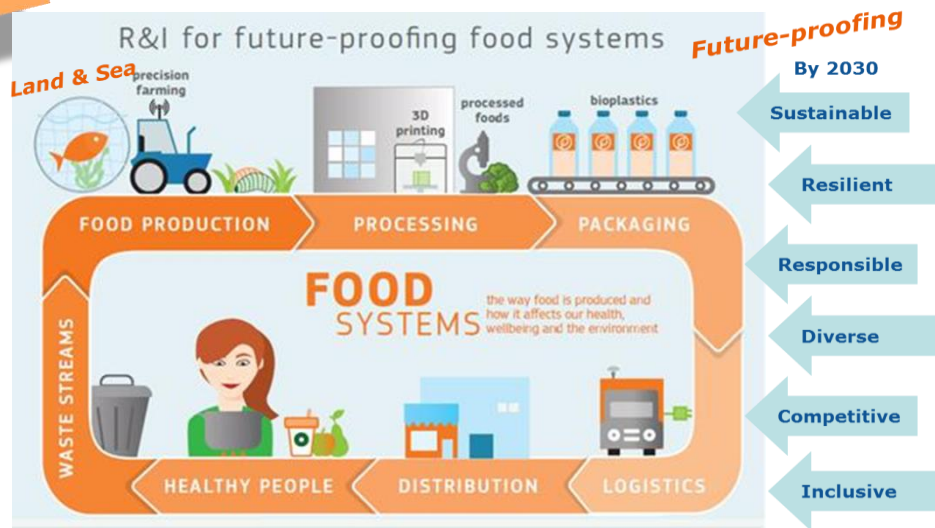






# FOOD 2030

## R&I for tomorrow's nutrition & food systems



- Perfect Storm: climate change, population growth, resource scarcity, malnutrition, obesity & NCDs
- Political opportunity: response to SDGs, COP21+, Juncker priorities
- Investment opportunity: EU underinvesting in food & agri R&I despite high returns on investment
- Need for a systemic approach to future-proofing food systems via more impactful R&I

### Priorities







- NUTRITION** for sustainable and healthy diets
- CLIMATE** smart and environmentally sustainable food systems
- CIRCULARITY** and resource efficiency of food systems
- INNOVATION** and empowerment of communities

### Drivers

- Research breakthroughs**
- Innovation and Investment**
- Open Science**
- International collaboration**

#FOOD2030EU

# Ten FOOD 2030 pathways for co-benefits

	 Nutrition	 Climate	 Circularity	 Communities
Promoting Urban Food System Transformation	+++	+++	+++	+++
Food From The Oceans And Fresh Water Resources	++	++	+++	+++
Proteins And Dietary Shift	+++	+++	++	++
Food Waste	+	+++	+++	++
The Microbiome World 	++	++	++	+
Transition Towards Healthy, Sustainable And Personalized Diets	+++	++	+	++
Food Safety Systems of the Future	+++	+	++	+
Africa 	+++	+++	+++	+++

Governance and system change

Urban food systems transformation

Food from the oceans and fresh water resources

Proteins and dietary shift

Food waste and resource efficiency

The microbiome world

Healthy & sustainable personalised nutrition

Food safety systems of the future

Food systems Africa

Food systems & data

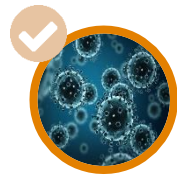
# R&I as enabler for the Farm to Fork targets



-50%



-50%



-50%



25%



+10%



+3 bln



-55%



100%

...by 2030

= 9 years

= 9 growing seasons





# Key R&I priorities for sustainable agriculture



## Destination 1 Biodiversity and ecosystem services

- Fostering **breeding** of **organic** crops, legumes and root-base traits
- Protection and sustainable management of **agricultural genetic resources**
- Resilient **beekeeping**; **pollinators**



## Destination 2 Sustainable food systems from farm to fork

- Unlocking the potential of **agroecological approaches**; improving **plant health**
- Developing **vaccines** and **diagnostics** for priority animal diseases; enhancing **animal welfare**
- **Digital and data technologies** as enablers, especially for small farms



## Destination 3 Circular and bioeconomy

- Mainstreaming inclusive **small-scale bio-based solutions** in rural areas



# Key R&I priorities for sustainable agriculture



## Destination 4 Clean environment and zero pollution

- Optimization of **nutrient budget** in agriculture and enhancing **nature-based solutions** for nutrient management



## Destination 5 Land, oceans and water for climate action

- **Demonstration** network on **climate-smart farming**
- **Unlocking the potential of agroecological approaches**, including **agroforestry**, to climate action
- **Observatories** on climate change impacts on and **enhancing resilience** of agriculture



## Destination 6 Resilient, inclusive, healthy and green rural communities

- Strengthening **evidence for tailored policies** enhancing rural communities' contribution to ecological, digital and social transitions
- **Smart solutions for smart rural communities**



# Key R&I priorities for sustainable agriculture

## Destination 7 Governance, environmental observations and digital solutions in support of the Green Deal



- Innovative tools and methods to support effective **CAP Strategic Plans**
- EU agriculture within a **safe and just operating space**

- **Risks and benefits of digitalisation** as enabler for sustainable agriculture



- An EU-wide interactive **knowledge reservoir**
- Thematic & advisory **networks**

# Boosting implementation



Farm policy  
(CAP)



R&I  
programme  
(Horizon  
2020)

Local innovation projects  
(EIP-AGRI Operational groups)  
(+/- 2000)


EU EIP-AGRI networking  
activities:  
- Focus groups  
- Knowledge exchange  
- Web platform

Transnational R&I  
(multi-actor)  
projects  
190 – 1 bn€

Transnational  
Thematic networks  
40 – 80 M€



# Leaving space for new approaches: missions



Adaptation to climate change, including societal transformation



Cancer



Healthy oceans, seas, coastal & inland waters



Climate-neutral & smart cities



Soil health & food



# Encouraging synergies within the EU – Work Programme 2021-2022



Rescuing biodiversity to safeguard life on Earth (2021)



*Outside the work programme  
- institutionalised partnership Circular  
Biobase Europe (CBE)*



Water4All (2021)



Climate neutral, sustainable  
and productive blue economy (2022)

# Encouraging synergies within the EU – next Work Programme 2023-2024



Accelerating farming systems transitions:  
agroecology living labs and research infrastructures



Safe and sustainable food systems  
for people, planet and climate



Agriculture of data



Animals and health

# Encouraging synergies globally



- EU-Africa R&I Partnership on Food and Nutrition Security and Sustainable Agriculture (FNSSA)
- EU-China FAB
- International research consortia (IRC):
  - STAR-IDAZ on animal health
  - a new IRC in the area of soil and carbon



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HORIZON EUROPE CLUSTER 6

Thank you

