i-TRIBOMAT
Intelligent Open Test Bed for Materials Tribological Characterisation Services

European Commission | Horizon 2020 European Union funding for Research & Innovation

i-TRIBOMAT Open Call for Early Adopters

Application Guide

H2020 EU funded project i-TRIBOMAT under the GA Nr: 814494

Hard facts

i-TRIBOMAT is one of the projects supported under the Open Innovation Test Beds for Characterisation call. This document contains basic information as guidance for preparing an application for submission to the Open Call for Early Adopters. It provides guidelines for the application procedures and provides the criteria for applications to be evaluated.

By submitting a proposal to the Open Call, applicants declare that to their knowledge there are no conflicts of interest which might affect the objectivity of the proposal's evaluation. The list of i-TRIBOMAT partners can be found in the i-TRIBOMAT web page https://www.i-tribomat.eu/partner.html

This document serves as a guide to allow an applicant for early adopter to be informed with all relevant information about the Open Call application:

- **Call identifier/ title:** DT-NMBP-07-2018 - Open Innovation Test Beds for Characterisation (IA)
- **Project full name:** Intelligent Open Test Bed for Materials Tribological Characterisation Services
- **Call launch date:** 10th January 2022; 8:00 AM
- **Call closing date:** 28th February 2022; 23:59 PM
- **Award**: Information to the applicants on 31st of March 2022
- **Link for full call information:** https://www.i-tribomat.eu/opencall.html
- **E-Mail:** opencall@i-tribomat.eu
- **Language of the application proposal:** English

Contents

1. Introduction to i-TRIBOMAT

i-TRIBOMAT is a project funded in the EU Horizon 2020 framework program with the aim of building an **Open Innovation Test Bed** for tribological material characterization.

i-TRIBOMAT has developed **new digital services to facilitate the rapid and cost-efficient selection and development of materials and products**, as well as the **prediction of the tribological performance regarding efficiency and lifetime.**

The project connects the **entire tribological characterisation infrastructure** of the five leading European research centres and links it to an IT-platform using IoT technology. This allows the client to choose from **over 100 different characterisation tools**. The data is centrally stored and further processed in a newly developed **cloud-based material database**. The clients can **access their data any time** and can easily request an advanced analysis or create their own reports. Without needing a particular expertise, clients can carry out **simulations in virtual workrooms**, allowing them to use their material data to rapidly and cost-efficiently predict operational characteristics without constructing a prototype. All digital services can be customised and booked by the client on the web-based platform. The connection of infrastructures and the new digital services result in the emergence of Europe's largest tribology centre (a joint venture of the five re-search centres), which offers and markets all services on a web-based platform.

All these services can be tested through this Open Call, and this application guide provides all necessary information how to apply.

As these services are trials and primarily aimed at providing room for services improvement. Therefore, **the costs will not be invoiced to the Early Adopters** but covered by the project budget. The characterisation services will be offered by the i-TRIBOMAT partners as in-kind support to the awarded companies. The Open Call will benefit **up to 8-10** companies. This call uses funds obtained within the scope of the i-TRIBOMAT project funded by the European Union´s Horizon 2020 Research and Innovation Programme under GA no. 814494. No additional funding will be dedicated to support this call.

2. General information

SMEs and large industry can apply through the **Open Call for Early Adopter** to test and validate all services of i-TRIBOMAT. In the selection process 8 to 10 companies will be awarded to be the 1st Test Bed customers.

Eligible countries are listed under following link:
Horizon 2020 country profiles | European Commission (europa.eu)

As these services are trials and primarily aimed at providing room for services validation and improvement, **the costs will not be invoiced to the Early Adopters but covered by the project budget.**

This call uses funds obtained within the scope of the i-TRIBOMAT project funded by the European Union´s Horizon 2020 Research and Innovation Programme under GA no. 814494. No additional funding will be dedicated to support this call.

To support the Early Adopters, i-TRIBOMAT has already recruited and trained a **Translators Network** to closely collaborate and guide the Early Adopters. Translators will explain to the Early Adopters i-TRIBOMAT's value proposition, and which are the different services that i-TRIBOMAT offers them. If a company wants to participate as an Early Adopter and wants to be supported by a Translator, but it does not have any contact with one, the project will assign one, based on experience, knowledge, and location. To ask for this support, companies should contact the I-TRIBOAT project by email.

3. Application procedure and timeline

To recruit the Early Adopters an Open Call mechanism is to be implemented. The submission is open from **10th January 2022 until 28th February 2022.**

The Open call will be launched and announced on the i-TRIBOMAT website, i-TRIBOMAT LinkedIn and Twitter accounts on 10th January 2022.

Any company – SME and/or large industry based in European Union or associated countries of H2020 is eligible to apply. Also, one (1) application per company applies. In case of more submissions from the same company, the first application (per date and time of application) will be considered.

The language of the submission is **English**. Additionally, entire communication between i-TRIBOMAT consortium and applicants will be conducted solely in English.

The application procedure for Early Adopters includes the following steps:

Step 1: Registration of the applicant

First, each applicant needs to **register on the web platform** of the i-TRIBOMAT project **Open Call for Early Adopter** and create a new account, to be able to submit the application. In this way, the candidates can be informed, if there are any changes in the process.

The following information is required to fill-in online during registration:

Company information	
Company name	
Postal address	
Zip code	
Country	
Phone number	
Website	
Contact person	
First name	
Surname	
e-mail	
Phone number	
Role of contact person within the company	

Step 2: Submission of the application

After registration, the Early Adopters online application form will be available at the i-TRIBOMAT web platform via **Open Call for Early Adopter**. The applicant form is to be filled out online and submitted at any time until the deadline – 28 February 2022, 23:59 CET.

During this period, the e-mail opencall@i-tribomat.eu will be the only form of communication between the parties involved, for compliance with the principle of transparency. Once submitted, the applicant will receive an e-mail acknowledging the receipt of the submission.

Application form is to be filled out online by using this **Early Adopters Application form** link. The application form consists of the following sections:

A. Case study description (max. 1000 words)

Please describe the application, component, product, material and challenges in the table below. You can also upload additional documents if they are necessary to explain your application.

The following form is required to fill-in online during the application:

Case study and application	
Sector(s) of application: *Please indicate the sectors of your company and your application e.g. automotive, rail, energy…*	
Application: *Please indicate your application (e.g. gear, bearing, seals for pneumatic actuators, surface for rods…)*	
Material: *Please describe which material should be characterised (e.g. metals, ceramics, polymers, lubricants, greases…)*	
Description of the challenge: *Please describe what is expected to be solved with the i-TRIBOMAT service(s): (e.g. reduction or optimizing of friction, minimizing wear, extension of lifetime, minimizing losses…)*	
Additional supporting documents: *You can upload additional documents (PDF) if necessary e.g. pictures, graphs, CAD drawings…*	

B. i-TRIBOMAT service(s) as a solution

In order to test and analyse all kinds of materials, tribological tests are necessary to characterise their friction and wear in your systems. With our standardised tribological characterisation services your materials and products can be investigated in different atmospheres, very high and very low temperatures, speeds, and loads. Our test procedure guarantee fully trusted results. Please select int the following table the services you want to apply for.

The following form is required to fill-in online during the application:

Standardised tribological characterisation services	
Tribotesting under different contact situations and environmental conditions	☐
Measurement of the frictional behavior - CoF coefficient	☐
Determination of the expected lifetime – measurement of wear	☐
Specification of the contact situation in your component	
Unidirectional	☐
Reciprocating	☐
Load [N] please specify if available	
Speed [m/s], please specify if available	
Environmental conditions	
Temperature [°C] please indicate the temperature range (e.g. – 40°C to +1500°C)	
Humidity [% RH] please indicate (e.g. 40 % RH)	☐
Air	☐
Nitrogen	☐
Vacuum	☐
Hydrogen liquid	☐
Hydrogen gaseous	☐
Helium liquid	☐
Helium gaseous	☐
Methane/Natural gas liquid	☐
Methane/Natural gas gaseous	☐
Others (please specify)	

With our advanced analytical methods your product or material can be analysed before and after the tribological test. Please select in the following table the services you want to apply for.

Advanced Analytical methods	
Surface-/ Topographic- measurement (e.g. for wear scar topography mapping) • Focusvariation scanning • Interferometric scanning • Atomic Force Microscopy (AFM) • Scanning Electron Microscopy (SEM) • Etc.	☐
3D Scanning (macro geometry)	☐
Hardness / Scratch Testing (under different temperatures and on different scales)	☐
Material analysis • Spectrometry • Chromatography • Crystallography • Metallography • Etc.	☐
Detailed analysis of lubricants: • Viscosity • Chemical composition • Water content • Solid particles • Neutralization number • Determination of colour • Base number • Dielectric conductivity / Permittivity • Etc.	☒
Nanometric wear measurement	☒
Others, please specify	

With our data driven services, we offer you to easy analyse and manage your test data online. Your data well be securely stored, and you will get online access to your data. You can explore it, analyse it or easily create your customized report. Please select in the following table the services you want to apply for.

The following form is required to fill-in online during the application:

Data driven services	
Exploring the data and analysing of measurement data (online access)	☐
Creating customized reports (online)	☐
Searching in i-TRIBOMAT database for tribological characterisation data of various materials	☐
Others (please specify)	

To upscale the tribological performance of your product, like efficiency or lifetime simulations, up-scaling services have been developed. The services will be available as SaaS (Software as a Service) solutions (like a web application for journal bearings) or as a customized simulation model. Please select in the following table the services you want to apply for.

The following form is required to fill-in online during the application:

Simulation and up-scaling services	
Web application for estimating journal bearing wear based on model tests	☐
Simulation of frictional behaviour of structured surfaces ➢ Uploading of measured surface topographies ➢ Calculation of standard roughness parameters ➢ Calculation of flow factors ➢ Calculation of friction force and CoF coefficient of friction	☐
Simulation of sealings and their performance	☐
Customized simulation of your application (please specify)	

To support you before or during your development process, we offer you complementary services like patent search or technology reports. These reports will be customized to your requirements and questions. Please select int the following table the services you want to apply for.

The following form is required to fill-in online during the application:

Complementary services	
Patent search	☐
Literature search	☐
Technology report, trend analysis	☐
Customized consultancy	☐
Others, please specify	

Company presentation (max. 500 words)

The following form is required to fill-in online during the application:

Presentation of your company - Main sectors and business fields - R&D activities within the company (if any) - Target markets Supporting documents allowed to be attached (PDF)

C. Expected impact derived from the participation of the company in the Open Call (max. 500 words)

The following form is required to fill-in online during the application:

Explain which are the potential impacts that may derive from your participation in the Open Call? (new product, performance improvement, economic savings-annual production costs, material or unit costs-, gains in time – productivity of machinery, parts per day-, reduction of waste or other environmental impacts – rejected materials, energy consumption, reduction of scraps-, etc.) Provide figures if possible

D. Your company's expertise and existing resources (max. 500 words)

The following form is required to fill-in online during the application:

Please indicate the key expertise and background you will provide in this case study Please indicate the key resources you have at your company to be used in this case study (infrastructure – machines, tools, person-hours, materials) Please note that there will be no funding and/or financial support to your company by this open call. Supporting documents/images/graphs allowed to be attached

Step 3: Evaluation & Award

After the closing date, the proposals will be evaluated by i-TRIBOMAT Evaluation Committee. Prior to the evaluation, evaluators will **sign a non-disclosure agreement**, excluding a potential conflict of interest and ensuring confidential handling of the application.

The evaluation principles, eligibility criteria and the scoring scale used are aligned with the Horizon 2020 programme and tailored to the objective of the i-TRIBOMAT project.

Eligibility criteria to be considered are:

- application is submitted before the indicated submission deadline and following the application rules.
- all the required fields in application form are completed.
- applicant is based in European Union or associated countries of H2020.
- application allows a proper testing of the i-TRIBOMAT Test Bed services, procedures and delivery times, helping i-TRIBOMAT partners detect issues and ensure quality and testing different services from the services catalogue.

Evaluation of Proposals

Criteria	Description of criteria	Max. points
Case study description	Overall fitness of the problem and the proposed services to: - i-TRIBOMAT - materials to be used in the case study, - adequacy to Open Call timeline and offered resources, - alignment with the challenges of the Open Call	50
Company presentation	General information of the applicant company (sector(s), strategy, geographical presence, R&D objectives	10
Expertise and resources	Person-hours and material resources that the company will dedicate to the execution of the Open Call case study	10
Impact of the case study	Possible applications in different sectors, societal and environmental impacts (reduced waste, emissions), economic gains for the company (time, money).	20
SME bonus	Is the company an SME: Y/N	10

The Evaluation Committee members will score all the criteria per applicant and an average score per criterion per applicant will be valid as a final score per applicant.

The applicant's contact person (provided in the form), the translator or both may be contacted during the evaluation to provide further clarification on all aspects of the application. Upon consideration of the problem and the proposed services, the Evaluation Committee may suggest different services or make observations on the proposal.

If the proposal is awarded, the details of the services will be discussed during the contracting period with staff from the i-TRIBOMAT service provider.

The decisions of the Evaluation Committee shall be final and, upon proposal of the Committee, i-TRIBOMAT coordinator AC2T may declare the call null and void, without the obligation to assign the established services, when the applications submitted do not fulfil the expectations in terms of completeness, excellence and fitness to the call.

Award

Applicants who have passed the evaluation and provided that the partners have not identified a conflict of interest will be informed about the final decision from Evaluation Committee per

e-mail from the address opencall@i-tribomat.eu. Should the application be positively evaluated, the applicant organisation will be offered the possibility of signing the **Collaboration Agreement.** An Evaluation Summary Report will be sent to applicants approximately 4 weeks from submission deadline (end of March 2022).

Upon reception of the Evaluation Summary Report, applicants will have the possibility to submit to the i-TRIBOMAT project complaints related to decisions of application evaluation and selection, if there is an indication that there has been a shortcoming in the way a proposal has been evaluated. The complaint procedure is not meant to call into question the judgement made by the evaluators; it will look at procedural shortcomings and – in rare cases – into factual errors. Such complaint requests should be sent by email to the same email of the application procedure within 7 working days from the date of the Evaluation Summary Report sent by i-TRIBOMAT. If a complaint is submitted after that deadline, it will be rejected without further examination. A reply will be sent to complainants no later than three weeks after the deadline for complaint requests.

Step 4: Collaboration Agreement (CollA) Signature

This is the agreement between the i-TRIBOMAT project and the Early Adopter. It specifies the standards, the Do's and Don'ts and the respective responsibilities. In addition, it will include Early Adopter's exclusion criteria. This CollA needs to be signed by the applicant and returned to the i-TRIBOMAT project coordinator to enter into force.

Step 5: Collaboration Agreement Implementation

After the signing and countersigning of the Collaboration Agreement (CollA) between i-TRIBOMAT consortium and Early Adopter, services development supporting EAs with their use-cases will be conducted, from May-November 2022.

4. *Confidentiality and Intellectual Property Rights*

While evaluating applications, the Evaluation Committee will take care about confidentiality of all data provided, applications will be reviewed in a transparent way, following the POPD (protection of personal data) and ethical rules.
The processing of any applications within the Open Call involves the recording and processing of personal data (such as name, address, and CV). For that, such data will be processed pursuant to Regulation (EC) No 45/2001 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data. Also, Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (and repealing Directive 95/46/EC) will be taken into account.
Unless indicated otherwise, any reply to this Call and any personal data requested are required for the purposes related to the development of Early Adopter's tasks and their management and will be processed solely for those purposes.

When filling the application form, applicants are asked to confirm that no conflict of interest could arise in connection with this Open Call. This will ensure to prevent any situation where the impartial and objective selection of the proposal is compromised for reasons involving economic interest, political of national affinity, family or emotional ties or any other shared interest ("conflict of interest"). Applicants who cannot confirm that there is no conflict of interest, will not be considered for the selection.

Any communication or publication under the Open Call should clearly indicate that the development of these activities has received funding form the European Commission within the scope of the i-TRIBOMAT project (GA no. 814494) displaying the EU logo on all printed or digital material, including websites and press releases. In addition, it must be specified that it reflects only the author's view and that the EC and i-TRIBOMAT are not liable for any use that may be made of the information contained therein.

The Early Adopters will, throughout the duration of their involvement with the i-TRIBOMAT, take appropriate measures to engage with the public about such involvement and to highlight the financial support of the EC.

The Early Adopters will retain full and exclusive ownership of their prior information as well as the intellectual property with regard to the activities performed under these services.

i-TRIBOMAT has the right to communicate and disseminate the Early Adopters Open Call results during the project (reporting to the EC).

If the tests performed during the Open Call result in any improvement or enhancement for the company, the company will share this information with the i-TRIBOMAT project in order to report on the impact of the project, and for dissemination activities in order to be use for the future marketing of the services.

The Early Adopters can object the disclosure of applications of products and any material compositions which came into knowledge of the i-TRIBOMAT consortium by the respective case study.