



European
Commission

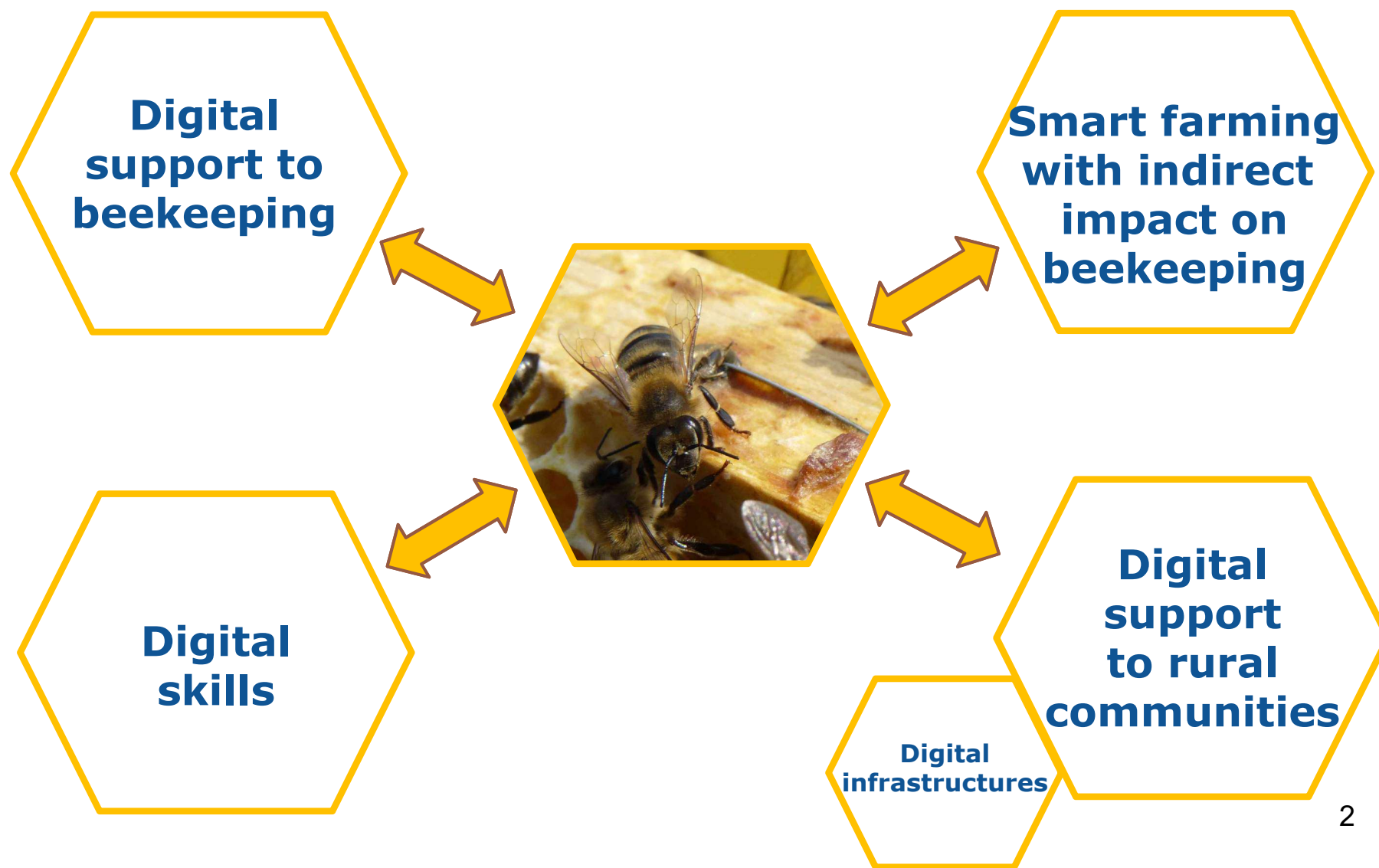
Digital strategy for agriculture with focus on the beekeeping sector

Brussels, 6 November 2019

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Unit B2 Research and Innovation



Agriculture
and Rural
Development



Smart Farming: indirectly protecting beehives

EuroCPS – Encore Lab



Sustainable agriculture powered by smart technologies

The Spanish SME Encore Lab, with the help of the Digital Innovation Hub CEA Leti, developed a low cost device that monitors the crops directly on the field through sensors. Information on different parameters can be accessed it by the farmer on the cloud.

Impact

- 35% reduction in use of pesticides
- 50% reduction in water consumption
- This technology has been successfully integrated in Cesens, Encore Lab's flagship product. They expect to increase sales in 10,000 units within five years, boosting revenues and doubling its staff to 20 people.



Digital support to rural communities

**Market place
for
pollination**



**Sharing of
best practices**



**Short
supply chains,
locally sourced**



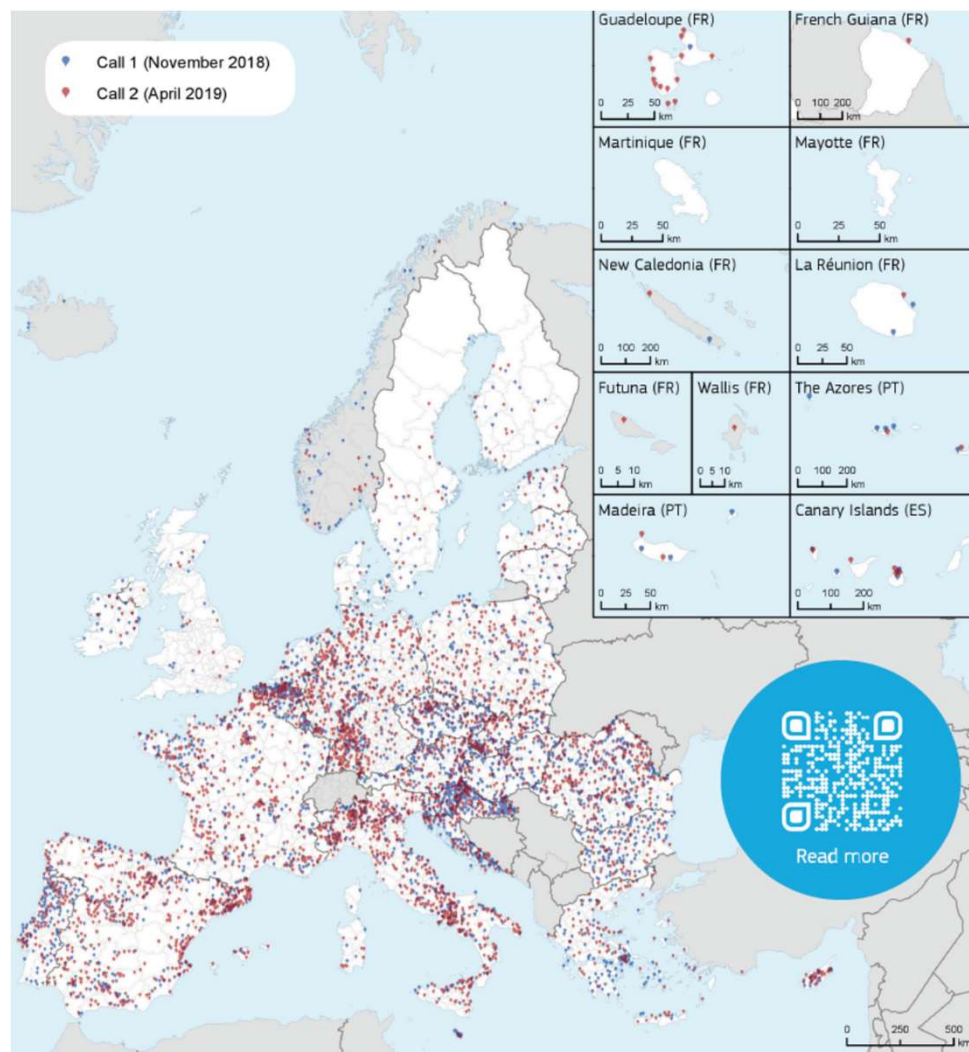
**Organise
Beekeepers
community**

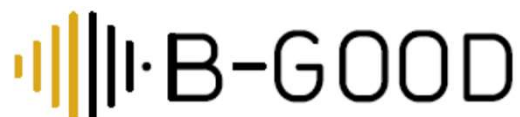


Digital infrastructures are a pre-condition

- Fixed broadband infrastructures (e.g. EAFRD/ERDF)
- Mobile broadband infrastructures

**Wifi4EU:
successful
municipalities**

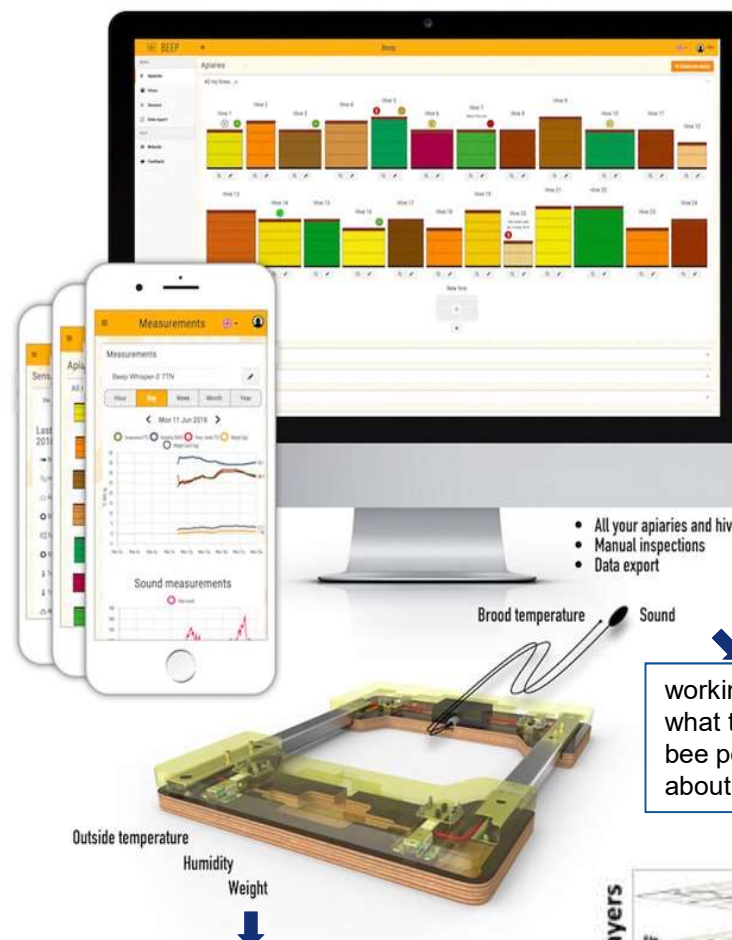




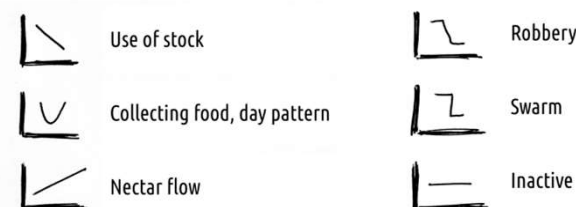
Aim of the project
to develop a EU-wide bee health and management data platform, in close cooperation with the EU Bee Partnership, which will enable sharing of knowledge between scientists, beekeepers and other stakeholders.

B-GOOD's platform will utilise and further expand the open source BEEP system comprised of a monitoring device and the already functional user-friendly application for digital beekeeping logbooks.

Ultimate goal
to supply beekeepers with a decision-making tool that will provide comprehensive analysis and advice based on the flow of data from the beehives and their environment, including landscape composition and resource availability, agricultural practices and climate.

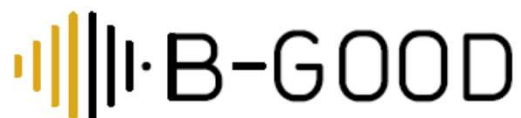


working to learn what the sound of a bee population says about their status.





On-going Horizon 2020 projects: Societal Challenge 2



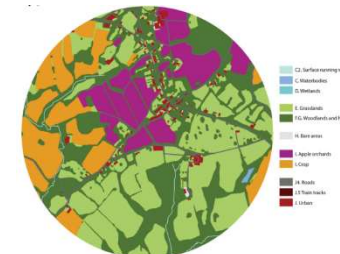
B-GOOD - Giving Beekeeping Guidance
by cOmputatiOnal assisted Decision
making - €8 million

<https://cordis.europa.eu/project/rcn/222525/factsheet/en>



PoshBee - Pan-european assessment,
monitoring, and mitigation Of Stressors
on the Health of BEEs (Jun2018-
May2023) –€9 million

<https://cordis.europa.eu/project/rcn/215953/factsheet/en>



BPRACTICES - (ERA-NET SUSAN) New
indicators and on-farm practices to
improve honeybee health in the Aethina
Tumida ERA in Europe - € 0,7 million



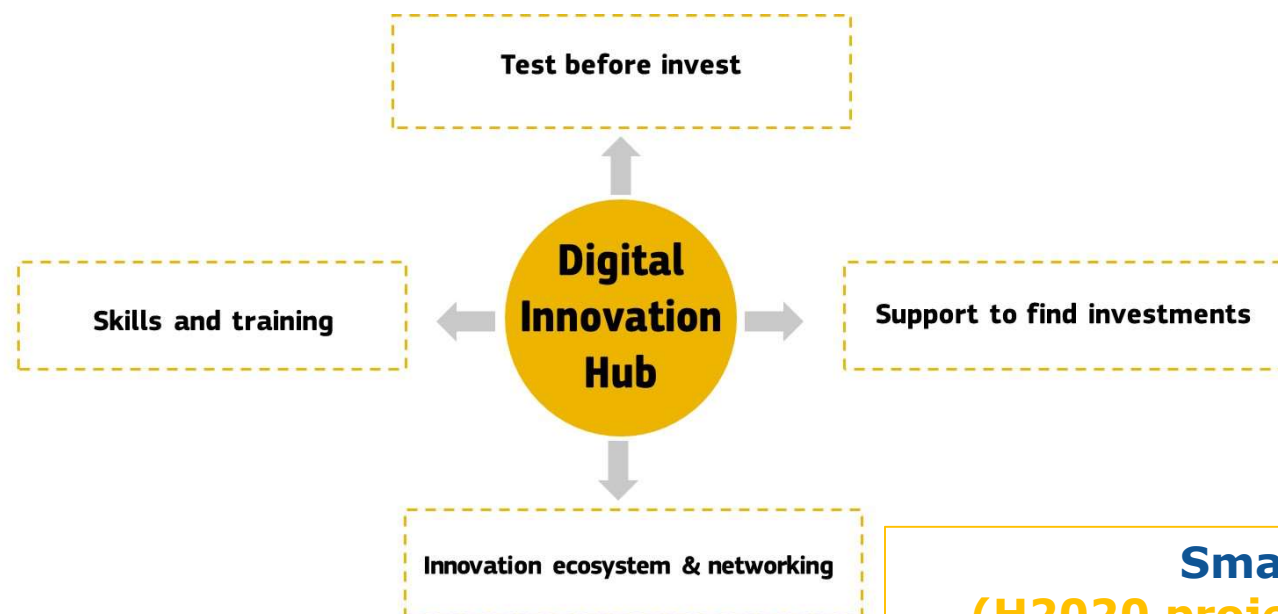


Other on-going Horizon 2020 projects

- **Hiveopolis** – Futuristic beehives for a smart metropolis (2019-2024)-
<https://cordis.europa.eu/project/rcn/218714/factsheet/en> – ES/FET - € 7mio
- **SAMS** - International Partnership on Innovation in Smart Apiculture Management Services – (Jan2018-Dec2020) - https://cordis.europa.eu/project/rcn/216627_en.html - Ind Leadership/ICT - €2mio
- **IoBee** - Beehive health IoT application to fight Honey Bee Colony Mortality (2017-2020) – http://cordis.europa.eu/project/rcn/210011_en.html - FTIPilot - €1,43mio
- **WarmHive** - SMART thermotherapy solution for varroa mite treatment (Jan-Jun2019) - <https://cordis.europa.eu/project/rcn/220042/factsheet/en> - LEIT/SME - €0,05mio
- **BeeHome** - Automated beekeeping platform powered by AI that increases honey production by 50%, reduces labour use by 90%, and reduces colony loss by 80% (Jan-Apr2019)- <https://cordis.europa.eu/project/rcn/220635/factsheet/en> - LEIT/SME - €0,05mio
- **FOG** - Frequency protector generator for honeybees (Jan-Jun 2019) <https://cordis.europa.eu/project/rcn/220056/factsheet/en> - LEIT/SME - €0,05mio



Transfer of R&I to beekeepers: the role of **Digital Innovation Hubs**



SmartAgriHubs

(H2020 project -DG AGRI €20m)

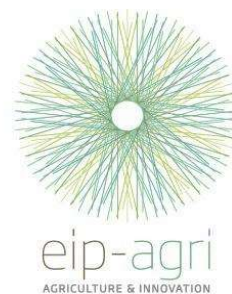
- Flagship Innovation Experiments & open calls
- 140 DIHs, objective of adding 260
- DIH in LV FIE: Bee Monitoring and Behaviour Prediction

CAP / Rural development (regional/national level)



Funding for:
OG preparation
OG projects

Innovation support services



funded by  European Commission

**EIP
network(s)**



(European projects)

- **Research projects**
(knowledge base)
- **Multi-actor projects and thematic networks**
(interactive innovation)



OPERATIONAL GROUP



OG projects on Beekeeping

Non-exhaustive list (September 2019)

- **Beekeeping / pollinators and farming practices**

Association of fruit production and beekeeping (FR-Martinique); Bee-friendly farming (NL); Forage management and pollinators (UK)

- **Nomadic beekeeping and monitoring**

Transhumance practices (FR); Remote beehive monitoring (IT)

- **Bee health**

Vespa velutina threats (ES); Varroa-resistant breeding (DE); Varroa detection (SE)

- **Bee products**

Honey-based alternatives to sweeteners (ES); Diversification of beekeeping activities (PT)

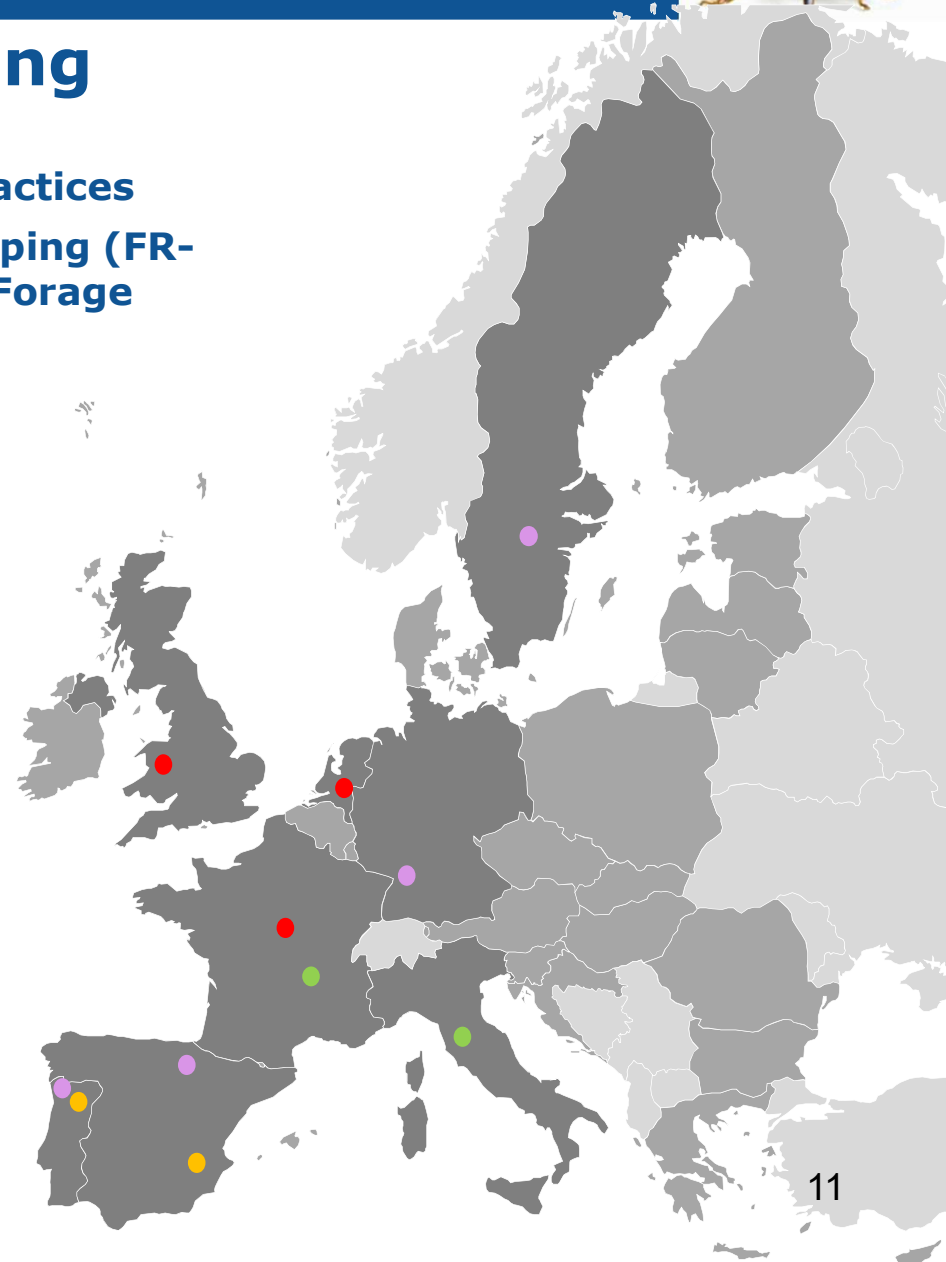
Look for more:

EIP-AGRI project database:

<https://ec.europa.eu/eip/agriculture/en/my-eip-agri/operational-groups/projects>

National OG databases:

<https://ec.europa.eu/eip/agriculture/en/links-existing-operational-groups>





EIP Focus Group “Bee health and sustainable beekeeping”

HOW TO ENSURE THE SUSTAINABILITY OF BEEKEEPING IN THE FACE OF CHALLENGES LINKED TO PESTS AND DISEASES, INTENSIFICATION OF AGRICULTURE AND CLIMATE CHANGE?

- **Identify sustainable apicultural practices and tools** to cope with challenges posed by climate change and to better control pest and diseases, including harmful invasive species (e.g. *Vespa velutina*).
- **Identify sustainable agricultural practices** (at plot, farm and landscape level) **influencing beekeeping**, including non-chemical alternatives for plant pest and disease prevention and control (i.e. preventive agronomic practices such as crop rotation and use of biological control).
- **Harvest the existing knowledge** on ways to monitor the effect of environmental and climatic conditions, beekeeping practices and agricultural practices on bee health and production.
- Identify remaining research needs from practice and **propose possible directions for further research**.
- **Propose priorities for innovative actions** by suggesting ideas for operational groups or other project formats to test solutions and opportunities and ways to exchange the practical knowledge gathered beyond the focus group.



#beehealth #sustainable #beekeeping

funded by the European Commission



Objective: *ensure that **Europe** drives the **digital transformation** of society and economy, bringing benefits to all citizens and businesses*



More specifically to:

- Reinforce the EU's digital capacities
 - (computing, data, cybersecurity, AI,..)
- Ensure their widest possible roll out and maximise their benefits
- Prepare for and lead the development of next generation technologies
- Build a world-leading connectivity infrastructure
- Support creators and ensure the widespread distribution of their works

Digital Europe Capacities & roll out

1. High Performance Computing
2. Artificial Intelligence
3. Cybersecurity
4. Advanced digital skills
- 5. Digital transformation** and interoperability

Digital in Horizon Europe R&I

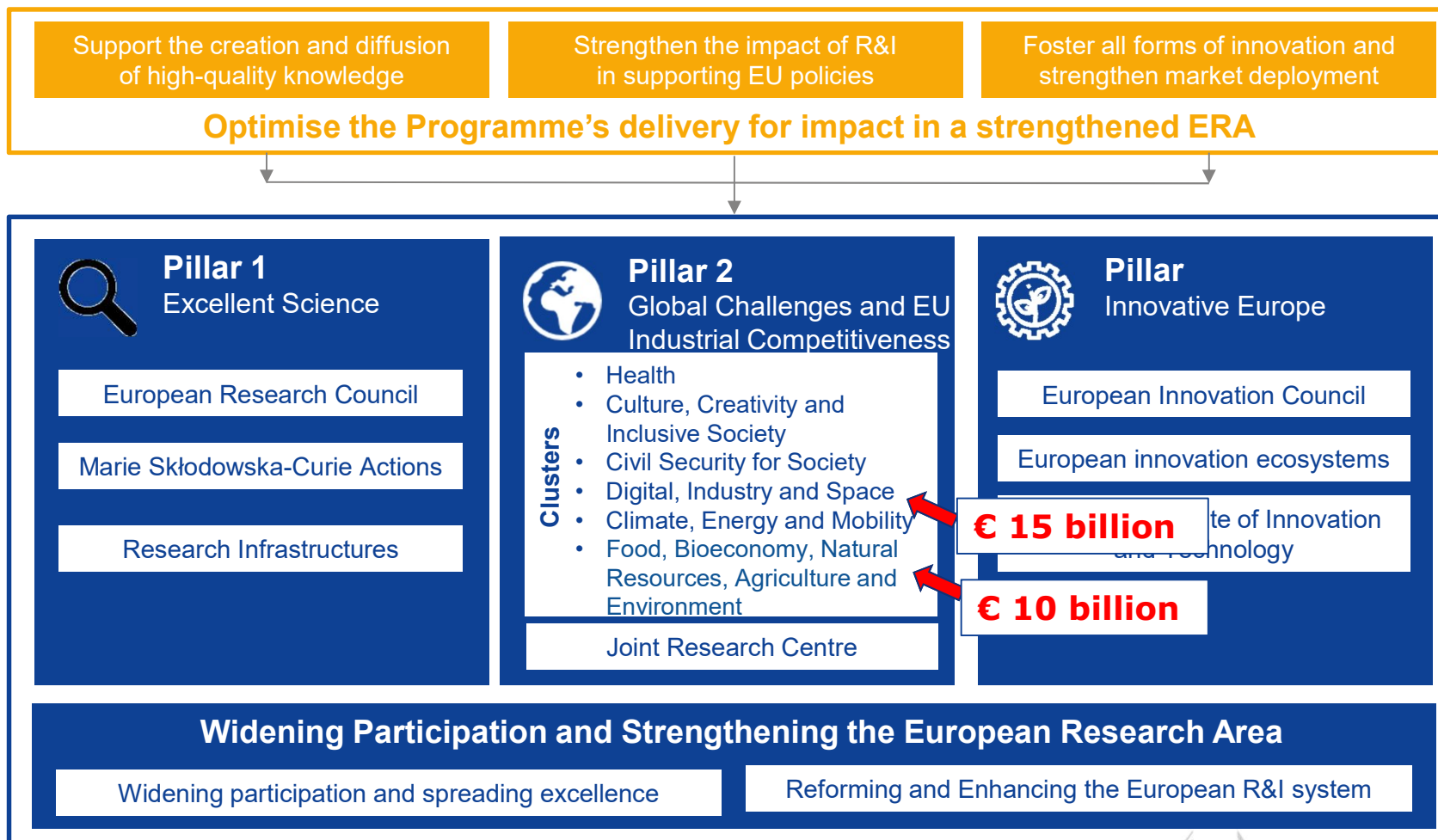
- 1. Digital under "global challenges"**
 - Digital and industry cluster
 - Digital in other clusters – security, health, mobility, food, environment,..
2. Open Innovation
3. Research Infrastructure under Open Science

Invest EU Research, innovation & digitisation

European Agricultural Rural Development Fund - European Regional Development Fund / Cohesion Fund

Horizon Europe: the next research and innovation framework programme 2021-2027

Specific objectives of the Programme



https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme_en

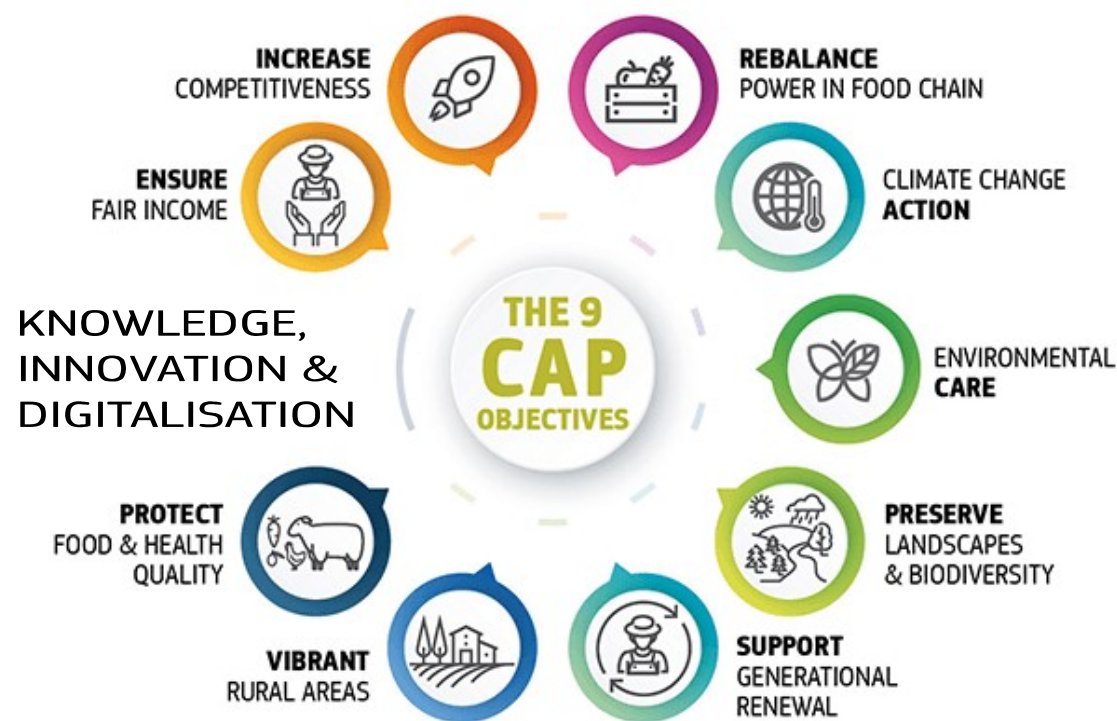
CAP post 2020

More digitalisation and innovation



CAP post 2020

More digitalisation and innovation



Cross-cutting objective

...modernising the sector by fostering and sharing of knowledge, innovation and digitalisation in agriculture and rural areas, and encouraging their uptake (Art. 5)

- **CAP post 2020:**
https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap_en
- **Horizon Europe (HE)**
<http://ec.europa.eu/horizon-europe>
- **Declaration "A smart and sustainable digital future for European agriculture and rural areas"**
<https://ec.europa.eu/digital-single-market/en/news/eu-member-states-join-forces-digitalisation-european-agriculture-and-rural-areas>
- **Digitising European Industry (DEI)**
<https://ec.europa.eu/digital-single-market/en/pillars-digitising-european-industry-initiative>
- **Digital Europe Programme (DEP)**
<https://ec.europa.eu/digital-single-market/en/news/commission-welcomes-agreement-digital-europe-programme-2021-2027>
- **New cohesion policy**
https://ec.europa.eu/regional_policy/en/2021_2027/
- **Digital Innovation Hubs**
<https://ec.europa.eu/digital-single-market/en/digital-innovation-hubs>
- **Catalogue of Digital Innovation Hubs**
<http://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool>





Thank you for your attention!



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More about agricultural research and innovation:

http://ec.europa.eu/agriculture/research-innovation/index_en.htm

www.eip-agri.eu

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