CHAMELEON

Open Call #2

Guide for Applicants

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CHAMELEON

A Holistic Approach to Sustainable, Digital EU Agriculture, Forestry, Livestock and Rural Development based on Reconfigurable Aerial Enablers and Edge Artificial Intelligence-on-Demand Systems

The Members of the CHAMELEON Consortium:

ACCELIGENCE

adrestia

AIDEAS

DIPUTACIÓN DE ÁVILA

DELAIR

DIE JOHANNITER

LAMMC LITHUANIAN RESEARCH CENTRE FOR AGRICULTURE AND FORESTRY

CIHEAM MAI CHANIA

SQUAREDEV

UCLM Universidad de Castilla-La Mancha

UNPARALLEL

VNiVERSiDAD D SALAMANCA

Contact:

Project Coordinator: ***Pantelis Velanas*** *Acceligence Ltd.*	*pvelanas@acceligence.tech*

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DEFINITIONS

Term	Definition
EC	The European Commission.
ESR	Each applicant will receive the evaluation result in the form of an Evaluation Summary Report.
HE	Horizon Europe framework programme.
Lump Sum	The lump sum is a simplified method of settling expenses in projects financed from Horizon Europe funds. It means that you as a beneficiary are not required to present strictly defined accounting documents to prove the cost incurred (e.g. invoices). However, you are obliged to demonstrate the implementation of the project in line with the deliverables set for it. It means that we will carefully assess your progress and the quality of your work during Interim Reviews, not your accountancy. The deliverables will be fixed in the implementation plan elaborated at the beginning of the programme. The lump sum does not release you from the obligation to collect documentation to confirm the costs under fiscal regulation. (https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/horizon/lump-sum).
Open Call	Financial support for third parties in the framework of an EU funded project (https://webgate.ec.europa.eu/funding-tenders-opportunities/pages/viewpage.action?pageId=25559615).
OCMB	The Open Call Management Board (OCMB) consisting of UNPARALLEL Innovation (UNP), Universidad de Salamanca (USAL) and Acceligence Ltd (ACCELI), who are responsible for the good and timely execution of the sub-projects.
Sub-grant agreement	A legal document to be executed by the successful applicants of the Open Call which will establish all the terms and conditions for the sub-project's execution and financing.
SMEs	Entities having up less than 250 employees and up to an annual turnover of 50 million € or up to a balance sheet total of 43 million €. Small and medium-sized enterprises (SMEs) are defined in the EU recommendation 2003/361 (https://single-market-economy.ec.europa.eu/smes/sme-definition_en).

Third Parties	*Legal entities that participate in Horizon Europe by carrying out some tasks in an action, but which do not sign the Grant Agreement (including entities linked to the beneficiaries). They are not bound by the terms and conditions of the Grant Agreement and consequently, the European Union (represented by the Commission or another funding body) has no obligation vis-à-vis third parties. If necessary to implement the action, beneficiaries may use contracts and sub-contracting for the purchase of goods, works or services, in-kind contributions provided by third parties and also linked third parties carrying out tasks under an action.*

INTRODUCTION

This document is a guide for the CHAMELEON Open Call #2 applicants. It provides a comprehensive explanation of the goals, expectations and requirements for the third parties interested in participating in this open call programme. All the info is available at https://chameleon-heu.eu.

THE CHAMELEON PROJECT

"A Holistic Approach to Sustainable, Digital EU Agriculture, Forestry, Livestock and Rural Development based on Reconfigurable Aerial Enablers and Edge Artificial Intelligence-on-Demand Systems" (CHAMELEON) is an EU-funded project under the Horizon Europe programme.

BACKGROUND AND MOTIVATION

Climate change is having a major impact on food security. More than 815 million people are chronically hungry. The world needs to increase food production by almost 50 percent by 2050 to feed a population of nine billion, yet resources such as land and water are becoming scarcer. Farming communities and others involved in agriculture must adapt agriculture to climate change and other challenges.

In this context, ICT-driven tools and technologies needed to enhance decision making through accurate, reliable and timely information have an important role to play. Agriculture, Forestry, and Livestock ecosystems must look towards emerging technologies for solutions to overcome some of the challenges they face.

OBJECTIVES AND AMBITION

The objective of the CHAMELEON project is to build a novel reconfigurable and multipurpose drone platform ecosystem featuring heterogeneous UAV agent networks operating in the air with its supporting communication protocols, navigation and control strategies and monitoring station, capable of autonomously operating on any area efficiently and cost-effectively, while interfacing with existing systems. The key concept of the proposed platform ecosystem will be a hierarchical approach to the problem, utilizing fully autonomous and reconfigurable agents for continuous operation while less autonomous agents will be engaged on a "need-to" basis.

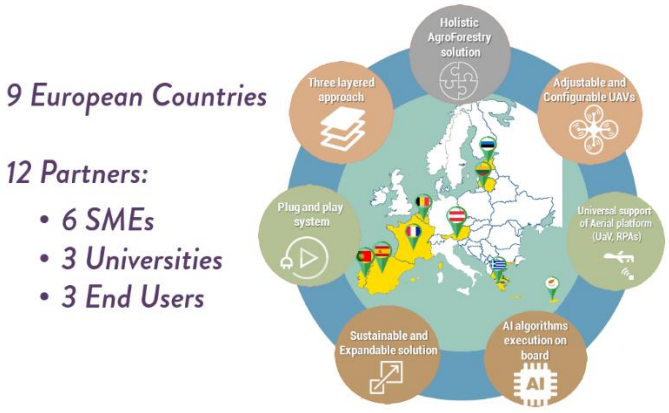

Figure 1 - CHAMELEON project overview.

With the development of this platform, CHAMELEON proposes to achieve the following goals:

- *Introduce a new business model and ecosystem-oriented AI development and Big Data Platform, allowing the innovation of agriculture, forestry and livestock services and enabling new forms of communication and transactions between actors within the agriculture, forestry and livestock's business process*
- *Address the needs of the most complex agricultural, forest and livestock ecosystems and rural environments, through UAV hardware and software system that is on demand and multipurpose.*
- *Introduce an advanced large-scale agriculture and forestry surveying, mapping and assessment framework including different platforms (UAV, RPAS) for a hierarchy of observation scales*
- *Provide a suite of novel UAV - enabled AI applications and tools for sustainable agriculture, forestry, livestock ecosystems and rural area services*

APPROACH

CHAMELEON has three well defined areas of action, those being ***Agriculture***, ***Forestry*** *and* ***Livestock****. The consortium consists of 12 partner organizations distributed in 9 European Countries, with a high participation of innovative SMEs (6 in total), 3 universities and 3 end users. CHAMELEON advances will be validated in three pilot use cases in* ***Spain***, ***Greece*** *and* ***Austria****.*

PILOT 1: FOREST FIRE DEFENSE PLANS FOR RURAL AREAS

Location: *Tietar Valley (Avila, Spain).*

Objectives: *Automate the generation of forest fires defense plans for rural areas, especially in those areas with high risk in their urban-forest interface.*

The pilot will be focused on supporting the analysis of forest fires impact in urbanized areas, with AI-based prediction of the state, evolution, risk and maintenance analysis of the interface area between urbanized and forest areas.

More info: https://chameleon-heu.eu/pilots/pilot-1/

PILOT 2: LIVESTOCK MONITORING AND MANAGEMENT

Location: Crete, Greece (Western Crete area, incl. Chania and Rethimno).

Objectives: Validate the capacity of the CHAMELEON platform for tracking and health assessment of individual animals and assess its operational feasibility for a range of breeders, according to the size of their animal capital. Specifically, piloting activities will validate the platform in:

- Monitoring the activities and the position of the herd
- Monitoring the health status of certain members of the herd
- Providing fast and accurate monitoring of sudden unforeseen events

More info: https://chameleon-heu.eu/pilots/pilot-2/

PILOT 3: FOREST MONITOR FOR POTENTIAL DANGERS & VINEYARDS MONITORING

Location: Austria

Objectives: Validate the capacity of the CHAMELEON platform ecosystem for tracking water status, health of plants, health assessment of vineyards, the potential to generate a range of ecosystem services at multiple scales including mitigation of greenhouse gas emissions through long-term carbon storage and intervention strategies. Specifically, piloting activities will validate the platform in:

- Monitoring the status of water
- Monitoring the health status of plants (trees, vineyards etc.)
- Providing fast and accurate monitoring of potential dangers and reduce the stress for the owners to check by themselves in a dangerous area
- Field-based estimate of woody biomass in vineyards

More info: https://chameleon-heu.eu/pilots/pilot-3/

BUNDLES

CHAMELEON proposes the development of an on-demand UAV platform populated with bundles optimized per mode of information, and operational scenarios. These bundles consist of a set of tools and associated to a specific agriculture, forestry, or livestock problem. A bundle is always associated with a location where the pilot took place, but it would benefit from being validated in multiple geographical

places. A bundle may also be restricted to a limited number of UAV models, however, broad compatibility will always be valued. Each bundle should include all the tools required for a standalone package with the documentation required for independent use.

Either to gather use case validations for the developed tools or to expand the list of solutions available, the CHAMELEON consortium will resort to external partners to expand not only the set of bundles but also the area of action to more countries. This way, CHAMELEON may result in a Pan-European network of UAV and agriculture/forestry/livestock practitioners.

OPEN CALLS

CHAMELEON has €600,000 available for financial support of third parties. The funding will be split into two open call phases (€300,000 each).

Open Call #1 is currently in the development phase and had the goal of attracting third parties to develop bundles to be included in the CHAMELEON platform.

Open Call #2 aims to attract third parties to implement small-scaled pilots to validate the CHAMELEON developments.

CHAMELEON OPEN CALL #2

OBJECTIVES

The objective of CHAMELEON Open Call #2 is to implement geographically distributed small-scale pilots that demonstrate the impact and potential of the CHAMELEON approach. In their applications, participants in the second Open Call should present a detailed use case pilot scenario, with a primary focus on validating specific bundles developed within the CHAMELEON Project.

Applicants will be responsible for defining the area where the bundle will be validated, as well as acquiring the necessary data for the bundle using their own infrastructure and equipment. This includes procuring a UAV and the corresponding sensor if deemed necessary by the bundle and in case the applicants do not already have one. Furthermore, the proposed pilot scenario from applicants must include various detailed information such as flight parameters (e.g., flight altitude, drone type, and sensor details), what will be measured (e.g., crops, vineyards), and the type and amount of data required for validation. Once all this data is collected, applicants will use the CHAMELEON Platform to upload the data for processing to evaluate the bundle through the results.

For bundles that require near real-time processing (e.g., livestock monitoring), applicants should either have an on-board processor in their UAVs, or they could be granted access to a remote on-board processor provided by the Chameleon Consortium.

CHAMELEON BUNDLES

CHAMELEON has a pre-selected set of bundles available for validation proposals. In Table 1, these bundles are identified with a bundle code, and details for their validation are also provided.

To simplify the communication, the bundle code must be used as the identifier. In the provided proposal template the bundle(s) to be validated must be identified via the respective bundle code(s). Bundles are grouped based on the possibility of being validated together.

Proposals are required to validate at least one bundle; however, proposals may include more than one bundle. The number of bundles being targeted to be validated is considered as the 1st priority criterium to be used for proposals of the same score.

Table 1 - Available bundles

Bundle Code	Responsible	Domain	Bundle	Payload	Photogrammetry	Near Real-time	How to validate	Key indicator	Group
BC1	USAL	Forest	Vegetation monitoring and census	RGB Multiespectral	Yes	No	One flight at any time	Species identification/classification	1
BC3	USAL	Forest	Continuity of vegetation	RGB Multiespectral	Yes	No	One flight at the beginning of fire season	Fire-prone vegetation cover	1
BC4	USAL	Forest	Characterization of Wildland-Urban Interface	RGB Multiespectral LiDAR	Yes	Yes	One flight at any time	Fire risk indices: census, biomass, moisture vegetation, agrometeorological variables (wind, humidity and temperature) along time	1
BC6	USAL	Livestock	Collecting parameters related to the health and stress of livestock	RGB Video Cam	No	Yes	During a series of days to define		2
BC12	AIDEAS	Livestock	Animals health	RGB Video Cam	No	Yes	During a series of days to define		2
BC13	AIDEAS	Livestock	Lameness detection in Cows				During a series of days to define		2
BC8	UCLM	Vineyard	Crop growth and development monitoring	RGB Multiespectral	Yes	No	Once when crop development is high (june-july in north hemisfere)	Normalized difference vegetation index (NDVI) Green canopy cover (GCC) Canopy volume (V) Automatic detection of vines with problems	3
BC9	UCLM	Vineyard	Vineyard water stress due to drought	Thermal	Yes	No	One flight at high-water demand time (end july)	Crop water stress index. Estimation of degree of stress	3
BC10	UCLM	Vineyard	Soil zonification	RGB Multiespectral	Yes	No	One flight without leaves or in july with máximum canopy cover	Based on soil reflectance or Based on canopy development	3
BC2	USAL	Forest	Large woody debris on rivers	RGB Video cam	Yes	Yes	One flight at any time	Coordinates, position to the shore	-
BC5	USAL	Forest	Hot spot identification at the beginning of wildfire	RGB Thermal	No	Yes	One flight, coincident with fire event or simulation of fire event	1. Soil moisture content (SM) 2. Land Surface Temperature (LST) 3. The Normalized Burn Ratio (NBR) index	-

BC7	LAMMC	Forest	Health status of vegetation (mainly bark beetle),game browising, ground cover,and and fungal growth	RGB Multiespectral	Yes	No	One flight at specific date (september, early october as maximum) with vegetation in the trees. Flight could be perfomed after these dates but accuracy could decrease	Green leaf area index (LAI) (using Normalized Difference Vegetation Index (NDVI) canopy coverage (CC))	-
BC11	AIDEAS	Livestock	Livestock management (herd) and monitoring (individual animal)	RGB Thermal	No	Yes	One flight		-

WORK PLAN

*CHAMELEON will offer a **6 month programme** for applicants to implement a small-scale pilot that demonstrates the impact and potential of the CHAMELEON developments. The sub-project will be divided in 3 stages.*

STAGE 1 – PLANNING

In this stage, the complete work plan should be developed. It includes:

- *Activities to be carried out*
- *Goals and expected impact of the proposed solution, including early exploitation plans*
- *Main challenges and proposed approaches*
- *Detailed technical description*
- *Resources required to execute the sub-project*
- *KPIs*
- *Timeline for the whole sub-project*
- *Preliminary plan for dissemination*

TIME DURATION

1 month.

STAGE 2 – IMPLEMENTATION

This stage includes the whole development phase, where the sub-project takes place. By the end of Stage 2, the results should be available for analysis and report to the Open Call leaders.

TIME DURATION

4 months.

STAGE 3 – DISSEMINATION & EXPLOITATION

After the sub-project results, the focus will be put on the dissemination. This phase includes event attendance, presence in social media, publications or any other content used to share the tools and results of the project.

Additionally, at this stage, the project team should be exploiting the results and tools for their own business/innovation activities. It is expected that the proposed sub-project results in a technical/business innovation with visible benefits to the participants.

TIME DURATION

1 month.

DELIVERABLES

At the end of each stage, sub-project leader(s) will have to produce a deliverable, reporting achieved results and sub-project milestones. A deliverable template will be provided with a guide for the expected content.

D1 – PLANNING

This deliverable should include all the technical specifications as well as the implementation plan, components and approaches. It should describe all the challenges as well as how they will be mitigated.

D2 – IMPLEMENTATION

This deliverable should describe the whole implementation process, the methods used and the obtained results, with a comprehensive analysis. Any deviation from the plan described in D1 should be described here along with the respective reason.

D3 – DISSEMINATION AND EXPLOITATION

This deliverable should reflect all the content, platforms and activities carried out for the project dissemination during the sub-project and upcoming. If available, results from these activities are welcome.

Regarding the exploitation, a detailed description on how the participant(s) expect to benefit from the developed pilot both in a technical and business perspective.

FUNDING SCHEME

With a total budget of €300,000 for the second open call, the ***best applicants*** *will be selected and* ***100% financed up to a maximum of €60,000 each in a lump sum scheme****. All expenses must be described and justified in the submitted proposal.*

The payment will be done in ***three phases****, corresponding to the end of each work stage. The payment portions will be the following:*

- *30% – After acceptance of D1*
- *40% – After acceptance of D2*
- *30% – After acceptance of D3*

The payment will be done after each deliverable's acceptance. The winners will be provided with a bank account form.

TIMELINE

Table 2: CHAMELEON Open Call #2 key dates

Event	Deadline
Open for Submissions	31/03/2024
Submission Deadline	14/07/2024 19:00 (CET)
Communication of the Results	25/09/2024
Deliverable 1 – Planning	31/10/2024 23:59 (CET)
Deliverable 2 – Implementation	28/02/2025 23:59 (CET)
Deliverable 3 – Dissemination/Exploitation	31/03/2025 23:59 (CET)

PROPOSAL SUBMISSION AND EVALUATION

The application is formalised with the submission of the proposal in the CHAMELEON website (https://chameleon-heu.eu/open-calls). There you can find a comprehensive guide for the submission steps as well as all the required documentation.

*Proposals **must follow the provided template** and have a **maximum of 10 pages** of content (excluding cover, tables and definitions).*

ELIGIBILITY

The CHAMELEON OCMB will verify that the submitted applications comply with the following prerequisites:

- *Entity is eligible for EC funding under the rules of Horizon Europe*
- *Beneficiaries provide a valid VAT and VIES number*
- *The open calls are applicable only for **individual partners***
- *Sub-project proposes the validation of CHAMELEON developed bundles*
- *Sub-project demonstrates Europe dimension ("through cross border experimentation or expanding the impact of local sub-projects to European scale")*
- *Entity must not be receiving funds under the CHAMELEON Open Call #1*

COUNTRY

This open call is open to all EU countries and countries associated to the Horizon Europe programme[1].

In addition to that, the Council Implementing Decision 2022/2506 stipulates that legal commitments must not be entered into with any public interest trusts established on the basis of the Hungarian Act IX of 2021 or any entity maintained by such a public interest trust[2].

LANGUAGE

*Only documents **written in English** will be considered for evaluation. Any other language will be automatically rejected.*

ABSENCE OF CONFLICT OF INTEREST

[1] *https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/list-3rd-country-participation_horizon-euratom_en.pdf*

[2] *https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32022D2506*

Applicants shall not have any actual and/or potential conflict of interest with the CHAMELEON Open Call process, from the application to the development phase of the selected proposals. All cases of conflict of interest will be assessed case by case by the OCMB.

Conflict of interest may occur when there are conditions involving economic interest, political or national affinity, family or emotional ties or any other shared interest that might affect the objective evaluation of the proposal, as defined in the HE and EC regulations. Consortium partners, their affiliated entities, employees and permanent collaborators have not the right to participate.

MULTIPLE SUBMISSIONS

Up to two proposals per applicant will be accepted for evaluation (the first two to be submitted). Others will be discarded. Only one proposal will be accepted for funding. If any entity is associated to more than two proposals, only the first two will be considered for evaluation.

EVALUATION

Each proposal will be reviewed by at least two evaluators and will follow the criteria defined by the CHAMELEON consortium, presented on Table 3.

Table 3: Open Call proposal evaluation criteria

Criterion	Description	Scoring (0-5)
Impact: Topic Relevance and Exploitation Plans	*Overall impact of the proposed prototypes or use cases if successful; Topic relevance of the proposed prototypes or use cases if successful; Quality of the exploitation plans and market potential;* *Relevance of the prototypes or use cases to the objectives of the call.*	*Threshold: 3/5*
Excellence: Soundness of Concept	*Feasibility of the proposed prototypes or use cases and technological contribution;* *Level of innovation and technological challenges addressed;* *Quality of the work plan.*	*Threshold: 3/5*
Beneficiary Expertise	*Quality of the project team and cross-sector check; Technical capacity and excellence of the*	*Threshold: 3/5*

	proposer and its capability to achieve the deployment of TRL 6 services;	
Deployment of Resources	*Allocation of appropriate resources to the proposed sub-project;* *Justification of the proposed resources.*	*Threshold: 3/5*

CHAMELEON will adopt the same scoring scale (0-5 excellent) as suggested by EU and half marks will be possible. Proposals ranking lower than the threshold (3/5) in any criterion will not be approved. The target is to close the complete evaluation of the proposals within 2 months after the submission. The remote evaluation will start with a webinar organized by the CHAMELEON open call coordinators. The board will explain the call objectives and methodology. After getting access to the proposals, the expert should check if they are able to evaluate the proposal, if there is any conflict of interest unknown to the CHAMELEON consortium and then accept or reject the assigned proposals within 2 working days.

After the individual evaluation, the OCMB will assess the necessity to proceed with a ***consensus meeting****, where the final score for each proposal is established based on a set of common comments and remarks for each of the criteria in the proposal.*

After going through all the proposals, a panel meeting will be held to unify the proposal grades and to rank the proposals. In case there are proposals with equal scores the following criteria will be applied in strict order:

- *Proposals will be ranked based on their overall score (sum of all 4 criteria)*
- *In case there are proposals in the same position, priority will be given to proposals that want to validate a higher number of bundles.*
- *In case there are still proposals in the same position, priority will be given to proposals that have higher impact potential (Criterion 1)*
- *In case there are still proposals in the same position, priority will be given to proposals that have ranked higher in Criterion 2*
- *In case there are still proposals in the same position, priority will be given to those with higher score in Criterion 3*
- *In case there are still some tied proposals, priority will be given to those with higher score in Criterion 4*

At the end, all received applications will be informed about their scores and evaluator comments. CHAMELEON will publish the selected/non-selected projects.

ETHICAL ASSESSMENT

All proposals will pass through an ethical validation where possible ethical conflicts will be considered during the ranking process. These will be mainly related to the handling of private and person-related data.

SUB-GRANT AGREEMENT

After the proposal selection and before the beneficiaries get started with the sub-projects, the Sub-Grant Agreement must be signed between the proposal winners and USAL. Prior to signing the Sub-Grant Agreement, winners should provide documents regarding their formal status. The CHAMELEON Consortium will verify them for eligibility. Once eligibility has been confirmed following the formal check and the Sub-Grant Agreement signed, the applicant becomes an official beneficiary of the CHAMELEON project.

COMPLAINTS

If, after receiving the results applicants consider that a mistake has been made, they can file a complaint. To do so they must send an email to the contact point present on the CHAMELEON website, in English, including the following info:

- *Contact details (including email address)*
- *The subject of the complaint*
- *Information and evidence regarding the alleged mistake*

Applicants have 3 calendar days to submit their complaint, starting from the day after the communication of results was sent. The OCMB will assess the complaints within no more than 14 calendar days from its reception.

Please consider that:

- *The OCMB will ignore anonymous or incomplete complaints*
- *Evaluation is run by experts in the field, and we do not interfere with their assessment. Therefore, OCMB will not consider complaints related to the results of the evaluation other than those related to mistakes in the evaluation of the eligibility criteria*

AVAILABLE DOCUMENTATION

On the CHAMELEON website (https://chameleon-heu.eu/open-calls/) you can find the documentation for open call #2 application, which is:

- *Proposal Template*
- *Guide for Applicants*
- *FAQs*

SUPPORT

The CHAMELEON team will be actively monitoring the progress of the sub-projects, in order to provide timely help to the sub-project teams. For any questions, first refer to the CHAMELEON website, where all the info is available and, for anything not mentioned there, please refer to the provided contact point.

MENTORING

After publication of the results, every winner will be assigned to a member of the CHAMELEON consortium, who will be responsible for mentoring the sub-project. The mentor should be your main point of contact with the CHAMELEON team and should be the first resort for any questions regarding this open call.

FAQS

On the CHAMELEON website, a "Frequently asked questions" (FAQs) section will be created that hopefully can answer most common questions regarding the CHAMELEON Open Call programme.