Information and Communication Technologies Institute

Carnegie Mellon | PORTUGAL

AN INTERNATIONAL PARTNERSHIP

Guide for Peer Reviewers

Call for the Entrepreneurial Research Initiatives of the Carnegie Mellon Portugal Program - 2014

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GOVERNO DE PORTUGAL

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1. INTRODUCTION

This version of the Guide for Peer Reviewers applies to all proposals submitted to the 2014 Call for Entrepreneurial Research Initiatives of the CMU Portugal Program.

FCT mission

Fundação para a Ciência e a Tecnologia, I.P. (FCT), the Portuguese Foundation for Science and Technology, is the public agency responsible for implementing the Portuguese Science and Technology government policy.

FCT started its operations in August 1997 succeeding the previous equivalent agency, JNICT, created in the 1980s.

FCT's mission consists of continuously promoting the advancement of scientific and technological knowledge in Portugal, exploring opportunities that become available in any scientific or technological domain to attain the highest international standards in the creation of knowledge and to stimulate their diffusion and contribution to improve education, health, environment, and the quality of life and well-being of the general public.

This mission is mainly accomplished through the funding, subsequent to peer review evaluation, of applications presented by institutions, research teams or individuals in public open calls, and also through cooperation agreements and other forms of support in partnership with universities and other public or private institutions, in Portugal and abroad.

FCT's main functions are:

- to promote, finance, follow and evaluate science and technology institutions, programs, projects and qualification of human resources;
- to promote and support infrastructure for scientific research and technological development;
- to promote the diffusion of scientific and technological culture and knowledge, especially when relevant for educational purposes in close collaboration with the *Ciência Viva* agency;
- to stimulate the update, interconnection, reinforcement and availability of science and technology information sources.

FCT funds all areas of knowledge, including exact, natural and health sciences, engineering, social sciences and humanities.

CMU Portugal mission

The Carnegie Mellon Portugal Program is an education, research, and innovation platform that connects Portuguese research institutions, universities and companies in cooperation with Carnegie Mellon University (CMU). The partnership was launched in 2006 and renewed for five more years in 2012, to create new knowledge in key focused areas of Information and

Communications Technologies (ICT) by means of cutting-edge research, world-class graduate education, and a close connection with Portuguese industry, aiming at placing Portugal at the forefront of science and innovation.

The key instruments of the Program are:

- Talent development of faculty, students and industry professionals, through dual degree Ph.D. and Professional Master programs, a Faculty Exchange Program, and an Undergraduate Internships Program;
- Research and innovation in potentially commercializable technologies, through multidisciplinary projects, Entrepreneurial Research Initiatives (ERIs) and Early Bird Projects (EBPs); a very early stage acceleration program (inRes); and industry collaboration through an Industry Affiliates program.

The Phase II of the Carnegie Mellon Portugal Program (2012-2017) emphasizes advanced education and research that can lead to significant entrepreneurial impact. The activities of the program are for the most part configured in Entrepreneurial Research Initiatives (ERIs). In the first call, held in 2013, six proposals were approved for funding, with a total budget of approximately 6 million Euros.

The activities of the CMU Portugal Program are funded by the Fundação para a Ciência e a Tecnologia (FCT), supported by the Conselho de Reitores das Universidades Portuguesas (CRUP), and co-financed by business partners and by CMU.

Grants for research projects

The funding of research projects by FCT is based on peer review of proposals submitted in specific on-line application forms after an open call for proposals. Evaluation is assigned to Evaluation Panels organized by scientific fields covering the areas considered.

Each call is subject to a public announcement containing the main characteristics of the proposals to be accepted and the evaluation criteria to be applied. The rules under which the proposals and the accepted projects are governed are stated in a public document entitled: Regulations Governing Access to Funding for Scientific Research and Technological Development Projects.

FCT regularly opens calls for projects:

- In all scientific domains,
- In targeted research areas, e.g., Clinical Research, Particle Physics, Nanotechnologies, Social Policies.

The 2014 Call for Entrepreneurial Research Initiatives of the CMU Portugal Program is open **from October 15 to December 16, 2014**.

Proposals are submitted online, at a specific FCT site, on a specially designed Web application.

2. CALL FOR ENTREPRENEURIAL RESEARCH INITIATIVES - 2014

The Entrepreneurial Research Initiatives (ERIs) are projects in science, engineering, management and policy that link both fundamental and applied research to technological innovation and economic development, explicitly focusing on important real world problems entailing significant scientific challenges.

ERIs integrate activities in research, innovation, advanced education and training of human resources, with industry collaboration and emphasis on the commercialization of technology for real world impact. Their mission is to stimulate and promote Portuguese innovation in Information and Communication Technologies (ICT), by acting as international innovation engines, embedded in global knowledge and business networks, to train creative innovators, generate new ideas, and translate them into products, processes and services.

To achieve these goals, ERIs will have the following key features:

- A vision for bridging research to innovation and developing innovative and competitive talent;
- A strategic plan for research, education and innovation, with a path to sustainability;
- A cross-disciplinary research program enabler of innovation;
- Cross-cultural global research, education and innovation experiences;
- An education program that uses CMU Portugal's dual degree programs;
- An innovation program that includes partnerships with startups and/or established companies.

All the FCT R&D project calls follow the same procedures, satisfy the same rules and use the same forms.

This call also follows the Terms of Reference for the Entrepreneurial Research Initiatives Call for Proposals 2014.

The PI candidates have at their disposal extensive documentation to guide them through the call, in particular:

- The Public Announcement of the Call;
- Terms of Reference for the Entrepreneurial Research Initiatives Call for Proposals 2014;
- Guidelines for Entrepreneurial Research Initiatives Proposals Writing - 2014;
- Regulations Governing Access to Funding for Scientific Research and Technological Development Projects- 2010 that establish the rules under which the proposals are accepted and evaluated, and the funded projects have to be managed;
- A Guide for the elaboration and submission of R&D project proposals, with a set of suggestions on how to write a good proposal;
- A set of FAQs about Calls;
- Instructions on how to use the Project Call portal.

This section states the main aspects of the Regulations concerning the scientific evaluation.

Main rules

According to the Regulations governing the access to funding of Scientific Research and Technological Development projects:

- The content of the application **should be written in English**, and a version in Portuguese of the Title and the Summary is also required.
- Projects whose approval would make the PI or any member of the team exceed 100% of time dedicated to FCT research projects will not be funded. This condition is to be verified by FCT.
- Each PI must have a minimum of 35% of his/her time allocated to the project. For the remaining research team members a minimum percentage of 15% applies (these conditions are automatically verified during the application submission).
- The recipient entities and the PI must agree to comply with the applicable national and European community norms, namely as regards competition, environment, equal opportunity and gender, and public contracting whenever applicable. In cases of projects involving:

  - Animal experimentation, **the PI must vouch for the research team's compliance with** EU directives and the relevant Portuguese laws regarding the protection of animals used for experimental and other scientific purposes.

  - **Regarding the donation, procurement, testing, processing, storage, distribution and preservation of human tissues and cells, the PI must vouch for the research team's compliance with EU directives and the relevant Portuguese laws on standards of quality and safety.**

  - **The dissemination strategy of research outputs of the projects, including considerations of open access, shall be taken into account in the evaluation.**

- All members of the research team involved in the application must submit their CV in English and follow a set of rules when writing it (cf. Guide for the Elaboration and Submission of R&D Project Applications).

- Funded items (cf. Regulations):

  - **Human Resources,** including grants associated with the project (not applicable to public servants) or contracts specially signed for the project; grants within research projects may be of the following types (whose nature is explained in section Glossary and Translations of this guide):

    - ❖ BCC – Invited Scientist Grant
    - ❖ BPD – Post-doctoral Grant
    - ❖ BI – Research Grant
    - ❖ BIC – Scientific Initiation Grant
    - ❖ BTI – Research Technician Grant

    For all grant schemes, the monthly amount to be paid to the grant holder is fixed and established by FCT. The cost considered in each application automatically assumes the authorized monthly cost of the grant, with the number of months fixed by the PI. Salaries of public servants are not funded.

- **Missions** in Portugal and abroad;

- **Consultants**;

- **Acquisition of goods and services and other current expenses** directly related to execution of the project, and the intervention of licensed auditors or accountants;

- **Registration abroad of patents, copyrights, utility models and designs**, national models or brands associated with other forms of intellectual property, namely fees, prior art searches and consultants' fees;

- **Adaptation of buildings and facilities** when essential to carrying out the project including installation of equipment and other resources, provided that these costs do not exceed 10% of the total eligible cost of the project. The percentage bound in this item is automatically checked by the submission tool. Applications cannot be locked if this condition is not verified.

- **Acquisition of scientific and technical instruments** essential to the project and which shall remain attached to the project during the period of its execution.

- **Overheads** up to 20% of the funding for direct costs.
  The percentage bound in this item is automatically checked by the submission tool. Applications cannot be locked if this condition is not verified.

According to the Public Announcement and the Terms of Reference for this call:

- The **funding conditions** establish 4 years as the maximum duration of the project and a maximum funding of 650,000 Euros for Portuguese research institutions in each ERI;
- An **ERI consortium** must include at least two partner Portuguese research institutions and at least a company, as well as a research team from Carnegie Mellon University.

3. EVALUATION CRITERIA

The evaluation and selection process is based in the following main five review criteria:

A. Scientific merit and innovative nature of the project from an international standpoint;
B. Scientific merit of the research team;
C. Feasibility of the work plan and reasonability of the budget;
D. Contribution to the body of knowledge in this field and improvement in the competence of the scientific community;
E. Potential economic value of the technology.

Application of these criteria shall take into account, among other considerations, the following (according to the Regulations Governing Access to Funding for Scientific Research and Technological Development Projects- 2010 and the Terms of Reference for the Entrepreneurial Research Initiatives Call for Proposals 2014):

A. For **criterion A**:

i. Relevance and originality of the project proposed (based on the state-of-the art in a determined scientific area and previous work done by the proposing team);
ii. Methodology adopted for carrying out the project;
iii. Expected results and their contribution to scientific and technological knowledge;
iv. Resulting publications and articles;
v. Contribution towards promoting and disseminating science and technology;
vi. Production of knowledge that can contribute to benefits to society or to the business sector, if applicable.
vii. Benefits to society and contribution to economic growth;
viii. Relevance towards obtaining comparative advantages for Portugal, in accordance with the objectives of the Carnegie Mellon Portugal Program;
ix. Importance of the targeted real world problems and of the identified technical, societal and economic challenges;
x. Clear motivation for a high quality cross-disciplinary research to address the identified challenges through significant upstream research efforts, expanding the body of knowledge and looking at enabling novel real-world solutions for the long-term, and downstream research and development efforts, in close connection with industry, enabling new real-world solutions for the near-term;
xi. Level of integration of research, education, and innovation, leading to a culture of discovery and innovation (an innovation engine);
xii. A strategy to educate graduates who are adaptive, creative innovators, capable of advancing fundamental knowledge and exploiting it in ways that allow for creating innovations in a globally connected, innovation-driven world;
xiii. Effective plans for mentoring graduate students and postdoctoral researchers.

B. For **criterion B**:

i. Scientific productivity of the team evaluated according to criteria accepted internationally by the different scientific communities (ranging from references to publications and citations in published works as used by the basic and engineering sciences, to performance and artistic work in the arts, or monographs and books in the humanities and social sciences);

ii. Abilities and skills to adequately execute the proposed project (team configuration, Principal Investigator's qualifications);
iii. Ability to involve young researchers in training;
iv. Availability of the team and non duplication of objectives in relation to other projects underway;
v. Degree of internationalization of the team;
vi. Degree of success in previous projects of the Principal Investigator (PI) (in the case of young PIs, this requirement must be assessed based on the potential revealed by the PIs curriculum vitae in the absence of prior concrete accomplishments);
vii. Qualifications of the lead Portugal PI as faculty member, and relevance of the PI's doctoral degree and/or career experience to ICT;
viii. Accomplishments in prior experience with the Carnegie Mellon Portugal Program (if applicable);
ix. Level of commitment of any companies participating in the project (if applicable);[1]
x. Team qualifications regarding leadership, disciplines and collaboration potential;
xi. Alignment between the team's recent and proposed research advances and emerging opportunities for technological innovation;
xii. A strategy for cross-institution collaboration in research, education, and innovation, effectively organizing and integrating resources and activities;
xiii. Inclusion of Portuguese partner research institutions with researchers who are faculty members in Portuguese universities offering doctoral programs with the breadth and depth appropriate to support the ERI's vision;
xiv. Strong advisory committee, with industry and academia representation, working symbiotically to contribute to bridge science and industry.

C. For **criterion C**:

i. Organization of the project in terms of the proposed objectives and resources (duration, equipment, size of the team, institutional and management resources);
ii. Institutional resources of the participating entities, in particular of the Principal Contractor (PC) (technical-scientific, organizational and managerial and, when appropriate, co-funding capacity on the part of companies);
iii. Quality of project design and rationale for the proposed budget;
iv. Level of access to knowledge from other initiatives;
v. Support from leaders at partner institutions towards cross-disciplinary research, industry membership and IP policy;
vi. Experimental, computational, and other required equipment, facilities, and laboratory space to support the research;
vii. Cyber-infrastructure effectively used for collaboration and sharing of information across all partners including both Portuguese research partners, CMU and industrial partners;
viii. Level of committed industry financial and/or in-kind support commensurate with typical levels of support for academic research in the fields involved in the ERI.

D. For **criterion D**:

i. Contribution to the body of knowledge and competence of the National Science and Technology System (expected effects and results);

[1] The proposal overview has the indication if a participating entity is a for profit organization.

ii. Enhancement of partnerships for research, education and innovation;
iii. Clear path for the sustainability of the ERI.

E. For **criterion E**:

i. Potential economic value of the technology (if appropriate), namely in terms of its impact on the competitiveness of the national socio-economic system;
ii. A strategy to develop an innovation engine, partnering with startups and/or established companies;
iii. A rationale for selecting industry partners, and means to engage these partners in planning, research, education, and innovation;
iv. Effective plans and instruments to promote interaction with potential markets and end users, including prototyping, proof-of-concept and proof-of-market;
v. Facilitation of collaboration with industry and technology transfer, through proposed draft partnership agreements and Intellectual Property (IP) policy;
vi. Clear strategy for researchers to affiliate with startups and/or established companies, to license IP, carry out translational research, accelerate commercialization, and provide students with innovation experiences;
vii. Whenever possible and appropriate, effective partnering with innovation and entrepreneurship support organizations in education and innovation activities.

4. SCORING SYSTEM

The FCT grant application scoring system uses a 9-point scale:

Impact	Score	Additional Guidance on Strengths/Weaknesses
High	9	Exceptionally strong with essentially no weaknesses
	8	Extremely strong with negligible weaknesses
	7	Very strong with only some minor weaknesses
Medium	6	Strong but with numerous minor weaknesses
	5	Strong but with at least one moderate weakness
	4	Some strengths but also some moderate weaknesses
Low	3	Some strengths but with at least one major weakness
	2	A few strengths and a few major weaknesses
	1	Very few strengths and numerous major weaknesses

A **score of 9** indicates an exceptionally strong application with essentially no weaknesses. A **score of 1** indicates an application with serious and substantive weaknesses with very few strengths; **5** is considered an average score.

Impact is the project's likelihood to have a sustained, powerful influence on the research field(s) involved:

- **High impact** = 7 to 9;
- **Medium impact** = 4 to 6;
- **Low impact** = 1 to 3.

Each of the five criteria is rated using this 9-point scale with whole numbers only (no decimal ratings). Reviewers have to identify strengths and weaknesses for each criterion and should provide context for their comments based on the application.

Reviewers give an **overall rating** to each application, which is based on their own judgment of the merit of the overall application without resorting to any sort of quantitative algorithms. **The overall rating should reflect the reviewer's overall evaluation, not a numerical average of individual criterion scores**. An application does not need to be strong in all criterion scores to be judged likely to have major impact. The overall rating is also expressed as a scope mark from 1 to 9. Reviewers should provide a paragraph summarizing the factors that informed their overall rating.

Each review criterion should be assessed based on how important each review criterion is to the work being proposed: as a result, a reviewer may give only moderate scores to some of the review criterion but still give a high overall impact/priority score because the one review criterion critically important to the research is rated highly; or a reviewer could give mostly high criterion ratings but rate the overall impact/priority score lower because the one criterion critically important to the research being proposed is not highly rated.

Accordingly, the ranking of **applications with the same overall rating** takes into account the following order of importance for each criterion:

A – 30%

B – 20%

C – 15%

D – 15%

E – 20%

5. EVALUATION PROCESS AND PROCEDURES

General information

- Each evaluation panel has a number of members agreed with the FCT Executive Board and the CMU Portugal Program Directors. The panel is headed by the **Panel Chair**.

- Each project must have, at least, two individual reviews. The individual reviewers are either panels' members or external reviewers.

- The Panel Chair can propose to FCT the naming of external reviewers that will submit individual reviews of the proposals whenever these are deemed necessary. These will be selected and assigned by FCT.

- External reviewers can be either foreign or Portuguese researchers, provided they are affiliated with non-Portuguese institutions, of recognized competence in the scientific areas of the proposals to be evaluated, which shall be responsible for issuing the individual reviews that are requested by the evaluation panels. The name of external reviewers will not be made public.

- Each individual review report will include:
  - the score and comments for each of the five evaluation criteria,
  - the proposal of an overall score for the project,
  - a general comment on the proposal,
  - recommendation for funding/no funding (but not on the amount of funding),
  - confidential comments to the panel members (not mandatory).

- The project final score and the comments to be made available to the applicants are given by the panel, during the panel meeting in Portugal, having access to the scores and comments produced by individual reviewers. The panel review for each project includes:
  - the rating and the comments for each of the five criteria to be transmitted to the PI;
  - the overall rating of the project, to be transmitted to the PI;
  - a general comment on the proposal to be transmitted to the PI;
  - quantified funding recommendation to be transmitted to the PI;
  - confidential comments to FCT, if considered necessary by the panel.

- The funding decision by FCT is based on the proposed ranking and budget availability defined for each call.

- The first time a panel member or an external reviewer logs in the evaluation web pages, he/she has to sign a Confidentiality Statement.

- The panel should issue a final report on its activities.

- There is an allocated FCT project officer for the call. He/she is the contact point of FCT with the panel.

The content of the Individual and Panel Evaluation Forms are available in this guide in the Annex.

Evaluation stages

The evaluation of the research proposals involves the following stages:

1. The Panel Chair is informed by the FCT project officer allocated to the call that the review process can start, and receives the username and password used for the allocation of individual reviews.

2. **Allocation of Reviewers** – The Panel Chair allocates no less than two reviewers to each project, according to a methodology defined by the Panel Chair and communicated to FCT within a report on the methodology followed. The list of available individual reviewers includes, at a first stage, only the panel members. By request of the Panel Chair, the FCT project officer adds additional external reviewers to the list. The full name and e-mail of these external reviewers should be provided by the Panel Chair. The Panel Chair should detect possible conflicts of interest in this allocation process and, in that case, re-allocate the proposal to a different reviewer.

3. Upon the conclusion of the allocation process, the Panel Chair notifies the FCT project officer. This can be done also whenever the allocation in each sub-area is completed.

4. The FCT project officer sends:

    a. a username and password for individual review purposes to each member of the panel[2];

    b. an e-mail invitation to each of the external reviewers and, in case of acceptance, a username and password together with related documentation, in particular the indication of the review submission deadline.

5. **Individual evaluation** - Individual reviewers input their evaluation for each project in the Individual Reviewer Evaluation Form and seal the review.

6. **Panel Evaluation**:

    a. The panel inputs the final evaluation of each research proposal (in the Panel Evaluation Form), including ratings and comments for each evaluation criteria, final rating for the project and a global statement that fully explains the panel judgment on the proposal and states recommendations including those regarding budget, all written in a specific form available online. Confidential comments to FCT are included, if necessary.

    b. The panel completes the review process by producing a panel report.

[2] The Panel Chair and Co-chair will also receive a username and password for individual review, which is different from the ones used for the allocation of reviewers to the projects.

Allocation of reviewers

The username and password sent to the Panel Chair for project allocation gives access, through https://sig.fct.pt/evaluation/, to:

- allocation of, at least, two individual reviewers for each project;
- monitoring of the individual reviewers' work flow; information is given on terminated and to be completed individual reviews;
- sorting of the proposals according to various items, including evaluation rates, requested funding, etc.

The main menu has four options:

- Project List – This list displays all the projects within the scientific area, sorted by scientific sub-area (if applicable). The reference / title are links to access the selected proposal form overview, the status of its evaluation and the contents of the individual reviews, if sealed. The link on the right column () should be used to associate the names of the evaluators assigned to review the proposal. Each proposal should be reviewed by at least two evaluators. Accordingly, every proposal with less than two reviewers will appear with a different color on the screen.
- Evaluators List - This list displays the names of the evaluators appointed to this area. By clicking each name, the list of proposals associated with him/her may be accessed.
- Evaluators / Ratings – lists of all projects, with data relative to the evaluators' work flow.
- Additional Documents – set of documents with information relative to the evaluation process, the particular call, logistic aspects, etc.

Individual Evaluation

Individual reviews are carried out prior to panel meetings and performed remotely. Whenever possible, one of the individual reviews should be carried out by a panel member that will be present in the subsequent panel meeting.

The content of the Individual Evaluation Form is available in this guide in the Annex.

The meaning of "individual"

During the individual review step, there shall be no discussions on the proposal between the reviewers involved.

Ratings and comments

Individual reviewing includes:

- Applying the evaluation criteria and rating for each criterion;
- Providing a succinct but substantial explanatory comment for each criterion. This statement should address the relative importance of the criterion and the extent to which the proposal actually meets the criterion, and be in agreement with the score;

- Providing a final rate for the project, which is based on the evaluator's own judgment of the merit of the overall proposal without resorting to any sort of quantitative algorithms;
- Providing a global substantial explanatory comment for the project. This statement should fully explain the evaluator's judgment on the proposal stating recommendations regarding the research work and the project organization;
- Providing recommendations, with due justification, on overall budget reduction or reduction on human resources budget;
- Providing recommendations, with proper justification, of possible modifications to the plan of work;
- Suggesting associations or collaboration between projects submitted in the same call in order to form larger teams with greater scientific capabilities, with the necessary changes in the funding to be awarded;
- Providing information to FCT on particular projects;
- Providing confidential comments to the panel members, if necessary.

The importance of ratings and comments

Both rating and comments are critically important:

- The individual review ratings and comments are the starting point for the panel discussions and for the panel final rating;
- The comments may be reproduced, verbatim, in the feedback to applicants, upon decision of the panel members.

The nature of the comments

Comments should be succinct but substantial. They should also be impeccably polite. If so decided by the panel members, the comments may be reproduced totally or partially in the feedback to applicants.

Comments should take the form of a statement of key strengths and key weaknesses, in the light of the criteria. This should be a few sentences long.

Reviewers are encouraged to observe the following additional guidelines:

- Avoid comments that give a description or a summary of the proposal.
- Avoid the use of the first person or equivalent: "I think…" or "This reviewer finds…".
- Always use dispassionate and analytical language: avoid dismissive statements about the PI, the proposed science, or the scientific field concerned.
- Avoid asking questions, as the PI will not be able to answer them.

Evaluate the proposed work and not the work you consider should have been proposed.

Webpage for Individual Reviewers

The username and password sent to each individual reviewer gives access through https://sig.fct.pt/evaluation/ to the list of projects under evaluation by the corresponding reviewer. Please see the Instructions on the top of the menu.

- For each project proposal, the following is available:
    - A statement on Conflict of Interest;

- All the information submitted is the Form Overview. In this form, the name of each team member has a link to his/her CV and the financed projects by the same PI have a link to the project description and results;
- The information in the Form Overview can be printed and a pdf file can be generated with it. See the links on "Print this page" and "Instructions to view and print this page" for this purpose.
- Different applications by the same PI or research team member (even in different scientific areas), for the sake of detecting superposition of objectives or resources;
- The Individual Evaluation Form;
- Possibility to **SAVE** the submitted evaluation report. This means that the uploaded information will be kept for future revision;
- Necessity to **LOCK** the submitted evaluation report. This means that the reviewer will no longer be able to modify the uploaded information.

– A summary of the work done and yet to be done.

Panel Evaluation

Panel Meeting

The Panel Chair has to make sure that at least two individual evaluation forms for each project were completed and sealed.

Panel Evaluation Form and Feedback to Applicants

At the panel meeting in Portugal all applications will be discussed. Based on the online evaluation individual reports, but according to the own judgment of the panel members, the projects should be evaluated and rated.

A consensus panel report must be written for each project using the Panel Evaluation Form provided on-line. The Panel Evaluation Form is similar to the Individual Evaluation Form used for individual review. In order to simplify the Panel Evaluation Form completion, the panel will access both individual review forms, and will be able to choose to copy the contents of one of the individual forms and further edit it.

FCT will provide each PI with the final rate and overall comments as well as the panel rates and comments for each criterion. Except for proposals rating and budget recommendations if the projects are approved, the most important output of the panel meeting is the feedback to applicants. Please provide in these fields the comments on the proposal, including the extent to which it meets the evaluation criteria. Your substantive written comments on the proposal's strengths and weaknesses are critical to the evaluation and to the proponents' understanding of your judgments. Include in this field any recommendations you find desirable or necessary regarding the research work or the project organization.

The PI will also be informed on the total budget recommended by the panel, and the associated justification.

Panel Conflict of Interest

If a CoI emerged for any panel member, the panel should solve it or, should this not to be possible, report it on the panel final report.

Panel Final Report

The panel members should prepare a panel final report, to be sent, dully signed by all the panel members, to FCT at the end of the evaluation process.

The report should be organized in two main parts:

Part I – Evaluation, including, but not limited to,

- Panel adopted working methodology;
- Identification of potential CoI situations and their solution;

Part II – Recommendations to FCT, on the various aspects of the evaluation that might help FCT to improve procedures in future calls. Please refer, among other considered important:

- Comments and criticism on the application form, with suggestions for possible improvements;
- Comments on the material available to the PIs;
- Strong and weak aspects of the evaluation web application;
- Strong and weak aspects of the FCT officers' support;
- Strong and weak aspects on logistic aspects (travel, hotel, meeting).

A version of this report can be submitted at the panel Internet area, after the evaluation completion of all projects. Alternatively, the original, preferably in electronic form and PDF format, may be delivered to the FCT project officer.

Webpage for the Panel Final Evaluation

The panel username and password to be used for the panel evaluation will be distributed to all panel members by the FCT project officer. They give access, through https://sig.fct.pt/evaluation/, to a web page with a set of links:

- Project List. For each project proposal:
  - All the information submitted as the project proposal (Form Overview);
  - Different applications by the same PI or research team member in the present call (even in different scientific areas), and proposals by the same PI from the previous call with rebuttals pending, for the sake of detecting duplication of objectives or resources. As stated in the text of the call duplication is not allowed;
  - The contents and ratings of the two Individual Reviews (Evaluation);
  - The Panel Evaluation Form to be filled (Panel Evaluation).
- Summary of Evaluation. A list of allocated projects with information of panel evaluation and the possibility to make sort relative to a chosen column. Bottom global information

on number of panel recommended projects for funding and panel recommended funding.

- Extra Information. Five different lists with information on the projects.
- Evaluation Report.
- Close Panel.

6. CONFIDENTIALITY AND CONFLICT OF INTEREST

Confidentiality

The confidentiality of written proposals must be protected. All the experts involved in the evaluation are asked not to copy, quote or otherwise use material from them. They are requested to sign a statement of confidentiality relative to the contents of the project proposals and to the results of the evaluation.

The text to be accepted, that appears the first time each panel member or external reviewer uses his/hers username and password to access the evaluation area, is the following:

STATEMENT OF CONFIDENTIALITY

Thank you for accepting to participate in the scientific evaluation of Research Projects submitted to the Portuguese Foundation of Science and Technology (Fundação para a Ciência e a Tecnologia) – FCT.

The reader of this message pledges, on his/her honor, not to quote or use in any way, the contents of the project proposals, nor to make available, other than to FCT or the evaluation panel, the results of the evaluation of project proposals.

Conflict of interest (CoI)

Reviewers that have submitted any **applications to the present Call**, both as PI or team member, **have to decline** participating in the evaluation process.

Circumstances that could be interpreted as a **disqualifying conflict of interest** are laid down in the following criteria:

1. First-degree relationship, marriage, life partnership, domestic partnership;
2. Personal interest in the application's success or financial interest by persons listed under no.1;
3. Current or planned close scientific cooperation;
4. Dependent employment relationship or supervisory relationship (*e.g.* teacher-student relationship up to and including the postdoctoral phase) extending five years beyond the conclusion of the relationship;
5. The affiliation or pending transfer to this or to a participating institution;
6. Researchers who are active in a council or similar supervisory board of the applying institution are excluded from participating in the review and decision-making process for applications originating from this institution;

A potential conflict of interest may exist, even in cases not covered by the clear disqualifying conflicts indicated above, in the following circumstances:

7. Relationships that do not fall under no. 1, other personal ties or conflicts;
8. Financial interests of persons listed under no. 7;
9. Participation in university bodies other than those listed under no. 6, e.g. in scientific advisory committees in the research environment;
10. Research cooperation within the last three years, e.g. joint publications;
11. Preparation of an application or implementation of a project with a closely related research topic (competition);
12. Participating in an on-going scientific or inter-personal conflict with the applicant(s).

Before starting the evaluation of each application, and in order to be able to access the evaluation form, the individual reviewer needs to complete a CoI Declaration, as follows:

Conflict of Interest Declaration
Please state:
- No, I have no conflict
- Yes, I have a strong conflict (see **Disqualifying CoI**)
- It is possible that I have a conflict (see **Potential CoI**)

Add any comments below.

The **individual reviewer** will not be able to proceed in case of a strong conflict of interest. In this case the individual reviewer is required to inform the FCT team of the situation, for project re-allocation. The final panel report must mention all Potential CoI declared.

Should a CoI emerge for any **panel member**, the Panel Chair should solve it supported by the FCT team and make an explicit mention of it on the panel final report.

7. GLOSSARY AND TRANSLATIONS

Portuguese to English translation and explanations

Agregação = Aggregation. This is an academic title. It attests

i.) the quality of the academic, professional, scientific and pedagogical curriculum,

ii.) the capacity to carry out research work,

iii.) the capability to coordinate and carry out independent research work,

and is issued to PhD holders after a public exam by a jury. The exam is required by the candidates and takes places during two days.

Doutoramento = PhD, doctoral degree

Mestrado – Master's degree

Licenciatura = BA (3, 4 or 5 years graduate course)

Bolsa = Grant, fellowship

Bolseiro = Grant Holder, Fellow

BCC = Bolsa de Cientista Convidado = Invited Scientist Grant

- Invited scientist grants are designed for doctoral degree holders with scientific curricula of notable merit, for the purpose of developing and carrying out research activities in Portuguese science and technology institutions, including directing and coordinating of research projects.
- The total duration of this type of grant can vary between one month and three years.

BPD = Bolsa de Pós-Doutoramento = Post-doctoral Grant

- Post-doctoral grants are intended for individuals who have already completed a doctoral degree, preferably within the last five years, for the purpose of carrying out advanced research in Portuguese or foreign scientific institutes of recognized merit.

BI = Bolsa de Investigação = Research Grant

- These research grants are available for bachelor, graduation or master degree holders for the purpose of obtaining scientific training in research projects or in Portuguese science and technology institutions.
- These grants are, in principle, one year in length, renewable for up to a total of three years, and cannot be awarded for periods of less than three consecutive months.

BIC = Bolsa de Iniciação Científica = Scientific Initiation Grant

- Scientific initiation grants are designed primarily for students who have completed at least 3 years of higher education (1st cycle or equivalent) for the purpose of obtaining scientific training by participating in research projects in Portuguese institutions.

- These grants are, in principle, one year in length, renewal for up to two years, contingent on good scholastic performance. They cannot be awarded for periods of less than three consecutive months.

BTI = Bolsa de Técnico de Investigação = Research Technician Grant

- Research technician grants are designed to provide for additional specialized training of technicians to support the operation and maintenance of scientific laboratory equipment and infrastructures and other activities relevant to the Portuguese scientific and technological system.

- The length of this type of grant varies, up to a total of five years, and cannot be awarded for periods of less than three consecutive months.

NUTS = Nomenclaturas de Unidades Territoriais para fins Estatísticos – Denomination of the Territorial Units for Statistical purposes

Glossary

Associate Laboratory = Private not-for profit and public research institutions together with State Laboratories can join in an association, named Associate Laboratory, aiming at the achievement of special objectives of the national science and technological policy. The status of Associate Laboratory is granted by the Ministry of Science, Technology and Higher Education, for periods not exceeding 10 years, upon recognition of their Excellence.

Autonomous Regions = Madeira and Azores Islands

FEDER = European Regional Development Fund

FTE = Full Time Equivalent

MEC = Ministry of Education and Science

Postdoctoral fellow = a PhD holder that has a Post-doctoral grant

ANNEX - EVALUATION FORMS

Individual Evaluation Form

Referee. Name of referee, automatically filled

Project reference. Project reference as issued by FCT at project proposal phase.

Principal Investigator. Name of the principal investigator, automatically filled

Title. Automatically filled

Criterion A: Scientific merit and innovative nature of the project from an international standpoint, including but not limited to: i) Relevance and originality of the project proposed (based on the state-of-the art in a determined scientific area and previous work done by the proposing team); ii) Methodology adopted for carrying out the project; iii) Expected results and their contribution to scientific and technological knowledge; iv) Resulting publications and articles; v) Contribution towards promoting and disseminating science and technology; vi) Production of knowledge that can be incorporated into and applied to the business sector, if applicable; vii) Benefits to society and contribution to economic growth; viii) Relevance towards obtaining comparative advantages for Portugal, in accordance with the objectives of the Carnegie Mellon Portugal Program; ix) Importance of the targeted real world problems and of the identified technical, societal and economic challenges; x) Clear motivation for a high quality cross-disciplinary research to address the identified challenges through significant upstream research efforts, expanding the body of knowledge and looking at enabling novel real-world solutions for the long-term, and downstream research and development efforts, in close connection with industry, enabling new real-world solutions for the near-term; xi) Level of integration of research, education, and innovation, leading to a culture of discovery and innovation (an innovation engine); xii) A strategy to educate graduates who are adaptive, creative innovators, capable of advancing fundamental knowledge and exploiting it in ways that allow for creating innovations in a globally connected, innovation-driven world; xiii) Effective plans for mentoring graduate students and postdoctoral researchers.

Rating A: ☐ **(from 1 to 9)**

Comments on Criterion A

Criterion B: Scientific merit of the research team, including but not limited to: i) scientific productivity of the team (ranging from references to publications and citations in published works as used by the basic and engineering sciences, to performance and artistic work in the arts or monographs and books in the humanities and social sciences); ii) Abilities and skills to adequately execute the proposed project (team configuration, Principal Investigator's qualifications); iii) Ability to involve young researchers in training; iv) Availability of the team and non duplication of objectives in relation to other projects underway; v) The degree of internationalization of the team; vi) Degree of success in previous projects in relation to the Principal Investigator (PI) (in the case of young PIs, this requirement must be assessed based on the potential revealed by the PIs curriculum vitae in the absence of prior concrete accomplishments); vi) Degree of success in previous projects of the Principal Investigator (PI) (in the case of young PIs, this requirement must be assessed based on the potential revealed by the PIs curriculum vitae in the absence of prior concrete accomplishments); vii) Qualifications of the lead Portugal PI as faculty member, and relevance of the PI's doctoral degree and/or career experience to ICT; viii) Accomplishments in prior experience with the Carnegie Mellon Portugal Program (if applicable); ix) Level of commitment of any companies participating in the project (if applicable); x) Team qualifications regarding leadership, disciplines and collaboration potential; xi) Alignment between the team's recent and proposed research advances and emerging opportunities for technological innovation; xii) A strategy for cross-institution collaboration in research, education, and innovation, effectively organizing and integrating resources and activities; xiii) Inclusion of Portuguese partner research institutions with researchers who are faculty members in Portuguese universities offering doctoral programs with the breadth and depth appropriate to support the ERI's vision; xiv) Strong advisory committee, with industry and academia representation, working symbiotically to contribute to bridge science and industry.

Rating B: ☐ **(from 1 to 9)**

Comments on Criterion B

Criterion C: Feasibility of the plan of work and reasonableness of the budget, including but not limited to: i) organization of the project in terms of the proposed objectives and resources (duration, equipment, size of the team, institutional and management resources); ii) institutional resources of the participating entities, in particular of the Principal Contractor (PC) (technical-scientific, organizational and managerial and, when appropriate, co-funding capacity on the part of companies); iii) Quality of project design and rationale for the proposed budget; iv) Level of access to knowledge from other initiatives; v) Support from leaders at partner institutions towards cross-disciplinary research, industry membership and IP policy; vi) Experimental, computational, and other required equipment, facilities, and laboratory space to support the research; vii) Cyber-infrastructure effectively used for collaboration and sharing of information across all partners including both Portuguese research partners, CMU and industrial partners; viii) Level of committed industry financial and/or in-kind support commensurate with typical levels of support for academic research in the fields involved in the ERI.

Rating C: ☐ **(from 1 to 9)**

Comments on Criterion C

Criterion D: Contribution to the body of knowledge in this field and improvement of competence of the scientific community in general, including but not limited to: i) Contribution to the body of knowledge and competence of the National Science and Technology System (expected effects and results); ii) Enhancement of partnerships for research, education and innovation; iii) Clear path for the sustainability of the ERI.

Rating D: ☐ **(from 1 to 9)**

Comments on Criterion D

Criterion E: Potential economic value of the technology, including but not limited to: i) Potential economic value of the technology (if appropriate), namely in terms of its impact on the competitiveness of the national socio-economic system; ii) A strategy to develop an innovation engine, partnering with startups and/or established companies; iii) A rationale for selecting industry partners, and means to engage these partners in planning, research, education, and innovation; iv) Effective plans and instruments to promote interaction with potential markets and end users, including prototyping, proof-of-concept and proof-of-market; v) Facilitation of collaboration with industry and technology transfer, through proposed draft partnership agreements and Intellectual Property (IP) policy; vi) Clear strategy for researchers to affiliate with startups and/or established companies, to license IP, carry out translational research, accelerate commercialization, and provide students with innovation experiences; vii) Whenever possible and appropriate, effective partnering with innovation and entrepreneurship support organizations in education and innovation activities.

Rating E: ☐ **(from 1 to 9)**

Comments on Criterion E

The overall rating of the project is based on the evaluator's own judgment of the merit of the overall proposal without resorting to any sort of quantitative algorithms. The overall rating is also expressed as Excellent, Very Good, Good, Fair, and Poor.

Overall Rating: ☐ **(from 1 to 9)**

Overall Comments

(Please provide an overall comment on this proposal, including the extent to which it meets the evaluation criteria. Your substantive written comments on the proposal's strengths and

weaknesses are critical to the evaluation and to the proponents' understanding of your judgment. Include any recommendations you find desirable or necessary regarding the research work or the project organization)

Should the requested funding be reduced, in case of project approval?	Answer Yes/No

Please comment on the answer

Should the requested funding for Human Resources be reduced, in case project approval?	Answer Yes/No

Please comment on the answer, referring the number and type of fellowships to award

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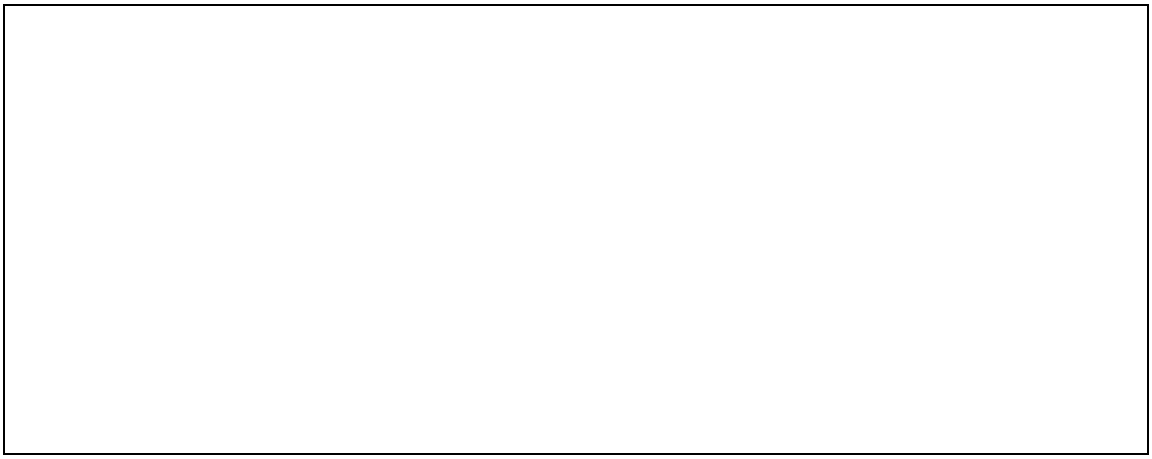
Confidential comments to the evaluation panel



Panel Evaluation Form

Panel. Name of panel, automatically filled

Project reference. Project reference as issued by FCT at project proposal phase.

Principal Investigator. Name of the principal investigator, automatically filled

Title. Automatically filled

Criterion A: Scientific merit and innovative nature of the project from an international standpoint, including but not limited to: i) Relevance and originality of the project proposed (based on the state-of-the art in a determined scientific area and previous work done by the proposing team); ii) Methodology adopted for carrying out the project; iii) Expected results and their contribution to scientific and technological knowledge; iv) Resulting publications and articles; v) Contribution towards promoting and disseminating science and technology; vi) Production of knowledge that can be incorporated into and applied to the business sector, if applicable; vii) Benefits to society and contribution to economic growth; viii) Relevance towards obtaining comparative advantages for Portugal, in accordance with the objectives of the Carnegie Mellon Portugal Program; ix) Importance of the targeted real world problems and of the identified technical, societal and economic challenges; x) Clear motivation for a high quality cross-disciplinary research to address the identified challenges through significant upstream research efforts, expanding the body of knowledge and looking at enabling novel real-world solutions for the long-term, and downstream research and development efforts, in close connection with industry, enabling new real-world solutions for the near-term; xi) Level of integration of research, education, and innovation, leading to a culture of discovery and innovation (an innovation engine); xii) A strategy to educate graduates who are adaptive, creative innovators, capable of advancing fundamental knowledge and exploiting it in ways that allow for creating innovations in a globally connected, innovation-driven world; xiii) Effective plans for mentoring graduate students and postdoctoral researchers.

Rating A: ☐ **(from 1 to 9)**

Comments on Criterion A (to be transmitted to applicants)

Criterion B: Scientific merit of the research team, including but not limited to: i) scientific productivity of the team (ranging from references to publications and citations in published works as used by the basic and engineering sciences, to performance and artistic work in the arts or monographs and books in the humanities and social sciences); ii) Abilities and skills to adequately execute the proposed project (team configuration, Principal Investigator's qualifications); iii) Ability to involve young researchers in training; iv) Availability of the team and non duplication of objectives in relation to other projects underway; v) The degree of internationalization of the team; vi) Degree of success in previous projects in relation to the Principal Investigator (PI) (in the case of young PIs, this requirement must be assessed based on the potential revealed by the PIs curriculum vitae in the absence of prior concrete accomplishments); vi) Degree of success in previous projects of the Principal Investigator (PI) (in the case of young PIs, this requirement must be assessed based on the potential revealed by the PIs curriculum vitae in the absence of prior concrete accomplishments); vii) Qualifications of the lead Portugal PI as faculty member, and relevance of the PI's doctoral degree and/or career experience to ICT; viii) Accomplishments in prior experience with the Carnegie Mellon Portugal Program (if applicable); ix) Level of commitment of any companies participating in the project (if applicable); x) Team qualifications regarding leadership, disciplines and collaboration potential; xi) Alignment between the team's recent and proposed research advances and emerging opportunities for technological innovation; xii) A strategy for cross-institution collaboration in research, education, and innovation, effectively organizing and integrating resources and activities; xiii) Inclusion of Portuguese partner research institutions with researchers who are faculty members in Portuguese universities offering doctoral programs with the breadth and depth appropriate to support the ERI's vision; xiv) Strong advisory committee, with industry and academia representation, working symbiotically to contribute to bridge science and industry.

Rating B: ☐ **(from 1 to 9)**

Comments on Criterion B (to be transmitted to applicants)

Criterion C: Feasibility of the plan of work and reasonableness of the budget, including but not limited to: i) organization of the project in terms of the proposed objectives and resources (duration, equipment, size of the team, institutional and management resources); ii) institutional resources of the participating entities, in particular of the Principal Contractor (PC) (technical-scientific, organizational and managerial and, when appropriate, co-funding capacity

on the part of companies); iii) Quality of project design and rationale for the proposed budget; iv) Level of access to knowledge from other initiatives; v) Support from leaders at partner institutions towards cross-disciplinary research, industry membership and IP policy; vi) Experimental, computational, and other required equipment, facilities, and laboratory space to support the research; vii) Cyber-infrastructure effectively used for collaboration and sharing of information across all partners including both Portuguese research partners, CMU and industrial partners; viii) Level of committed industry financial and/or in-kind support commensurate with typical levels of support for academic research in the fields involved in the ERI.

Rating C: ☐ **(from 1 to 9)**

Comments on Criterion C (to be transmitted to applicants)

Criterion D: Contribution to the body of knowledge in this filed and improvement of competence of the scientific community in general, including but not limited to: i) Contribution to the body of knowledge and competence of the National Science and Technology System (expected effects and results); ii) Enhancement of partnerships for research, education and innovation; iii) Clear path for the sustainability of the ERI.

Rating D: ☐ **(from 1 to 9)**

Comments on Criterion D (to be transmitted to applicants)

Criterion E: Potential economic value of the technology, including but not limited to: i) Potential economic value of the technology (if appropriate), namely in terms of its impact on the competitiveness of the national socio-economic system; ii) A strategy to develop an innovation engine, partnering with startups and/or established companies; iii) A rationale for selecting industry partners, and means to engage these partners in planning, research, education, and innovation; iv) Effective plans and instruments to promote interaction with potential markets and end users, including prototyping, proof-of-concept and proof-of-market; v) Facilitation of collaboration with industry and technology transfer, through proposed draft partnership agreements and Intellectual Property (IP) policy; vi) Clear strategy for researchers to affiliate with startups and/or established companies, to license IP, carry out translational research, accelerate commercialization, and provide students with innovation experiences; vii) Whenever possible and appropriate, effective partnering with innovation and entrepreneurship support organizations in education and innovation activities.

Rating E: ☐ **(from 1 to 9)**

Comments on Criterion E

The overall rating of the project is based on the panel's own judgment of the merit of the overall proposal without resorting to any sort of quantitative algorithms. The overall rating is also expressed as Excellent, Very Good, Good, Fair, and Poor.

Overall Rating: ☐ **(from 1 to 9)** **Overall Comments (to be transmitted to applicants)**

(Please provide the overall panel comment on this proposal, including the extent to which it meets the evaluation criteria. Your substantive written comments on the proposal's strengths and weaknesses are critical to the evaluation and to the proponents' understanding of your judgment. Include any recommendations you find desirable or necessary regarding the research work or the project organization. These comments complement those associated with each evaluation criteria and that will also be transmitted to PIs)

Recommendations on budget, if project approved

It is absolutely necessary to recommend a total budget based on the opinions of the Evaluation Panel, to justify the decisions, to state recommendations for application of funding. If the panel recommends a budget reduction, please fill the following field with the recommended amount:

(Please round numbers and do not insert commas or periods to separate the number)

Please justify your recommendation

Recommendations on Human Resources budget, if project approved

Please make explicit the part of this funding that should be applied in "Human Resources" including the awarding of fellowships within the projects

(Please round numbers and do not insert commas or periods to separate the number)

Recommend how this funding should be applied in the various available fellowships

Confidential comments to FCT