



Technical Annex Section 1-3

Title of Proposal:
APOLLO-C19

Acting over Pandemic Outbreak towards Life Leverage - dynamically respond to social and economic consequences moving towards a “One Health”

Proposal SEP: 210689455

List of participants

Participant		Country
n°.	Organisation name	
01	UniRM1 - Sapienza University of Rome	IT
02	APCH - National Scientific-Practical Centre of Hygiene	BY
03	PMT - PREMOTEC GmbH	CH
04	CSPC - Collaborating Centre on Sustainable Consumption and Production	DE
05	WWU - Westfälische Wilhelms-University of Münster	DE
06	AU - Aarhus University	DK
07	UB - University of Barcelona	ES
08	HANKEN - Hanken School of Economics	FI
09	ARGANS	FR
10	AUEB - Athens University of Economics and Business	GR
11	ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development	IT
12	GSSI - Gran Sasso Science Institute	IT
13	IJZRSM - Institute for Public Health of the Republic of North Macedonia	MK
14	MEERI - Mineral and Energy Economy Research Institute - Polish Academy of Sciences	PO
15	INSA - National Institute of Health Dr. Ricardo Jorge	PT
16	IBA - National Research & Development Institute for Food Bioresources	RO
17	OHR - One Health Romania	RO
18	TUBITAK - The Scientific and Technological Research Council of Turkey	TR

1. Excellence

APOLLO-C19 is focused to develop – over a period of 36 months – open access solutions, knowledge, tools and approaches to “learn lessons” from the current crisis to face different types of future, potential outbreaks, sanitary but not only (e.g. food security crisis due to a food chain outbreak). Thanks to its integrated system of data, information technologies and tools planned for all the individuals, with a particular attention for the social vulnerable groups, national and supranational decision makers can develop a responsive and adaptive strategy in political, economic, social conditions with unusual temporal, spatial and relational dynamics. The multidisciplinary perspective aims at providing an exhaustive output from a composite methodology, which main scope is to support global and local institutions in all the emergency phases when specific guidelines are missing. Newly developed guidelines, policy toolkit, and ICT tools will enable to: a) share the responsibility between policy makers, researchers and civil society; b) increase trust between science and society; c) improve collaboration, coordination and communication among actors; d) improve the collaboration among research centers of different disciplines in facing pandemic and shock event programs at EU and national level; e) define a roadmap to support the EC in the transition towards an adaptive system by improving at the same time industry’s and society’s adaptation capacity and resilience, f) favor the interactive and aware participation of individuals and different social groups to the collective action needed in an systemic emergency; g) face and prevent mis-/dis-/mal-information. The current *global challenges* in such an emergency condition, which will have a strong impact on the social response, will be considered too. They include: access to the health system, protection of the fundamental rights, preservation of the working conditions, agrifood systems resilience and sustainability, international trade, environmental impact, new technologies and innovation processes implementation.

Background: Current health crisis related to COVID-19 upset the global order and the local social systems. The political, cultural, and economic implications of the disease spread, of the different levels of social limitations and of the efforts of quarantine are as unexpected as unusual. They are based on physical distance, but at the same time on a tested interdependence among individuals, social groups, countries, companies, and supranational organizations. Many different challenges with several impacts on the Society were opened. Apart from the immediate relations with human health and medical approaches, the COVID-crisis is related to the economy and business, the environment (climate included), agrifood production and agrifood systems, political cohesion and decision making, education, social organisation and city management, employment, wellbeing and so on. The temporal compression of this shock event is a multiplying factor of causes and implications of the pandemic: it makes difficult to express specific expertise in the decision making, the level of the common responsibility, the targets and the procedures of the communication flux. Furthermore, the scientific analysis of these social processes and the outbreak response are still in progress, between a multidisciplinary perspective and an impressing representation of the ongoing dynamics.

What is the APOLLO-C19 approach? The exceptionality of the pandemic is requiring a radical change in the decision-making at global and local level, which has to contemplate their perfect integration. Only a concrete integration of the expertise and experiences could effectively contribute to the definition of strategies for the management of the resources, government, and planning, that should be *adaptive, iterative, proactive*, and even potentially *predictive*. Structured interaction, cooperation and co-creation are the basis to evaluate the impact and then propose and test strategies and solutions to interactively address the requirements of all the social actors in a pandemic or shock event. The social diversity and the different levels of exposure to the effects - in terms of social conditions of individual and groups - is considered too, along with the temporal dynamics of the emergency. APOLLO-C19 founds on the application of the “*one health*” approach, thus covering not only human health, but also animal and environmental health, considering the impacts and close relations with agrifood systems, food production and consumption, and the environment. Additionally, since the risk communication and assessment models adopted for a natural event or a social emergence with limited temporal and spatial dimensions resulted not to be suitable for a pandemic crisis, APOLLO-19 will co-design new strategies and participatory processes in support to the EC and supra-national, national, regional and local institutions for their further adoption.

The multi-actor consortium is pooled by a core group of **18 Beneficiaries** from **15 countries** involving scientific experts with complementary knowledge in several disciplines/competences: sociology, psychology, political sciences, and welfare; economics and economics modelling; communication; epidemiology; health, nutrition, food sciences, circular economy, environmental sciences; statistics; ICT. A huge network of **53 Stakeholders** is committed to collaborate to the collection of primary data and to the interpretation of the secondary ones that have been gathered in the emergence phase of the pandemic, as well as in co-creation activities, in order to arrange strategies, guidelines and best-next practices useful in a new potential shock event at global and/or local level or to have tools in order to prevent this kind of event as much as possible. They belong to consumer associations, trade associations, media, International and National Technology Clusters, technology transfer promotion agencies, acceleration programmes, professional orders and foundations, observatories, Health Institutes, National Institutes of Statistics, Ministries (e.g. of Health), and so on.

1.1 Objectives

APOLLO-C19 aims at developing open access solutions, knowledge, and tools, making available all research data to explore the inter-related dimensions of the outbreak response in the European societies that are facing the pandemic crisis, just after the shock event in China. Thanks to a mapping activity based on primary and secondary data from surveys, monitoring and instant reports, APOLLO-C19 will collect research outputs about the impact of the outbreak response on the human behaviours, the environment and the agrifood systems, in order to compare them, defining patterns and revised models. At the same time, the mapping activities and the research outputs will provide innovative patterns about communication, information, and public awareness as for human, animal, and environmental health. These patterns will be strategic tools in a post emergence stage in order to: i) prevent critical gaps in the procedures; ii) manage the coordination of the global and local dimensions; iii) control the mis- and dis-information and the social resistance to the juridical limitations and health behaviour; iv) improve resilience, especially among vulnerable groups. **APOLLO-C19 is intended to develop a comprehensive and constantly updated social data system on the global and local response to pandemic, which will enable to define strategies and approaches and develop new tools to end users at scale.** It will define the communication schemes, collaboration and networking processes among actors - all the social institutions and individual, at global and local level - by acting on 3 time-scale levels (immediate, mid-term, and long-term) and on 4 action levels (analysis of data, modeling, development of new solutions for “one health”, co-creation and interoperability tools). In order to reach the overall aim, **3 specific objectives (OBJ)** have been identified:

OBJ1) Organise the current knowledge and identify the outbreak effects – even un-wanted - on the Society

The integration of different disciplines will provide an effective collection and selection of rooted information, data and knowledge about pandemic and the social response to outbreak resources. A comprehensive framework for the analysis both at the global, regional and local scales will provide evidences on the common factors that have affected the spread of the COVID-19 pandemic in the EU, allowing to identify the heterogeneities in the EU geography in a comparative setting. The mapping of social data will: I) enable to organize the existing knowledge about the factors that facilitates the spatial-temporal diffusion of infectious diseases and to categorize the response to measures adopted to halt spreading, including their socio-economic unintended effects; II) provide evidences on how outbreak responses are affecting behaviors, lifestyles and well-being of citizens through indicators and indexes measuring the social impact. The analysis of specific social groups as vulnerable groups (by age, gender, race) and workers will allow to identify key work-life related factors contributing to resilience and well-being, thus supporting the identification of drivers of change and success factors. “Lessons learnt” will be formulated as a public early result; an e-infrastructure will be developed (M32) and the IT framework to obtain a comprehensive model providing insight on the socio-economic will be defined. Overall, this will couple with Sustainable Development Goals (SDGs) n° 3,5,9,10.

OBJ2) Develop new solutions in support to the “one health” through ICT tools and best-next practices

Assuming the “one health” as a paradigm, implications of COVID-19 disease on human, animal, and environmental equilibrium will be assessed. This verification could be achieved through the investigation of the impacts of SARS-CoV-2 on agrifood systems, particularly taking into account food marketing systems, consumers, consumers’ health and the environment, all disrupted by pandemic. This will allow to improve the resilience along the food supply chain, accounting not only the food supply security, but also socio-economic and environmental issues through, as a result, the definition of the main drivers of consumer food choices and healthy eating patterns, as well as the identification of consumer groups at risk. This will support in turn more efficient marketing communication, dietary recommendations or nudging towards healthier behaviors. Data on impacts of SARS-CoV-2 disruption on the environment, in particular on air quality and water quality, in different socio-economic settings will support the delivery of suitable strategies to minimize unhealthy food choices and food waste and maximize a cleaner air. This data feed the proposal of “one health” solutions for crisis applicable on a wide scale, providing guides and best practices for overcoming crisis periods, for mitigation of crisis effects and, even for preventing them as much as possible by following and achieving SDGs. Overall, this will couple with SDGs n° 2,3,6,11,12,13. Then, the implementation of ICT tools in the innovation phase of APOLLO- C19 will provide the identification of fake news and contribute to forging tailored policy interventions about contact tracing apps.

OBJ3) Promote co-creation and establish the long-term interaction strategy

Specific actions will be taken to promote a participatory approach and sustain the process of improving a shared participation of expertise (scientific and technical), policy makers, and the civil society in the decision-making and definition of behavioral tool in support to the social emergency management and governance. A specific analysis about how different communication processes might contribute to improving the social impact of outbreak responses to the COVID-19 pandemic will be performed, testing the difficulties encountered to express specific expertise in the decision-making processes within the media discourse. This will allow to develop an innovative strategy to communicate on the one hand medical-scientific expert knowledge, and, on the other hand, decision-making processes. This will result also in the implementation of end-user applications (e.g. *AppVsFakeNews*) that will help users to identify fake news and to get advice on daily life organization during a pandemic. To test and

assess social, economic and political impacts of proposed new solutions and IT tools, co-learning and co-creation activities will be undertaken with a coordinated strategy, bringing stakeholders in action. Such an approach will also support the identification of citizens' needs, to mitigate impacts and boost wellbeing. Analyses will also provide to identify key factors to improve stakeholders resilience, mitigate social inequalities and test interdependences among individuals, social groups, countries, companies, and supranational organizations, coupling with the Responsible Research Innovation (RRI) principles and SDGs n° 3,5,9,10. A roadmap to support the EC in the transition towards an adaptive system will be defined (D9.10, M34) and a strategy to guarantee the full exploitation and sustainability of project outputs after the end of EC funding will be defined (D9.11, M36).

1.2 Relation to the action

APOLLO-C19 relates to the *Second call for an Expression of Interest for innovative and rapid health-related approaches to respond to COVID-19 and to deliver quick results for society for a higher level of preparedness of health system* topic SC1-PHE-CORONAVIRUS-2020-2C Behavioural, social and economic impacts of the outbreak response (Research and Innovation Action).

Challenges and Scopes of the topic
<i>Address how to mitigate social and economic impacts of the outbreak response related to health systems</i>
Tasks 2.1 specifically aims at mapping measures adopted against the outbreak responses (for COVID-19 and not only) and their short and long-run socioeconomic impact, and will inter-act with task4.1 which will identify the impacts that the different policy responses to the COVID-19 crisis on work-life behaviours and employees' health during and after the COVID-19 disruption. A report on the influence of demographic and socioeconomic factors of COVID-19 will be delivered on Month 24 (D2.4). An application for assessment of COVID technologies towards socio-economic aim will be developed too (D8.3).
<i>Identify non-intended consequences of epidemic-control decisions</i>
The multi-dimensional analysis of the pandemic and related control decisions running on behaviours & lifestyle and on social and economic dynamics (WP4), as well as on agrifood systems, consumer, health and environment (WP5) will allow to identify consequences at a multi-level. How effects can vary across population groups with different socioeconomic characteristics (even geographically), variations across groups/locations and dependences from consumer behaviours and lifestyles will be considered too (WP2). A report on the effect of socioeconomic factors on spread of pandemics and their non-intended effects on populations will be delivered on Month6 (D2.1).
<i>Provide answers to social, including gendered, dynamics of the outbreak and the related public health response</i>
WP4 and WP7 are specifically related to this action in terms of impact evaluation and then development on new supportive solutions (for policy makers and citizens). Impact and resilience of the socially vulnerable groups (by age, gender, race) will be specifically evaluated in task4.4. WP5 will complement with the consumer perspective and WP6 according to the One Health approach. The Research Report on social perception of contact tracing apps (D7.1) will provide further insights.
<i>Analyse the effects and efficiency of these responses (including resilience factors), democratic governance, multi-level cooperation, the critical gaps and the various exit strategies, their underlying methodologies, regional adaptations. Develop guidelines and best 'next practices', interventions to mitigate impacts and boost wellbeing.</i>
Reports on the food supply chain resilience success factors (D5.2) and on the effectiveness of the lockdown measures and resilience factors (D2.5) will be delivered on M22 and 24. As best 'next practice' reports, guidance and Blue prints will be delivered (D8.3, D6.3, D6.4), along with D4.2.1, D4.3, D4.4, D4.6 about lessons learnt from behaviour, lifestyles, and well-being, social impact assessment, from the resilience of the vulnerabilities and economic impact during and after the pandemic experience and other crises.
<i>To integrate multiple medical, social sciences and humanities disciplines, including anthropology, psychology, sociology, epidemiology, implementation science, journalism & communication, economics and political sciences, as well as gender studies and intersectional research</i>
The project consortium is consisting in 18 partners with the following expertise: sociology (5), psychology (6), political sciences (4), welfare (4), economics (5), communication, including consumer sciences (9), epidemiology (5), health (7), nutrition (8), food sciences (5), environment (9), statistics (9) and ICT (3). As added value, a structured participatory process will be applied with continuous dialogue and sharing with the EC and related DGs (Task9.4) and thanks to coordinated co-creating activities with the involvement a multi-stakeholder wide community, i.e. the current stakeholder forum and the enlarged ecosystem (WP8, task9.3)
<i>Analyse and compare outbreak responses across Europe and impacts on human behaviour and social dynamics by different regions and countries taking into account societal and cultural structures, health system preparedness and resilience, population densities, population risk groups, climate, pollution.</i>
Several tasks will have inputs to analyse and compare outbreak responses across Europe from different point of views: socioeconomic (D2.3 and D2.4), behaviours, lifestyle and social dynamics (D4.2, D4.2, D5.1, D5.3), agrifood systems and the environment (D5.4) and One Health perspective (D6.1 and D6.2).

In particular, APOLLO-C19 is focused in addressing dimension A)

Develop guidance for health behavioural patterns to positively influence adherence to behavioural advice and prevent disinformation about health issues and confinement, isolation and social distancing at societal, community and individual levels.

WP7 and WP8 will address this request by offering new solutions for communication, information and public awareness as well as transferring the knowledge through co-creation, interoperability processes. In this respect, a report on media representation of the role of the expert and decision maker in times of health emergency (D7.4), a Policy Paper to implement an innovative communication strategy useful to medical-scientific and political-governmental institutions and bodies in times of crisis (D7.6) as well as an improved version of the fake news detection app (D7.7) will be delivered. Additionally, guidance to be used by different stakeholders for food consumption behaviour (D6.3) and a manual for engaging the stakeholder (D8.1) will be offered.

Study factors contributing to the use of harmful self-medication and in anticipation of possible hesitancy towards vaccines.

Task 6.2.3, dealing with actors that are affecting human health, and Task6.3 will provide report on the COVID-19 outbreak from One Health perspective, as well as dietary recommendations for an appropriate health status (immune system included), taking into account the relations between dietary behaviours, nutrient intake, nutraceuticals, medicines (including self-medication) and toxic substances, along with the potential impact of bioactive compounds and immunity response; the attitude of people towards vaccines will be examined too.

1.3 Concept and methodology

(a) Concept

The **specific challenge** is to deeply understand which social impact of the pandemic are affecting the economic, political and cultural processes connected to the health emergency in order to 1) mitigate these effects, 2) explore the indirect implications and their specific weight on the decision making in an emergence condition, and finally 3) identify possible social strategies to face a public emergency and improve resilience considering the social diversity, which characterizes the complex society, even developing appropriate tools.

The global connection and implication of the outbreak will be analysed in its integration with the local ones in different regions and countries thanks to a mapping activity based on primary and secondary data from surveys, monitoring and instant reports. From the evidences on the acceptability, appropriateness, sustainability, feasibility, implementation of the political and health measurement to contain the infection will be outline transferable best practices, methodologies, guidelines to improve political, economic, health preparedness and response in the context of ongoing and future epidemics. Specific attention will be paid for the target of the decision-making models to apply strategies for the mitigation and management of emergencies and post emergencies in future pandemic and shock events. The attention paid to specific socio-demographic variables as gender, age, race, level of income, level of education focuses the different social perception, adaptation, and acceptability to the public health response. All the collected data are research outputs about the impact of the outbreak response on the human behaviours, the environment and the agrifood systems, in order to compare them, defining patterns and revise models. At the same time, the mapping activities and the research outputs provide innovative patterns about communication, information, and public awareness as for human, animal, and environmental health. These patterns will be strategic tools in a post emergence stage in order to prevent critical gaps in the procedures, to manage the coordination of the global and local dimensions, to control the mis- and dis-information and the social resistance to the juridical limitations and health behaviour, and to improve the resilience, especially among vulnerable groups.

The SARS-CoV-2 virus and COVID-19 pandemic have caused disruption: (i) along the food supply chain with some areas being more affected, not having production or discarding prime materials; (ii) on consumer food choices with consumers stockpiling food and wasting food more than usual, as well as engaging in unhealthy food choices, and inevitably (iii) on the environment and citizens health. Water services can play a critical role during pandemic, helping to either prevent or amplify disease transmission, and could have a consequent impact on agrifood systems. The occurrence of SARS-CoV-2 has been showed in stool samples of symptomatic and asymptomatic people as well as in municipal wastewaters and sewage sludge worldwide. The virus remained infectious in water and sewage for days to weeks, suggesting contaminated water is a potential vehicle for human exposure, if aerosols are generated or foods are contaminated. In order to minimizing health and hygiene risks, a deeper knowledge on SARS-CoV-2 viability in reused water and sewage sludge is necessary, together with the use of effective prevention and protection measures (i.e. irrigation techniques such as drip irrigation or sub-irrigation, the reuse of wastewaters for inedible crops, biomasses and seed, the reduction of the burial time after sludge spreading, the use of deep injection techniques.

Information and mis-/mal-/dis-information represent a very critical point, with huge relapses on every aspect of the crisis management, from the Society, to the economy. Mis-/mal-/dis-information proliferate especially during crisis, when an excessive amount of information about the problem itself, data and potential (real or fake) solutions

are proposed, which makes it difficult to identify concrete actions and solutions. The result risks to be an “info-demic” (as already declared by WHO for COVID-19), which can hamper effective response, create confusion, generate panic, or orient to un-effective or even dangerous actions. This situation mainly holds in the countries where the circulation of news is free: citizens are overwhelmed by information, many of which are exaggerated in order to increase audience, and the response is emotional and not rational because people feel urged for immediate solution of the drama all around them. In the current emergency, the role of a correct scientific communication has been discovered pivotal as never before in the past. Social media have the power to spread news far more quickly than the possibility to be controlled or validated. Dis-/mis-information around COVID-19, particularly related to its risk to the public, continue to proliferate around the world, with potentially harmful consequences for public health and effective crisis communication, leading to greater uncertainty and fear. An important way to reduce the harmful effects of misinformation is to inform the public and media about how to recognise misinformation and what to do when they see it. When misinformation and rumours appear, it is important to address the underlying questions and fears. Various social media platforms can facilitate, such as [reddit](#), which currently rates among the most popular social media platform in several countries: it hosts discussion forums where members can vote for their preferred posts, and the most voted posts rise to the top receiving more visitors.

The declination of the analysis of data and innovative solutions in the time-scale level of the: a) immediate (month 3), b) mid-term (month 12), c) long-term (month 24), and d) preparing for the next pandemic/shock event condition (month 36), provide theoretical and applied outputs. Data models from multidisciplinary and intersectional analysis arrange an analytical pattern in the exploration and interpretation of a specific social event as the pandemic is, to better understand the impact, effectiveness, the public health preparedness, and control taken at different governance levels. With a specific attention to the different implication at the global (supranational), national, regional and local dimensions, a scientific challenge is to integrate different disciplinary perspectives - medical, social and humanities - including anthropology, psychology, sociology, epidemiology, journalism & communication, economics, and political sciences. Furthermore, additional integration with agrifood, nutrition and environmental sciences is required to cover all the dimension. Such an approach may allow to read the unexpected, quick, and radical transformations, even temporary, that pandemic triggered, starting from the immediate representations of the in-progress processes. The **trans-disciplinary approach** will be accompanied by an actual application of: a) on the one hand, the **“one health” approach**, thus covering not only human health, but also the agrifood, environmental health, and circular economy, and b) on the other hand, the **RRI approach** promoting co-creation and bringing stakeholder to take action. All that, **with the vision of the definition of strategies for the full exploitation and sustainability of the proposed solutions.**

(b) Methodology

APOLLO-C19 will explore outbreak responses across Europe and impacts on human behavior and social dynamics with analytical methods characterized by a multidisciplinary approach. Overall, the work plan is structured in 9 Work Packages (WPs), where: WP2&3 focus on mapping of outbreak responses and patterns, develop the data system and data management and socio-economic modeling, as first horizontal approach and supportive action for the other WPs. Vertically, WP4&7 and WP5&6 will be focused on lessons learnt and development of strategies and new solutions for: WP4/7 – behaviours, lifestyle and social and economic dynamics; WP5/6 agrifood systems, consumer, health and environment. Then, again horizontally, WP8 will develop the supporting system based on co-creation, and WP9 will define the strategies for exploitation and sustainability.

The first APOLLO C-19 phase is focused on research and will provide a comprehensive framework for the analysis of the incidence of COVID-19 in the EU, both at the global, regional and local scales, aiming at providing evidence on the common factors that have affected the spread of the COVID-19 pandemic in the EU in order to identify clusters of countries/areas that are characterized by similar contagion, response and recovery dynamics. The mapping of these data (WP2) will be the basis for further methodological analysis that will take into account two presumptions: 1) data will be, even in part, early and continuing results of ongoing research and follow-up, and 2) not all methods will be applied to all countries. The following criteria and scales of application will be applied to EU and international key countries: a) level of restriction imposed by the political institutions – a.1 high; a.2 medium; a.3 low; b) timing of the public application of the precautionary measures - b .1 fast; b.2 slow. Results from country clusters related to the levels of lock-down, support systems and communication activities during COVID-19, differing national and socio-economic factors, will also be included. The final research step outcome will be the definition of 4-6 case countries where with specified qualitative methods will be led in-depth analysis. Other methods, e.g. quantitative survey will be applied at a maximum international range.

A multi-step mixed methods approach will be applied (WP2, WP4 and WP6), including: (1) analysis of data from national statistical offices and public health agencies (expected 80% EU coverage plus 10 comparative countries outside EU) will be collected (along with WP2); (2) Secondary analyses of data from several international surveys collected before and during lockdowns on health behaviour and wellbeing before and during lock-downs, collected

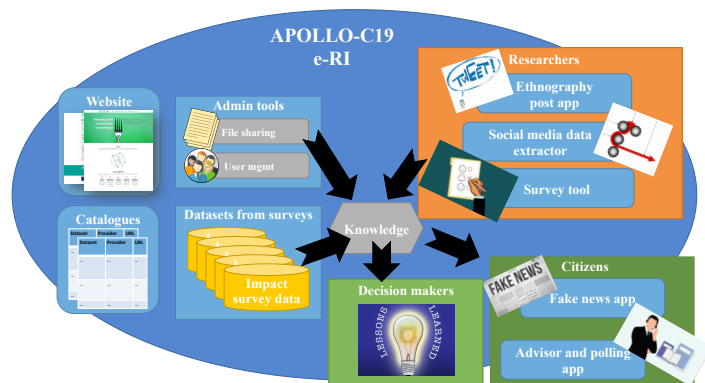
during April and May 2020 ($n < 50000$), (3) Building hypotheses and adapting methods from step 1 and 2, (4) a social media comparative content analysis will be conducted. (5) Qualitative research of digital "mobile ethnography" in approximately 5 countries ($n = 20$ per country, selected along pre-defined criteria like age, gender, socio-economic status). (6) A follow-up survey for approving hypothesis and insight from all steps 1-5 will address all levels and types of stakeholders and be applied through the partners' networks ($n > 10000$); (7) Gathering information through focus groups and round tables with a designed validated methodology by partner consortium and inviting relevant participants

The APOLLO C-19 approach for all methods will be (A) "differential", i.e. addressing before - during - after pandemic phases like lock-down, confinement, infection, own job/business shut down or other features of the pandemic, and (B) "sequential", i.e. one method will yield hypotheses to be tested using the next. We will also, when appropriate, ask for generalization to / comparison with other crises and about "lessons learnt". These answers will be evaluated in the light of literature knowledge about intended and implemented behaviour.

WP3 will develop the IT framework and e-infrastructure, and provide a comprehensive model with insight on the socio-economic impact. Special attention will be paid to market methodologies (WP3), like Choice Experiments and/or Lab Experiments, which could be better applied for estimate and monetize these effects. The outcomes of the socio-economic measures valuation will then be used at the socio-economic viability analysis (WP4 and WP5). The modeling methodology will include spatial-temporal econometric models combining quantitative and qualitative (categorical) variables as an attempt to connecting epidemiological data to various economic (i.e. of pecuniary value) implications as well as to social (of non-pecuniary value) implications. In addition, estimation and model selections techniques will be used because more adequate for an extreme changing phenomenon, as model uncertainty issues and relevant risk quantifications techniques. WP3 will also develop a technological model of system innovation approach to be applied to stakeholder analysis, which will be cross-tested in WP8.

WP7 focuses on how different communication processes might contribute to improving the social impact of outbreak responses through new or renewed solutions for public awareness, thus contributes to forging tailored policy interventions about contact tracing apps and enhance their features and design. IT tools will be developed and tested in selected regions, analyzing the end users' feedback for defining plans for improvement through cooperation with stakeholders (WP8). Furthermore, a specified analysis will be done for the identification of the impact on climate change using carbon footprint method and labeling thanks to the results from WP5 and WP6. The definition of a dedicated COVID-label for products may allow prevention and mitigation of COVID-19 effects and ensure in turn sustainability of project results. A continuous dialogue with, and engagement of the EC, policy makers and all the stakeholders will be fostered, and capacity building and technology transfer promoted by dedicated initiatives considering all the different target audiences and types of policy interventions, making available the transferring material openly and with no deadline. This will support further engagement for the future.

IT Tools - The current activities in ESFRI and EOSC of some partners will be leveraged and exploited to develop or integrate an electronic research infrastructure (e-RI) for behavioural, social, and economic impact data which can be used by the research community. An **Impact e-RI** will bundle scientific datasets, tools, and services, avoiding duplication of work and hence joining forces in research, policy making and for the public. The e-RI will contain a **catalogue application** which lists all available and, in the project, **produced datasets, tools and services** that can contribute to behavioural, social and economic impact analysis. The catalogue app will be publicly available and these datasets findable. Many of these datasets and for sure all the datasets generated within the project will also be made publicly available and therefore accessible. This project will recommend data exchange formats, electronic interface definitions and thesauri proposals so that data get interoperable. Finally, licensing of generated and collected data will be open as possible so that data can be re-used. With this approach, APOLLO-C19 data will be made actually FAIR (*findable, accessible, interoperable, and re-usable*) and this will benefit all other research after the project. In addition, some web apps will be developed that will help research to analyse data and users to organise their daily life: **I) the AppVsFakeNews** will extract information from social media like Facebook and twitter according to pre-defined rules. This will allow research to extract specific data and investigate behavioural, social, and economic impact. **II) an AdviceApp**, to exploit result from the project and to give citizens advice in different areas. Lessons learnt will be translated into advices that can help citizens to act against negative impact during home isolation and improve, for instance, fitness, mental health, social contacts, and healthy lifestyle. The advice app can in later relaxation phase advice people how to contribute to the large scale negative impact like economic impact for shops, business and



industry and in particular with educating advices replace scare of consumers with safe actions to support SMEs, businesses and industry. The advice app should also have a survey functionality integrated so that decision makers can push surveys to citizens and collect real-life data that will help them to faster and more appropriate react on citizens feedback.

1.4 Ambition

APOLLO-C19 has the ambition to support policy makers facilitating the development of valuable science-policy-society interactions. The proposed tools and processes, together with the mapping activities, are addressed to providing a credible foundation for an effective implementation of scientific data and scientific analysis to the decision-making, reaching public awareness for a better response to outbreak conditions. It provides a useful real-time social reaction to potentially fast changing policy scenarios. Appropriate flexibility will be ensured during the Action lifespan in order to guarantee the possibility to re-adapt individual and collective resources.

The APOLLO-C19 specificity is the interconnected actions in three areas, where its ambition focuses:

I) Integration of different disciplines, providing an effective collection and selection of rooted information, data and knowledge about pandemic and the social response to outbreak resources, for a deep exploration of the scientific production that has been immediate and not systematic in the emergency phase. A comprehensive framework for the analysis both at the global, regional, and local scale provides evidences on the common factors and the heterogeneities of the implication of the spread of the pandemic in the EU.

II) Improvement of resilience of the agrifood systems and food supply chains, with the definition of the main drivers of consumer food choices and healthy eating patterns and identifying solutions in support to food production and processing, packaging, retail, consumption, waste management and sustainability. This will be boosted tanks to the involvement of market and government actors, as well as consumers to better provide in-depth insight into linkages and interactions between agrifood chain stakeholders, the consumer and the environment.

III) Information and communication – It represents the focus of this integrated process, since it allows to sustain the process of improving a shared participation of all the interested actors in order to define common strategies and develop supportive solution for an effective decision-making. WHO recommends proactive communication during a public health emergency that, “encourages the public to adopt protective behaviours, facilitates heightened disease surveillance, reduces confusion and allows for better allocation of resources – all of which are necessary for an effective response. With its global influence, information and communication processes, especially those connected to scientific and political institutions, require specific consideration during times of public health emergencies, that’s why it is highlighted as a key issue for APOLLO-C19. **The project has the ambition to enable public health authorities and responders to be ready to communicate correct and up-to-date information through effective, trusted channels from the outset, to reduce the time that rumours and misinformation are able to proliferate due to a void of information.** Considering that different regions and countries (at global and local level) and social groups (with a specific attention to those already called “vulnerable” and workers) have differing preferences in terms of communication and information they use and trust, the sources they trust, and the language and format they prefer, it becomes even more relevant to understand who does and does not access online media, but also who can understand more scientific communication. Research to understand barriers and drivers of information flows and to identify influencers and opportunities for the use and misuse of information can enable more effective communication campaigns and help to target efforts to combat misinformation. Methodologically, it is strategic to lead in-depth qualitative information ecosystem assessment, or a more targeted information needs assessment as a preparedness measure for health or other emergencies. ICT can support the reduction of the exposure to disinformation, and endeavour open, transparent, and appropriate social communication for the general population. These are the requirements of an effective system: I) Authorities and response partners need to provide clear, simple and easily digestible information through trusted, familiar and tested communication channels; II) the necessary information and tools should be provided to enable and encourage people to follow correct health advice; III) efforts should be made to convey real-time, accurate news about the pandemic to decrease uncertainty, fear, and panic. It is also important to be transparent and acknowledge when something is not known. Two-way communication is essential, with concerns addressed directly, quickly and accurately. This is particularly important at the near at risk and real at-risk stages, when people begin to ask questions and require specific answers with urgency. People are more likely to believe and share information that comes from a source they trust, therefore it is important to assess which the most trusted sources are, and enlist those individuals, institutions, or brands to deliver messages.

- a. The new solutions implemented by APOLLO-C19 aim first of all at collecting, examining, processing and classifying the news and information, to be checked for their consistency and reliability with an assigned level of confidence based on a scientific approach, and then at minimising the amount of time people expose themselves to information on social media which they find upsetting, and advocate that people adopt a ‘FactVsFear’ approach.

- b. APOLLO-C19 tools also provide to identify key factors to improve stakeholders resilience, mitigate social inequalities and test interdependences among individuals, social groups, countries, companies, and supranational organizations, according with the RRI and SDGs, that could be considered the benchmark of the communicative and social processes described.

Gender Dimension – APOLLO-C19 takes into consideration all the gender equality objectives agreed for H2020 relating to gender balance in decision-making and integrating gender/sex analysis in the research. The consortium acknowledges the “gender dimension” as stated in the EU Reg. 1291/2013, as well as the “Guidance on Gender Equality in H2020” (v.2.0,2016). The European policy of equal opportunities between women and men is spelled out in the Treaty of the European Union: Art. 2 and 3 establish equality between women and men as a specific task of the Community. As part of WP1, gender aspects will be effectively monitored by the coordinator and maintained in collaboration with all partners throughout the project. The partners consider equal opportunities between men and women to be of crucial importance. APOLLO-C19 consortium will address gender dimension both on:

a) project activities: gender dimension is relevant in particular in APOLLO C-19 activities dedicated to the collection, selection, mapping methods and analysis of data on differentiated social groups (indeed by gender and, also, by age, race, working condition) communication systems and the development of innovative approaches to be used by policy makers with the society. Indeed, for an effective and successful engagement of citizens it is essential to take into account existing differences in the communication perception and in the need for different messages among various gender, including different sub-categories, such as vulnerable people (e.g. pregnant women). Such aspects will be discussed by the stakeholders in the related meeting and focus groups and through analysis and questionnaires, as well as during the policy meetings with the EC. Moreover, gender dimension will be taken into account in activities and reporting about lesson learnt, with specific sections in the related report.

b) human resources dedicated by each partner to project implementation: partners will ensure that same chances and opportunities will be given to all genders and sexes and will seek to minimise activities with evident gender favour, assuring that excellence will be the foremost selection criterion for new team members. Assessment will be open, impartial and irrespective of gender. Safety and health policies will be developed targeted to different social groups and vulnerable groups (e.g. pregnant women, elderly people, people affected by food diseases or allergies).

2. Impact

2.1 Expected impacts

The current health crisis related to COVID-19 affects many different areas such as human health, economy, business, food security and the environment, so it's opening many different challenges. This implies urgently needed research based on multi-sectorial and multi-disciplinary approaches for developing integrated researches and solutions starting from lessons learnt for what happened in the last months, thus paving the basis for performing reliable, coherent and consistent R&D activities and implement usable tools in support to different challenges, such as: i) study and mitigation of social, political and economic impacts, ii) study of social dynamics especially in relation to different target categories, iii) study and evaluation of resilience factors and evaluation of regional and local adaptation, iv) elaboration / proposal of policies, strategies and guidelines, v) prevention of disinformation. **APOLLO-C19** directly responds to these challenges

- Fostering coordination and integration among different stakeholders, and directly with the EC and national, regional and local policy makers,
- Promoting multi-level actions by applying a participatory process based on co-creation and supporting ecosystem enlargement,
- Making available knowledge, data and innovative tools to support evidence-based policies for the management of the current crisis, as well as future crisis and breakdowns (related not only to COVID)
- Increase the citizens' trust in the Policy System, as well as on the Research System.

APOLLO-C19 is designed to achieve a multi-level impact, thus reflecting its multidisciplinary, multi-actor and participatory approach. The impacts will benefit several target groups, with reflections on several sectors:

- Public authorities/Policy Makers – for the EC, the participating Countries, and all the other European countries and beyond which can benefit in the same way of the new knowledge (from the impact analyses and “lessons learnt”) and tools, or replicate the same approaches in their premises (exploitable to other Countries)
- Healthcare sector and welfare – preparedness, robustness, resilience, which will reflect in a lower health expenditure, also for vulnerable groups (e.g. elderly, people with a weak immune system)
- Citizens/Society – citizens will become more conscious and will act more carefully to preserve their health and safety, identifying fake news and to get some advice on daily life organisation during a pandemic and giving them impartial information about contact tracing apps; they will give more importance to the quality of their food and their environment and to the healthy and welfare of their animals

- Market system – for food producers, promotion, and protection of (short) food chains, improved or protected production, capability to face food breakdown or other type of crises, improved wellbeing of employers and workplace safety increased consumers' trust
- Sustainability, circular economy and the Environment – definition of suitable strategies for protecting and enhancing sustainability and integrity of agrifood systems, minimizing unhealthy food choices and food waste, reducing environmental impact and maximizing a cleaner air
- Research – development and put into practice of new research & innovation ideas, which will enable to progress beyond the state of the art and favor technology transfer.

Coherently with the expected impacts set out by the call, the **project impact** can be described in 5 main categories.

IMP1 - To improve the resilience, wellbeing and mental health of the population, frontline workers and, in particular, of the most vulnerable groups and mitigate health inequalities during and after pandemics

APOLLO-C19 will provide an in depth assessment to understand how outbreak responses affect behaviours, lifestyles and wellbeing of citizens and to analyse social vulnerability as a precondition and result of the pandemic situation compared to the “normal” vulnerability (WP4). Lessons learnt from the resilience of the vulnerabilities, from behaviour, lifestyles, and wellbeing before, during and after the pandemic experience and other crises and data obtained from health behaviour and mental well-being research task will be used for improving resilience, wellbeing of the population, including the vulnerable groups. Key factors will be identified to improve stakeholders' resilience and mitigate social equalities (WP8). [Related Del:](#) D4.2.2, D4.3.1, D4.3.2, D4.4.2, D8.3
KPIs: 2800 users of the project apps. 50% Positive answers in a user feedback about the apps and tool.

IMP2 - To contribute to a better understanding of the impact, effectiveness, public health preparedness, responses ... in terms of: acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, coverage, sustainability of diagnosis and clinical management of patients ... as well as front line workers and communities.

A specific impact study will be conducted to assess, demonstrate and boost the impact of the proposed solutions, the associated socio-economic benefits. A specific plan will be defined identifying targets, indicators and milestones for ensuring the sustainability of the proposed solutions and tools. In order to have effectiveness and preparedness of supporting systems (e.g. health and agrifood) the dialogue and cooperation between different stakeholders starting with EC, supra-national agencies (WHO, FAO) and policy makers at EU, national, regional and local level, till to consumer/citizen associations and media is crucial. A plan for cooperation with initiatives and networks will be defined. Furthermore, a specific plan will be defined identifying targets, indicators and milestones for ensuring the sustainability of the proposed solutions and tools. [Related Del:](#) D9.2, D9.7, D9.9, D9.11. **KPIs: Plan for cooperation and Exploitation and Sustainability Plan approved, > 75% approval to APOLLO-C19 analysis content and usefulness from stakeholders, plan progress monitoring.**

IMP3 - To prepare holistic assessments of the social, economic and political impacts, and to propose and deploy evidence-based policy measures; ... to improve industry's and society's adaptation capacity and resilience ... supporting the availability of critical technologies and tools.

WP2÷5 will enable an evidence-based and **integrated assessment** of background data and elaboration on social, economic and political impacts. **Transferable best & next practices and methodologies** will be defined (WP6,7). E.g., an alternative way to valorise plastic materials of Personal Protective Equipment (e.g. surgical masks, glasses, gloves, shoe-covers) by mechanical recycling creates an economic advantage for municipalities, public and private health companies in terms of lower waste disposal costs (WP6). The provision of an **e-RI as distributed data repository and different applications** will foster research and innovation and turn “lessons learnt” into feasible applications supporting decision makers and citizens to improve impacts of a pandemic. A **roadmap** will be specifically developed is support to the EC in the transition towards an adaptive system by improving at the same time industry's and society's adaptation capacity and resilience considering integration research & innovation, public confidence and transparency. [Related Del:](#) 6.3; 9.10. **KPIs: Roadmap developed, approved and adopted by n° of countries/stakeholders; rate of effectiveness of the new solutions for environmental protection**

IMP4 - To contribute to a holistic public health preparedness/response in the context of epidemics.

WP6, 7 and 8 are specifically devoted to **develop new solutions and tools** for making the EC, policy makers and the whole society to face future crises. As further added value, the applied approach will allow to be ready to face crises and breakdowns with reference not only to sanitary emergencies but also potentially to different types of breakdowns (e.g. of food chains due to food security or food safety emergencies). This thanks to the multi-approach focusing on the “one health” and considering the triple helix of human health, animal health and environmental health. The practical application of the RRI approach in WP8 with the direct involvement in co-creation of a so wide frame of interested stakeholders, along with the plans for dissemination, exploitation and sustainability (WP9) will allow to obtain public awareness. Holistic public health preparedness and responses will be elaborated, based on a *One Health* approach, in the context of future crisis (Blue prints and One Health Strategy) will be elaborated. The One Health strategy will focus on the promotion of systemic changes and the adoption of a cross-cutting interdisciplinary approach for different societal areas, in a view of sustainability (WP6). [Related Del:](#)

6.4; 6.5; 8.4; 8.5. **KPIs: n° of users of virtual platform** on best practices in COVID responses, **Blue Prints, One Health Strategy approved and adopted in a n° of countries.**

IMP5 - To provide health authorities with guidance for further public health interventions and support implementation of actions to; mitigate/manage consequences of current policies, better tailor future ...management.

Thanks to the research activities performed in WP2, 4 and 5 and in conjunction with the co-creation activities of WP8, the policy meetings with the EC interested DGs and audits with policy makers at national, regional and local level (WP9), which will start even before the Action starting date (month <), **tools in support to policy makers at EU, national and local scales** will be delivered all along the project duration and guidance specifically dedicated to health authorities will be developed. WP2 will allow to **identify critical gaps and assess the various strategies** applied and regional adaptation, thus providing guidance on future strategies. The “One Health” dimension of WP5 & 6 will support the **definition of integrated and holistic strategies**. **Related Del:** D7.2,7.4,7.6,9.12. **KPIs:** at least **6 countries mapped**; at least **6 policy briefs developed**; **1 guidance for health authorities**; **Policy Paper** for medical-scientific and political-governmental institutions and bodies publicly.

Concerning the remark to **deliver results within 3 - 36 months to end-users at scale**, this will be ensured by the Gantt and planning of deliverable: project activities have been arranged to work on two levels, considering on the one hand secondary data for obtaining short- & medium-term results and outputs, and on the other hand primary data for having medium- & long-term results and outputs. Jointly with the research-related reports (DXXXXX), a plan for a continuous discussion with policy makers have been set-up, thus allowing the provision of continuously updated policy briefs on a semi-annual basis, starting from Month 6 (DXX). The development of a mini or dedicated e-RI and new apps will run in parallel:

- the “*impact e-RI*” will bundle scientific datasets, tools, documents, and services, avoiding duplication of work and hence joining forces in research, policy making and for the public. It will run starting from M3 at scale offering even more info and possibilities being developed on a modular way;
- **Apps:** the *AppVsFakeNews* will be delivered and M24 with TRL 8-9, the *Impact Data Collection App* will be delivered M9 TRL8-9, the *AdvisoryApp* M32 TRL7-8, and a first pilot version of the *FoodConsApp* in M32 at TRL 6-7. All these App will represent tools at scale, usable by the respective targeted end-use from any European country and beyond on a wide scale. The same applies for the “Covid-19 impact e-RI”, which should reach TRL 8-9 at the end of the project.

Other impacts

Long-term economic and market impacts – The implementation of proposed SRIA and the support provided to the policies (with the active involvement and contribution of all the actors), in the long-term will contribute to generate relevant economic returns in terms of added value of welfare, health protection and reduced costs for consumers’ health, prevention of inequalities, productions, consumption, food chains, sustainability, reduced food waste and losses, the environment. In this scenario, also the consumers’ trust on authorities and control systems (at EU and national level) will be improved, turning into positive impacts in the market.

Impacts on research-society relationship – Community building and social impacts: co-creating approach with active participation, along with the e-platform & App development (particularly the *AppVsFakeNews*), as well as the digital integration with the EU platforms and other existing infrastructures and organisations, will strengthen the relationship between researchers and user communities with a specific focus on civil society, leading to improved professional practice, increased public awareness on the current challenges & opportunities and on the benefit of open research data. It will further contribute to enhance skills of researchers to communicate and interact with the society providing simple and understandable messages, avoiding scientific jargon, which will contribute to fight misinformation and possible confidence of a part of consumers in fake news.

Barriers/obstacles, and any framework conditions

a) Public acceptance and awareness, with a correct communication and close dialogue with the EC and any (potential) stakeholder represent key elements for the success of the Action and may determine to what extent the expected impacts will be achieved. For this reason, a specific strategy has been developed and specific tasks have been dedicated to ensure a continuous, close interaction with all the interested actor at any level: with the stakeholder forum and focus groups (WP6), through co-creation actions (WP8), with actions dedicated to ecosystem enlargement, policy dialogue and capacity building (WP9).

b) Despite efforts to increase transparency and to apply the FAIR concept, barriers still exist. One of this regards the skepticism in making data FAIR, due to the trade-off between transparency and privacy and the reservations of some governments about publicity. The concept of open data and data reuse is closely related to basic questions of ownership, responsibility, and control. Attitudes towards data sharing are generally positive, but open data and data reuse is not yet a reality for most researchers, which still mainly occurs through the current publishing system, or direct sharing, or does not get shared at all. Research data management and privacy issues, proprietary aspects, and ethics are the main barriers, to which add ethical and cultural limitations, financial and legal issues. APOLLO-C19 has been developed with the explicit purpose and agreement among partners to apply 100% the FAIR approach,

making all data and results of the project fully open and accessible. Furthermore, new data will be collected and for this purpose a IT tools aimed at collect the new impact data will be developed (and enabling even in the future, in case of other crises) in a way that they can be already interoperable and made re-usable.

2.2 Measures to maximise the impact

(a) Dissemination and exploitation of results

The **Plan for the Dissemination and Exploitation of the project's results (PCDR)** defines strategies and guidelines for the Actions, materials and tools to be delivered during the project lifetime and actions to keep promoting the project's results after the grant conclusion, providing the largest dissemination of non-confidential results to a wide audience of stakeholders. It consists in an aggregated strategy defined and developed in the frame of WP9, where by the **Plan for Communication and Dissemination Plan (CDP)**, delivered at Month 3 and updated at M15 and 27), a **Plan for cooperation**, aimed at ecosystem enlargement (delivered at M2 and updated at M34), and a **Exploitation and Sustainability Plan** (delivered at M18 and updated at M36). It sets:

- Strategic **objectives** and project **identity** concept;
- Main **target audiences**, including the analysis of relevant stakeholders and strategies to enlarge their ecosystem and bringing them to take action;
- Main **activities and tools** (leaflets, videos, presentations, website, influencer campaigns, etc.) to be produced, including an indicative timeline of their implementation;
- **Channels** for connecting with audiences (media, SNS, publications, conferences, fairs, etc.);
- **Key Performance Indicators (KPIs)**
- **Monitoring actions** during the project lifespan and **milestones** for ensuring sustainability
- Details on how the results and developed tools and related services will be made **available and accessible**

Such a plan ensures efficient and sustainable impact, as well as aligned dissemination, communication and engagement objectives, addressing the potential relevant users and stakeholders and other audiences; it also incorporates a strategic approach for the full project lifetime and post-project sustainability, which will be evaluated and updated on a Periodic basis. Specific initiatives for **liaison with the EC and its relevant DGs, supra-national agencies, ESFRI Research Infrastructures, national, regional and local authorities** are included, promoting the possibility of fully exploiting the results and continuing to use the project outputs and the newly developed IT tools, openly, after the project end. PCDR represents a key tool to ease and amplify networking activities and the engagement of different stakeholders, as well as to boost ecosystem enlargement. Dissemination and exploitation, along with communication activities are part of WP9, in which all Partners are involved with a key role at both international and national level, together with the Stakeholder Forum. PCDR will be further detailed at the project beginning and then continuously fine-tuned and updated to guarantee its maximum efficacy and multiply its effect. Specific monitoring procedures will be set up. All partners provided to allocate an appropriate budget for communication and dissemination and exploitation.

i) Strategic objectives (WHY) - The overall aim is to provide the various target groups with high-quality and up-to-date information on APOLLO-C19. Simplicity and consistency are essential to ensure that the target audience understands and retains the information. This will also ensure transparency in the project implementation. Efficient communication can increase public awareness about the project and provide accurate and reliable information and understanding on the opportunities offered and the outputs. PDER aims to:

- Ensure full awareness within the Consortium about project progresses and results
- Disseminate outside the Consortium the key information and output generated, increasing the awareness about activities, strategies, technologies, results, etc.
- Engage specific audiences that will benefit from project's results and trigger them to use the newly developed solutions boosting their autonomous interaction
- Actively engage the society in strategies supporting public health intervention, welfare and well-being, improvement of industry's and society's adaptation capacity and resilience
- Make the project's outputs technologically exploitable and transferable and ensure sustainability

ii) Target Audiences (WHO) - Key actors and target audience can be divided in 6 main groups. Each has a specific communication and dissemination role and is targeted with different messages, tools and services. All these categories must be considered at European, national, regional and local level.

- 1) Project Partners - with reference to ensure proper and effective internal communication
- 2) Scientific Community - researchers engaged in social sciences, economy, sociology, psychology, welfare, agrifood, nutrition, environmental sciences, etc.
- 3) Programming and Funding Agencies, Policymakers - An active interaction with policy makers at EU, national, and local level will be promoted, presenting and discussing main project outputs, results and opportunities
- 4) Food producers - considered as individual or grouped in associations, including SMEs and BIs

- 5) Citizens/consumers - considered as individual, as well as represented in associations and organized groups. Actors in this category generally need for clear, easy and reliable messages.
- 6) Media - with reference to communication of achievements and potential for implementation, as well as to the development of tools for facing dis-/mis-/mal-information

iii) Tools, channels (HOW) - Different and complementary dissemination tools and activities will implement the PDER strategy, through tailored means to language, target, scope of the messages. The graphical identity of APOLLO-C19 will be defined designing a **logo** with graphical textures and colour schemes derived from the logo.

Dissemination material will include:

- A **toolkit with practical factsheets** containing ready-to-use knowledge on main project outputs and tools developed by the project will be created and uploaded on the platform, aiming to transfer easily main results, easing the autonomous re-use of them. Factsheets (**at least 6**) will be addressed respectively to: i) policy makers and local authorities, ii) wide citizens, iii) specific social groups (elderly, young people/students), iv) food producers, consumers.
- **Presentations** at national and international events will be promoted, focusing on different types of events addressed to the different target audiences (e.g. conferences, fairs/exhibitions, workshops, seminars).
- **Meetings with representatives of involved EU DGs** will be organised right from the project starts and possibly even before: **at least 6** starting immediately from the proposal approval (month <)
- A **roadmap** will be designed, **to support the EC in the transition towards an adaptive system by improving at the same time industry's and society's adaptation capacity and resilience and updating the work on the main impact areas**
- Policy briefs, **at least 6** delivered on a semi-annual basis
- **Webinar series** on the key APOLLO-C19 outcomes will be prepared and delivered to a European policy audience, including EU and national policy makers and experts, as well as - where suitable - representatives of European city administrations or other local authorities, **at least 5 webinars**

Data Management Plan (DMP) - A draft DMP is submitted within the proposal (Sec.6). It addresses the relevant aspects of making the data FAIR, including what data the project will generate, whether and how the data will be made accessible for verification and re-use, and how it will be circulated and preserved. Data sharing will be ensured for any type of quality-controlled digital research data and associated metadata, which is generated in the action. Considering the specificity of the project, the topic, and the relation with a public health emergency, WP3 is specifically dedicated to data and modelling and includes a task on data management (Task3.1); the updated DMP will be delivered at M5 and then a further update at M28. It will define models for data integration and interoperability and knowledge sharing, according to the FAIR approach, ensuring the interoperability with existing Research Infrastructures (e.g. METROFOOD-RI, LifeWatch-ERIC) and other networks. The type of accompanying information in the form of metadata or short description will be defined too to allow potential users to gain awareness on the data concepts and evaluate their suitability for future use. The standard formats to be used to facilitate the adoption and successful operation of open research data - where applicable - will be specified too.

Knowledge management and protection - All partners will define in the Consortium Agreement, which will be jointly concluded before the Action start, the explicit rules concerning IP ownership, access rights to Background and Results for the execution of the project and the protection of Intellectual Property Rights, and confidential information. Concerning access rights for use to background and results, in order to ensure a smooth execution of the project, the partners agree to grant each other royalty-free Access Rights to their Background and Results necessary for the execution of the activities. A "Results Ownership List" involving all the Beneficiaries will be provided at M36. With reference to open access, the partners will make the research data accessible and re-usable – according to EC guidelines – through appropriate platforms including the [COVID-19 data portal](#) and [Horizon results platform](#). All research data will be made available at the latest within 30 days after it has been generated, through open access or, after agreement with the EC, by giving access rights to those third parties needing the research data to address the public health emergency. The strategy is to use the 'green' open access. Some partners have a dedicated budget for publishing on open access peer-reviewed scientific journals.

In order to maximize impact across Europe and to ensure wide dissemination of the project results, a specific task is dedicated to cooperation and coordination across research groups and with selected other Actions funded under SC1-PHE-CORONAVIRUS-2020 calls, as well as with other ongoing communities, networks and Research Infrastructures engaged on COVID-19 related topics or which domains are/can be affected by the topic (e.g. humanities, health and food, environment), see Table Sec.4. Appropriate resources have been earmarked. This will favour the creation of an integrated and coordinated landscape of initiatives, promoting coordination and avoiding duplication of efforts (saving human resources, time and money).

(b) Communication activities

A series of specific communication activities addressing all target groups is presented in the table below.

Tool/Activity (period)	Message / Target	KPIs
Meetings at EU, National and regional policy level, communication through official media/channels, joint activities with institutional initiatives (M00-36)	Promote an active interaction with policy makers at European, National, regional and local level, presenting main project outputs / <u>Programming and Funding Agencies, Policymakers</u>	<ul style="list-style-type: none"> •Public hearings (EU and national): at least 27 (2 per Country + 3 EU) •Presentations/joint activities with European partnerships: at least 2 •Publication in official national and European channels: at least 6
Articles in specialized journals, magazines, participation to scientific events, training workshops, webinars (M06-36)	Increase awareness on project main outputs and contribute to the adoption of scientific and technological models proposed / <u>Scientific Community, Policymakers</u>	<ul style="list-style-type: none"> •n°. of scientific publications in open access peer-review journals: at least 10 •n°. of scientific events attended (virtually or in presence) to present the project: at least 12, 80-150 participants each •at least 2 webinars
Brokerage events, Exhibitions, Handbook training workshops (M12-36)	Increase awareness and promote technological innovation / <u>Producers</u>	<ul style="list-style-type: none"> •Participation to at least 6 brokerage events and Exhibitions, 50-150 participants each •1 handbook for technological applications •at least 2 training workshops + 2 webinars
Communication toolkit with a recognizable project identity (M03-36)	Share a common graphical identity; communicate activities, objectives, outputs / <u>All</u>	<ul style="list-style-type: none"> •Logo, templates for partners and stakeholders, 1 poster + 1 roll-up •1 brochure, 13 leaflets (1 per Partners' national language + English), •3 promotional flyers (1 "One Health", 2 on social implications)
Website (M02-36)	Highlight concept, aims and results; continuous updates with news, events, materials and public deliverables / <u>All</u>	<ul style="list-style-type: none"> •n°. of website visitors: at least 10% annual increase of website visits •n°. of website contents shared by external users: at least 100; •Websites returning visitors: at least 15% from total n°. of website visitors
Social Networks (SNs) (M00-36)	Share latest news and, guarantee society engagement through immediate and continuous use and updating / <u>All</u>	<ul style="list-style-type: none"> •n°. of followers among all project SNs: at least 2000; •n°. of posts on SNs: at least 2500 tot; •News published by external pages: at least 5
Videos (M03-36)	Communicate objectives, activities, results and impacts on the society/ <u>All</u>	<ul style="list-style-type: none"> •Videos: at least 1 + video pills (info videos and Q&A videos)
Press campaigns / press-kit / press release (M00-36)	Provide media with appropriate tools, in the appropriate language, to inform about the project and its results / <u>Media</u>	<ul style="list-style-type: none"> •2 Press-kit available for download, targeted to generic and specialised media, translated in 12 languages (at project start, with updates) •International press releases: at least 3 (project start, mid-term, and final)
e-newsletters (M06-36)	Inform on results, tools & data, events and communication campaigns / <u>All</u>	<ul style="list-style-type: none"> •e-newsletters: 6, 1 every 6 months •Pills for newsletters: at least 20 news •News on the website: at least 50 news
News in newspapers, exhibits/fairs (M00-36)	Communicate in an easily understandable way project outcomes and key topics (human behaviours, resilience, consumption patterns, sustainability, etc). Share the tools for preventing dis-information (<i>AppVsFakeNews</i>) / <u>Citizens</u>	<ul style="list-style-type: none"> •News in the national newspapers and magazines: at least 3 per country (project start, mid-term, and final) •Participation to at least 6 Exhibit/Fairs and 6 open-days, 200-1000 participants each

Dissemination and communication material (brochure, leaflets and flyers + factsheets) will be spread mainly via web and made free downloadable from the website; dissemination in printed version is considered too, totally printed copies will be reduced in order to reduce environmental impact - max 20.000.

All partners will directly contribute to communication and dissemination activities by providing contents, presenting project outputs, participating in relevant events, and sharing news through their channels and networks. Therefore the project can leverage on already existing channels with a huge number of followers. Indeed, it can be estimated that posts related to APOLLO-C19 will reach around 15.000 partners' followers on Facebook, 35.000 on

Twitter, 100.000 on LinkedIn and 5.000 on Instagram. Moreover, project partners and the stakeholder forum members will act also multipliers and as bridge to engage actors (in particular society).

3. Implementation

3.1 Work Plan – Work Packages and Deliverables

The Work Plan is structured in 9 interactive Work Packages (WPs), which will contribute in different way (Fig. 2 – Pert Diagram). WP2 and WP3 are dedicated to provide a comprehensive framework for the analysis of the incidence of COVID-19 in the EU (WP2) and then a comprehensive model providing insight on the socio-economy (WP3); all that both at the global, regional and local scales. The socio-economic viability analysis will then support WP4 and WP5, which are dedicated to impact studies based on both secondary and primary data for addressing:

WP4 - behaviours & lifestyle and on social and economic dynamics, and WP5 - agrifood systems and the environment. They will provide unique insights about behavioural, social and economic impacts of policy responses to the COVID-outbreak. As a third block, WP6 & 7 are designed to develop new solutions in support to human, animal and environmental health (WP6) and communication, information and public awareness (WP7). They will support future responses to challenging situations and innovative new policy tools. Impact studies (WP4 & WP5) and development of new solutions & tools (WP6 & WP7) will be accompanied by a participatory process running during the overall project lifespan, organising at a methodological level, coordinating and ensuring the effective implementation of all the activities related to stakeholders. Finally, WP9 will act for dissemination, communication and exploitation supporting the Consortium in developing communication tools, implementing the communication initiatives and ensuring an appropriate exploitation of projects' results. Furthermore, WP9 will have a pivotal role in demonstrating and quantifying the impact of APOLLO-C19, engage with and develop policy and recommendation papers for policymakers and key stakeholders and define a long-term strategy for sustainability. All the WPs are put into relation each other by the integrated approach to data, which will be used and generated – already interoperable – with a fully FAIR approach, with the final scope to realise an inter-active, e-platform supportive to behavioural, social, and economic impact, where all the newly generated data will be made open, and several applications will be made accessible. WP1 will ensure the project's governance and implementation, as well as the ethics and IPR management, ensuring the full open access of the results generated by the project (link with Task 3.1 for Data Management). WPs will be led by experts of the related domains, supported by complementary co-leaders for a comprehensive management of the tasks and a fluent circulation of information among involved partners, according to the timing reported in the Gantt Diagram. From July2020, some activities will be started (e.g. background studies, further stakeholder mapping, definition of procedure for stakeholder engagement, final selection of countries for specific studies, experimental set-up), in order to speed up the activities and start the Action with a stronger background and “pre-milestones” reached.

Figure 2 – APOLLO-C19 PERT DIAGRAM

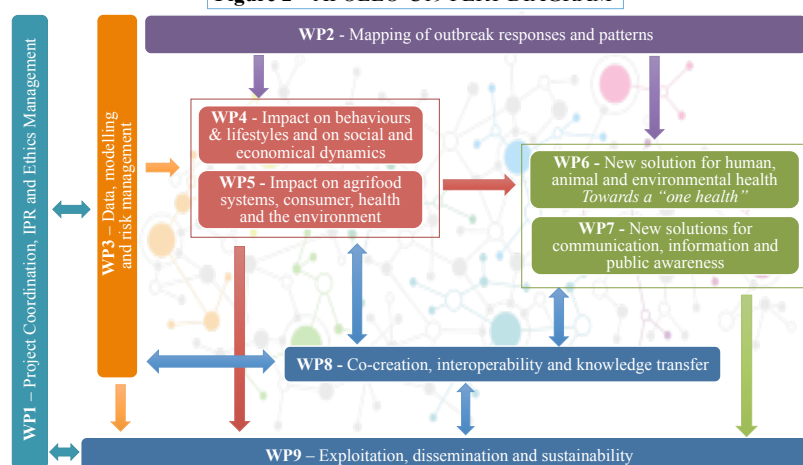
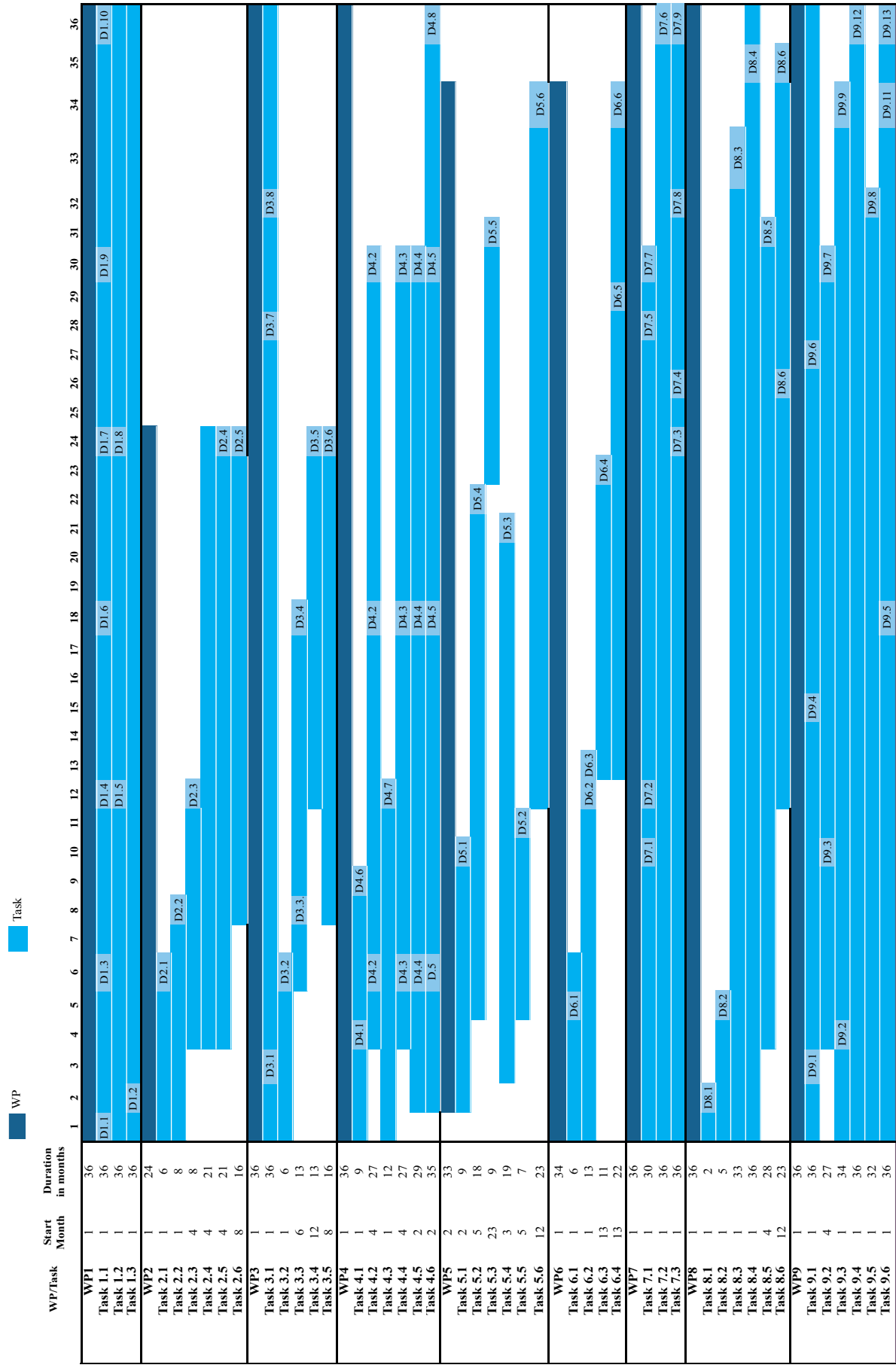


Table 3.1 a: List of work packages, with personnel efforts in Person Months (PM)

n°	Work Package	Lead Participant		PM	Start Month	End Month
	Title	n.	Short Name			
1	Project Coordination, IPR and Ethics Management	01	UniRM1	47,0	1	36
2	Mapping of outbreak responses and patterns	7	UB	86,5	1	24
3	Data, socio-economic modelling and risk management	10	AUEB	54,5	1	36
4	Impact on behaviours & lifestyles and on social and economical dynamics	8	HANKEN	100,0	1	36
5	Impact on agrifood systems, consumer, health and environment	6	AU	70,0	2	33
6	New solutions for human, animal and environmental health - towards a “one health”	11	IBA	70,0	1	34
7	New solutions for communication, information, and public awareness	01	UniRM1	72,5	1	36
8	Co-creation, interoperability and knowledge transfer	14	MEERI	72,0	1	36
9	Exploitation, dissemination and sustainability	16	ENEA	91,0	1	36
Total PM:				663,5		

APOLLO-C19 Gantt chart: timing of the Work Packages and their components (codes in cells refer to deliverables)



Tables 3.1b - description of each work package

WP n.		01				Lead beneficiary										UniRM1			
WP title		Project Coordination, IPR and Ethics Management																	
Participant	n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Short name	UniRM1	APCH	PMT	CSCP	WWU	AU	UB	HANKEN	ARGANS	AUEB	ENEA	GSSI	IJZSM	MEERI	INSA	IBA	OHR	TUBITAK
	Person Months	18	1	2	1.5	1.5	2	2	2	1	2	3	1.5	1.5	2	2	2	1	2
Start month		01							End month				36						

WP1 is aimed to safeguard optimal administrative, financial, contractual, technical consortium management, the coordination of all the project activities in order to ensure a smooth workflow, and risk, ethics and IPR management of the project as a whole. The specific objectives are:

- To provide timely and efficient administrative and financial management/controlling
- To ensure timely and qualitative achievement of project results
- To implement and maintain efficient structures for decision making management, ethics and IPR management

Description of work (Leader: UniRM1 - Co-leader: ENEA; Month 01 – Month 36. Contributors: All)

WP1 acts for implementing and maintaining an efficient management structure for the Action, in order to control the progress of each WP, ensure a smooth workflow and assess the overall progresses and results by applying a PDCA (*plan, do, check, act*) approach. Decision-making, financial, risk, ethics and IPR management will be performed, and a proper interaction between all project management bodies (see Sec.3.2) will be supported.

Task 1.1 Administrative, financial and contractual management - Leader: UniRM1; Contributors: All

UniRM1 (COO) will be responsible for the set-up of the organisational structure in order to safeguard an efficient project management (Sec.3.2) and for the organisation and follow-up of the Kick-off meeting (D1.1) and periodic telco meetings of the Management Committee (D1.3, D1.4, D1.7, D1.9 – every six months) to assess project progress and allow for decision-making, risk review, conflict resolution, contingency planning, and strategies refinement. Consortium Assembly meetings will be organised at M18 and 30 (intermediate and final - D1.6, D1.10). Additional management telco meetings may be organised whenever necessary. UniRM1 will be responsible for the preparation, collection and maintenance of contractual documents (EC GA; Consortium Agreement, CA) and ensure timely reporting about the advancements. The CA, according to [DESCA Horizon 2020 Model](#), will be jointly concluded before the Action start. Information/advice to Partners on contractual, administrative and financial issues, organisation of reporting activities, set-up and maintenance of financial records, coordination and control of cost claims and audit certificates (if needed), EC payment follow-up, distribution of partner shares, and payment monitoring will be ensured. A password-protected web-based project management area will be integrated in the project website (MS1), in order to establish direct communication lines with/among the Beneficiaries and their legal and financial departments and to have a repository for internal file sharing (all the needed legal, contractual and scientific documents).

Task 1.2 Technical management - Leader: UniRM1 – Contributors: All

This task refers to the technical coordination and quality control of the Action, including monitoring of WP status measured against deliverables and milestones, risk management, early identification and troubleshooting of technical and organisational problems, and contingency planning in order to ensure a timely and accurate work plan follow-up. Internal progress annual reports (D1.5, D1.8) and control of deliverable timeline and timeliness, and the quality and consistency with respect to technical and contractual requirements, will be coordinated.

Task 1.3 Ethics and IPR management - Leader: UniRM1 – Contributors: ENEA, All

UniRM1 and ENEA will ensure the compliance of the project with ethics principles, by collecting Ethics compliance declarations by each Beneficiary. The Ethic manager will prepare the Ethical guideline (D1.2) to highlight the relevant ethics issues to be monitored during the implementation (personal data, informed consent - Sec.5). An independent expert will be appointed as Ethics Advisor to assure the accomplishment of ethics requirements. The management of the project's results, according to the IPR, background and foreground set in the CA, will be made open, also to sustain dissemination and reach a broad audience. The project aims at developing open access solutions, knowledge and tools. All research data will be made available, at the latest within 30 days after it has been generated, through open access or – after agreement with the EC - by giving access rights to those third parties that need the research data to address the public health emergency (see Sec. 5).

Deliverables

D1.1, D1.3, D1.4, D1.6, D1.7, D1.9, D1.10 – Kick off (R – CO; M1), Project progress (R – CO; M6, M12, M24,

M30) and Consortium Assembly (R – CO; M18, M36) meeting minutes

D1.2 – Ethical guidelines (R – CO; M2)

D1.5, D1.8 – 1st, 2nd project periodic report (M12, 24)

WP n.		02				Lead beneficiary										UB			
WP title		Mapping of outbreak responses and patterns																	
Participant	n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Short name	UmRM1	APCH	PMT	CSCP	WWU	AU	UB	HANKEN	ARGANS	AUEB	ENEA	GSSI	IJZRSM	MEERI	INSA	IBA	OHR	TUBITAK
	Person Months	2	0	3	4	0	0	27	3	0	0	2	26	5	2	4	5	0	4
Start month		01							End month					24					

Objectives

WP2 aims at providing a comprehensive framework for the analysis of the incidence of Covid-19 in the EU, both at the global, regional and local scales. In doing so, it takes stock of existing knowledge about previous pandemics, their patterns of spatio-temporal diffusion, and measures adopted to prevent their spread between and within geographical areas. It also aims to provide evidence on the common factors that have affected the spread of the Covid-19 pandemic in the EU in order to identify clusters of countries/areas that are characterized by similar contagion, response and recovery dynamics. The specific objectives of the WP are:

- To provide a comprehensive picture of the heterogeneous incidence of the Covid-19 disease in the EU geography in a comparative setting.
- To recollect and organize the existing knowledge about the factors that facilitates the spatial-temporal diffusion of infectious diseases and the types of response measures adopted to halt spreading, including their socio-economic unintended effects.
- To assess the influence of demographic, environmental and socioeconomic factors on the spread of Covid-19.
- To analyse the effectiveness of different strategies to fight the spread of the virus (severe vs. mild lockdown, imposed vs recommended social distancing etc.), and how their effect may vary depending on socioeconomic and institutional characteristics.

Description of work (Leader: UB; Month 1 – Month 24. Contributors: UniRM1, PMT, CSCP, UB, HANKEN, ENEA, GSSI, IJZRSM, MEERI, INSA, IBA, TUBITAK)

“Lessons” from current outbreak can be helpful to inform about the actions to be taken in the short-run (possible recrudescences of the current Covid-19) and in the medium- and long-run (other pandemics and unexpected global events). Key points to be considered are:

- Factors affecting the import of the disease from its source area (e.g. international connections, inter-regional connections; trade, social events, education).
- Factors influencing the spread of Covid-19 within the communities reached by the disease (e.g. climate, pollution, demographic and socio-economic factors, daily-based transportation, health facilities, media communication, institutional settings, culture, socio/family ties).
- Different geographical scales involved in the diffusion of Covid-19 and in its effects: countries, regions, small spatial units.
- Interaction between measures (lockdown or similar) and socioeconomic conditions, including unintended and side effects (e.g. effects varying across population groups with different socioeconomic characteristics that tend to cluster geographically; disease spread varying across groups/locations and effect of measures as well).
- Focus on country-region comparisons across EU, based on the spread of the SARS-CoV-2, response measures adopted and time-to-recovery analysis, considering sub-regional levels due to heterogeneous local incidence.

Task 2.1 Taking stock of measures adopted and their short and long-run socioeconomic impacts - Leader: UB; Month 1 – 6. Contributors: UniRM1, CSCP, HANKEN, ENEA, GSSI, MEERI, INSA, IBA, TUBITAK

We will compile information on existing knowledge about previous pandemics, their patterns of spatio-temporal diffusion, measures adopted to prevent their spread between and within geographical areas, and the socioeconomic impact of such interventions. Research data and information on Covid-19 pandemic has been rapidly made available through the use of new technologies and WP2 also aims to gather information on the factors that have affected the spread of the Covid-19 pandemic in the EU. A comprehensive bibliographic search will be performed using the most common science databases (Medline, Web of Science) in order to compile information on previous pandemics and on Covid-19. Recent initiatives taking stock of ongoing research projects such as the World

Pandemic Research Network (wprn.org) or the list of projects compiled by the European Economic Association (<https://www.eeassoc.org/index.php?site=JEEA&page=298&trs=299>) will also be checked.

Task 2.2 Collection and harmonization of EU-wide data on the spread of Covid-19 and measures adopted - Leader: GSSI Month 1 – Month 8. Contributors: UniRM1, CSCP, UB, HANKEN, ENEA, MEERI, INSA

Data on contagion and mortality during the emergency phase will be collected based on different sources (official national sources and unofficial ones such as the of the JHU-CSSE). Information on the measures adopted to contain the spread of Covid-19 in the different EU countries will be also collected in order to map both types and duration of measures in each geographical area. The lack of regional detail of available Covid-19 policy trackers is an important limitation that this project would address through legislation and documentation analysis to obtain raw data at the finest geographical scale (NUTS1-NUTS-3). Raw data will be harmonized to allow a consistent cross-regional comparison of the virus spread and mortality rate, along with the socio-economic impacts of the different measures adopted during the lockdown.

Task 2.3 Descriptive analysis of the spatial-temporal diffusion patterns of Covid-19 in the EU

Leader: UB; Month 4 – Month 12. Contributors: ENEA, GSSI, IBA

We will provide a detailed description of the patterns of Covid-19 spread in the EU based on suitable and harmonized indicators at the country, region, and local scale, developed in Task 2.2. The analysis will consider, among others, the rural-urban divide, the strength of the health systems (centralized vs. diffused, role of hospitals, role of proximity of physicians), social and cultural differences (e.g. degree of trust; catholic vs protestant tradition; indicators of social and familiar ties), digital divide (availability of Internet, mobile network coverage), role of previous social events at a large-scale during pre-emergency periods (concerts, soccer matches, political elections etc.), and the presence of transport network infrastructures (airports, ports, train stations etc.).

Task 2.4 Analysis of factors that accelerate the imported transmission of Covid-19.

Leader: GSSI; Month 4 – Month 24. Contributors: UB, ENEA, IBA

Why did the virus get some places rather quickly and not others? Based on the descriptive analysis of Task 2.3, Task 2.4 will help to identify those places in the EU that are more prone to act as initial sources of spread in case of future outbreaks outside Europe. The task will identify specific places (clusters) in Europe that acted as hubs in spreading the virus to other parts of the EU, and that may constitute at-risk areas in future pandemic events.

Task 2.5 Assessment of the contribution of factors that facilitate the internal spread of Covid-19. - Leader: UB; Month 4 – Month 24. Contributors: ENEA, GSSI, IJZRS, IBA

This analysis will be at the subnational scale, considering regions (NUTS-2 or 3) and municipalities/cities. It will focus on the role of the effective spatial concentration of population, meteorological conditions and pollution, the presence of vulnerable population groups both from a health (e.g. the elderly) and socio-economic perspective (e.g. those experiencing socio-economic deprivations). The analysis focusing on cities will allow us to assess the effect of urban transportation (metro and bus), and the location of specific health facilities (e.g. large hospitals) on the large spread of the Covid-19 in specific districts.

Task 2.6 Effectiveness of the lockdown and identification of resilience factors in the post-lockdown phase. - Leader: GSSI Month 8 – Month 24. Contributors: UB, ENEA, IJZRS, IBA

The analysis will be based on the following three aspects: i) the approaches taken in the different countries have been different and research is urged to ascertain which have been more effective in preventing diseases and minimizing the socio-economic not-intended effects; ii) the effectiveness of the lockdown and the non-intended consequences of epidemic-control decisions have been also varied across places because of structural resilience (e.g. presence of green areas and other amenities, health facilities, type of house) and socioeconomic factors (e.g. proportion of elderly individuals, high-low unemployment, gender gap, family ties) that better allowed to absorb the health, well-being and economic shocks; iii) the effectiveness of the lockdown can vary depending on the governance setting and its multilevel cooperation. In the EU, there is a large heterogeneity on the level at which the response measures have been adopted (central government vis-à-vis local administrative levels) since institutional fragmentation and coordination failures might indeed have affected the timing and effectiveness of the interventions (e.g. misalignment of competences on internal affairs, health and economic measures). This task benefits from data and evidence collected in previous Tasks (T2.2-T2.5) to carry out robust econometric analysis based on state-of-the-art policy evaluation methods.

Deliverables

D2.1 – State-of-the-art on the effect of socioeconomic factors on spread of pandemics and effectiveness of containment measures and their non-intended effects on populations (R-PU; M6)

D2.2 – Comprehensive dataset on COVID-19 spatial-temporal diffusion, types and duration of response measures adopted. Report about the methodology employed in data collection and harmonization (R/OTHER-PU; M8)

D2.3 – Collection of “lessons” taken from the spatial-temporal patterns of the spread of Covid-19 in the EU geography (R-PU; M12)

D2.4 – Report on the influence of demographic and socioeconomic factors on imported and internal spread of Covid-19 (R-PU; M24)

D2.5 – Effectiveness of the lockdown measures and resilience factors (R-PU; M24)

WP n.		03			Lead beneficiary										AUEB				
WP title		Data, socio-economic modelling and risk management																	
Participant	n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Short name	UniRM1	APCH	PMT	CSCP	WWU	AU	UB	HANKEN	ARGANS	AUEB	ENEA	GSSI	IJZRSM	MEERI	INSA	IBA	OHR	TUBITAK
	Person Months	2	0	12	0	0	0	6	0	3	19	5	3	0	0	0	0	0	5
	Start month	01							End month					36					

Objectives

WP3 aims at providing a comprehensive model providing insight on the socio-economic m of the COVID-19 in the EU, both at the global, regional and local scales. In an attempt to understand the turmoil effect on the economy, we will derive the socio-economic analysis of these shocks, as studied in former pandemics. This model will produce the net present value of the net socio-economic benefits of different intervention/measures to be adopted given the early warning systems. The specific objectives of the WP are:

- Develop an electronic research infrastructure (e-RI) for data, tools, and documents that will be used and generated in this project to guarantee long-term preservation.
- Develop a socio-economic model for analysing pandemic crisis considering risk factors
- Improve current methodologies of assessing the socio-economic effects of a pandemic
- Gain a better understanding of the demographic, environmental and socioeconomic factors on the spread of COVID-19.

Description of work (Leader: AUEB; Month 1 – Month 24. Contributors: PMT, TUBITAK

Analysis and comparison of outbreak responses, impacts, and dynamics are only possible using a big amount of collected data. This data will be harmonised, managed, and made FAIR (Findable, Accessible, Interoperable, and Re-usable) using a mini e-RI to foster and boost analysis, comparison, and investigation.

Health related interventions (e.g. lock downs) seek the spread out of the pandemic over time leading to economic and social shocks. In an attempt to understand the turmoil effect on the economy, we will derive the socio-economic analysis of these shocks, as studied in former pandemics). The monetization of the socio-economic effects of the pandemic needs to be addressed. The academic literature on the value of a statistical life using non-market valuation methods (Choice experiment, Contingent valuation) is enormous. Systems innovation approach will be used in order to identify the priority stakeholders and engage them in a process of identifying the costs and benefits of different measure packages and hence the costs and benefits of the early warning system. Then, we will use market and non-market valuation methods (Choice Experiments and/or Lab Experiments) to estimate and monetize these effects. The outcomes of the socio-economic measures valuation will then be used at the socio-economic viability analysis, which should be further exploited at WP4 and WP5. The modelling methodology will include spatio-temporal econometric models combining quantitative and qualitative (categorical) variables as an attempt to connecting epidemiological data to various economic (i.e. of pecuniary value) implications as well as to social (of non-pecuniary value) implications. On account of the extreme nature (in the statistical sense) of the phenomenon, robust estimation and model selections techniques will be used, emphasis will be placed on model uncertainty issues and relevant risk quantifications techniques will be employed.

Task 3.1 Data, tools, and documents management (mini e-RI) - Leader: PMT Month 01 – Month 36 Contributors: AUEB, ENEA

Open data and making data FAIR (Findable, Accessible, Interoperable, and Re-usable) are two concepts to enable researchers to access and use available data and foster research and innovation in Europe and beyond. This task will concentrate and implement these concepts and revise the data management plan, which was submitted with the proposal, twice during the project. While at the beginning the focus is more on getting all datasets together and define how the FAIR principle will be implemented, the later update will focus more on how to guarantee long-term preservation of data, tools, and documents. In a second step, the task will define data formats, APIs, and thesauri that should be used during the data collection to make data interoperable. Existing standards will be

preferred, where possible. Based on this document, a mini e-RI will be implemented to store all used and generated data. The mini e-RI will catalogue all datasets and provide search functionality and manage user access to the data. The e-RI will also integrate different tools that will be produced in this project and make them usable for researchers and the public and documents should be disseminated over the e-RI as well. Existing e-RIs will be evaluated if data, tools, and documents can be integrated to guarantee the sustainability of project outputs. ESFRI RIs like METROFOOD-RI but also other repositories like Zenodo or EUDAT are possible candidates.

Task 3.2 Stakeholder mapping and identification through Systems Innovation Approach - Leader: PMT Month 1 – Month 6. Contributors: UniRM1, UB, AUEB, ENEA, TUBITAK

When it comes to the systems innovation, envisioning the desired future and learning from that becomes necessary. Visioning and back-casting are two pillars of the approach and should be done under a participatory approach. Since stakeholders have radically different worldviews and different frames for understanding the problem, you should incorporate their perspectives, even if they are wildly different to your own. Because of the different stakeholders' perspectives, they all have their own priorities and agendas. Involving them in the back-casting process will allow you to draw more than one plan from the same process. In complex and wicked problems, as sustainability is, the problem definition might come to focus after adopting a future vision. In such cases, the vision is the seed for the challenge and not a consequence of it. Visioning should be a participatory tool in which a large diversity of stakeholders ensures a richer and broader vision. Task outcomes will be further exploited by WP8 & 9.

Task 3.3 Non-market valuation of the statistical life - Leader: AUEB; Month 6 – 18. Contributors: PMT

The academic literature on the value of a statistical life is enormous, as is the number of government policies and regulations that attempt to mitigate threats to life and health. The value of a statistical life (VSL) is the marginal rate of substitution between income (or wealth) and mortality risk. The VSL indicates how much individuals are willing to pay (WTP) to reduce the risk of death. Applied properly, the VSL can be used in benefit-cost analysis to evaluate the efficiency of government policies designed to reduce risk. The VSL can be estimated via revealed preference data by observing individuals' choices that influence both income and risk levels or stated preference data. We will use market and non-market valuation methods (Choice Experiments and/or Lab Experiments) to estimate and monetize these effects so that they are taken into account before the package of measures is identified.

Task 3.4 Development of an optimisation socio-economic model - Leader: AUEB; Month 12 – Month 24. Contributors: PMT

Two models will be combined into a joint model which connects the current situation and the hotspot structure provided with possible socio-economic effects mapping potential infection hotspots to potential socio-economic hotspots. The joint model can be used for decision-making purposes, properly combined with optimization goals designed under the prism of social choice theory. On account of the stochastic nature of the model and the inherent uncertainties, robust control as well as scenario planning techniques will be employed in the development of the optimal decision. In particular, a spatio-temporal time series model for the regression of infection rates with their socio-economic outcomes (e.g. cost incurred in the health system, loss of income on account of restrained economic activity, insurance costs etc.) will be combined with a spatio-temporal time series model for the prediction of future incidents, based on COVID19 waste water measurements. The model will take into account a combination of epidemiological models (for the temporal evolution of the incidents) provided by the health experts, spatial characteristics e.g. neighborhood structure of the city in question, and socio-economic characteristics of the neighborhoods in question e.g. qualitative data such as green spaces, educational level, cultural characteristics, as well as quantitative data such as mean income of inhabitants, demographics, access to health care facilities etc. The combined model will be estimated from the available data in order to provide a spatio-temporal predictive tool that connects measurements of COVID 19 in wastewater with future spatio-temporal infection patterns. Detailed study of the error patterns of the model will be undertaken.

Task 3.5 Policy Recommendations - Leader: GSSI Month 8 – Month 24. Contributors: ENEA

Policy recommendations will be based on economic tools such as Cost-Benefit Analysis (CBA) and/or Cost-Effectiveness Analysis (CEA). Regarding CBA, it is a technique that assesses the monetary social costs and benefits of an investment project over a time period. Furthermore, with regard to CBA application it is important to emphasize that the involved benefits and costs expressed in monetary terms should be adjusted for the time value of money so that all flows over time are expressed in terms of their present value. Thus, the importance of discount rate in assessing the desirability of suggested investments on a 'sustainable development' basis is evident. Within the project the use of Declining Discount Rate (DDR) in long-run cost-benefit analysis will replace traditionally employed constant discount rates. Such a DDR increases the weight attached to the welfare of future generations. The policy implications, that we find aligned with the project's nature and EU's policy aspirations, are that it implies that the policy maker will put relatively more effort to improve social welfare in the far distant future than in the shorter time. On the other hand, CEA is another type of economic evaluation that compares the cost of the investment to its effectiveness. Hence, it enables comparison between different kinds of interventions with similar

effects on the basis of the cost per unit achieved. However, it is important to note that the use of tools such as CBA or CEA should be broad in scope in the sense that also social effects due to externalities of the alternatives should be included. Such externalities valued by non-market methods will make possible their inclusion in a CBA or CEA framework in which traditionally market and financial benefits and costs were only considered. Overall, it is regarded that the suggested methodology adopts a holistic approach that encompasses tools of analysis not only from the mainstream economic field but also from the field of environmental economics.

Deliverables

D3.1 – Website and catalogue app for the e-RI (ORDP-PU; M3)

D3.2 – Data Management Plan revision 1 (R-PU; M6)

D3.3 – Machine learning stakeholder mapping and engagement strategy (R-PU; M8)

D3.4 – Report on System Innovation Approach (R-CO; M18);

D3.5 – COVID-19 dB and documentation (R/OTHER-PU; M24);

D3.6 – Report on policy recommendations related to the lockdown measures and resilience factors (R-PU; M24)

D3.7 – Data Management Plan revision 2 (ORDP-PU; M28)

D3.8 – Implementation of e-RI (ORDP-PU; M32)

WP n.		04			Lead beneficiary										HANKEN				
WP title		Impact on behaviours & lifestyle and on social and economical dynamics																	
Participant	n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Short name	UniRM1	APCH	PMT	CSCP	WWU	AU	UB	HANKEN	ARGANS	AUEB	ENEA	GSSI	IJZRSM	MEERI	INSA	IBA	OHR	TUBITAK
	Person Months	10	7	2	9	13	2	2	20	0	0	3	7.5	6	2	8	3	0	6
Start month		01							End month				36						

Objectives

The specific objectives of WP4 are:

- To understand how outbreak responses affect behaviours, lifestyles and well-being of citizens
- To identify indicators and indexes for social impact assessment in a pandemic condition
- To analyse social and health vulnerability as a precondition and result of the pandemic situation compared to the “normal” vulnerability
- To identify key work-life related factors contributing to workers’ resilience and well-being
- To provide a comprehensive and comparative analysis of multifaceted micro and macro-economic impacts
- To evaluate the results regarding drivers of change and success factors and to formulate “lessons learnt” as a public early result of the project and as a basis for the other WPs, specifically WP6 (one health approach), WP7 (communication and public awareness), and WP8 (co-creation of innovative tools)

Description of work (Leader: HANKEN; Month 01 – Month 36. Contributors: UniRM1, APCH, PMT, CSCP, WWU, AU, UB, HANKEN, ENEA, GSSI, IJZRSM, MEERI, INSA, IBA, TUBITAK)

Multi-source data on outbreak responses prior-, during-, and after the COVID-19 pandemic across Europe and its impacts on human behaviour, work and lifestyle and social-economic dynamics by different regions and countries will be collect, analyse and compare. Special attention will be paid to population risk groups and vulnerable groups, to the immediate and long-term impact on well-being and life quality, to media and technology consumption, to work/school-life balance and resilience, to household spending, to labour, firm and economic dynamics, and how individuals adopt and accept the responses that have been taken at different governance levels. Data and results will be published according to the OpenData and OpenSciences policies (see WP3), thus allowing for any secondary analyses and continuous additions of data.

Task 4.1 Classification of case countries and methodological plan. Leader = WWU/HANKEN; Month 01-09. Contributors: UniRM1, CSCP, INSA, GSSI, UB, TUBITAK, PMT, IJZRSM

In order to utilise the project resources best for analysis and early and continuing results, EU and international key countries will be classified according to the following criteria: a) level of restriction imposed by the political institutions (1 high; 2 medium; 3 low); b) timing of the public application of the precautionary measures (1 fast; 2 slow). Preliminary results from WP2 country clusters related to the levels of lock-down, support systems and communication activities during COVID-19, differing national and socio-economic factors, will also be included. As a result, 4-6 case countries will be defined for an in-depth analysis with specified qualitative methods. Other methods, e.g. quantitative survey will be applied at a maximum international range. A multi-step mixed methods

approach will be applied, including (1) Analysis of data from national statistical offices and public health agencies will be collected (with WP2), (2) Secondary analyses of data from several international surveys¹ collected before and during lockdowns, on work and life behaviours, income and living conditions, wellbeing and satisfaction, (3) Building hypotheses and adapting methods from step 1 and 2, (4) Social media comparative content analysis (Twitter), (5) Qualitative research of digital “mobile ethnography” in 5 countries. A digital app will be developed and used to collect people’s text pieces, photos, videos, etc. to better understand lifestyle and work behaviours, levels of well-being and concerns, (6) A follow-up survey for approving hypothesis and insight from all steps 1-5 will address all levels and types of stakeholders and be applied through the partners’ networks (n>10000). The general approach for all methods will be (A) “differential”, i.e. addressing before - during - after pandemic phases like lock-down, confinement, infection, own job/business shut down or other features of the pandemic, and (B) “sequential”, i.e. one method will yield hypotheses to be tested using the next. When appropriate, generalization to/comparison with other crises and “lessons learnt” will be sought. The methodological plan will serve as a starting point for tasks 4.2 to 4.5 and will include a point of time for revision / update of the case country selection.

Task 4.2 Impacts of outbreak response on behaviours, lifestyles and wellbeing of citizens - Leader: CSCP; Month 04 – Month 30. Contributors: APCH, PMT, WWU, AU, HANKEN, IJZRSM, INSA, TUBITAK

Task 4.2 will triangulate different methods to analyse the impacts that different policy responses to COVID-19 had on lifestyles and behaviours of European citizens during the time of the immediate crisis and 2) during the time of the aftermath of the peak crisis (slow opening up, continues social distancing requests, economic downturn). It will reveal in how far the citizen’s lifestyles and wellbeing have changed with regards to daily mobility and holidays, sports, food consumption, social and cultural activities, digital communication and media consumption, etc.

Task 4.3 Social impact assessment in the pandemic condition. Leader: UniRM1; Month 01 – Month 12 Contributors: UB, CSCP, AU, TUBITAK, INSA, MEERI

Task 4.3 will explore evidences on the response at global and local level in relation to health and social emergencies that the different disciplines have collected and analysed during the pandemic and in the post emergency phase. Secondary data from scientific documents and publications, of public, private and no profit organizations, statistical analysis and open data bases, will be analysed, selected, and statistically elaborated for the definitions of indicators and indexes for the measurement of the social impact assessment in a pandemic condition considering the political, scientific, and social response.

Task 4.4 Impact and resilience of the socially vulnerable groups (by age, gender, race). Leader: UniRM1 Month 4 – Month 30. Contributors: WWU, AU, HANKEN, IJZRSM, TUBITAK

The specificity of the vulnerable social groups in the response to the outbreak may represent a very strategic indicator of the gaps and the breakdowns of the emergency management in different countries. Identification of vulnerable social groups are expected to vary across country and will be identified by an analysis of the database of Task 4.1, followed by an intersectional analysis of the vulnerable groups’ responses to the pandemic. The expected results will be (1) the identification of the socio-demographic variables that mostly affect the individual and collective response in emergency; (2) the impact of the political and social measurement in favour of vulnerable groups during the pandemic and (3) a comparative analysis between resilience levels of vulnerable and non-vulnerable groups in the emergency phase.

Task 4.5 Key factors for work-life resilience and micro-economy wellbeing. Leader: HANKEN; M02–30. Contributors: APCH, PMT, CSCP, WWU, UB, HANKEN, MEERI, INSA, IBA, TUBITAK

Impacts that the different policy responses to the COVID-19 crisis had on work-life behaviours and employees’ wellbeing during and after it will be identified. The expected results are the identification of 1) key factors improving resilience and well-being employees in the continuous disruption of work-life, 2) leadership and team work dynamics for improved virtual work success 3) sources of inequality at work in relation to critical social categorizations (gender, age, race, ethnicity and socio-economic status) and ways to mitigate them, 4) sources for more sustained ways to blend work and life for better satisfaction and life quality, and 5) “best next practices” in relation to work-life during and beyond COVID-19. Different methods will be triangulated to analyse the impacts of different policy responses on work-life and microeconomic behaviours. Exemplary groups affected by culminating factors will be studied, e.g. healthcare workers, even looking for more unexpected inequality sources.

Task 4.6 Economic impacts on meso- and macro- levels, within and across regions. Leader: GSSI/UB; Month 02 – Month 36. Contributors: CSCP, HANKEN, ENEA, IJZRSM, MEERI

This task aims at quantitatively assessing the multifaceted economic disruptions within and across EU regions and cities in relation to COVID-19. Specifically, the analysis will focus on the following sub-tasks:

1 - Effects of Home Confinement on Multiple Lifestyle Behaviours During the COVID-19 Outbreak (ECLB-COVID19), European Working Conditions Survey (ECWS), Eurofound survey on “living, working and COVID-19”, SILC, and GSOEP.

(1) *Economic activity and contagion.* The COVID-19 effects on economic activity of EU regions, accounting for the trade links between them. This study depicts the spread of COVID-19 economic effects.

(2) *Workers and labour markets.* Analyses of the impacts of pandemics by considering workers' mobility (including irregular migration) during and after COVID-19, on workers' productivity, schooling and educational achievements across and within regions. Finally, the COVID-19 risk by job occupation in the context of the urban/rural local labour markets in a comparative setting will be assessed.

(3) *Firms, industries and value chains.* Medium-long term impacts of COVID-19 on the organization of global value chains, restoring of activities and adoption of automation technologies. An analysis will be performed on how the pandemic reshapes firms' input-output relations and the reorganisation of activities, geographically and technologically, to lower the vulnerability of production to future shocks.

(4) *Tourism and cultural heritage.* Focus on the impacts of COVID-19 on the tourism economy of EU regions and cities, by indicators of different destination typologies (e.g. cultural, outdoor, etc.), and "tourist experiences".

(5) *Entrepreneurship, innovation and ownership.* Impacts of COVID-19 on the heterogeneous capacity of regions to generate innovation. Analysis of disease-induced loss in local firm market.

Deliverables

D4.1 - Country clusters and methodological plan (R-PU; M4)

D4.2 - Lessons learnt from behaviour, lifestyles, and well-being of citizens (R-PU; M6, M18, M30)

D4.3 - Lessons learnt from the resilience of the vulnerabilities (R-PU; M6, M18, M30)

D4.4 - Lessons learnt from key factors of resilience and well-being in work-life (M6, M18, M30)

D4.5 - Lessons learnt from economic impacts (R-PU; M6, M18, M30)

D4.6 - Digital app to be used in 4.2 and 4.5 (OTHER-PU; M9)

D4.7 - Lessons learnt from social impact assessment of pandemic from the secondary data collected (R-PU; M12)

D4.8 - Final Report on impact of pandemics on behaviours, lifestyle, social and economic dynamics (R-PU; M36)

WP n.		05				Lead beneficiary									AU				
WP title		Impact on agrifood systems, consumer, health and environment																	
Participant	n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Short name	UniRM1	APCH	PMT	CSCP	WWU	AU	UB	HANKEN	ARGANS	AUEB	ENEA	GSSI	IJZRSM	MEERI	INSA	IBA	OHR	TUBITAK
	Person Months	0	0	0	0	0	18	0	0	10	0	7	0	9	5	7	4	0	10
Start month		02							End month					34					

Objectives

The main aim of WP5 is thus to investigate the impacts of COVID-19 disruption on agrifood systems, particularly taking into account food marketing systems, consumers, consumers' health and the environment, in order to improve the resilience along the food supply chain accounting not only for the food supply security, but also socio-economic and environmental issues. WP5 takes a triangular approach and investigates ways of measuring the COVID-19 disruption along the food supply chain and its consequences taking into account the engagement of government, different food supply actors, consumers and its subsequent influence on the environment. The specific objectives are to:

- Determine main drivers of consumer food choices and healthy eating patterns, as well as identify consumer groups at risk to better understand persistent behavioural patterns and provide initial data for more efficient marketing communication, dietary recommendations or nudging towards healthier behaviours.
- Identify key success factors from market and government actors concerning COVID-19 disruption by using different business cases from the food supply chain to allow for resilience in further supply disruptions.
- Quantify the impacts of COVID-19 disruption on the environment, in particular on air quality and water, as well as in relation to waste management, in different socio-economic settings to deliver suitable strategies for minimizing unhealthy food choices, food waste and maximizing a cleaner air.

Description of work (Leader: AU – Co-Leader: INSA; Month 02 – Month34. Contributors: AU, ARGANS, ENEA, IJZRSM, MEERI, INSA, IBA, TUBITAK)

WP5 is focused on impact of COVID-19 on agrifood systems, which, after the Health System, in these crisis conditions, represent one the most important systems that should continue to function ensuring food security and which should be very well organized ensuring quality and safety. Effects on food producing/processing, food integrity and food wastes will also be considered. Furthermore, the critical role that water services can play during

pandemic, helping to either prevent or amplify disease transmission, and the consequent impact that they could have on agrifood systems will be taken into account. WP5 will provide main drivers of change and possible methods to increase success in the food marketing systems if another disruption occurs. To ensure the sustainability of WP5, the involvement of market and government actors, as well as consumers will be assured to better provide in-depth insight into linkages and interactions between agrifood chain stakeholders, the consumer and the environment. WP5 will further provide input for WP6 related to “one health approach” and WP7 related to public awareness.

Task 5.1 Main drivers of food consumer choice and healthy eating. Leader: AU Month 2 – Month 10.

Contributors: ARGANS, ENEA, IJZRSM, IBA, TUBITAK

An online longitudinal consumer study will be conducted within and across the EU countries based on the selected countries in Task 4.1, and on the level of COVID-19 impact, to identify persistency of main drivers of consumer food choices, healthy eating patterns, and consumer groups at risk. Four to six contrasting case countries will be thus selected contingent on their lock-down level, support systems and communication activities taking into account different national and socio-economic factors. Task 5.1 will initiate the longitudinal study through a baseline study (D5.1) and will provide input for Task 5.2 and initial data for Task 5.4. Task 5.3 will complete the longitudinal data collection with the endline study (D5.3). Task 5.1 and initial-baseline online consumer survey will be carried out with up to n=400 per selected country. This study will measure present food purchasing behaviour, attitudes relevant for food choice, trust in the food supply, health concerns and food waste during the COVID-19 disruption. It will also identify different consumer groups at risk with more healthy vs unhealthy food choices regarding their diet, as well as different coping strategies reflected in purchase and eating patterns affecting consumer wellbeing. Based on this data, for each country, the size and main socio-demographic and psychographic characteristics of the main target groups will be determined, thus defining consumer groups at more vs less risk. Baseline measures of food consumption behaviour and attitudes, as well as trust in the food supply, and health concerns/benefits will be established and the potential for changes derived to be compared with the endline study (Task 5.3). Major drivers of consumer food choices and healthy eating patterns will be identified and fed into Task 5.3 and 6.3. Task 5.1 will also identify most affected fresh and conserved food categories that will be then used in Task 5.2 and 5.4. The baseline study instrument will be developed with cooperation with WP4, WP6 and WP7.

Task 5.2 Key success factors in food supply chain resilience. Leader: TUBITAK Month 05 – Month 22

Contributors: AU, ARGANS, ENEA, MEERI

5.2.1 Agrifood systems examination - will examine agrifood systems and identify successful and problematic cases along the food producing/processing and supply chain, as well as food waste, occurring during the COVID-19 disruption in the same four to six contrasting case countries used in Task 5.1 Success will be assessed according to food security/stability of market supply as well as to economic standards. The task has two main objectives: First, to investigate the most important and most affected food categories from Task 5.1 in order to understand how demand explosion effected national and cross-national (local food wholesale, logistics, warehouse, packaging, harvesting, planting, farmer behaviors) food chain and how each actor responded. Besides the secondary data (i.e. reports, statistics, websites) on-line meetings and if necessary face-to-face interviews will be executed. Second, to examine the most visible cases including lessons learnt most. Four to six cases will be selected representing different European regions, national as well as cross-national supply chains, including fresh as well as conserved food categories. Short-supply chains will be considered too. For each case, a systematic review of news media and other available secondary data, e.g., supply and turnover statistics will be conducted. In addition, meetings with main retailers (max. 3 per each country) will be held in order to validate secondary data and to get a deeper understanding of “how” and “why”. After the cases have been selected, 7-8 semi-structured interviews will be conducted for each selected case with key market (cooperatives, retailers, wholesalers etc.) and government decision makers, and success factors and barriers for supply chain resilience will be identified. Based on a cross-case analysis and with participation of all project partners key success factors for resilience to supply disruptions will be identified and described in detail. Participating interviewees (i.e. key market and government decision makers) will be asked to comment and a final list of key-success factors will be established (D5.4).

5.2.2 Agrifood systems examination – The use of the LCT approach will be analysed to help to assess the impact of COVID-19 disruption on the environment and agrifood systems. It will be used at company level with the aim to identify and analyse suitable technical and organisational strategies to support companies to obtain environmental and economic benefits and to improve their life cycle environmental performance. This will be useful to evaluate the environmental hotspots in the entire supply chain and to identify improvement options in a circular economy perspective (D5.2).

Task 5.3 Endline study on consumer food choice and healthy eating. Leader: AU Month 23 – Month 31

Contributors: ARGANS, ENEA, IJZRSM, IBA, TUBITAK

An endline consumer survey will be carried out (D5.5) as the follow up in the same selected countries as the

baseline study developed within Task 5.1. Pre-established measures of food consumption behaviour and attitudes, trust in the food supply, health concerns, and food waste will be repeated from the baseline study. In each country, an online survey will be carried out with up to n=400 per country, with participants from the same defined baseline segments (i.e. consumer groups at more vs less health risk) as in Task 5.1. Based on the data, for each country results will be compared to the baseline study. By connecting potential changes in food consumption behaviour and attitudes, trust in the food supply, and health concerns, the impact of COVID-19 disruption will be estimated using Structural Equation Modelling. This result will allow a quantification of the extent COVID-19 affected consumers' food choices and healthy behaviour, and will also allow for a quantification of the changes in consumer health concerns. It will also enable to evaluate how the size and profile of the consumer groups at risk, initially found in Task 5.1, has changed. It will further give insights for Task 5.4. AU will be responsible for the study design, development of questionnaire and data analysis with cooperation with partners from WP4, WP6 and WP7.

Task 5.4 Assessment of the impacts of COVID-19 on agrifood systems related to water and wastewater management. Leader: ENEA Month 3 – Month 21. Contributors: AU, ARGANS, TUBITAK

In order to minimizing health and hygiene risks, a deeper knowledge on COVID-19 viability in reused water and sewage sludge is necessary, together with the use of effective prevention and protection measures (i.e. irrigation techniques such as drip irrigation or sub-irrigation, the reuse of wastewaters for inedible crops, biomasses and seed, the reduction of the burial time after sludge spreading, the use of deep injection techniques). According to the current status of knowledge of COVID-19 presence in wastewater and sludge, an assessment related to treated wastewater reuse practices as well as to the agronomic reuse of excess sludge will be carried out. Furthermore, the incidence of sanitation measures during lockdown on water consumptions along the whole agrifood production chain, and on wastewater management in the agrifood production chain, in relation to the use of disinfectants and surfactants, will be evaluated. This is considering that the severity of the COVID-19 pandemic has forced almost all world countries to observe extraordinary measures to combat exponential spread of the virus and that the demand for sanitation has a significant impact on agrifood system water consumption as well as on the wastewater management in the agrifood production chain. A case study will be performed for relevant agrifood Italian industries, which will be involved as stakeholders (D5.3).

Task 5.5 Application of Life Cycle Thinking (LCT) approach in the agrifood supply chain Leader: ENEA Month 5 – Month 11. Contributors: AU, ARGANS, TUBITAK

The use of the LCT approach will be analysed to help to assess the impact of COVID-19 disruption on the environment and agrifood systems. It will be used at company level with the aim to identify and analyse suitable technical and organisational strategies to support companies to obtain environmental and economic benefits and to improve their life cycle environmental performance. This will be useful to evaluate the environmental hotspots in the entire supply chain and to identify improvement options in a circular economy perspective (D5.2).

Task 5.6 Estimation and quantification of environmental and health benefits Leader: ARGANS. M12-34. Contributors: AU, ENEA

In Task 5.4 the impact of COVID-19 disruption on the environment and citizens health will be evaluated in different socio-economic contexts, which followed different restrictive rules (D5.6). In cities, particulate matter with an aerodynamic diameter lower than 2.5 μm and 10 μm ($\text{PM}_{2.5}$ and PM_{10}), nitrogen dioxide (NO_2) and tropospheric ozone (O_3) are among the most threatening air pollutants in terms of harmful effects on human health associated with respiratory and cardiovascular diseases and mortality. The ground-level O_3 is considered one of the most harmful air pollutants in terms of effects on human health, vegetation and materials. The environmental impacts of lockdown will be quantified through the changes of main air pollutants concentrations (O_3 , NO_2 , $\text{PM}_{2.5}$, PM_{10}) in cities and nearby rural areas. The short-term health effects of air pollution levels changes will be quantified thanks to the AIRQ+ model in terms of mortality and morbidity (both chronic and acute effects for cardiovascular and respiratory diseases). AirQ+ uses epidemiological data including relative risk values and city-specific baseline incidence rates together with in-situ air pollution data from air quality monitoring stations. The number of adverse health cases "avoided" will be estimated considering the reduction of the mean concentration of $\text{PM}_{2.5}$, PM_{10} , O_3 , NO_2 , etc. The appropriate strategies for environment and health will be discussed and disseminated. This potential will be assessed at the national and European scale for countries selected in Task 5.1.

Deliverables

D5.1 – Consumer baseline study (R-CO; M10)

D5.2 - Life Cycle Thinking approach in the agrifood supply chain (R-CO; M11)

D5.3 – Impacts on agrifood systems related to water and wastewater management (R-CO; M21)

D5.4 - Food supply chain resilience success factors (R-CO; M22)

D5.5 – Main drivers of consumer food choice and healthy eating (R-CO; M31)

D5.6 – Environmental and health impacts assessment (R-CO; M34)

WP n.		06			Lead beneficiary										IBA				
WP title		New solutions for human, animal and environmental health - towards a “one health”																	
Participant	n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Short name	UniRM1	SPCH	PMT	CSCP	WWU	AU	UB	HANKEN	ARGANS	AUEB	ENEA	GSSI	IJZRSM	MEERI	INSA	IBA	OHR	TUBITAK
	Person Months	0	0	0	3	6	5	0	4	2	0	10	0	0	0	5	19	10	7
	Start month	01							End month					34					

Objectives

WP6 is aimed to propose new solutions by identifying the human, animal and environmental health responses to SARS-CoV-2 virus aggression as lessons learnt in the pandemic period and connection between responses, thus delivering “one health” solutions for crisis applicable on a wide scale, i.e. different crisis periods as well as different types of crises, under social and economic perspectives. The specific objectives are:

- To identify and screen the possibilities/applications of a one health approach in different crisis;
- To assess the impact of SARS-CoV-2 virus aggression on human, animal and environmental health in different countries, including non-inten;
- To provide guides and best practices for overcoming crisis periods (for different types of crises);
- To identify the needs of wellbeing boosting by applying the “one health approach”.

Description of work (Leader: IBA - Co-leader: AU; Month 01 – Month 34. Contributors: CSCP, WWU, AU, HANKEN, ARGANS, ENEA, INSA, IBA, OHR, TUBITAK) Understanding the emergence of the virus, zoonotic virus and an airborne pathogen WP6 is focused in developing new solutions to face pandemic crisis and breakdowns relapses in relation to human, environmental and animal perspectives, thus making concrete the application of the “One Health approach”. Such an approach should be used in fact to identify control strategies that might reduce the spread of the virus across the globe and more widely the socio-economic impact of breakdowns. By extension, One Health approach, as holistic intervention on protecting people, animal and environment health, should be used in different crisis, at different levels: local/regional/ European and even global.

Task 6.1 Screening about *One Health* approach in different sanitary/environmental and food safety crisis.

Leader: ENEA Month 01 – Month 06. Contributors: CSCP, ENEA, IBA, OHR

A bibliographic study based on validated protocols will be performed to identify and gather information relevant to One Health approach in different medical/environmental and food safety crisis in the last 10 years, including SARS-CoV-2 pandemic, which will be used to analyse contexts and to compare situations (D6.1). The following resources shall be considered:

- Legislation and other official documents issued by authorities;
- Standards, codes of practice and recommendations of professional associations and public-interest non-governmental associations (e.g. standardization and accreditation bodies);
- Reports and recommendations of scientific panels of national agencies/governmental organisations, or international agencies, if specific for the country of interest (e.g. FAO country reports, WHO);
- Scientific publications (e.g. books, research reports, articles, short communications, conference proceedings);
- Guides of good practices issued by health promotion-NGOs, consumer associations, international organizations, cities/regions (e.g. municipalities, regional and local authorities), etc.

Task 6.2. The COVID-19 outbreak from One Health perspective. Leader: OHR. Month 01 – Month 13.

Contributors: CSCP, ENEA, IBA

Templates will be developed in order to collect information about the impact and responses to SARS-VoC-2 virus aggression on human, animal and environment health under a “one health” perspective. Dedicated focus groups (minimum 4x15 persons) and round tables (min. 4x10 persons) will be organized with clear established methodologies developed *a priori*. Relevant participants (environment, health and food specialists and so on) and optimized protocols (for gathering information) will be elaborated in order to have the best appropriate process of collection. 3 subtasks which will be related each other in the context on One Health approach.

Task 6.2.1. Factors affecting environmental health - The environment is influencing and was influenced by COVID-19 outbreak. There are specific environmental conditions for the transmission of SARS-VoC-2 virus, which will be identified. But, there are also alterations of the human-environment relationship in this period. One of these alterations are coming from wastes resulted after using different protection plastic materials (e.g. surgical

masks, protective glasses and shoe covers) which is a big concern nowadays. The activity proposes an alternative way to valorise the plastic materials of Personal Protective Equipment (PPE) through mechanical recycling and consequently create an economic advantage for municipalities, public and private health companies in terms of lower waste disposal costs. The task aims to create a sustainable supply chain of materials recovered from used PPE. In the hypothesis of a separate collection of PPE in pharmacies and in healthcare facilities, some kind of plastic PPE, will undergo different cycles of sanitizing treatment with ozone and UV-C radiation, characterized by a pronounced germicidal effect. The sanitizing treatment of PPE is mandatory for the following safe handling by operators. The treated PPE will be chemically characterized to determine the materials of which they are made and whether exposure to sanitizing agents may have caused a deterioration of the chemical-physical characteristics of the polymers. In fact, it is well known that thermal stress, UV radiation or the use of oxidizing agents can cause degradation of the polymeric chains and the formation of new functional groups (e.g. containing oxygen) on the surface of the polymers. Then, the selected and separated plastic materials will be subjected to shredding and extrusion processes as they are or, if necessary, mixed with different amounts of virgin polymers in order to produce pellets of recycled plastic. The opportunity of producing NonWoven spunbond will also be evaluated.

Task 6.2.2. Factors affecting animal health - Evaluation of the effects of the virus and pandemic restrictions on domestic, wild animals and pets will be assessed and studied. The evaluation will be approached taking into account feed, medical treatments, their behaviour, environment, attitude of people related to animals etc.

Task 6.2.3. Factors affecting human health - The evaluation of human health in relation with the quality of the environment (soil, air, water, plants) and health of animals will be done. The effects of food consumption, daily food pattern, food preferences, food cooking and storing and food hygiene on human health will be the minimum requirements that will be assessed. Additionally, the people attitude towards vaccines and self-medication will be studied. The estimation of short-term health effects of changes in air pollution levels from task 5.5 will be included in the evaluation. Furthermore, non-intended consequences of epidemic-control decisions on human health will be identified in the context of One Health approach.

For all 3 sub-tasks, the adaptation measures and solutions will be proposed (D6.2 and D6.3).

Task 6.3 Dietary recommendations for appropriate health status (including immune system). Leader: IBA Month 13 – Month 23. Contributors: WWU, AU, ENEA, OHR

Starting from the outcomes of Task 6.2 and WP5, and partly combining them with the outcomes of WP4, dietary recommendations will be developed (D6.4), in conjunction with:

- Inventory of human health risks during crisis restrictions (lockdowns, natural disasters, etc.) on different groups of population (including vulnerable groups);
- Inventory of food behaviour consumption patterns during COVID-19 pandemic;
- Relations between dietary behaviours, intake of nutrients, nutraceuticals, medicines and toxic substances and potential impact of bioactive compounds and the immunitary response;
- Nutritional responses and dietary recommendations against human health risks;
- Guidance for food consumption behaviour.

Task 6.4 One health approach as a tool to boost wellbeing and the society. Leader: IBA. Month 13 – 34 Contributors: CSCP, WWU, AU, HANKEN, ENEA, OHR

Holistic public health preparedness and responses will be elaborated, based on a *One Health* approach, in the context of future crisis. The outcomes from Task 6.1, 6.2 and 6.3, as well as from WP4 and WP5 will be integrated and critically evaluated by applying a transdisciplinary approach and valorising the RRI and “one health” approach, thus covering human health (from a lifestyle and work-life perspective), but also the agrifood, mobility, environmental health, and circular economy. Scenario Analysis will be developed with 2 example conditions. The concept of “triple win” for healthy, more equitable and sustainable lifestyles developed in just recently finalised H2020 project (<https://inherit.eu/>) and its conceptual framework for designing policy interventions fit to promote the ‘triple-win’ will be used to support the One Health Strategy. It can be applied to help policy-makers at all levels to (re)define overarching policy goals to ensure that they support the triple-win and thereby well-being. The Blue prints (D6.5) and a One Health Strategy (D6.6) will be elaborated. The Strategic Research & Innovation Agenda (One Health strategy) will focus on the promotion of systemic changes and the adoption of a cross-cutting interdisciplinary approach, addressing several themes (e.g. biomasses, food, plastic, wastes, water, food, behaviour and animal health so on) for different societal areas, in a view of sustainability (urban and peri-urban areas, rural areas, industrial systems, value chains and the territory).

Deliverables

D6.1 - Report on One Health approach in different crisis periods (R-PU; M5)

D6.2 - Report on COVID-19 outbreak from One Health perspective (R-PU; M12)

D6.3 - Report on mechanical recyclability of plastic PPE (R-CO; M13)

D6.4 - Guidance for food consumption behaviour (R-PU; M23)

D6.5 – Blue prints (R-CO; M29)

D6.6 – Strategic R&I Agenda - One Health Strategy (R-CO; M34)

WP n.		07			Lead beneficiary										UniRM1				
WP title		New solutions for communication, information, and public awareness																	
Participant	n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Short name	UniRM1	APCH	PMT	CSCP	WWU	AU	UB	HANKEN	ARGANS	AUEB	ENEA	GSSI	IJZRSM	MEERI	INSA	IBA	OHR	TUBITAK
	Person Months	14	8	14	0	4	2	0	4.5	0	0	6	0	9	3	4	0	0	4
Start month		01							End month				36						

Objectives

The specific objectives are:

- Understand how different communication processes might contribute to improving the social impact of outbreak responses to the COVID-19 pandemic
- Analyse the difficulties encountered to express specific expertise in the decision-making processes within the media and social media discourse
- Develop an innovative strategy to communicate medical-scientific expert knowledge on the one side, and decision-making processes on the other
- Implement an innovative strategy aimed at a transparent and reliable way of representing the political-institutional debate and the effects of the decisions taken on society, on the one side, and on the daily life of individuals, on the other.
- Identify individual and contextual factors, which influence adoption/rejection of contact tracing apps through a mixed-methods approach.
- Implement apps that will help users to identify fake news and to get some advice on daily life organisation during a pandemic.
- Contribute to forging tailored policy interventions on contact tracing apps and enhance their features and design.
- Verify if new or renewed solutions for public awareness could be arranged

Description of work (Leader: UniRM1; Month 1 – Month 36. Contributors: UniRM1, APCH, PMT, WWU, AU, HANKEN, ENEA, IJZSM, INSA, TUBITAK)

Communication has played a pivotal role in the outbreak responses to the COVID-19 pandemic. Scientific information, decision-making processes, data dissemination and interpersonal exchanges have animated the public debate during and after the public health emergency, thus outlining everchanging boundaries of its social impact which might be enhanced in future crisis. In this, the users trust in information and communication sources and the discussion around the undergoing adoption of contact tracing apps are particularly significant as they link individual media choices of citizens to both the scientific management of data and the political contagion containment strategy, especially in risk management, both in terms of pandemic and “infodemic”.

The collection and analysis of data about communication processes might mitigate/improve the social impact of outbreak responses to pandemic feed the development of both an effective medical-scientific and political strategies to communicate (Task 1). A realistic representation of the political-institutional debate serves as framework for the implementation of apps that help users both and for the identification of the factors for the adoption or rejection of contact tracing (Task 2) and in a misinformation condition (Task 3). It also allows the improvement of both scientific and journalistic information alongside with data management and dissemination.

Task 7.1 Decision-making processes and communication of science impact of outbreak responses to pandemic in the media discourse - Leader: UniRM1 Month 1 – Month 30

Contributors: APCH, WWU, ENEA, INSA, TUBITAK

7.1.1 Scientific and political communication impact of outbreak responses to pandemic - In order to understand how different communication processes affect the social impact of outbreak responses to the COVID-19 pandemic and to identify the obstacles of the specific experts to contribute in the decision-making a selection of data and researches will be made in the brief-term time scale of the project (4/6 months). Data studies and research carried out during the Covid-19 emergency (March-June 2020) and in previous situations of global health emergencies (i.e. SARS, H1N1, Ebola), focused on medical-scientific experts and decision makers will be analysed. A specified reference will be data and analysis from WP2 and WP4.

7.1.2 Strategies for both medical-scientific and political-governmental institutions communication in times of health emergency - A web scraping tool will be realized to allow the extraction of information from websites, blogs and forums on the one hand, and from public conversations on major social networking sites (where the available APIs should make it possible) on the other. The corpus will be constituted of information products characterized by the presence of topics or keywords relevant to the reconstruction of the representation of the role of experts, both in the medical-scientific field and in that of decision-making, in the media discourse. The use of online sources represents a choice oriented to maximize the tool yield in terms of the amount of data collected, ensuring, through automated data collection processes, the possibility for the research group to apply an analysis protocol at the same time agile and workable. This specific research task clearly has a defined point of origin (30 Jan. 2020, when WHO declared the health emergency related to the novel Coronavirus), but not a defined term now. Clearly, specific different "phases" of the pandemic will need to be analysed, including what at present appears to be the return to normal, and the subsequent "processing" phase of the experience on a personal and social level. Consequently, this will be implemented during 18 months in the long-term time scale of the project. Afterwards, a period of 4/6 months will be used to develop a policy paper containing some guidelines for a communication strategy for both medical-scientific and political-governmental institutions and bodies in times of health emergency.

Task 7.2 Social perception of contact tracing apps between privacy concerns, prevention needs and domestication processes - Leader: UniRM1 Month 1 – Month 36

Contributors: UniRM1, PMT, ENEA, WWU, TUBITAK

An exploratory research will be implemented (6-10 months) to unveil whether and why European citizens either adopt or reject contact tracing apps, and how they domesticate them in case of adoption. Namely, focus groups will be carried out according to a purposive sampling strategy considering the more responsive European countries (according to the WP2) where the impact on behaviours, lifestyle and social dynamics turns out to be more significant and relevant (according to WP4). We will proceed until reaching data saturation and information redundancy. Gender and age balance will be ensured in participant selection and groups conformation. Afterwards, a survey will be implemented throughout Europe (6-10 months) to measure the social acceptance rate of contact tracing apps, and its relationship with socio-cultural, policy and economic factors. It will be administered online to a representative sample of the population aged 18+, including both males and females equally. The questionnaire will include socio-demographic information (e.g., gender, age, educational level, employment and socioeconomic status, etc.), motivations and opinions about the adoption/rejection of contact tracing apps (e.g., privacy concerns, prevention needs, etc.), digital skills. In both research stages specific attention will be paid towards elderly people who are the most vulnerable age cohort suffering the COVID-19 medical effects and, at the same time, show lower literacy and smartphone adoption rates. Strategies for planning policy interventions about contact tracing apps and new or renewed solutions for public awareness could be arranged.

Task 7.3 Innovative apps for public information and participation - Leader: PMT Month 01 – Month 36.

Contributors: UniRM1, ENEA TUBITAK

Two apps will be implemented which help citizens to find correct information and get advice for their daily life organisation. A) The first app called AppVsFakeNews is able to differentiate fake news from real ones and to detect information, which should be consumed with care as their evidence is not given. This tool is specifically helpful as almost all citizens were looking for information during the Covid-19 pandemic and the Internet and social medias are sources for misinformation and disinformation. During the Covid-19 pandemic, the correct scientific communication has been discovered pivotal as never before. News was faster spread than validated by experts in the fields. The AppVsFakeNews is existing in a first version and was tested by the developers. It is therefore on TRL 7 and will be increased to 8. B) The second app is an advisory app where users can get advice on food and nutrition, exercise, entertainment, work-life/work-school balance, mental health, inhouse gardening and so on. The Covid-19 home isolation was for a limited time when many citizens had to change their daily life.. Based on the outcomes of behavioural, social, and economic impact analyses of WP2 and WP4, the app will make advices for different areas that should help users to fight the negative impacts of social isolation periods. The app will have a survey function integrated, with which surveys can be created in a central place and pushed to the app. Users answering the survey will contribute to real-time data collection and can help the decision making bodies to act on certain issues. The app development approach will start with a user requirement specification that will be written to describe the basic functionality of the app and provide some mock-ups for the user interaction masks. The implementation of the app will follow the user requirement specification and will be an agile process where functionality of the app will be continuously discussed and improved with experts and users. The advice app will be implemented and tested and should reach TRL 7-8 at the end of the project. C) An additional food consumption app will be implemented and tested for feasibility. The food consumption app should help governments or researchers to conduct consumption surveys in 24h-recalls. The app will help in the survey to collect comprehensive data by combining certain foods and make validation checks if total consumed amounts are feasible. An extensive food description system will be used to document consumed foods.

Deliverables

- D7.1** – Development of a web scraping tool to extract information from online sources (OTHER-CO; M10)
D7.2 – Media representation of the role of the expert and decision maker in times of health emergency (R-PU; M12)
D7.3 – Specification of the advice app (R-CO; M24)
D7.4 – Implementation of the fake news detection app (OTHER-PU; M26)
D7.5 – The role of the expert and decision maker in the COVID-19 hybrid media discourse (R-PU; M28)
D7.6 – Policy Paper to implement an innovative communication strategy useful to medical-scientific and political-governmental institutions and bodies in times of crisis (R-CO; M30)
D7.7 – Implementation of the advice app (OTHER-PU; M32)
D7.8 – Research Report on social perception of contact tracing apps (R-PU; M30)
D7.9 – Policy Paper for tailored interventions on contact tracing apps' adoption (R-PU; M36)

WP n.		08				Lead beneficiary										MEERI			
WP title		Co-creation, interoperability and knowledge transfer																	
Participant	n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Short name	UniRM1	APCH	PMT	CSCP	WWU	AU	UB	HANKEN	ARGANS	AUEB	ENEA	GSSI	IJZRSM	MEERI	INSA	IBA	OHR	TUBITAK
	Person Months	3	7	3.5	6	3	1	2	5	4	3	2	0	10	11	1	8	0	3
	Start month	01								End month				36					

Objectives

WP8 is aimed to test and assess social, economic and political impacts of proposed new solutions and IT tools (WP6-7) by coordination of co-learning and co-creation activities among partners, and to build the system for multi-stakeholders engagement to propose and deploy evidence-based policy measures and to identify and promote best practices. The specific objectives are:

1. To enable the establishment of a common co-creation strategy internally to the project (cross-WP) according to selected priority topics and by applying a common methodological approach, ensuring the engagement and participation of different actors' group
2. To map and identify citizens' needs to mitigate impacts and boost wellbeing through co-learning activities with established civil society advisory clubs in different European countries.
3. To test the newly proposed solutions and IT tools to identify key (stimulating and de-stimulating) factors to improve stakeholders resilience, mitigate social inequalities and test interdependences among individuals, social groups, countries, companies, and supranational organizations with the regards to RRI and SDGs principles
4. To assess critical technologies and tools, which accelerate and enable a fast recovery of the current emergency
5. To promote cooperation and coordination across research groups.

Description of work (Leader: MEERI; Month 01 – Month 30. Contributors: UniRM1, APCH, PMT, CSCP, WWU, AU, UB, HANKEN, ARGANS, AUEB, ENEA, IJZRSM, MEERI, INSA, IBA, TUBITAK)

Mapping and identifying citizens' needs and policy maker expectations and requirements, and testing the new tools and solutions, as well as interdependence among individuals, social groups, countries, companies, and supranational organizations to identify impact on end-users is critical for implementation of elaborated solution having impact on wellbeing (including engagement, stress, burnout, mental and physical wellbeing), as well as work-life balance of various social groups on the one hand and environment (like air quality) on the other. The activities will be focused on applying harmonized protocols for promoting the co-creation of innovative ideas and practical implementation of pilot activities to define, experience and assess new paths. This will allow a continuous cycle of cooperation and improvement between WP6 & WP8 and between WP7 & WP8, and will create strong basis for the ecosystem enlargement and sustainability (WP9). In the first place, researchers will take into consideration stakeholders, which signed letter of interest, in next steps these identified in WP2-7 and finally groups identified by the startups as their main target groups.

Task 8.1 - Guidance and manual for engaging the stakeholder. Leader: MEERI Month 01 – Month 02 Contributors: UniRM1, PMT, CSCP, IJZRSM

In order to apply harmonized and well defined procedures, to comply with all the ethical aspects (task1) and act in accordance with DMP (Sec.6 + Task 3.1), the methodological structure and procedures for identification of stakeholders, establishing the “civil society advisory clubs” and perform technology transfer will be defined and a manual containing methodological inputs, materials and tools will be delivered (D8.1).

Task 8.2 Identification of key stakeholders for knowledge transfer. Leader: IJZSRM M01–05 Contributors: UniRM1, APCH, PMT, CSCP, AU, UB, HANKEN, ARGANS, AUEB, ENEA, MEERI, INSA, IBA, TUBITAK

A in depth mapping of key stakeholders will be performed at European, supra-national and national level. Mapping will be based on stakeholders involved in projects connecting with behavioural, social and economic impacts of the COVID-19 outbreak on EU and member states (lesson learnt) and to build synergy and cooperation with them, list of stakeholders interested in project (according to signed declarations) along with these engaged in WP2-WP7 and will cover the different European areas (Central, South, Western), as well as sectors (healthcare system, social sciences, economy, R&D) , and specific, targeted groups for some regions. Analysing stakeholders will reveal who they are, what their needs and expectations towards COVID-19 responses and what issues matter to them (and to what degree). It will make project efforts more targeted and help to define a continuous exchange and virtuous cross-feeding with the WPs aimed at proposing and develop new solutions, fostering the concrete application of the RRI. The salience model will be used as it prioritizes stakeholders with high power, legitimacy and urgency. Consultations with the stakeholders will serve to reconfirm (or adjust) the project strategy and plan the details of the tasks foreseen. At the same time it will help to promote the project and to build support among the key institutions as well as non-state actors. This stage could also confirm the commitment of the key stakeholders to actively participate in the further project activities.

Task 8.3 Establishing civil society advisory clubs to identify citizens' needs, mitigate impacts and boost wellbeing - Leader: IJZSRM Month 01 – Month 33. Contributors: UniRM1, APCH, PMT, CSCP, AU, UB, HANKEN, ARGANS, AUEB, ENEA, MEERI, INSA, IBA, TUBITAK

Establishing civil society advisory clubs in different European countries and with identified key stakeholders in order to recognize citizens' needs to mitigate impacts and boost wellbeing through co-learning activities. Clubs consisting of representatives of civil society organisations dealing with gender, the elderly, children, migrants, LGBTQ etc. issues allow to ensure considering specific needs of various social and occupational groups and help to shape policy responses in a way that takes them into account and minimizes unintended adverse effects. Involvement of key stakeholders from different countries will ensure that no one need is left behind during the process of "new normal life" description. A specific action for considering cross-sectoral learning and interlinking of different topics, groups and geographical areas within the project and beyond will be considered too. Clubs can be involved throughout the project, starting from WP4 and WP5, through WP6 and WP7. Regular clubs' meetings could ensure that the project activities are aligned with the most pressing needs of the vulnerable groups. In addition to the positive effect on the project itself, clubs could also improve the communication among the key institutional stakeholders and civil society actors, providing space for sharing up-dated information on the situation in the field and developments on the policy level as well as creating forum for discussion about the reforms needed.

Task 8.4 Cooperation and coordination across research groups. Leader: UniRM1 Month 01 – Month 36 Contributors: APCH, PMT, CSCP, ENEA, IJZSRM, MEERI

Cooperation, communication, collaboration and coordination across research groups will be sought and put in place in order to ensure coordinated activities among groups working on the same topics and in EU and national funded projects dedicated to COVID-19, specifically with other Actions funded under SC1-PHE-CORONAVIRUS-2020 calls, as well as with other ongoing communities, networks and Research Infrastructures engaged on COVID-19 related topics or which domains are/can be affected by the topic (e.g. humanities, health and food, environment). Examples are initiatives listed in Tab.Sec.4.

Task 8.5 Put-into-practice end users experience - Leader: PMT M04-31. Contributors: APCH, CSCP, ENEA

8.5.1 Testing IT tools (PMT) - Pilot implementation and testing of IT tool on the limited area (3 chosen regions, with different outbreak levels) to ensure interoperability of the systems. The regions will be selected based on previously defined criteria/ indices that will reflect the degree of COVID19 impact. Analysis of the feedback obtained from the end users and propose the strategy to improve the use of IT tool. Creation of sustainability plan for IT tool through cooperation with stakeholders.

8.5.2 Carbon footprint and labelling (ENEA) – Identification of the impact on climate change using carbon footprint method and labelling - Definition of the COVID-label dedicated for products in compliance with prevention and mitigation of effects of COVID-19. Labelling will ensure sustainability of project results.

Task 8.6 Transfer of technology and creation of SMEs and start-ups network at IT app for the implementation of project results - Leader: MEERI Month 12 – Month 35

Contributors: PMT, CSCP, HANKEN, ARGANS, AUEB, ENEA, IJZSRM, MEERI, IBA

Development of a IT app tool for assessment of COVID technologies and organising technology mixers to include social and economic impact and database creation of critical technologies and tools that accelerate and enable a fast recovery of the current healthcare emergency. The idea is to match scientific and data driven results of WP 2-7 and start-up ideas emerging from the market perspective. Multi-criteria analysis method will be used.

Launching of the digital solution will be proceeded by online event – hackathon - bringing together creative teams

in science, technology, IT from all over the Europe to boost the ideas based on project results (month 22).

Deliverables

D8.1 – Guidance and manual for engaging the stakeholder Leader (R – PU; M2)

D8.2 – Stakeholders and projects matrix (R – PU; M5)

D8.3 - Report on citizens' needs to mitigate impacts and boost wellbeing (R – PU; M33)

D8.4 - Report on a pilot implementation and end users' experience of IT tool (R-PU, M35)

D8.5 - Database creation of critical technologies and tools that accelerate and enable a fast recovery of the current healthcare emergency (R – PU; M31)

D8.6 – IT app for assessment of COVID technologies towards socio-economic aim (OTHER-PU; M35)

WP n.		09			Lead beneficiary										ENEA				
WP title		Exploitation, dissemination and sustainability																	
Participant	n.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Short name	UniRM1	APCH	PMT	CSCP	WWU	AU	UB	HANKEN	ARGANS	AUEB	ENEA	GSSI	IJZRSM	MEERI	INSA	IBA	OHR	TUBITAK
	Person Months	6	4	3	8	2	4	6	6	6	4	8	5	6	4	7	4	4	4
Start month		01							End month					36					

Objectives

The main objective of WP9 is to evaluate the impact of the project outcomes and new tools, develop the dissemination strategy of APOLLO-C19 acting on the level of external communication and dissemination, and define plans for sustainability. Actions will be taken to reach as many potential relevant users and stakeholders as possible, thus ensuring the best impact of the planned activities.

The following specific objectives have been identified:

- to establish recognition of the APOLLO-C19 outcomes for the future use and exploitation of results by different target groups (policy makers, consumers/citizens, healthcare sector, media) and ensure sustainability
- to identify and propose measures to generate interaction, amplify the network, improve trust
- to establish engagement with local stakeholders and make a strong case to regional and national authorities on the added value of APOLLO-C19
- to engage with and develop policy and recommendation papers for policymakers and key stakeholders

Description of work (Leader: ENEA - Co-leader: TUBITAK; Month 01 – Month 36. Contributors: All)

WP9 will define the plan for communication, dissemination and result exploitation and evaluate the socio-economic impact of the project outputs in a short-, medium- and long-term, identifying and proposing measures to generate interaction, amplify the network, improve trust and bring stakeholders to take action thus establishing the long-term interaction strategy. WP9 will build-up on the activities of all other project's WPs and on the liaison and close interaction with the EC, supra-national agencies, national, regional and local authorities, and the wide community of stakeholders. Specific deliverables will be released with a defined time scheduling in relation to the tasks, but the activities will cover the whole project duration and will continue even thereafter.

Task 9.1 Communication and Dissemination - Leader: TUBITAK Month 01 – Month 30

Contributors: UniRM1, APCH, UB, HANKEN, ARGANS, ENEA, IJZRSM

T9.1.1 – Communication and Dissemination Plan – CDP (TUBITAK). Starting from the analysis conducted at the proposal stage (Sec.2.2), a CDP will be defined, including practical actions to be implemented starting from the analysis of *what, when, why, to whom, how to, where* to communicate/disseminate and *who* is communicating/disseminating (D9.1). The CDP will be monitored and reviewed on an annual basis (D9.4, D9.6). Task 9.1.1 will also take care of coordinating all the actions related to publication (open access) of all the scientific papers related to the project, thus covering results from WP2, 3, 4, 5, 6, 7 (see Sec.2.2b).

T9.1.2 – Website and virtual Social Networks (ENEA). A website specifically dedicated to APOLLO-C19 will be developed, thus constituting the core external communication tool of the project, containing the overall project objectives, activities, results, related events and partnerships and representing the first open access point to the project results and data. Furthermore, social media accounts (Facebook, Instagram, Twitter, LinkedIn, etc.) will be set up and then used, managed via the Hootsuite dashboard, throughout the project duration and beyond to transmit catching messages for rapid dissemination purposes and serving for impact communication (task 9.2). These tools will also allow a virtual dialogue with the same channels of relevant users and stakeholders, including relevant

initiatives, and the wider public to feed into the project. Active use of e-communication systems, Social Media and websites (the one of the project, as well as the ones of the EC and ERA corona platform, the partner institutes and the engaged stakeholders) will be promoted to engage, on the one hand policy makers, and on the other hand citizens, thus creating and maintaining a collaborative ecosystem (see task 9.3).

T9.1.3 – Dissemination Toolkit (UniRM1). The Visual Identity of the project and the material to be used in all dissemination and communication activities will be developed. For the purpose of the project, a special focus will be given to digital material. The toolkit will represent the unique official communication material and will include project standardised presentation; posters, depending on the targeted audience to be used in relevant events, infographics, factsheets, pills for integrating partners' and supporting partners' newsletters (monthly), factsheets, short informative articles for the website, scientific publications, videos.

Task 9.2 Impact evaluation - Leader: INSA M04-30. Contributors: UniRM1, UB, HANKEN, ENEA, TUBITAK

In order to assess, demonstrate and boost the impact of the proposed solutions, the associated socio-economic benefits will be analysed and a set of key performance indicators (KPIs) will be defined, which will facilitate the effective measurement, monitoring and quantification of the selected type of socio-economic impacts. KPIs to be defined and quantified must be: relevant – i.e. closely linked to the objectives to be achieved; accepted – e.g. by the consortium and all the stakeholders; credible for non-experts, unambiguous and easy to interpret; easy to monitor – e.g. data collection should be possible at low cost; robust – e.g. against manipulation. The impact analysis will be performed identifying the main categories of socio-economic effects, e.g. impact on human behaviour, economy, agrifood and the environment (D9.3, D9.7). For each impact category, a set of variables and indicators of output, outcome and impact will be defined for its effective monitoring. The specific strategies for an appropriate impact communication will also be defined, specifically addressed to different target groups: mainly policy makers, but also citizens/consumers, producers and other identified stakeholders (this will support Task 9.3 and Task 9.4).

Task 9.3 Ecosystem enlargement - Leader: MEERI Month 01 – Month 34. Contributors: All

The Consortium can already count on a wide stakeholder network (n°. 53 supporting partners) arising from different categories. A close dialogue will be established to align project activities to the needs and expectation of all those categories and to promote structure integration. The actual environment of health institutes, researchers on humanities, social sciences, economy, environmental and agrifood sciences around APOLLO-C19 will be reinforced throughout the project lifetime and close connections will be activated and continuously taken with the European Commission, supra-national agencies (WHO, FAO), policy makers at EU, national, regional and local level, consumer/citizen associations and media. A plan for cooperation with initiatives and networks (D9.2), based on specific and tailored actions, will be defined and then monitored along the project lifespan (D9.9). The Consortium partners will also define a roadmap (D9.10), to support the EC in the transition towards an adaptive system by improving at the same time industry's and society's adaptation capacity and resilience and updating the work on the main impact areas: 1) integration (knowledge & data); 2) research & innovation; 3) public confidence and transparency, including relevant best & next practices. The activities will be performed in close connection with WP8, benefiting of its inputs thus enhancing integration and favouring the feedback-improvement loops.

Task 9.4 Replication and policy dialogue - Leader: CSCP Month 01 – Month 36

Contributors: UniRM1, AU, UB, HANKEN, AUEB, ENEA, MEERI, IBA.

This task aims at ensuring that the project results are attainable and useful for EU policy making and have the potential for being taken up at the EU policy level for further replication and scaling up. For this purpose, an ongoing dialogue with EU policy makers will be fostered through meetings with representatives of involved EU DGs, such as DG SANCO, ENVIRONMENT, REGIO and RTD, starting immediately when the proposal will be approved. This will lead to a better understanding of their needs and objectives and enable discussions on policy implications of project outcomes, allowing the exploration of opportunities for ensuring the project legacy. Task 9.4 will further support in turn the mapping of relevant EC stakeholders (WP8), developing targeted guidance transferred through semi-annual policy briefs (D9.12) realised taking into consideration all the WP2-8 outcomes.

Task 9.5 Capacity building - Leader: CSCP Month 01 – Month 32. Contributors: UniRM1, PMT, AU, UB, HANKEN, ARGANS, AUEB, ENEA, IJZRM, MEERI, INSA, IBA. A webinar series on the key APOLLO-C19 outcomes will be prepared and delivered to a European policy audience, including EU and national policy makers and experts, as well as - where suitable - representatives of European city administrations or other local authorities. The webinar series will consist of 5 webinars and will aim at introducing the project outcomes and engaging stakeholders in using it, taking up its results and further engaging with it in the future. The webinar recordings and materials will remain openly accessible after their delivery, to allow for later access to the project content and support the long-term sustainability of the project's outcomes. Specific activities under this task will include: planning of the webinar series, e.g. with each webinar featuring a specific type of policy intervention and illustrated by a case study; preparation of the webinar materials; broad communication and invitation to attend the webinars; delivery of the webinars (D9.8).

Task 9.6 Exploitation and Sustainability - Leader: ENEA Month 01 – Month 36 Contributors: UniRM1, All.

The strategy to guarantee the full exploitation and sustainability of project outputs after the end of EC funding will be defined. The first version of the strategy will be defined at M18 (D9.5) and then finally delivered at the end of the project (D9.11 - M36). The Strategy will collect all project outputs with defined targets, indicators and milestones for ensuring sustainability and details on how the results and newly developed tools and related services will be made available and accessible; specifications on licensing (on a non-exclusive basis and at fair conditions) will be included too. A risk analysis with the study of practical conditions that could hamper access and applicability in the future, which might be legal, technological and/or economic, will be carried out, in order to create a more robust framework. Methodologies and actions allowing the EC and all the levels of public authorities/stakeholders, as well as ESFRI Research Infrastructures, to continue to use the project outputs and the newly developed IT tools, making them widely available and open will be defined. Direct integration and inter-operation will be sought with the “ERAvsCorona” Action Plan and results will be made available via the [Horizon results platform](#). A "Results Ownership List" (ROL) involving all the Beneficiaries will be provided together with the final report (D9.13).

Deliverables

D9.1, D9.4, D9.6 – Communication and Dissemination Plan (R – CO; M3, M15, M27)

D9.2, D9.9 – Plan for cooperation (R – CO; M4, M34)

D9.3, D9.7 – Impact study (R – CO; M10, M30)

D9.5, D9.11 – Exploitation and Sustainability Plan (R – CO; M18, M36)

D9.8 – Webinar series on-line (DEC – PU; M32)

D9.10 – Roadmap (R – PU; M33)

D9.12 – Collection of the semi-annual policy briefs (R – PU; M36)

D9.13 – Results Ownership List (R – CO; M36)

Table 3.1 c: List of Deliverables (delivery date in Months)

n.	Deliverable	WP	Lead participant	Type	Dissemin. level	Delivery Date
	name					
D1.1	Kick off meeting minutes	1	UniRM1	R	CO	M01
D1.2	Ethical guidelines	1	UniRM1	R	CO	M02
D1.3	1 st project progress meeting minutes	1	UniRM1	R	CO	M06
D1.4	2 nd project progress meeting minutes	1	UniRM1	R	CO	M12
D1.5	1 st project periodic report	1	UniRM1	R	CO	M12
D1.6	1 st Cons. Assembly meeting minutes	1	UniRM1	R	CO	M18
D1.7	3 rd project progress meeting minutes	1	UniRM1	R	CO	M24
D1.8	2 nd project periodic report	1	UniRM1	R	CO	M24
D1.9	4 th project progress meeting minutes	1	UniRM1	R	CO	M30
D1.10	2 nd Cons. Assembly meeting minutes	1	UniRM1	R	CO	M36
D2.1	Effect of socioeconomic factors on spread of pandemics, measures effectiveness and non-intended effects	2	UB	R	PU	M06
D2.2	Dataset on COVID-19 spatial-temporal diffusion and response measures. Data collection and harmonization.	2	GSSI	R/OTHER	PU	M08
D2.3	Collection of “lessons” taken from the spatial-temporal patterns of the spread of COVID-19 in the EU geography	2	UB	R	PU	M12
D2.4	Influence of demographic and socioeconomic factors on imported and internal spread of COVID-19	2	UB	R	PU	M24
D2.5	Lockdown measures effectiveness and resilience factors	2	GSSI	R	PU	M24
D3.1	Website and catalogue app for e-RI	3	PMT	ORDP	PU	M03
D3.2	Data Management Plan – rev. 1	3	PMT	ORDP	PU	M06
D3.3	Machine learning stakeholder mapping & engagement strategy	3	AUEB	R	PU	M08
D3.4	Report on System Innovation Approach	3	AUEB	R	CO	M18
D3.5	COVID-19 dB and documentation	3	PMT	R/OTHER	PU	M24
D3.6	Policy recommendations - lockdown measures and resilience factors	3	AUEB	R	PU	M24
D3.7	Data Management Plan – rev. 2	3	PMT	ORDP	PU	M28
D3.8	Implementation of e-RI	3	PMT	ORDP	PU	M32
D4.1	Country clusters & methodological plan	4	WWU	R	PU	M04

D4.2	Lessons learnt (LL) - behaviour, lifestyles, and wellbeing	4	CSCP	R	PU	6,18,30
D4.3	Lessons learnt (LL) - resilience of the vulnerabilities	4	UniRM1	R	PU	6,18,30
D4.4	LL – resilience key factors and well-being in work-life	4	HANKEN	R	PU	6,18,30
D4.5	Lessons learnt - economic impacts	4	GSSI	R	PU	6,18,30
D4.6	Digital app for 4.2 and 4.5	4	PMT	OTHER	PU	M09
D4.7	Lessons learnt - social impact assessment of pandemic	4	UniRM1	R	PU	M12
D4.8	Final Report on impact of pandemics on behaviours, lifestyle, social and economic dynamics	4	GSSI	R	PU	36
D5.1	Consumer baseline study	5	AU	R	CO	M10
D5.2	Life Cycle Think. approach in the agrifood supply chain	5	ENEA	R	CO	M11
D5.3	Impacts on agrifood - water and wastewater management	5	ENEA	R	CO	M21
D5.4	Food supply chain resilience success factors	5	TUBITAK	R	CO	M22
D5.5	Drivers of consumer food choice and healthy eating	5	AU	R	CO	M31
D5.6	Environmental and health impacts assessment	5	ARGANS	R	CO	M34
D6.1	One Health approach in different crisis periods	6	IBA	R	PU	M05
D6.2	COVID-19 outbreak from One Health perspective	6	AOH	R	PU	M12
D6.3	Report on mechanical recyclability of plastic PPE	6	ENEA	R	CO	M13
D6.4	Guidance for food consumption behaviour	6	ENEA	R	PU	M23
D6.5	Blue prints	6	IBA	R	PU	M29
D6.6	Strategic R&I Agenda - One Health Strategy	6	IBA	R	PU	M34
D7.1	Web scraping tool for online information extraction	7	UniRM1	OTHER	CO	M10
D7.2	Media representation of the role of the expert and decision maker in times of health emergency	7	UniRM1	R	PU	M12
D7.3	Specification of the advice app	7	PMT	R	CO	M24
D7.4	Implementation of the fake news detection app	7	PMT	OTHER	PU	M26
D7.5	Experts and decision maker in the COVID-19 hybrid media discourse	7	UniRM1	R	PU	M28
D7.6	Policy Paper - interventions on contact tracing apps'	7	UniRM1	R	PU	M30
D7.7	Implementation of the advice App	7	PMT	R	PU	M32
D7.8	Social perception of contact tracing apps	7	UniRM1	R	PU	M30
D7.9	Policy Paper - contact tracing apps' adoption	7	UniRM1	R	PU	M36
D8.1	Guidance and manual for stakeholder engagement	8	MEERI	R	PU	M02
D8.2	Stakeholders and projects matrix	8	IJZSRM	R	PU	M05
D8.3	Citizens' needs to mitigate impacts and boost wellbeing	8	IJZSRM	R	PU	M32
D8.4	Pilot implementation and users' experience of IT tool	8	PMT	R	PU	M35
D8.5	dB on critical technologies and tools for fast recovery of the healthcare emergency	8	MEERI	R	PU	M31
D8.6	IT app - COVID-19 tech towards socio-economic aim	8	MEERI	OTHER	PU	M35
D9.1	CDP	9	TUBITAK	R	CO	M03
D9.2	Plan for cooperation	9	MEERI	R	CO	M04
D9.3	Impact study	9	INSA	R	CO	M10
D9.4	CDP – 1 st update	9	TUBITAK	R	CO	M15
D9.5	Exploitation and Sustainability Plan	9	ENEA	R	CO	M18
D9.6	CDP – 2 nd update	9	TUBITAK	R	CO	M27
D9.7	Updated impact study	9	INSA	R	CO	M30
D9.8	Webinar series on-line	9	CSCP	DEC	PU	M32
D9.9	Updated plan for cooperation	9	MEERI	R	CO	M34
D9.10	Roadmap	9	ENEA	R	PU	M33
D9.11	Updated Exploitation and Sustainability Plan	9	ENEA	R	CO	M36
D9.12	Collection of the semi-annual policy briefs	9	MEERI	R	PU	M36
D9.13	Results Ownership List	9	ENEA	R	CO	M36

3.2 Management structure, milestones and procedures

The purpose of project management is to maximize support for the individual participants to achieve the project objectives, progress control of each work package, coordination of the different project activities, implementation of quality control mechanisms by defining appropriate project standards, as well as targeted dissemination of knowledge and project outcomes. The management system has been set up in order to provide a clear

organizational framework and all necessary support mechanisms to enable a smooth workflow and ensure that all contractual commitments can be met in time. The management procedures have been set up so as to: **a) maximize effectiveness** of project activities (i.e. ensure timely and qualitative achievement of project results through scientific and administrative coordination); **b) provide optimal induction** to all partners, quick set-up of effective management and communication structures, guidance and support; **c) safeguard maximum transparency** for all partners and the EC through proper project documentation and targeted pro-active provision of information; **d) ensure efficiency** by enabling the consortium to use resources wisely, avoid duplication of efforts, and reduce loss or waste of time and energy.

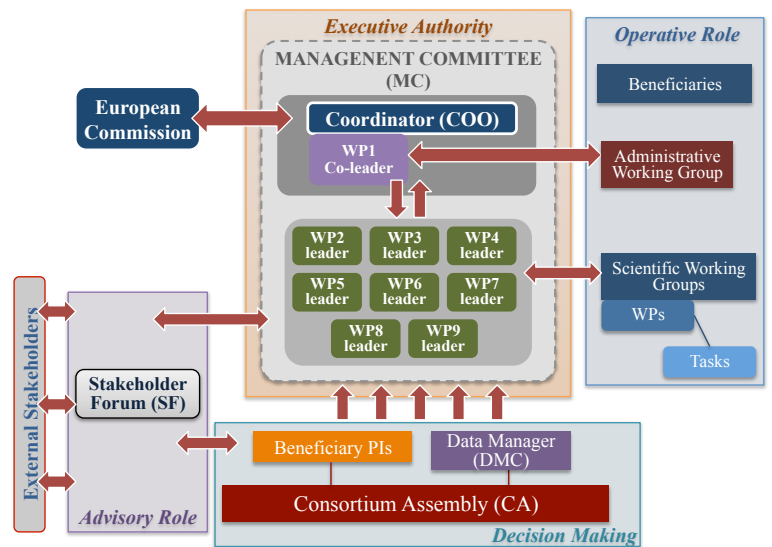


Figure 3 - APOLLO-C19 organisational structure

Project management activities will comprise a wide array of activities, including: scientific and administrative management; guidance of decision making; contractual, financial, data, quality and risk management; management of knowledge and IPR issues; coordination of communication, dissemination and exploitation activities; supervision of and compliance to ethical standards. The project work includes 9 WPs totally, with WP1 specifically dedicated to Project Coordination, Ethics and IPR. The organizational structure with its management bodies (Figure 3) was jointly agreed upon the consortium members and will be regulated by the Consortium Agreement. It is adapted to the size and composition of the consortium and the tasks and duties of all the partners involved. The organizational structure includes key roles for coordination and management of WPs, and different bodies operating at different levels during the project phases and interact by providing suggestions and decisions according to the methodology for continuous improvement, based on the PDCA cycle (*Planning, Check, Do, Act*).

Management bodies -The **Coordinator (COO)** is represented by Prof. Mariella Nocenzi (UniRM1). The tasks of the COO will be the overall monitoring and coordination of any scientific, technical, dissemination as well as exploitation related activity at consortium level. In close collaboration with the Work Package Leaders, the COO will be responsible for the overall management of scientific and organizational results, monitoring of work package progress measured against deliverable and milestone planning, carrying out risk assessment and contingency planning in order to ensure a timely and accurate follow-up of the work plan, and monitoring the implementation of the project. The COO will have the role of interface between the consortium and the EC and as such will be responsible for the delivery of reports and the uptake and implementation of EC suggestions and requests.

Project Management will be handled by the COO and the **WP1 co-Leader** (ENEA – Dr.ssa Claudia Zoani), who will be in charge to support the COO for all management tasks, ensuring the day-to-day operational management.

WP leaders (WPL) and co-leaders (WPcL) will ensure the coordination of tasks and subtasks in each WP, monitor the progress towards the WP objectives, ensure the implementation of the decisions taken by the project's bodies. They will coordinate the reporting activities to the EC, including the deliverables and milestones preparation, and monitor any risk also proposing contingency measures.

The **Management Committee (MC)** has the executive authority in the organizational structure. It is composed of the WPLs, who are responsible for coordination of the development activities from all partners involved in the 15 work packages, in addition to the COO. The MC represents the interface between the Consortium Assembly (CA) and the COO. It will arrange for the timely execution and preparation of deliverables to assure the attainment of objectives, allowing for focused and comprehensive monitoring of the WP status measured against deliverable and milestone planning, control of deliverable timeliness and quality in order to ensure timely and accurate work plan follow-up, early identification of possible technical and organizational problems and for trouble shooting.

The **Consortium Assembly (CA)** is composed by all team leaders (Principal Investigators) and is chaired by the COO. The CA will act as the ultimate democratic decision making body in APOLLO-C19. Decisions will comprise any technical or scientific changes to be made to the objectives and the overall work plan, project management related matters including re-allocation of tasks or resources or actions with regard to a defaulting party, resolving administrative or organizational issues, modifications to the consortium agreement and conflict management in general. Decisions will be made regularly at project meetings or when the need arises and will be based on the principle of a simple majority. Each partner will have one vote but may define an authorized deputy in order to guarantee that the CA is quorate at any time.

The following bodies are identified as supportive members of the management team:

- *Ethics Manager* - will ensure the compliance of the project's activities and documents with the ethics principles (Sec. 5, WP1);
- *Data Manager* - will ensure the data management throughout the project's life, by observing the DMP (Sec.6, Task 2.1).
- *Quality Manager* - coordinates the activities required to meet the quality standards, monitoring and advising on the performances and measuring them against set standards – KPIs (WP1).

Operative role is undertaken by the **Scientific Working Groups (SWGs)**, which are organized following the WPs and Task structure of each WP. Furthermore, an **Administrative Working Group**, composed by one representative from each Partner Institute in charge for administration, is directly coordinated by the WP1 Leader.

The **Stakeholder Forum (SF)** will have an advisory role.

Management procedures

Monitoring project progress and reporting – APOLLO-C19 work plan is arranged in 9 Work Packages, 33 Milestones and 45 Tasks. The Management Committee will monitor and direct the work package development activities: each WPL will monitor the status of deliverables, milestones and financial reporting of his/her WP, informing the MC on the status quo during the regular project meetings and also *ad hoc* by personal communication if the need arises. Each WPL will be assisted: by the respective Task Leaders (TL) in the implementation of his/her task; by the WP1 Leader and co-leader, in the collection of the relevant administrative and financial information from each partner involved. Each WPL will compile an overview on WP level at regular intervals, in order to monitor the project's progress steadily; an interim report and a project final report will be submitted to the EC. The overall project progress will be monitored by the COO on these WPL progress reports. Project meetings, involving all the partners, will be held in month 1 (Kick-Off meeting), 6, 12, 18, 24, 30 and 36. The Kick-off meeting will be held via telco in relation to the current restrictions related to the sanitary emergency. The Consortium Assembly meetings (months 18 and 36) will be held in Rome and Brussels respectively, under the organisation of UniRM1. The other project meetings will be held via telco. Telco meetings will be organised benefiting of the IT tools and videoconferencing systems of the partner institutes and ENEA will put at disposal of the Consortium its own tools for videoconferencing. The debate and discussion during telco meetings will be facilitated by using dedicated systems such as SliDO as interactive Q&A and live pooling platform.

Decision making, redirection of strategies and contingency planning - Detailed rules for decision-making and risk management will be laid down in the Consortium Agreement, which will be prepared according to the [DESCA Horizon 2020 Model](#) and jointly agreed on by all partners before the project start. It will be the basis for the legal, administrative, financial and organisational management. Each partner is responsible for reporting any risk situations that may conflict with the project objectives or their successful completion immediately to the WPL concerned, as well as to the COO and the WP1 Leader. A number of potential risks have been already identified and described in Sec. 3.2B. The consortium is well aware of possible organisational, technical problems, as well as of particular challenges due to the multinational and multicultural nature of the consortium itself. The COO will set the schedule for finding solutions and will chair all the discussions. In the case of critical deviations from the work plan, the EC will be informed and consulted immediately. Every issue will be managed in accordance with the guidelines of the Grant Agreement and the Consortium Agreement.

Considering the specific policy-relevance of the proposal and the potential dependence of the activities on the next evolution of the current pandemic condition, the consortium aims at agreeing with the EC services on the inclusion of a flexibility clause, thus ensuring appropriate flexibility so as to respond in real time to potentially fast-changing scenarios.

Management of communication and dissemination - Besides the definition of a detailed strategy for communication, dissemination and exploitation tailored to different target audiences (WP9), transparent and continuous internal communication will ensure that all partners will be kept fully informed about any development in the course of the project. By monitoring and actively promoting project dissemination, WP9 will play an important role in the coordination of communication with external bodies through different activities such as participation in conferences and publications and use of web-based communication systems.

Table 3.2 a: List of milestones (MS: due date in Month – M)

Milestone			Related WP(s)	Due date	Means of verification
n.	Name				
1	MS1.1	Website password protected area implemented	1	M3	Web-area on-line
2	MS2.1	Evidence on previous pandemics summarized	2	M6	Project webpage
3	MS2.2	Evidence on spatiotemporal spread of COVID19 in the EU geography reached	2	M12	Project webpage
4	MS2.3	Results and policy implications on the role of demographic and	2	M24	Project webpage

		socioeconomic factors in the COVID-19 spread summarized			
5	MS2.4	Summary of results and policy implications on the role of local socioeconomic deprivations in the internal spread of Covid-19	2	M24	Project webpage
6	MS2.5	Summary of results on the effectiveness of lockdown measures and resilience factors.	2	M24	Project webpage
7	MS4.1	Case countries identified according to the given criteria	3	M4	Results validated in stakeholder meetings
8	MS3.1	Summary of evidence on database and documentation	3	M8	Project webpage
9	MS3.2	Evidence on stakeholder mapping and engagement strategy	3	M8	Project webpage
10	MS3.3	Summary of results on the valuation of statistical life	3	M24	Project webpage
11	MS3.4	Summary of results on the socio-economic modelling and simulation results	3	M24	Project webpage
12	MS3.5	Summary of results on policy recommendations related to the lockdown measures and resilience factors	3	M24	Project webpage
13	MS4.2	Theoretical foundations for the link between COVID-19 and WP4 tasks established	4	M12	Literature review
14	MS4.3	Generated knowledge used for implementation (WP6, 7, 8)	4	M18	Co-creation work sessions
15	MS4.4	Drawing conclusions and development of policy implications and recommendations	4	M32	Internal and stakeholder meetings minutes
16	MS5.1	Agri-food system assessment – interviews completed	5	M22	Transcripts validated
17	MS5.2	Longitudinal study on consumer food choice and healthy eating assessment completed	5	M31	Full database uploaded
18	MS5.3	Food chain assessment in food categories - Interviews and secondary data analysis complete and validated	5	M10	Secondary data validated
19	MS5.4	Food supply-chain cases assessment - cases selected, interviews made and analysed	5	M22	Report
20	MS5.5	Environmental and health assessment - Data collection complete and data quality validated	5	M34	dataBase
21	MS6.1	Guidance for food consumption behaviour during the crisis elaborated	6	M24	D6.3
22	MS6.2	Strategic R&I Agenda - One Health Strategy - developed	6	M34	D6.5
23	MS7.1	Research on adoption/rejection of contact tracing apps completed	7	M8	Transcriptions & analysis
24	MS7.2	EU survey on adoption/rejection of contact tracing apps completed	7	M8	Datasets and automatized analysis outputs
25	MS7.1	Exploratory research on media representation of the role of the expert and decision maker completed	7	M5	Report, thematic analysis
26	MS7.2	Web scraping tool developed	7	M2	Testing & validation report
27	MS7.3	Research on media representation of the role of the expert and decision maker completed	7	M18	Report & thematic analysis
28	MS7.4	Policy Paper for medical-scientific/political-governmental institutions validated	7	M5	Stakeholder meeting minutes
29	MS7.3	Advice areas and principle functionalities for Apps agreed (T7.3)	7	M18	Meeting minutes (approval)
30	MS7.5	Fake news detection app released	7	M24	App available
31	MS8.1	System for knowledge exchange implemented	8	M35	D.8.5
32	MS8.2	Virtual platform on best practices in responses created	8	M36	D.8.5
33	MS9.1	Website and social-network implemented (DEC, PU)	9	M2	Website and SN on-line

Table 3.2b: Critical risks for implementation (Level of Likelihood - LoL: Low-L/Medium-M/High-H)

All Partners have long-standing experience in scientific research, as well as in participation in / coordination of projects at national and international level or European research infrastructures, thus the group is well able to identify potential risks and experienced in planning and implementing appropriate contingency measures. A preliminary analysis of risks has been performed for the proposal preparation with the aim to ensure un-interrupted progress of the project and successful implementation of its objectives. Already established cooperation and tight links, as well as well-functioning communication lines through the consortium (or part of it) thanks to previous and/or ongoing cooperation represent a strong asset that will help to reduce complications and ensure short reaction time if a quick action should be needed. The Consortium ensures that, through the experience-based definition of

milestones and deliverables adjustment or redirecting of strategies, it is possible to safeguard maximum success for APOLLO-C19. Combined together, the Consortium is convinced that the risks that may arise in the course of the project are kept to a minimum. However, considering the pandemic itself and all the related emergencies, as well as the purpose to realise quite immediately useful tools to end users at scale is ambitious and the work-flow are not fully predictable - the project will be subject to a few elements of risk that are inherent to the nature of a international collaborative, multidisciplinary, research project with ambitious objectives and time planning. Adequate management (WP1) is essential to guide the project along these hurdles. After a thorough risk analysis jointly performed by the Partners, the most important risks with a probability for each risk and the proposed contingency plans have been identified and listed below.

Description of risk	WP	Proposed risk-mitigation measures
Partners not coordinating activities (WP leaders) properly or timely. Partners not reporting in an appropriate or timely manner (not able to complete their tasks, not meeting the deadlines or producing low quality deliverables). Lack of commitment from partners. Unavailability of key staff with appropriate experts. Lack of coordination among the WPs (L)	WP1, All	A robust project management structure will enable pro-active management. A clear work plan has been elaborated in close collaboration among the main actors, and responsibilities for individual tasks have been allocated to experienced partners based on their actual skills. Regular internal interim reports will allow a close monitoring. Project meetings will be carried out to discuss and solve problems by consensus. A Consortium Agreement will be jointly concluded before the start of the project, binding the actions and commitment of the partners. Multiple partners are involved in each task with the potential to compensate if one partner is hindered or delayed. All partners have a remarkable staff and can cope with internal resources to any failure of the professionals involved..
Risk not to arrive to the events - meetings in presence and open events - in case of closed borders in the EU, transport strikes, natural disasters (no flights) or terrorist attack (L)	WP1, All	Internet facilities (e-conferences, confcalls, etc.) - less expensive, or - but more expensive – modification on the dates and local arrangements will ensure the participation of all the interested parties.
Poor interaction with the National, Regional and EU policy makers and EC DGs, and with the relevant scientific communities and networks at EU and global level (L)	WP8, WP9	Involvement of a huge stakeholder forum, which will be further improved in the next months and before the project start, as well as during the project itself. Tasks specifically dedicated to ecosystem enlargement and policy dialogue.
Difficulties due to documentation on policy responses in several languages (M)	WP2	Partners with competences in several EU languages
Lack of data for some specific spatial units, e.g. cities (M-H)	WP2, WP3	Analysis at the upper scale and spatial disaggregation and specific analysis for group of lower units for which data is available
Lack of data for certain indicators at the level of some subnational units (M)	WP2	Distribution of figures at the upper scale based on suitable and harmonized indicators
Lack of stakeholders' engagement (M)	WP3, WP6, WP7, WP8	Involvement of the stakeholder forum, stakeholder network of the consortium, tasks specifically dedicated to stakeholder engagement and enlargement. Improvement of communication and professional relationships. Partners will leverage their channels and networks to increase the audience targeted. KPIs are fixed to provide an adequate monitoring of actions and to fine-tune strategy and actions, so achieving fixed goals.
Low response from some groups of for communication or poor interaction		
Lack of interest in the project results among stakeholders (L)		
Choice experiment delays due to lockdown (M)	WP3	Use of benefit transfer methods and other alternative techniques
Impact of possible new phases of pandemic on the institutions and social response (L-M)	WP4	Collection of new data with the same methodological tools and targets of the first phase; comparative analysis of the different research waves.
Difficulty in reaching participants for face-to-face focus groups due to future lockdowns and physical distancing (M)	WP6, WP7	Implementation of online focus groups, preferably synchronous and based on audio-visual platforms where feasible. Inclusion of open-ended questions in online questionnaires.
Lack of data availability on COVID-19 at the regional level for some countries (L-M)	WP4	Possibility to exclude some countries from the analysis or use proxies for COVID-19. The consortium provides an impressive coverage of EU countries and will help to mitigate this risk.
Lack of data harmonisation across counties (M)	WP4	Comparison of similar countries in terms of health system and decentralisation of decision-making

Poor access to relevant diverse citizen groups for qualitative research (L-M)	WP4	Where possible selection of partners' countries; use of translation into local languages and in some cases support of agencies to recruit citizens for the research
Access to data and quality of data (M)	WP5	Validating the data from different sources
Delaying in Collecting data (L-M)	WP6	Preparing the templates in time and use different channel of communications for informing focus groups and round table participants.
Difficulty in PPE plastic material extrusion (L-M)	WP6	Dilution with virgin polymers at different weight fraction
Failure in defining the strategic agenda and identifying the key topics – One Health approach (L-M)	WP6	Involvement of all contributors from Task6.4 and information from all WPs in the whole process; definition of methodologies for periodic update, covering top-class knowledge in all the key topics.
Difficulty in reaching social media conversations on relevant issues because of unavailability of suitable APIs (M)	WP7	Implementation of information products coming from websites, blogs, and forums.
Apps will not work or will not work properly (L)	WP7	Problems will be analysed, and a plan developed. Resources will then be used to solve the problems. Partners have enough experience in software development solve software problems.
Apps will not be developed in time (M)	WP7	The fake app news already exists in a first version and should be on time. If software development will be delayed, more resources will be invested to reduce the delay. Delivery date for apps are not at the end of the project to have some reserve time.
Delays in preparation of IT tool to be tested (M)	WP7 WP8	High ICT expertise in the consortium (engaged in the proposal and implementation stages). Proper preparation of the public tender description and contract to ensure protection against the delays.
Risk not to arrive to the events - meetings in presence and open events - in case of closed borders in the EU, transport strikes, natural disasters (no flights) or terrorist attack (L)	WP1, All	Internet facilities (e-conferences, confcalls, etc.) - less expensive, or - but more expensive – modification on the dates and local arrangements will ensure the participation of all the interested parties.
Participants operational environment risks (L)		Effective communication between the WP coordinator and the partners and changes to the activities, where affected tasks could be reallocated.
Responsibility risks (L)		Management structure; current communication and monitoring of the work progress for the different tasks.
Resource changes (M)		Likely need for budget reallocation between different tasks and/or participants could be considered

3.3 Consortium as a whole

The multi-disciplinary consortium includes 18 complementary partners from 14 countries, including 3 Associated Countries (Rep. of North Macedonia, Switzerland and Turkey), and Belarus (Fig.4). It includes 9 research centres and institutes, 6 universities, 2 SMEs and 2 non-profit organizations (NGOs). The partnership has been structured to bring together complementary knowledge and expertise, with a demonstrated track record of success and previous or running cooperation in EU projects. It covers several disciplines/competences: sociology, psychology, political sciences, and welfare; economics and economics modelling; communication; epidemiology; health, nutrition, food sciences, circular economy, environmental sciences; statistics; ICT. The Consortium is composed by:

- 9 research partners with strong expertise and scientific

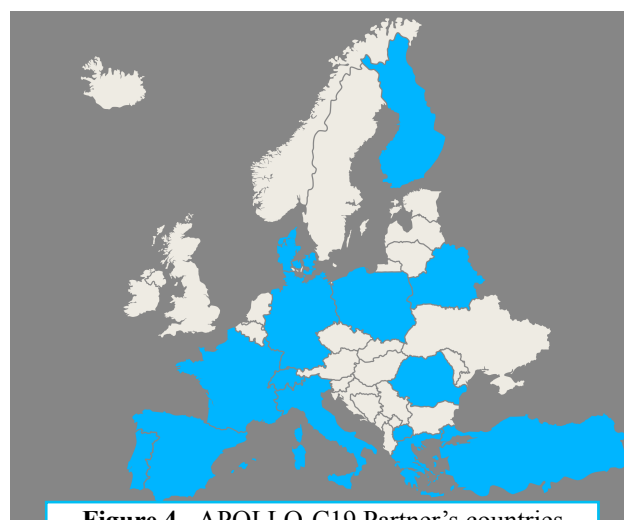


Figure 4 - APOLLO-C19 Partner's countries

competences in humanities and social sciences (sociology, psychology, socio-economic, political and communication sciences): UniRM1 (IT), SPCH (BY), AU (DK), CSCP (DE), WWU (DE), HANKEN (FI), AUEB (GR), GSSI (IT), IJZRSM (MK), MEERI (PL);

- 4 research partners with strong expertise in economics and economics modelling: UB (ES), AUEB (GR), ENEA (IT), GSSI (IT)
- 9 research partners with strong expertise and competences in health sciences (epidemiology, nutrition, etc.): SPCH (BY), WWU (DE), AU (DK), ARGANS (FR), HANKEN (FI), INSA (PT), IBA (RO), TUBITAK (TR), OHR (RO)
- 10 research partners with strong expertise and scientific competences in food science, circular economy and the environment: SPCH (BY), CSCP (DE), AU (DK), ARGANS (FR), ENEA (IT), IBA (RO), IJZRSM (MK), INSA (PT), OHR (RO), TUBITAK (TR)
- 4 partners with expertise in ICT: PMT (CH), HANKEN (FI), ARGANS (FR), AUEB (GR), ENEA (IT)
- 9 partners with expertise in statistics: UniRM1 (IT), SPCH (BY), CSCP (DE), WWU (DE), AU (DK), HANKEN (FI), AUEB (GR), IJZRSM (MK), MEERI (PL), GSSI (IT).

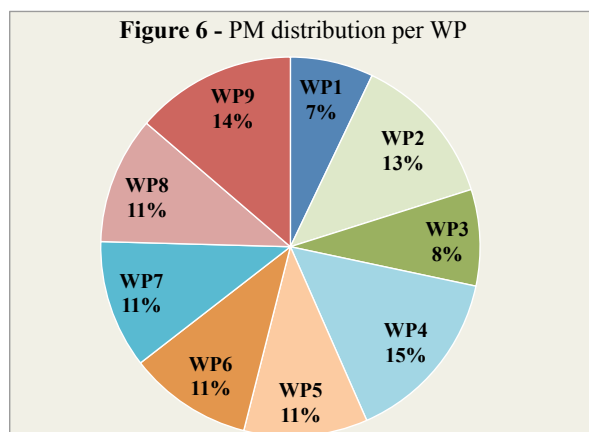
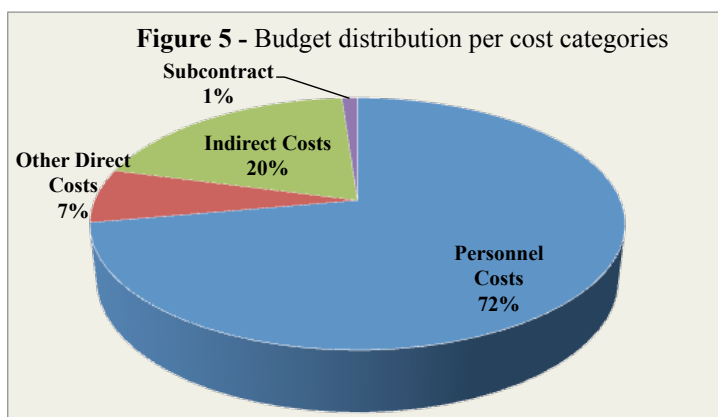
The partners experts in communication, stakeholders engagement and participatory process will ensure the coordination of the stakeholders in strict cooperation with the Coordinator, and will contribute in synergy with others to maximize the project results' impact as well as to enlarge the network. They will also support dialogue with the EC and promote sustainability. It can be seen from expertise description that there are partners with multidisciplinary competences already internally, such as: ENEA (IT), TUBITAK (TR), HANKEN (FI) and WWU (DE). The Consortium is consisting in partners from different European Regions: South – Italy, Portugal and Spain; Central – France, Germany and Switzerland; Nord – Denmark, Finland and Sweden; East – Belarus and Poland, and South-East – Greece, Rep. of North Macedonia, Romania and Turkey. Such a diversity in culture, tradition, mentalities and behaviours, policies and levels of preparedness, will give the opportunity to analyse the crisis and processes in different situations and approaches with different conditions and tools.

This large consortium will be led by UniRM1 (IT), which has a strong experience and skills in coordinating and managing international and multidisciplinary projects, and can count on a consolidated international network of food and feed safety experts. Co-leadership is assured by ENEA (IT), with strong experience and skills too in coordinating and managing international projects and research infrastructures. The Consortium matches the project's objectives, bringing together all the necessary expertise. Partners complement each other, covering all the requested competences by the complexity of call topic. Each partner has a valid role and adequate expertise and resources to achieve the deliverables defined and designed objectives.

3.4 Resources to be committed

Total requested EU contribution for APOLLO-C19 is 4.999.978,75 € for 36 months.

During this timeframe, APOLLO-C19 will mobilise the critical mass of resources (personnel, other direct costs and indirect costs) necessary for a successful accomplishment. The budget reflects the distribution of responsibilities among the partners. The project structure (Sec.3.1) and management procedures (Sec.3.2) ensure that the resources are fully and efficiently integrated into a coherent financial planning, which will be periodically monitored (as the project progresses)



in order to guarantee that any under- or over-spend can be promptly identified and rectified. The budget distribution per cost categories is well balanced, as shown in Fig.5. Total personnel efforts are of 663,5 Person Months (PMs), with personnel costs covering the 72% of total costs. Involvement in WP4&7 and WP5&6 reflects the involvement of the institutes in the human and social sciences and food & environmental sciences respectively, as well as involvement in WP3&7 (specifically for the App development), the involvement of the institutes in ICT; similarly, involvement in WP2 reflects the expertise in economic sciences, with the inclusion of partners from the different countries supporting the mapping and analyses in the different contexts. Other direct costs (odc - 7% of total costs) include mainly travel costs (46% odc),

dissemination, organisation of meetings, focus and stakeholder groups (24% odc), costs associated to consumer studies (11% odc), datasets and software licenses (6% odc), hardware (4% odc), costs for open access (5% odc), audits (1% odc). Travel costs have been calculated as n° of travels per institutes including both for both meetings and dissemination. Considering the concurrent situation, travels have been kept at the minimum, also reducing the n° of meetings in presence and improving the use of telcos. In any case a minimum amount of 3.900 € has been considered in order to guarantee to all the partners the participation of 1 person to the Consortium Assembly meetings plus an additional travel, and the need for some partners to travel for the “policy meetings” has been considered too. On average, travel costs represent the 5% of personnel costs and are always kept below the 11% of personnel costs. According to the call rules, indirect costs represent 25% of total direct (personnel + other direct) costs. Subcontracts have been foreseen for a total amount of 56 k€, thus representing the 1% of total costs. They are necessary to cover specific supporting activities necessary for improving the project performances (but not “core”). The respective Beneficiaries will award the subcontracts on the basis of best value for money or, if appropriate, the lowest price; in doing so, they will avoid any conflict of interests according to Art. 35 AMGA). Furthermore they will ensure that the EC, ECA and the OLAF can exercise their rights under Art. 22-23 also towards their subcontractors. The budget distribution per WP (Fig. 5) is well balanced and demonstrates the importance given to the activities needed to reach the specific objectives, and the partner involvement in all the aspects of the project content (project management included), as well as the acknowledged importance given to co-creation, dissemination, exploitation and plans for sustainability.

Table 3.4a: Summary of staff effort

n° of PM for each WP, for each participant (WP leader for each WP with the relevant PM figure in bold).

	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	PM per participant
UniRM1	18,0	2,0	2,0	10,0	0,0	0,0	14,0	2,5	6,0	55
APCH	1,0	0,0	0,0	7,0	0,0	0,0	8,0	7,0	4,0	27
PMT	2,0	3,0	12,0	2,0	0,0	0,0	14,0	3,5	3,0	39,5
CSCP	1,5	4,0	0,0	9,0	0,0	3,0	0,0	6,0	8,0	31,5
WWU	1,5	0,0	0,0	13,0	0,0	6,0	4,0	3,0	2,0	29,5
AU	2,0	0,0	0,0	2,0	18,0	4,5	2,0	1,0	4,0	34
UB	2,0	26,5	6,0	2,0	0,0	0,0	0,0	2,0	6,0	45
HANKEN	2,0	3,0	0,0	20,0	0,0	4,0	4,5	5,0	6,0	44,5
ARGANS	1,0	0,0	3,0	0,0	10,0	2,0	0,0	4,0	6,0	26
AUEB	2,0	0,0	18,5	0,0	0,0	0,0	0,0	3,0	4,0	28
ENEA	3,0	2,0	5,0	3,0	7,0	10,0	6,0	2,0	8,0	46
GSSI	1,5	26,0	3,0	7,5	0,0	0,0	0,0	0,0	5,0	43,0
IJZRS	1,5	5,0	0,0	6,0	9,0	0,0	9,0	10,0	6,0	46,5
MEERI	2,0	2,0	0,0	2,0	5,0	0,0	3,0	11,0	4,0	29
INSA	1,5	4,0	0,0	7,5	7,0	4,5	4,0	1,0	7,0	37
IBA	2,0	5,0	0,0	3,0	4,0	19,0	0,0	8,0	4,0	45
OHR	1,0	0,0	0,0	0,0	0,0	10,0	0,0	0,0	4,0	15
TUBITAK	1,5	4,0	5,0	6,0	10,0	7,0	4,0	3,0	4,0	45
Total PM	47,0	86,5	54,5	100,0	70,0	70,0	72,5	72,0	91,0	663,5

Table 3.4 b ‘Other direct cost’ items (travel, equipment, other goods and services)

UniRM1	Cost (€)	Justification
Travel	11.700,00 €	9 travels, 1300 € each (2 persons final meeting + 4 travels for 1 person - policy meetings + 3 travels for events)
Other goods and services	39.400,00 €	3000 € open access, 3000 € software licenses, 12000 € organisation of intermediate and final meeting, 10400 € travels for invited, 8000 € dissemination material, 3000 € audit
Total	51.100,00 €	

APCH	Cost (€)	Justification
Travel	6.500,00 €	5 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 1 travel for events)
Other goods and services	7.000,00 €	3000 € software licenses, 4000 € stakeholder meeting

Total	13.500,00 €	
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PMT	Cost (€)	Justification
Travel	9.100,00 €	2 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Equipment	5.000,00 €	Storage
Total	14.100,00 €	

CSCP	Cost (€)	Justification
Travel	11.700,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for 1 person - policy meetings + 2 travels for events)
Other goods and services	10.500,00 €	3000 € software license, 4000 € stakeholder meeting, 1500€ dissemination, 2000 € translation
Total	22.200,00 €	

CSCP - Subcontracts	Cost (€)	Justification
	20.000,00 €	Agency support to recruit participants in different European countries

WWU	Cost (€)	Justification
Travel	9.100,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Other goods and services	10.500,00 €	5000 € open access, 4000 € stakeholder meeting, 1500 € dissemination
Total	19.600,00 €	

AU	Cost (€)	Justification
Travel	9.100,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Other goods and services	37.000,00 €	Consumer studies
Total	46.100,00 €	

UB	Cost (€)	Justification
Travel	9.100,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Other goods and services	9.400,00 €	4000 € stakeholder meeting, 3400 € dissemination
Total	18.500,00 €	

HANKEN	Cost (€)	Justification
Travel	9.100,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Other goods and services	7.500,00 €	2000 € open access, 1500 € dissemination, 3000 € stakeholder meeting
Total	16.600,00 €	

HANKEN - Subcontracts	Cost (€)	Justification
	15.000,00 €	Transcription, language and anonymization of interviews

ARGANS	Cost (€)	Justification
Travel	9.100,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Other goods and services	3.000,00 €	dissemination
Total	12.100,00 €	

AUEB	Cost (€)	Justification
Travel	9.100,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Other goods and services	5.000,00 €	Storage
Total	14.100,00 €	

ENEA	Cost (€)	Justification
Travel	10.400,00 €	8 travels, 1300 € each (2 persons final meeting + 3 travels for 1 person - policy meetings + 3 travels for events)
Equipment	5.000,00 €	Storage
Other goods and services	14.000,00 €	2000 € open access, 4000 € software licenses, 4000 € policy meeting organisation, 3000 stakeholder meeting, 1000 € dissemination
Total	29.400,00 €	

GSSI	Cost (€)	Justification
Travel	7.800,00 €	6 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 2 travels for events)
Other goods and services	1.300,00 €	
Total	9.100,00 €	

IJZSRM	Cost (€)	Justification
Travel	7.800,00 €	6 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 2 travels for events)
Other goods and services	8.500,00 €	3000 € software licenses, 4000 € stakeholder meeting, 1500 € dissemination
Total	16.300,00 €	

IJZSRM - Subcontracts	Cost (€)	Justification
	11.000,00 €	Contribution to the selection of advisory club members and facilitation of club's communication

MEERI	Cost (€)	Justification
Travel	9.100,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Other goods and services	5.500,00 €	4000 € stakeholder meeting, 1500 € dissemination
Total	14.600,00 €	

MEERI - Subcontracts	Cost (€)	Justification
	10.000,00 €	Support in testing & technology transfer solutions on a wide scale

INSA	Cost (€)	Justification
Travel	9.100,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Other goods and services	4.500,00 €	3000 € software licenses, 1500 € dissemination
Total	13.600,00 €	

IBA	Cost (€)	Justification
Travel	9.100,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Other goods and services	7.500,00 €	2000 € open access, 4000 € stakeholder meeting, 1500 € dissemination
Total	16.600,00 €	

OHR	Cost (€)	Justification
Travel	3.900,00 €	3 travels, 1300 € each (1 person intermediate meeting + 2 person final meeting)
Total	3.900,00 €	

TUBITAK	Cost (€)	Justification
Travel	9.100,00 €	7 travels, 1300 € each (2 person intermediate meeting + 2 person final meeting + 3 travels for events)
Other goods and services	5.500,00 €	4000 € stakeholder meeting, 1500 € dissemination
Total	14.600,00 €	