Achievements and advances of the One Health European Joint Programme

presented to 70th Advisory Forum of EFSA

Annemarie Käsbohrer, *OneHealth EJP WP5 Leader*
Hein Imberechts, *OneHealth EJP Deputy Coordinator*
and **André Jestin**, *OneHealth EJP Coordinator*

29 November 2018, Vienna, Austria

This meeting is part of the European Joint Programme One Health EJP.
This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.

Overview

- EJP and the OneHealth EJP
- The OneHealth EJP governance
- The strategic research agenda
- First round of internal projects
- Setting up the second internal call
- Other activities

This meeting is part of the European Joint Programme One Health EJP. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.

EJP as an instrument

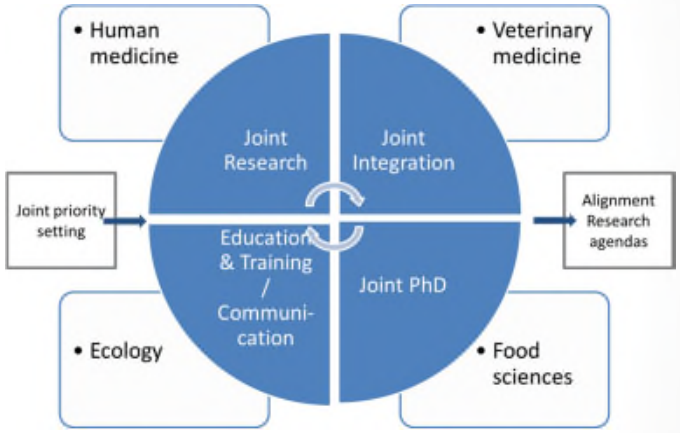
- European Joint Programme Cofund (EJP) under Horizon 2020
- Cofund (50% in-kind contribution: Public-2-Public)
  - 5 years programme, started January 2018
  - Yearly annual work plan
  - EJP beneficiaries are Programme Managers
  - Organisation with mandates from Ministries, i.e. Programme Owners

Key facts about any EJP

- The aim is to bring together national public entities with R&I activities as part of their mission while R&I not being necessarily the core function
  - Contribute scientifically to policy implementation
- In contrast to the ERA-NET scheme, main actors are not R&I funding agencies
  - Rather, public entities with policy-driven R&I
  - Complement, not duplicate
- As for the OneHealth EJP, it has a societal responsibility for prevention, surveillance and preparedness to respond

OneHealth EJP: main objectives

- To develop a European network of public mission organisations
- Mainly with reference laboratory functions on infectious diseases
- The EJP integrates medical, veterinary and food scientists in the field of food and feed safety
- To improve prevention, detection and response in the fields of foodborne zoonoses, antimicrobial resistance and emerging infectious treats



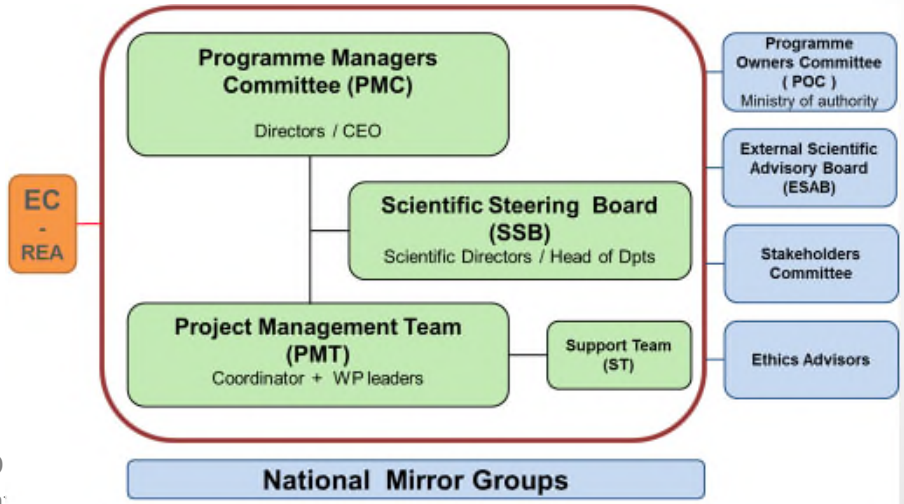
- Through integration and alignment of work processes and infrastructures of joint priority and through joint programming of research agendas
- Taking into account the public health concerns of consumers and other stakeholders throughout the food chain

This meeting is part of the European Joint Programme One Health EJP. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.

39 organisations

Bringing together the major European organisations in the field of foodborne zoonoses, antimicrobial resistance and emerging threats dealing with national mandates of reference and performing official programmes in these domains (39 partners, 19 MS)

Building a consortium with the official mandate from the Ministries of authority, under the co-fund EC policy



OneHealth EJP Scope

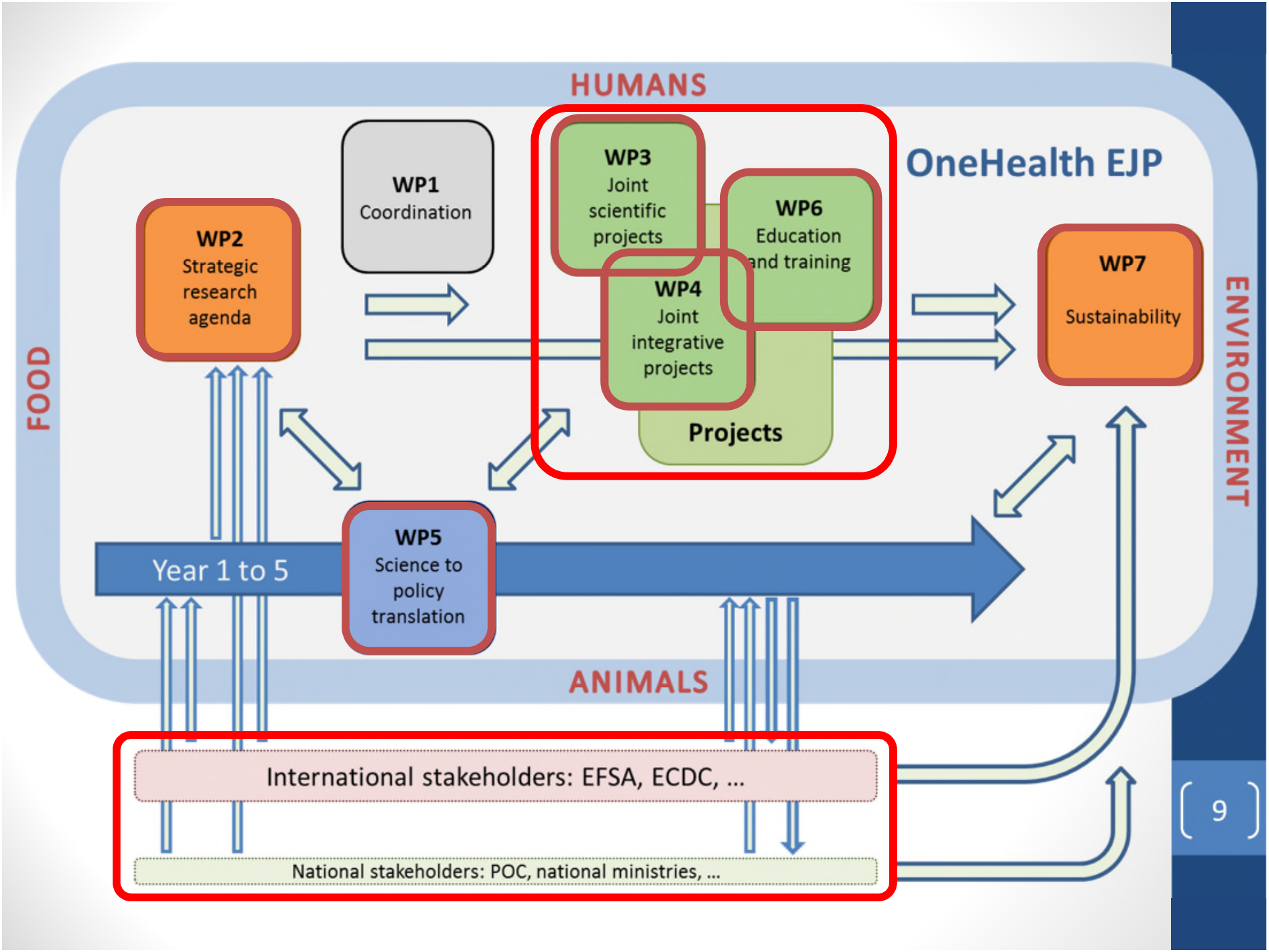
<table>
<tr><th colspan="3">“One health”</th></tr>
<tr><td colspan="2">Zoonoses</td><td>Emerging threats</td></tr>
<tr><td colspan="2">Estimated budget volume:
85%</td><td>Estimated budget volume:
15%</td></tr>
<tr><td>Foodborne Zoonoses</td><td>Antimicrobial resistance</td><td rowspan="3">Zoonotic potential suspected
Non-foodborne Zoonoses
Foodborne Zoonoses</td></tr>
<tr><td>Bacteria, viruses, parasites, prions</td><td>Transmission by food or not</td></tr>
<tr><td>(2/3)</td><td>(1/3)</td></tr>
</table>

Emerging threats: focus is primarily given on threats emerging from 2017 with a suspected zoonotic potential; research should support elucidating the etiology, epidemiology or pathogenesis of the causative agent or should support the improvement of early warning, preparedness or response. Vectorborne zoonoses are excluded.

OneHealth EJP budget

- 50% EC cofunding
- Budget OneHealth EJP: € 90M
  - EC = € 45M
  - Institutional, in kind = € 45M
  - Overarching 10%: 9 M€

- Scientific activities:
  - First internal call for projects: approx. € 36M
    - Research projects: € 26M
    - Integrative projects € 10M
  - Second internal call for projects: approx. € 41M
    - Research projects: € 24M
    - Integrative projects: € 16M
  - Training and education activities: approx. € 4M


HUMANS
OneHealth EJP
WP1
Coordination
WP2
Strategic research agenda
WP3
Joint scientific projects
WP4
Joint integrative projects
WP6
Education and training
Projects
WP7
Sustainability
WP5
Science to policy translation
Year 1 to 5
FOOD
ENVIRONMENT
ANIMALS
International stakeholders: EFSA, ECDC, ...
National stakeholders: POC, national ministries, ...

Science to Policy

- Open and transparent **dialogue** with international policy-makers:
  - ✓ ensuring that **research needs** of the stakeholders are absorbed by EJP
  - ✓ ensuring the **best use of WP3 and WP4 outcomes** by policy initiatives

- **Dissemination** of new knowledge, tools, and materials to the stakeholders

- Overview of the capacity available to provide **scientific support** to the stakeholders

- Participation in relevant **networking** activities

Science to Policy procedures

Communication procedure

- **Platform for interaction with stakeholders:** data gaps, research needs, requests for scientific support

Procedure to identify research needs of stakeholders

- **Systematic screening** of online sources and documents
- **Consolidation of results** in consultation with EU stakeholders
- **Actions** on identified research needs

Procedure to provide scientific support to stakeholders

- **Specific work, platforms, preparedness** to respond to emerging threats

Dissemination strategy

- **Formats and channels** for efficient and targeted dissemination of outcomes

Research projects

- Typical scientific studies addressing specific R&I objectives
- May also contain long term supportive integrative actions
  - Capacity building / training
  - Experimental facilities
  - Detection / typing methods / protocols / GLP
  - Strain collection / reference materials / bio-banks
  - Digital infrastructure / databases / data sharing protocols / data access / bioinformatics
  - Surveillance strategies / reporting / signalling
  - Legal / policy aspects

Integrative projects

- Requirement: Med-Vet representation
- Aim at developing harmonized and aligned protocols, databases or infrastructure that support collaborative processes
  - E.g. platforms for uploading, sharing and analysing sequence data, experimental facilities, biological collections and/or risk assessment structures
- The deliverables should become integrated into the work processes of project partners; impact-oriented and sustainable, long term outcome

Other joint activities

- Cogwheel meetings are planned to define the future plan of collaboration
- Integrative missions or mobility activities aim at supporting integration among OHEJP partners, with special focus on on-going JIPs
- Communication and Dissemination, see further

This meeting is part of the European Joint Programme One Health EJP. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.

Communication & Dissemination

- Exchange and communication with EU stakeholders, in particular with the *European Centre for Disease Control and Prevention* (ECDC) and the *European Food Safety Authority* (EFSA), but also with the national stakeholders (e.g. mirror groups)
  - Science to policy: feed the evidence based risk assessment and therefore the management of risks by the competent national and European authorities; prevent-detect-response; support preparedness
- Four annual scientific meetings are planned; peer reviewed publications (open access promoted)
- Website (www.onehealthejp.eu) and social media (@OneHealthEJP)
- Participation in other relevant international meetings

This meeting is part of the European Joint Programme One Health EJP. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.

Links with other EU projects

- Exchanges with EU funded projects: JPI AMR, COMPARE, EFFORT
- Synergies with these projects
  - Optimization of the SRA, definition of the priority topics
  - In the objective to avoid duplication and improve integration
  - Participation to the respective stakeholders fora/committees
  - Sustainability plan strengthened

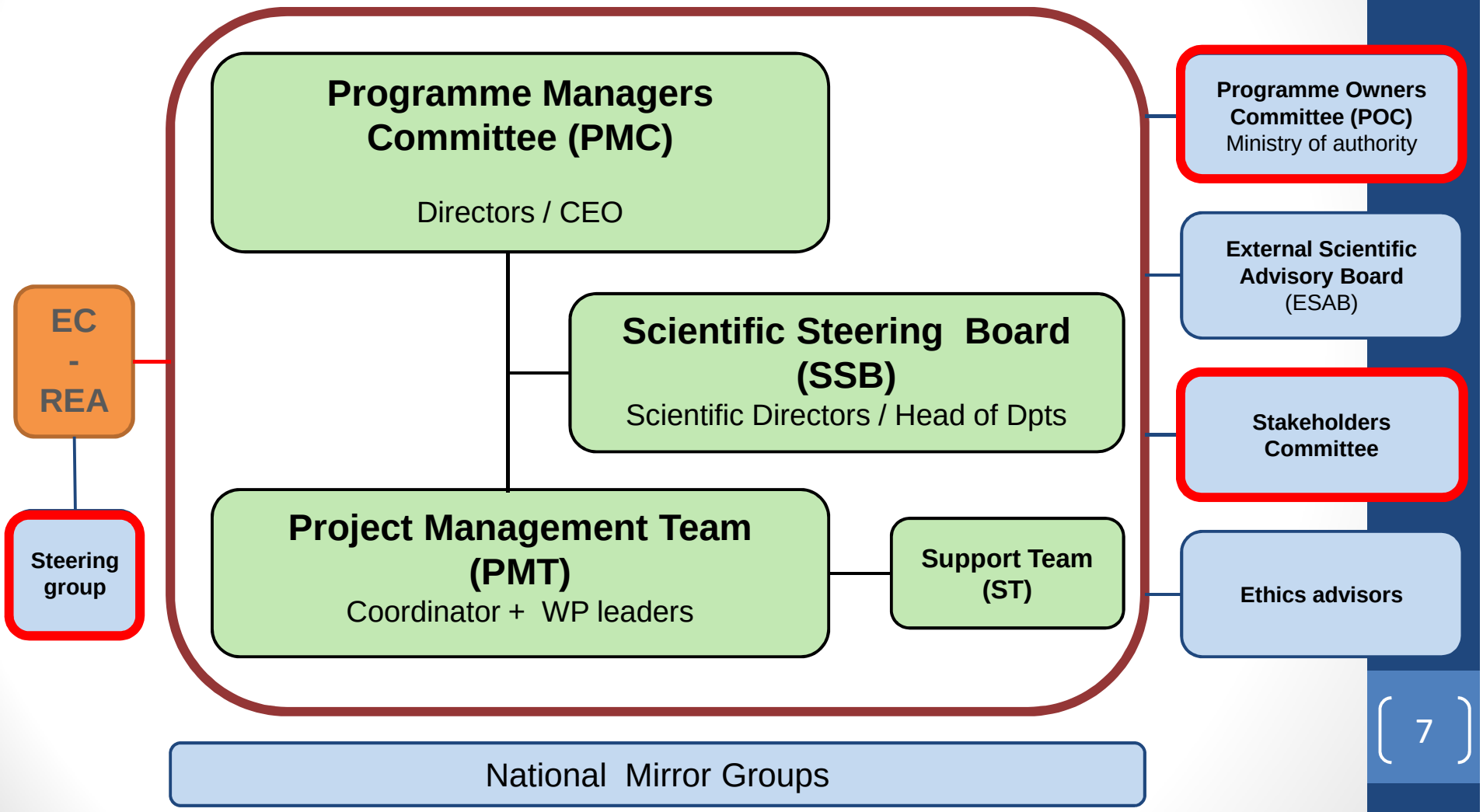
This meeting is part of the European Joint Programme One Health EJP. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.

Training and education activities

- PhD programmes: two rounds, second call is ongoing
- Summer schools: each year, call is ongoing
- Short Term Missions: on request

This meeting is part of the European Joint Programme One Health EJP. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.

OneHealth EJP Governance



Development of strategic agenda

	DOMAINES		
THEMES	**Food Borne Zoonoses (FBZ)**	**AntiMicrobial Resistance (AMR)**	**Emerging threats (ET)**
Analytical methods			
Host-microbe interaction			
Epidemiology			
Risk assessment			
Intervention			

Prevent - Detect - Respond

Design and implemen-tation of surveillance activities

Laboratory methods

Reference materials and data

Inter-pretation of surveillance data

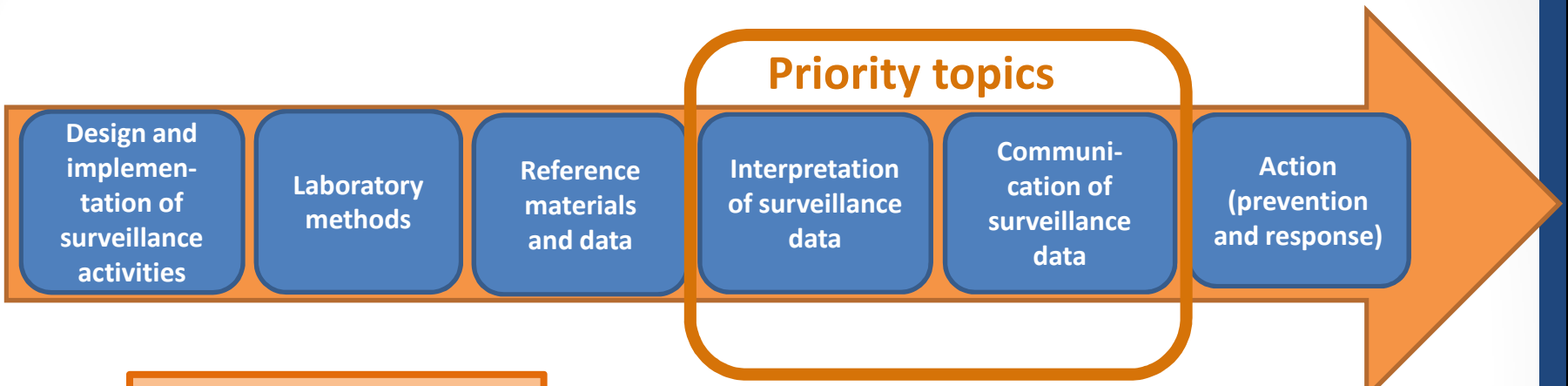
Communi-cation of surveillance output

Action (prevention and response)

efsa
European Food Safety Authority

ecdc

Integrative topics 1st call



Legal aspects, governance

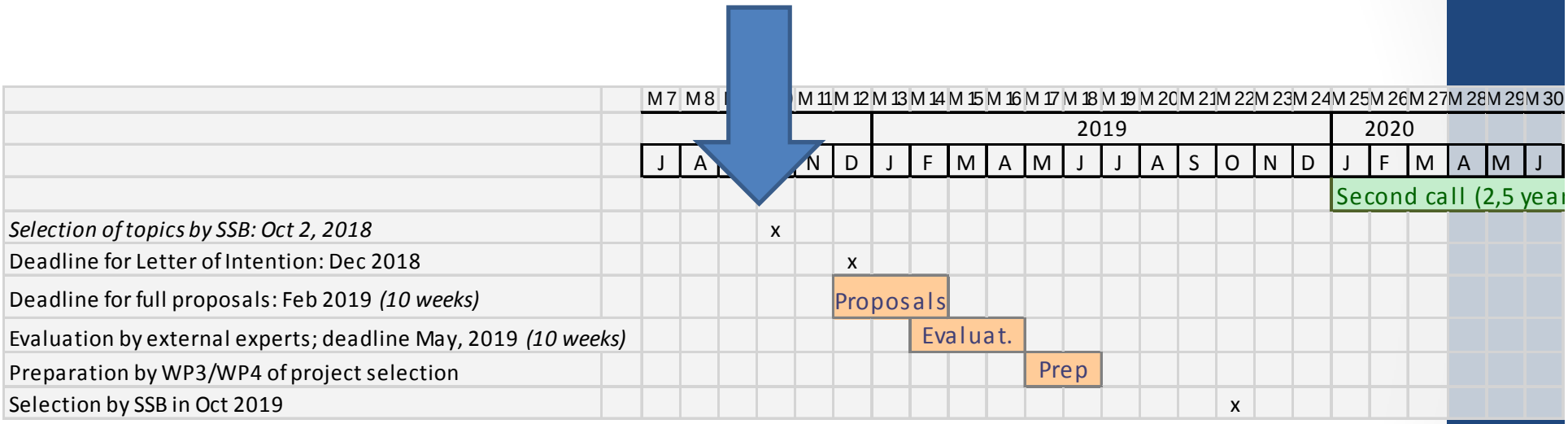
Integrative objectives

- Accessibility
- Alignment
- Capacity building
- Sustainability

First call, selected projects (Nov'16)

Topic ref	Coord. MS	Coord. Org	Projects Acronyme	Projects Title
IA-1	DE	BfR	ORION	One health surRveillance Initiative on harmOnization of data collection and interpretation
IA-2	NL	RIVM	COHESIVE	One Health Structure In Europe
AMR-1	NL	CVI	IMPART	IMproving Phenotypic Antimicrobial Resistance Testing
AMR-2	GB	APHA	ARDIG	Antibiotic Resistance Dynamics: the influence of geographic origin and management systems on resistance gene flows within humans, animals and the environment
AMR-3	NL	RIVM	RaDAR	Risk and Disease burden of Antimicrobial Resistance
ET-1	FR	Anses	TOX-detect	Development and harmonization of innovative methods for comprehensive analysis of food-borne toxigenic bacteria, ie. Staphylococci, *Bacillus cereus* and *Clostridium perfringens*
ET-1	DK	SSI	MAD-VIR	Metagenomic Array Detection of emerging Virus in EU
FBZ-1	SE	SVA	NOVA	Novel approaches for design and evaluation of cost-effective surveillance across the food chain
FBZ-2	FR	Anses	ListAdapt	Adaptive traits of *Listeria monocytogenes* to its diverse ecological niches
FBZ-2	BE	CODA-CERVA	Metastava	Standardisation and validation of metagenomics methods for the detection of foodborne zoonoses, antimicrobial resistance and emerging threats.
FBZ-3	DK	DTU	AIR Sample	A Low-Cost Screening Tool in Biosecured Broiler Production
FBZ-3	FR	INRA	MoMIR-PPC	Monitoring the gut microbiota and immune response to predict, prevent and control zoonoses in humans and livestock in order to minimize the use of antimicrobials
FBZ-4	FR	IP	MedVetKlebs	*Klebsiella pneumoniae*: from ecology to source attribution and transmission control

2nd internal call in preparation



This meeting is part of the European Joint Programme One Health EJP. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.

New version of the SRA

WP2 – Task 2.1
Gap analysis of first round topics/projects

WP2 - Task 2.2
Strategic interactions with EU projects

WP4
Update of national integrative needs

WP5
Identification of EU stakeholders' needs

Experts meeting June 4-5, 2018

Narrowing down research topics per theme
- 12 topics not selected in the first round
- 4 topics selected in the first round, but insufficiently covered by current projects
- Inclusion of EU stakeholders' needs
- Exclusion of topics covered elsewhere

Prioritizing research topics per domain & integrative activities
- by using a Multi Criteria Decision Analysis (MCDA) procedure as decision support to reach consensus

Stakeholders consultation, June 21

Updated list and descriptions of priority research and integrative topics

Validation / selection of priority topics by SSB, October 2

Updated strategic research agenda

Second call

Foodborne zoonoses, 2nd call

1. FBZ 2.1: Source attribution of bacterial foodborne zoonoses and antimicrobial resistance considering also the environment and non-livestock reservoirs (e.g. pets and wildlife) as sources.
2. FBZ 2.2: Benchmarking biosecurity practices for pig farming across Europe using national surveillance data and management standards for identifying best practice to prevent biological hazards, particularly Salmonella and hepatitis E virus, from entering the food supply chain.
3. FBZ 2.3: Source attribution and transmission routes of foodborne pathogens other than bacteria, with emphasis on *Toxoplasma gondii*.
4. FBZ 2.4: Determinants of the reversal of the decreasing trend in Salmonella incidence in humans and poultry in the EU.
5. FBZ 2.5: Better tools for detection and investigation of foodborne outbreaks, including antimicrobial resistant pathogens, as well as economic assessments of potentially increased cluster detection through whole genome sequencing.

Antimicrobial resistance, 2nd call

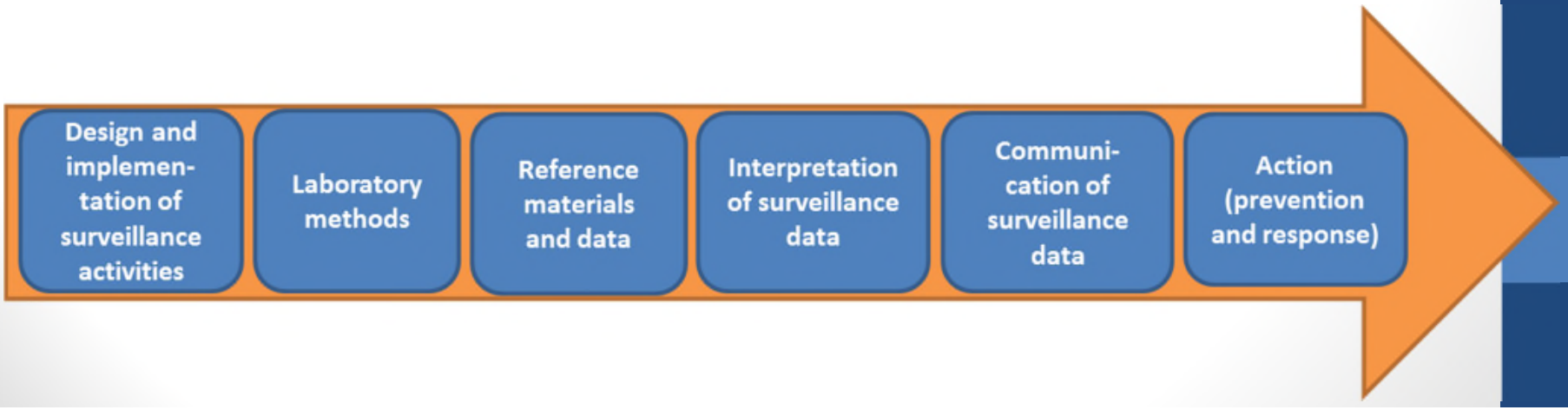
1. AMR 2.1: Development of new tools for early (real-time) detection of resistant pathogens in humans and animals, as well as new diagnostic tools, in particular on-site tests for humans and animals.
2. AMR 2.2: Dynamics of AMR selection, clonal spread and horizontal gene transfer in humans, animals and the environment, including epidemiology of resistant microorganisms and antimicrobials in the environment and their (environment-mediated) spread.

Emerging threats, 2nd call

1. ET 2.1: Development of a toolkit to characterize emerging threats by combining genomic and phenotypic information.
2. ET 2.2: Development and harmonization of NGS and non-NGS methods (e.g. pheno-genotypic and histochemical methods) for the detection of foodborne parasites.

Integrative topics, 2nd call

1. IA 2.1: Joint databases of reference materials and data, incl. metadata
2. IA 2.2: Harmonized protocols and common best practice
3. IA 2.3: Common frameworks for designing and implementing surveillance and control activities
4. IA 2.4: Sharing of best intervention practice – twinning and simulation exercises



Timeline

- Next Stakeholders Committee Meeting December 7th, 2018
- Second round of proposals
  - Letter of Intent is open until December 21, 2018
  - Full proposals to be submitted until April 12, 2019
  - Projects will be selected in September 2019
- First Annual Scientific Meeting of the One Health EJP on 22-24 May 2019 in Dublin
- PhD grants: call is open until 28th February 2019
- Summer School: call is open until 8th January 2019

This meeting is part of the European Joint Programme One Health EJP. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.

Thank for your attention

Email: Annemarie.Kaesbohrer@Bfr.bund.de

Hein.Imberechts@Sciensano.be

André.Jestin@ANSES.fr

This meeting is part of the European Joint Programme One Health EJP. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.