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MONitoring Outbreak events for Disease surveillance in a data science context

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Climate change, animal and human mobility, growing populations and urbanization increase the risk of emergence of new pathogens. It is crucial to rapidly detect hazard emergence and assess the risk to public health through all the available data sources.

The MOOD project aims to develop innovative tools and services to answer these needs and monitor current and future infectious disease threats in the context of global change.

Through big data and disease modelling innovations, the MOOD project is addressing the challenges of cross-sectoral data sharing and use in a One Health framework. Co-creation of tools and services with human and veterinary public-health agencies in Europe, responsible for designing and implementing strategies to mitigate the identified risks, is at the core of MOOD innovation.

The MOOD consortium is currently developing a platform to provide access to MOOD outputs and tools to professionals involved in Epidemic Intelligence (EI)¹, surveillance, modelling of infectious diseases and risk assessment.

MOOD Platform

The MOOD platform will host 3 different modules:

MODULE 1

Data & Covariate access module: visualize and download standardized covariates related to infectious diseases

MODULE 2

Epidemiological data visualization module: visualize and access publicly available data extracted from online media news using text mining, as well as their internal/confidential surveillance data, on a GDPR compliant and secure local version of the tool.

MODULE 3

Disease specific module: provide risk maps in animals and humans, support disease detection, monitoring and surveillance.

MOOD pathogens models: Case studies

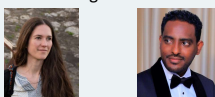
- West Nile Virus
- Highly Pathogenic Avian Influenza
- Tick Borne Encephalitis
- Antimicrobial Resistance
- Chikungunya-Dengue-Zika
- Tularemia-Leptospirosis
- Covid-19

The long-term sustainability and societal impact of MOOD will be achieved through the creation of the **MOOD Epi-Platform International Non-Profit Association (INPA)**.

REFERENCES

- ¹ Epidemic intelligence can be defined as all the activities related to early identification of potential health threats, their verification, assessment and investigation in order to recommend public health measures to control them.
- ² Voorberg, W. H., Bekkers, V. J., & Tummers, L. G. (2015). A systematic review of co-creation and co-production: Embarking on the social innovation journey. *Public management review*, 17(9), 1333-1357.
- ³ Vargas, C., Whelan, J., Brimblecombe, J., & Allender, S. (2022). Co-creation, co-design, co-production for public health: a perspective on definition and distinctions. *Public Health Research & Practice*, 32(2).

Authors attending the SVEPM conference



Pierrine Didier Henok Tegegne

MOOD co-creation¹ process

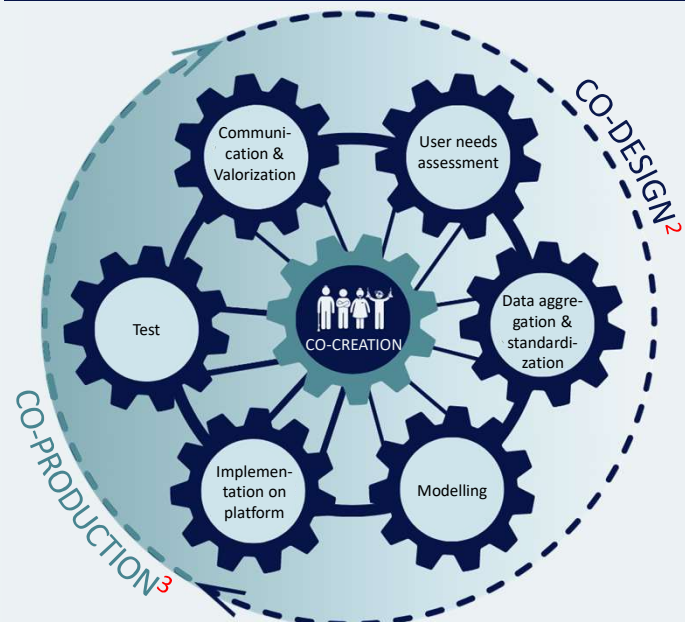


Fig 1 MOOD co-creation process

Co-creation process leads to develop tools that fit users' needs and improving its effectiveness in daily use.

Outcome Assessment for Impact Evaluation

- User needs assessed through interviews and workshops with 33 EI practitioners from 14 Public Health (PH) and Animal Health (AH) agencies (Finland, France, Italy, Serbia, Spain + ECDC)
- More than 198 EI practitioners from 79 PH & AH institutions of 31 countries plus 3 international agencies have been reached.
- Uptake of MOOD tools and services and their added value to routine EI practices measured through an integrated epidemiological and socio-anthropological approach.
- MOOD is supporting the EU and global PH & AH agencies EI practitioners by providing existing monitoring platforms with novel features, and methodological and practical support adapted to their needs.

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Visit the MOOD Website

