
Remote assessment process

PROCEDURES

The objective of the evaluation and selection process of applications in the remote assessment process is to select the best candidates for incorporation into the final stage of each call. Another purpose of this selection is to:

- 1) Respect the diversity of applications from the various disciplines.
- 2) Ensure minimum representation for the candidates assigned to the various remote assessment panels constituted.
- 3) Promote that the highest quality candidates pass the remote assessment stage, regardless of the panel they have been assigned to.

Expert evaluation

Candidacies sent for evaluation in the remote assessment process are reviewed by n experts from the same area of discipline as the application evaluated, or from a closely related field.

The process to evaluate the applications in each remote assessment panel is as follows:

1. According to the established criteria and weights, the final mark for each expert is calculated.
2. It is checked whether there are significant discrepancies in the evaluation of one and the same candidacy between the experts.
3. The final mark for each candidate is calculated by adding the marks of all the experts and weighing them according to the level of expertise they had provided.
4. Draws are resolved.
5. Each candidate's marks are normalised according to each expert and the final classification is obtained.

Processing discrepancies

The evaluation system detects significant discrepancies between experts' evaluations for the same application, so applications can be referred back to those experts to review their original scores if deemed appropriate.

Each expert's mean score in regard to all candidacies evaluated is taken into account to fine-tune the discrepancy detection system.

The discrepancy detection formula is as follows:

- $mark_{A,p}$ = Mark from Expert p for Candidate A

- $mean\ mark_p$ = Mean mark from Expert p for all candidates evaluated in this programme.
- $mark'_{A,p}$ = New mark from Expert p for Candidate A taking into account the mean evaluation from that expert.

n = Minimum discrepancy value from which the application is submitted for re-evaluation.

Step 1:

Calculate the new marks taking into account each expert's mean for each mark of each candidate:

$$mark'_{A,p} = mark_{A,p} - mean\ mark_p \text{ (New marks can be negative)}$$

Step 2:

Calculate the magnitude of the discrepancy between the new marks of the experts that are farther apart from each other and refer it to a minimum value:

Being $\max(mark'_{A,p})$ the maximum new mark of the candidate A among all the experts and $\min(mark'_{A,p})$ the minimum one, if $\max(mark'_{A,p}) - \min(mark'_{A,p}) > n \rightarrow$ The application is submitted for re-evaluation.

For an evaluation like the current one, where the minimum mark is 1 and the maximum mark is 8, values $n > 2$ are considered discrepant.

Familiarity with the discipline evaluated

Each expert has, in the scoring form of each application, a section in which they must indicate their level of expertise with the discipline of the candidacy evaluated.

They must choose between two possible levels of expertise:

LEVEL 1: Their knowledge corresponds, generically, with the field of the discipline evaluated and their evaluation, therefore, can be considered that of an expert.

LEVEL 2: Their knowledge does not correspond, generically, with the field of the discipline evaluated and therefore, their evaluation cannot be considered strictly that of an expert, but it is sufficient taking into account the characteristics of the call.

The final score of an application in its panel is the result of applying different levels of weighting when the levels of expertise indicated by experts evaluating the application do not coincide.

In particular,

- If an expert indicates a higher level of expertise for an evaluated candidacy, an additional half point of weighting is divided between these experts with greater expertise:

$$\text{panel mark}_A = \sum_{p=1}^m \text{mark}_{A,p} * \frac{\text{weight}_{A,p}}{\sum_{p=1}^m \text{weight}_{A,p}}$$

Where,

- $\text{mark}_{A,p}$ is the mark from expert p for candidate A (before checking discrepancies).
- $\text{weight}_{A,p}$ is the weight of expert p in the candidate A.
- panel mark_A is candidate's A final mark in the panel.

Example 1:

There are 3 experts in the panel ($m=3$): p_1, p_2, p_3

Evaluators 2 and 3 have indicated a high level of expertise with the discipline of a certain evaluated candidacy A, which gives a weighting value of the score for each evaluator and a total value of the sum of all weights:

$$\begin{aligned} p_{A,1} &= \text{Level 2} \rightarrow \text{weight}_{A,1} = 1 \\ p_{A,2} &= \text{Level 1} \rightarrow \text{weight}_{A,2} = 1.25 \\ p_{A,3} &= \text{Level 1} \rightarrow \text{weight}_{A,3} = 1.25 \end{aligned}$$

Therefore,

$$\sum_{p=1}^3 \text{weight}_{A,p} = 3,5$$

So the final weighting of each expert's score and from the remote assessment process will be:

$$\frac{\text{weight}_{A,1}}{\sum_{p=1}^3 \text{weight}_{A,p}} = 0,286;$$

$$\frac{\text{weight}_{A,2}}{\sum_{p=1}^3 \text{weight}_{A,p}} = 0,357;$$

$$\frac{\text{weight}_{A,3}}{\sum_{p=1}^3 \text{weight}_{A,p}} = 0,357;$$

Example 2:

There are 3 experts in the panel: p_1, p_2, p_3

No experts have indicated a high level of expertise with the discipline of a certain evaluated candidacy, which gives a weighting value of the score for each evaluator and a total value of the sum of all weights:

$$\begin{aligned}p_{A,1} &= \text{Level 2} \rightarrow \text{weight}_{A,1} = 1 \\p_{A,2} &= \text{Level 2} \rightarrow \text{weight}_{A,2} = 1 \\p_{A,3} &= \text{Level 2} \rightarrow \text{weight}_{A,3} = 1\end{aligned}$$

Therefore,

$$\sum_{p=1}^3 \text{weight}_{A,p} = 3$$

So the final weighting of each expert's score will be:

$$\frac{\text{weight}_{A,1}}{\sum_{p=1}^3 \text{weight}_{A,p}} = 0,33;$$

$$\frac{\text{weight}_{A,2}}{\sum_{p=1}^3 \text{weight}_{A,p}} = 0,33;$$

$$\frac{\text{weight}_{A,3}}{\sum_{p=1}^3 \text{weight}_{A,p}} = 0,33;$$

RESOLUTION OF DRAWS

Resolve draws in all cases by looking at:

- Scores obtained for each candidate in each criterion evaluated.
- The order of consideration (predetermined) from the criterion evaluated.
- The level of expertise acknowledged by each expert for each application.

Suppose three aspects (a1, a2, a3) evaluated for each application (A, B, C...) and each expert's scores (p1, p2, p3) for each criterion evaluated for one and the same candidate (A): $Q_{a1,p1,A}, Q_{a1,p2,A}, Q_{a1,p3,A}, Q_{a2,p1,A}, Q_{a2,p2,A}, Q_{a2,p3,A}, Q_{a3,p1,A}, Q_{a3,p2,A}, Q_{a3,p3,A}$. The experts have weights: $\text{weight}_{A,1}, \text{weight}_{A,2}, \text{weight}_{A,3}$.

Each score corresponds to:

$Q_{a1,p1,A}$ = Score of the criterion (a1) by the expert (p1) of the candidacy (A).

Suppose the following order of determination to resolve draws:

- 1st - Q_1 (score for criterion 1)
- 2nd - Q_2 (score for criterion 2)
- 3rd - Q_3 (score for criterion 3)

To calculate the final mark of the first section considered, expertise weights would be used for candidate (A) ($Q_{1,F,A}$):

$$Q_{1,F,A} = \frac{weight_{A,1}}{\sum_{p=1}^m weight_{A,p}} * Q_{a1,p1,A} + \frac{weight_{A,2}}{\sum_{p=1}^m weight_{A,p}} * Q_{a1,p2,A} + \frac{weight_{A,3}}{\sum_{p=1}^m weight_{A,p}} * Q_{a1,p3,A}$$

Compare the weighted final marks of each candidate for the first section:

If $Q_{1,F,A} > Q_{1,F,B} \rightarrow$ Candidate (A) is ahead of candidate (B)

If $Q_{1,F,A} < Q_{1,F,B} \rightarrow$ Candidate (B) is ahead of candidate (A)

If $Q_{1,F,A} = Q_{1,F,B} \rightarrow$ The system examines Q_2 and so on successively.

In the event the draw persists, they shall be resolved by entering, as an additional weighting factor, the qualitative score given by each of the experts that have assessed the applications that needed a draw to be broken. In particular:

- Each expert will score several aspects following a qualitative scale on which each of the possible values will have a numerical score assigned:

Aspect	Value							
	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈
	Associated numerical score							
	Q = 1	Q = 2	Q = 3	Q = 4	Q = 5	Q = 6	Q = 7	Q = 8
Score of A ₁	$Q_{A1} = Q_{A1,p1} + Q_{A1,p2} + Q_{A1,p3}$							
Score of A ₂	$Q_{A2} = Q_{A2,p1} + Q_{A2,p2} + Q_{A2,p3}$							
Score of A ₃	$Q_{A3} = Q_{A3,p1} + Q_{A3,p2} + Q_{A3,p3}$							
Score of A _n	$Q_{An} = Q_{An,p1} + Q_{An,p2} + Q_{An,p3}$							
Total score	$Q_{A1} + Q_{A2} + Q_{A3} + Q_{An}$							

- The total score for each candidate is calculated in this qualitative section, which will be compared, in the event of a draw, with the other candidates with the same score to determine the final order of these candidacies.

Determination of candidates who pass the remote assessment process by panel

Use a two-stage process to determine the number of candidates who pass the remote assessment process by each panel: remote assessment within the panels themselves and remote assessment according to the ranking of the candidates evaluated in all panels associated with the same committee.

FORMATION OF PANELS

All applications are associated with a review panel according to the discipline corresponding to the project presented. Each candidate has self-assigned a panel for their application.

In general, each panel cannot have fewer than 10 candidates or more than 40. If the panel does not reach this minimum number, it will merge with another panel among those associated with the same committee. If the panel exceeds the maximum number, it will be split to form as many new panels as needed to avoid exceeding the maximum number of candidates associated with the same panel.

The number of contact committees that will be formed in the final stage of the face-to-face assessment process and the number of sessions each committee devotes to evaluating applications by the interview system is determined at the beginning of the call in response to historical data of previous calls. The Fellowships Programme Office will determine the maximum number of applications that exceed the remote assessment stage based on a formalised procedure.

PROPORTIONAL ALLOCATION

All panels formed are associated with one of the face-to-face assessment committees planned for the final phase of this Fellowships programme process.

All face-to-face assessment committees planned have a previously assigned number of candidates they must evaluate. This number is also the number of candidates from the panels associated with each committee who pass the remote assessment.

Seventy percent of the total number of assessable candidates are apportioned from each panel, according to the number of candidates that corresponds to the committee to which that panel is associated with.

- In no case can there be any panel that does not contribute any candidate to a committee. If when rounding the value = 0, one candidate is assigned.
- Each panel is assigned a number of assessable candidates according to the proportionality formula mentioned. The system will round upwards if the decimal fraction in a panel is equal to or greater than five tenths, or downwards if the fraction is lower than five tenths.

- If the rounding leads to the number of candidates who pass the remote assessment process exceeding 70% of the positions assigned to a committee, the system shall choose the highest fractions resulting from applying the proportionality formula until the number of applications corresponds to 70%.

EXAMPLE:

COMMITTEE 1			
Total of candidates the committee shall interview			45
Proportional assignment: 70% of the 45 places			32
PANELS			
Panel	Applications	% over total	Places assigned
Panel 1	45	24.59%	8 (7.86)
Panel 2	30	16.39%	5 (5.24)
Panel 3	40	21.86%	7 (6.99)
Panel 4	15	8.20%	3 (2.62)
Panel 5	11	6.01%	2 (1.92)
Panel 6	22	12.02%	4 (3.84)
Panel 7	20	10.93%	3 (3.50)
Total	183	100%	32

ASSIGNMENT BY CLASSIFICATION

After applying evaluation algorithms described in the first section of this document (see "Expert evaluation"), all candidates have a rating from 1 to 8 and are associated with a remote assessment panel, which in turn is associated to a committee.

To assign the remaining 30% of positions to each committee, a single classification of all candidates linked to the panels associated with the same committee will be created and they will be selected according to the resulting order.

This unique classification will be done according to the following normalisation procedure:

- The mean mark of the candidates from one and the same panel will be calculated ($mean_p$):

$$mean_p = \frac{\sum_{c=1}^n panel\ mark_{c,p}}{n}$$

Where,

p = panel P

n = number of candidates evaluated by that panel.

mark = numerical score obtained by the candidate in the panel, resulting from the procedure described in the first section of this document.

c = candidate C

- The standard deviation of that same panel with respect to all its candidates is calculated:

$$\text{Standard deviation}_p = \sqrt{\frac{\sum_{c=1}^n (\text{panel mark}_{c,p} - \text{mean}_p)^2}{n - 1}}$$

- Finally, standardise the score from each panel for each candidate evaluated:

$$\text{classification mark}_{c,p} = \frac{\text{panel mark}_{c,p} - \text{mean}_p}{\text{standard deviation}_p}$$

The *classification mark*_{c,p} is the one used to establish the integrated score of applications from one and the same committee, from which the remaining 30% of candidates who pass the remote assessment process will come.

Subcommittees

Each committee may be divided into *n* subcommittees determined on the basis of the number of applications received for each main committee. The distribution of the candidates to be interviewed by each of these subcommittees will be made from the final list of shortlisted candidates for each main committee and classified from highest to lowest score of the pre-selection phase (the first, the best). The distribution of the candidates among the *n* (in this example 3) subcommittees will be carried out by assigning a candidate to each subcommittee in order of ranking and in the following alternate way:

- 1 (Candidate with the best score) -> subcommittee 1
- 2 -> subcommittee 2
- 3 -> subcommittee 3
- 4 -> subcommittee 1
- 5 -> subcommittee 2
- 6 -> subcommittee 3
- Successive

Feedback for the candidate

In order to provide adequate feedback to the candidate on the assessment of their candidacy during the remote assessment process, their qualifications for each criteria will be analysed for comparison with the qualifications of the other candidates of their panel.

The following steps shall be followed to perform this process:

1. Standardise the mark of each criteria for each candidate for each expert according to the following procedure:

- Calculate the expert's mean mark for each criterion ($mean_{p,k}$):

$$mean_{p,k} = \frac{\sum_{c=1}^n \text{criterion mark}_{c,p,k}}{n}$$

Where,

p = expert P

n = number of candidates from the committee.

mark = numerical score obtained by the candidate, resulting from the scores in the various sections, by that expert.

c = Candidate C

k=criterion K

- The standard deviation of that same expert for that criterion is calculated regarding all the panel's candidates:

$$standard\ deviation_{p,k} = \sqrt{\frac{\sum_{c=1}^n (\text{criterion mark}_{c,p,k} - mean_{p,k})^2}{n - 1}}$$

- Finally, each expert's scores for each candidate and criterion evaluated are standardised:

$$standardised\ criterion\ mark_{c,p,k} = \frac{\text{criterion mark}_{c,p,k} - mean_{p,k}}{standard\ deviation_{p,k}}$$

2. For each criterion, the average mark of the various experts is calculated, to then calculate for each candidate the corresponding mark. Once again, the corresponding expertise weights of each expert are used:

$$\text{final criterion mark}_{c,k} = \sum_{p=1}^m \text{standardised criterion mark}_{c,p,k} * \frac{\text{weight}_{c,p}}{\sum_{p=1}^m \text{weight}_{A,p}}$$

3. When the marks for each candidate for each criterion are available, calculate the quartiles (percentages of 25%, 50% and 75%) of each criterion, which are named Q_1, Q_2, Q_3 , respectively. The quartiles are those numbers that having an orderly list are situated in the 25%, 50% and 75% positions respectively of that list.
4. Finally, a number is assigned to each candidate for each criterion indicating in which segment they are found:
 - If $\text{new mark}_{c,k} \leq Q_1$: $\text{segment}_{c,k} = 4$,
 - If $Q_1 \leq \text{new mark}_{c,k} \leq Q_2$: $\text{segment}_{c,k} = 3$,
 - If $Q_2 \leq \text{new mark}_{c,k} \leq Q_3$: $\text{segment}_{c,k} = 2$,
 - If $Q_3 \leq \text{new mark}_{c,k}$: $\text{segment}_{c,k} = 1$

Note: The algorithms, procedures and formulas used in this document have been prepared by **Miquel Picallo**, a "la Caixa" fellow (North America, 2011).

Postdoctoral Junior Leader rating criteria

GUIDELINES AND CRITERIA FOR THE EVALUATION OF APPLICATIONS DURING THE SHORTLISTING PROCESSES FOR THE POSTDOCTORAL JUNIOR LEADER FELLOWSHIPS PROGRAMME

General considerations

The shortlisting process is carried out by independent evaluators: renowned professors and researchers from each discipline.

To rate candidates during the shortlisting process, evaluators will use a rating scale with three aspects for evaluation, each of which will have a certain weight.

Each evaluator must justify—with a short, explanatory text—the reasons behind the rating for each evaluated application, as well as its strong and weak points.

Additionally, evaluators must perform a qualitative evaluation of different aspects of the application, with a twofold purpose:

- To provide additional information for evaluators who participate in the final stage of the selection process through interviews.
- To break a tie between applications that get the same score during the shortlisting process.

These fellowships are restricted to areas of Health Sciences, Technologies, Engineering, Mathematics and Physics. All applications have been previously reviewed to verify that they meet the formal requirements of the call but their scientific content has not been reviewed. We kindly ask you that in case you detect any application that, in your opinion, does not meet this requirement, please inform us as soon as possible to determine its eligibility.

Score

Each evaluated aspect must be rated using one of the values in the scale below:

Rating	Score
Exceptional	8
Excellent	7
Very good	6

Good	5
Average	4
Mediocre	3
Poor	2
Very poor	1

Aspects evaluated

Each evaluator must rate three aspects for each application: track record, statement of purpose and reference letters, each with a certain weight:

1. EXCELLENCE OF PROFESSIONAL BACKGROUND

Summary: *professional or scientific track record in relation to the stage of the candidate's career. The candidate's qualifications (stays at renowned laboratories and centres and accredited experience in the proposed line of research) will be assessed. The candidate's prior productivity, with an emphasis on the quality of their contributions, will be assessed. Evaluation of productivity may be supplemented with other contributions such as scientific and technical books or chapters, work presented at congresses, and in general, any other contribution that will make it possible to evaluate different aspects of the candidate's scientific production and qualifications, will be assessed.*

With regard to track record, the following will be assessed:

- Quality of scientific output resulting from the candidate's prior research activities, considering the number and level of publications, as well as their contribution regarding such publications (number of authors, position, etc.), books, participation in conferences and other activities described in their application.
- The capacity to carry out their work, leadership and independent thinking will be evaluated based on their previous work and scientific output, as well as their prior training to carry out their proposal. These criteria include previous works (as the primary author or head, according to the criteria for each area, position and number of authors in the works published in scientific journals, citations, impact factors, patents granted or licensed, among others) related to the proposal.
- The quality and the depth and breadth of their track record must be assessed depending on the stage of their scientific career, considering the scientific discipline of the proposal. In this regard, younger candidates or who have made an interruption of research career for justified reasons, cannot be penalised for having a relatively short track record, assessing the intellectual inquisitiveness shown to complete their track record.

- Stable and well-planned paths throughout their entire career. Should there be changes in their career path, these must be duly justified and supported. In case they have professional experience, its relevance in relation to the proposed project must be explained.

The weight of this section will be 50%.

2. MOTIVATION AND RESEARCH PROPOSAL

Summary: *excellence of the submitted proposal in the personal statement document considering its originality, innovative character and potential impact, as well as the quality and suitability of the chosen research centre.*

In this section, the personal statement on the one hand, and the choice of centre and line of research on the other hand, will be assessed.

As far as the personal statement is concerned, it is important to consider:

- The proposal will be mainly evaluated for its scientific quality, relevance to the research subject and conceptual or methodological innovation. In addition, the contribution of its expected results towards the development of science, technology or society, as well as its feasibility and exploitation potential, will be assessed.
- The personal statement must be coherent and well structured, and the proposed project must be kept within a path with a broader scope, scientifically or professionally speaking. In this regard, the candidate must state—and the evaluator must rate—to what extent the research project for which they are applying for the fellowship is a necessary step in the right direction. The personal statement submitted must be innovative and original. The proposals that involve risk and creativity, as well as the proposals that put forth well-thought-out entrepreneurship projects will be looked upon favourably.
- The personal statement should make clear the conceptual relevance of the research within the context of the current state of the field, the suitability and feasibility of the proposed approach, the expected results and their foreseeable impact in the proposal's field. The innovative aspect of the proposed scientific concept should be highlighted: originality of the project and its potential for the creation of new knowledge within the scientific discipline, as well as possible use of new technologies and methodologies.
- The project's social return on investment—understood in its broadest sense—must be evaluated: advancement of science and knowledge, creation of wealth and the possibility of transfer to third parties.

With regard to the line of research and host centre, it is important to consider:

- Firstly, that the call for applications does not require candidates to accredit prior admission to a certain research centre. Therefore, candidates that do not show such admission should not be penalised.
- Nevertheless, the candidate's interest and initiative in finding information on the opportunities provided by the research centres that best suit their personal goals should be looked upon favourably. In this regard, the following can be considered:
 - The quality of the line of research and that of the centre where it will be carried out.
 - Whether it has been a reasoned choice and whether alternative options have been considered.
 - Whether the possibility of being accepted or not has been evaluated realistically, provided that the candidate has made this explicit in the proposal.
- In the personal statement, the candidate must justify both their interest in the line of research that they wish to pursue and the suitability of the centre or centres where they propose to carry it out.
- Generally speaking, applications that involve coming into contact with new professional or scientific environments will be looked upon favourably. Likewise, ideas that express future interdisciplinary projects or that consider intersectoral aspects will be evaluated favourably.

The weight of this section will be 35%.

3. REFERENCE LETTERS

Summary: *the reference letters received in support of an application will be rated considering the details of the contents with regard to the application, as well as the profile of the people signing them.*

In this section:

- The standing of the person writing the letter (rank, scientific excellence, among others), as well as their relationship with the project proposed by the candidate, will be considered.
- It will be assessed whether wording is personal and specific to the project that it supports, and that it refers not only to subjective or personal aspects of the candidate, but also to their intellectual capacities and the proposed scientific project.

The weight of this section will be 15%.

Level of familiarity

The evaluator must state their level of familiarity with the subject and application evaluated. They must assign themselves one of two possible levels, corresponding to different levels of familiarity.

In this regard, level of familiarity refers to the general field of study within which a project may be classified and not specific mastery of the proposal itself.

The evaluators’ ratings will carry different weights for the same application if the levels of familiarity stated by them do not match.

Qualitative rating

Aside from the three aspects specified above—for which the candidate's rating during the shortlisting process will be obtained—the evaluators will rate four additional aspects during this stage. Nevertheless, these aspects will not have a direct influence on the application's final rating.

These 4 aspects are:

- The candidate's professional and scientific potential
- Their project’s social impact
- The fellowship's impact on the candidate’s career path
- Clarity of exposition as shown in the personal statement

Each of these aspects will be rated using a 5-point scale, with the following equivalents:

Rating	Score
Exceptional	5
Very good	4
Good	3
Acceptable	2
Weak	1