



C-SCALE

D5.2 Criteria for choosing candidates for the Early Adopter Programme

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Deliverable Abstract

This deliverable reports on the criteria for choosing candidates for the Early Adopter Programme (EAP). The EAP will launch open call (possibly calls) to identify additional use cases from the EO SC and Copernicus research communities and beyond, wishing to exploit Copernicus and EO data. The additional use cases will serve to gather further feedback on the functional and non-functional aspects of the overall C-SCALE services.



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List of Acronyms

Acronym	Description
AMB	Activity Management Board
C-SCALE	Copernicus – eoSC AnaLytics Engine
DIAS	Data and Information Access Services
EAP	Early Adopter Programme
EO	Earth Observation
EOSC	European Open Science Cloud
HPC	High-Performance Computing
HTC	High-Throughput Computing
TRL	Technology Readiness Level
VA	Virtual Access
WP	Work Package

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Executive summary

The C-SCALE (Copernicus – eoSC Analytics Engine) project aims to federate existing European EO service providers, Cloud resources and computing centres, including inter alia the Copernicus DIAS and national Collaborative Ground Segments. The federation shall capitalise on the European Open Science Cloud's (EOSC) capacity and capabilities to support Copernicus research and operations with large and easily accessible European computing environments. This in turn will facilitate the rapid scaling, processing and sharing of EO data among a large and diverse community of EO end-users including researchers, application developers and service providers. In practice this is accomplished by: (i) increasing the service offering available through the EOSC Portal by supporting application providers with market-ready solutions¹, (ii) underpinning EO services with diverse & scalable compute infrastructures available through EOSC and by (iii) opening these services and IT resources to the wider European EO community.

By making federated scalable Copernicus Big Data Analytics services available through EOSC and its Portal and linking the problems and results with experiences from other research disciplines, C-SCALE will help to support the EO sector in its development, enabling the downstream application providers and the integration of EO data into other existing and future domains within EOSC. By abstracting the setup of computing and storage resources away from the end-users, C-SCALE will enable the deployment of custom workflows to generate meaningful results quickly and easily. The project will deliver a blueprint, setting up an interaction model between service providers to facilitate interoperability between commercial (e.g., DIAS-es) and public Cloud, HPC & HTC infrastructures.

Preselected use cases and the Early Adopter Programme will allow the C-SCALE consortium to validate project services in a realistic environment. The new use cases play an important role also as an outreach and community-building tool. The level of interest observed will help the project to fine-tune its messages so that it maximises the attention among EO researchers, application developers and service/solution providers that fulfil the criteria set out in this document. The User Forum allows turning this interest into a kernel of a community supporting organic growth of the number and diversity of the services available through EOSC. The community will also provide an important peer-support mechanism for all parties willing to contribute to the C-SCALE service ecosystem. Thus, successful selection of candidates will have an impact that extends considerably beyond the technical developments and optimal use of VA resources.

This deliverable reports on the criteria for choosing candidates for the Early Adopter Programme, which will launch an open call (possibly calls) to identify new use cases that would support researchers wishing to exploit Copernicus and EO data in the EOSC context. This allows the project to gather further feedback on the functional and non-functional aspects of the overall C-SCALE services also from developers/users that have less familiarity with the EOSC or Copernicus services.

¹ This can include companies targeting research use (in addition to other sectors) or researcher or research groups providing services on non-commercial basis.

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1 Introduction

The use cases identified during the proposal development phase and from the Early Adopter Programme will allow the C-SCALE consortium to validate the project services in a realistic, TRL 8/9² environment. The project uses pre-selected use cases to ensure sufficient coverage and degree of challenge for piloting/demonstrator activities. The Early Adopter Programme is a complementary mechanism, intended to counteract the effects of the familiarity pre-selected use case communities have with the project's approach and the team driving it. C-SCALE will launch open calls to identify new use cases from European EO research communities wishing to exploit Copernicus and EO data, and use these teams initially as sources of additional, unfiltered feedback on the functional and non-functional aspects of the overall C-SCALE services. Thus, the selection criteria should make sure that also developers/users that have less familiarity with the EOSC or Copernicus services are encouraged to apply.

The use cases chosen will demonstrate the scale and complexity of the challenges faced by the communities. In consulting the use cases via the user forum, community needs and requirements will be identified and recorded, which will improve and refine the C-SCALE federation, services and blueprint.

Openly documented selection criteria are a prerequisite for ensuring equal treatment of the applicants and selection of the solutions based on the merits of the use case scenario. However, articulating the selection criteria will also have secondary role as an opportunity to examine project's technical vision from a different angle.

In the context of this deliverable describing the conditions for the use of VA resources, the term "use case" should be understood from the C-SCALE platform point of view. From this view, there are two options: (i) C-SCALE service consumers and (ii) the use case is a C-SCALE service enhancer. The actual service consumers may be defined as researchers aiming to explore new science using the C-SCALE services and that commit to sharing their results based on open science practices. These service consumers will use the tools and other mature resources provided by the use case that will utilise C-SCALE interfaces to use EO and Copernicus data on EOSC to support further research activities. Thus, a use case can be proposed by:

- Research teams with mature workflows that will invoke the services provided by C-SCALE to explore new EO science and commit to sharing their results using open science practices.
- Solution, service or software providers (individuals, legal entities or communities with mature - TRL 8 or above - solutions that are used in near-production or production modes on another platforms) wanting to make it possible to run the solutions on the C-SCALE platform.
- PaaS platform providers wanting to integrate the platform with C-SCALE.

² The definitions are as follows:

- TRL 8 – system complete and qualified
- TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)

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- EO solution, service or software provider wanting to make the use of EO and EOSC resources in a way that C-SCALE can support.

These also form the key target audiences of the C-SCALE User Forum, with the distinction that the User Forum should be seen as relevant and useful also by individuals and organisations with solutions that have not yet reached the TRL level 8 or above.

The above definition does not mean that the use case cannot generate new scientific knowledge directly. However, this should be seen as a validation/illustration of the value the services/resources of the use case bring when made available through C-SCALE. The focus of C-SCALE open call mechanisms is to bring new, openly available and generalisable services to EOSC/C-SCALE platforms.

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2 Selection Criteria

The C-SCALE Early Adopter Programme is targeting research teams, service and solution providers that use EOSC, Copernicus or EO services or resources to conduct and/or support research. The use cases should aim at exploiting Copernicus and EO data, or derived data products or services provided by C-SCALE consortium.

An application should meet as many of the following criteria as possible.

- It represents a broad scenario that has impact across Europe and beyond.
- It is committed to publishing and/or consuming third-party research artefacts (e.g., publications, datasets, tools, workflows) following open science practices.
- It is either a generic service or represents a novel value proposition that can be replicated across several organisations. In the first case, the use case should support as broad a range of stakeholders as possible with maximum coverage of different types of research, services used and varieties of types of data, strengthening the consortium and fostering the C-SCALE uptake. In the latter case, the use case should present a way Copernicus and EO data can generate value with an indication of how many users or organisations could benefit from it.
- It provides data integration, management, interoperability, and/or analysis challenges that can be solved by integrating Copernicus and EO data and services through C-SCALE.
- The potential scientific impact of the use case is considered in the assessment. However, the scientific breakthroughs need to be framed as illustrations of broader innovation potential of the resources or services use case will make available through EOSC. The scientific breakthrough cannot be a prerequisite for realising value of the new service/resource added to C-SCALE.
- The application is based on a technical solution that is at least Technology Readiness Level 8 used on existing computational/data/connectivity and other infrastructures (e.g., private, national, European or public clouds/grids/HTC/HPC/network resources).
- The technical integration can be realistically completed within the timeframe available (from 6 up to 12 months) with the proposed technical support from the applicant, and from C-SCALE and its partners.

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3 Selection principles

The selection will be conducted according to the following principles.

- **Transparency:** this transparency will be achieved by publishing the information on the successful applicants and the related scientific discipline and providing individual feedback to all applicants.
- **Expert assessment:** the applications will be reviewed by Work Package leaders and at least one external expert with appropriate knowledge and experience. All the proposals will be assessed according to the same criteria, based on the list in Section 2 with the relative importance of the criterial documented in the call text.
- **Excellence:** the proposals will be evaluated according to their merit, their potential direct impact, the future innovation potential and the degree they are estimated to fulfil the different functional and non-functional criteria defined in the call text³.
- **Prioritisation:** the proposals will be ranked according to the selection criteria defined for the call.
- **Management of conflicts of interests:** reviewers will state any conflict of interest with the proposals assigned for their review. Conflicts of interest can be personal, professional, institutional, or intellectual.
- The outcome of the selection process will be promptly and adequately notified.

³ These can include,

- scientific discovery or innovation potential,
- ease of use of the resources,
- effectiveness of support,
- appropriateness of the technology,
- speed of access to resources and data,
- resultant usability of the application running on the federated infrastructure
- missing functionality/resources,
- satisfaction of the service/resource

These expectations will be documented in the call and applicants are encouraged to seek support through channels such as the User Forum and also track their progress if selected.

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4 Conclusions and future work

The Early Adopter Programme should be seen as a part of the project's outreach, engagement, and exploitation activities. The primary focus of the Early Adopter Programme is naturally selecting the most viable candidates to validate the approach and to increase the impact of the project. However, these activities should also be used as mechanisms to grow the size and interoperability of the Copernicus, EO and EOSC service and solution providers with interest in the C-SCALE project as well as increasing its internal cohesion so that the project can stimulate innovation and collaboration not only between C-SCALE and external developers and providers but also between the external use cases.

Clear and transparent selection criteria (Section 2) provide a foundation that allows the Early Adopter programme to serve all these purposes. The selection criteria together with further information about the programme will be published on the C-SCALE website and the User Forum (tentative schedule: July 2021).

However, aligning the setup and launch of the User Forum (scheduled for August 2021) and user training events (first batch planned to be completed by the end of September 2021) will also play an important role in ensuring sufficient number of applications for the call. The project's data management plan (first version to be completed by the end of June 2021) will also be drafted in a way that takes into account the needs and contributions of the new use cases.

Actively soliciting experiences and observations from the work performed in the context of the pre-selected use cases will be used to assess whether it is necessary to adapt selection criteria and/or emphasise some of the criteria over the others. However, the principles and basic set of criteria presented in this document are not expected to change radically.

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