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FORMS OF RESEARCH ASSESSMENT ORIENTED AT DEVELOPMENT PROBLEMS. PRACTICES AND PERSPECTIVES FROM NATIONAL SCIENCE AND TECHNOLOGY ORGANIZATIONS AND HIGHER EDUCATION INSTITUTIONS IN LATIN AMERICA AND THE CARIBBEAN

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I. INTRODUCTION

As the Sustainable Development Goals (SDGs) in the UN's 2030 Agenda reflect, the main global development problems today are inequality, hunger, poverty, social exclusion, climate change and the degradation of the environment, access to health, education, clean water, and energy.

Economic growth in Latin America and the Caribbean is lower than in more developed countries. It is the most unequal region in the world, with growing levels of poverty and very low levels of investment in research and development (R+D) as a percentage of gross domestic product (GDP) (RICYT, 2021). Innovation activities in the productive sectors are generally scarce and fundamentally centered around the incorporation of capital goods, most of them imported. Innovation systems in the countries of the region are generally weak and there remains a considerable distance between productive structures and universities. Science, technology and innovation (STI) policies are imperative to increase R+D investment as a percentage of GDP, to increase and preserve accumulated STI capacities in the region, and to aid the generation of learning spaces and opportunities, using STI to solve problems that affect the population's quality of life and living conditions. (Gras, 2021).

A recent study shows that 54% of research and innovation stimulus programs implemented between 2004 and 2021 by the funding agencies of eleven Latin American countries were oriented at one or more of the SDGs (Vélez Cuartas and Torres Arroyave, 2021).

According to Freeman (1991), the most important factor that STI policy must consider in responding to these social goals is the organization and assessment of science and technology and the regulation of innovations and inventions.

The implementation of certain research assessment systems influences the organization of research and the direction of knowledge production (Whitley, 2007), and has generated changes in those who govern science goals and the assessment of their results (Whitley, 2010).

Thus, the assessment of research has led to a certain standardization of the types of research products (De Rijcke et al., 2016; Hicks, 2012; Bensusán et al., 2014), prioritizing the production of scientific articles published in journals with high impact factor and indexed in Web of Science (WoS) or SCOPUS (Leisyte and Westerheijden, 2014; De Ibarrola, 2012), and giving lower priority to reports to inform policy decision-making (Hicks, 2004), publications in scientific journals with local/regional circulation (van Dalen and Henkens, 2021), technological developments (Padilla, 2010), the development of new techniques and recommendations for the productive sector (Rivera et al., 2011), etc.

In turn, various studies suggest that such assessment systems hinder development problem-oriented research (Sutz, 2000; Rafols et al., 2012; Bensusán et al., 2014; Gras, 2018), contextualized research agendas (Bianco et al., 2016) research of local or regional relevance (Chavarro et al., 2017) and of social relevance (Spaapen and Sivertsen, 2020), especially in the context of Latin America and other peripheral regions (Vessuri et al., 2014).

These and other studies also suggest that such assessment systems impose barriers to collaborative research and/or interaction with actors external to academia (Hicks, 2013), devalue the research applied (Martin and Whitley, 2010; Valenti et al., 2013), reduce research quality (Müller and De Rijcke, 2017), decrease conceptual relevance and originality (Wang et al., 2017), and focus more on disciplinary goals than inter/multi/transdisciplinary goals (Leisyte and Westerheijden, 2014; Rafols et al., 2012; Martin and Whitley, 2010; Bensusán et al., 2014).

The work agenda of the Latin American Forum on Scientific Assessment (FOLEC), through the series "Towards a Transformation of Scientific Research Assessment in Latin America and the Caribbean", provides evidence and criteria in line with this diagnosis for the region and offers recommendations and

proposals to advance with alternative forms of assessing research and knowledge production (FOLEC-CLACSO, 2020a and 2020b).

In parallel in the international context, work is also being done in the design and implementation of assessment alternatives that can be included in the idea of responsible research assessment (Curry et al., 2020). According to these authors, this concept encompasses "assessment approaches that encourage, reflect and reward pluralistic characteristics of high-quality research, in support of diverse, inclusive research cultures" (p.7). Likewise, international science and science policy bodies are reviewing assessment processes, including such examples as: UNESCO's recommendations on open science (UNESCO, 2021), the initiatives of the International Science Council (ISC), the Global Youth Academy (GYA), the InterAcademy Partnership (IAP) (GYA-IAP-ISC, 2022), and the Global Research Council (GRC, 2021), among others.

In this context, the goal of this work is to present the results of the survey on the forms of assessment of research proposals oriented at the search for solutions to development problems, and the characteristics, processes and assessment criteria implemented by national science and technology organizations and higher education institutions promoting and funding quality research in various countries of Latin America and the Caribbean.

The survey was conducted as part of the project "The assessment of research in change: inclusion in scientific systems and mission-oriented projects in initiatives for funding research in the global south. Reformulation of quality assessment through substantiated and progressive methodologies" coordinated by CLACSO through the Office of Research and FOLEC and funded by IDRC (CLACSO-IDRC Project 109465-001, 2020-2022).

The goal of the survey was to identify, analyze and visibilize experiences and practices of relevant, quality assessment implemented in the region for funding research projects oriented at the search for solutions to social and economic development problems in Latin American and Caribbean countries, and thus contribute to the development of research and assessment systems that are more inclusive, responsible, pluralistic and diverse. This is an exploratory, observational study (Kish, 2004), offering a first approach to identifying assessment procedures, criteria and practices implemented by some of the organizations that carry out oriented research stimulus programs in the region.

As far as we know, this is the first survey in the region focusing on the forms of assessment of projects submitted to contestable funds in the calls of different mission-oriented research stimulus programs in different countries of Latin America and the Caribbean. Two international precedents for this survey are: i) the survey into responsible research assessment policies and practices in the organizations of the Global Research Council (Curry et al., 2020); and ii) Science Europe's study into research assessment practices (Calatrava Moreno et al., 2019).

This document is structured into five sections. This introduction is followed by section II on methodological aspects, section III presents the results obtained, section IV offers a summary of the forms of assessment in mission-oriented research projects implemented in the region, and lastly section V, based on the results obtained, offers some policy recommendations to broaden and further responsible assessments of mission-oriented research projects.

II. METHODOLOGICAL ASPECTS

The survey set out to find, analyze and visibilize experiences and practices of assessment of relevant, quality, mission-oriented research proposals in the region, and thus contribute to the development of research and assessment systems that are more inclusive, responsible, pluralistic and diverse.

This is an exploratory, observational study (Kish, 2004), offering a first approach to identify assessment procedures, criteria and practices implemented by organizations that undertake mission-oriented research stimulus programs in the region.

The survey's questionnaire on forms of assessment of mission-oriented research proposals was based on the assessment experience of the Sectoral Commission of Scientific Research (CSIC) of the Universidad de la República, Uruguay, the Global Research Council's survey on assessment policies and practices for responsible research (Curry et al., 2020), and Science Europe's study of research assessment practices (Calatrava Moreno et al., 2019). The study also benefited from the participation of FOLEC-CLACSO as an observer in the Global Research Council's working group on research assessment, as a member of the research assessment study group organized by the InterAcademy Partnership (IAP), the Global Young Academy (GYA) and the International Science Council (ISC) and as a representative in the DORA Executive and Advisory Council.

The final version of the questionnaire contains 33 questions, most of them closed, addressing five dimensions: i) the contextual characteristics of the organizations responsible for mission-oriented research stimulus programs; ii) the general characteristics of the mission-oriented research stimulus programs; iii) diverse aspects of the assessment process implemented; and iv) assessment criteria used. The full version of the questionnaire is available at this link: <https://zenodo.org/record/5809530#.YjgWwjUyHIV>

The survey was conducted between September and November 2021 with an online, self-managed questionnaire implemented in Survey Monkey, distributed by CLACSO-FOLEC with the collaboration of the Union of Universities of Latin America and the Caribbean (UDUAL) through the Universidad de la República, to increase reach with its member universities.

The questionnaire was aimed at and answered by specialists and/or authorities of the organizations responsible for mission-oriented research stimulus programs in different countries of Latin America and the Caribbean.

The questionnaire was answered by a total of 34 specialists and/or authorities responsible for mission-oriented research stimulus programs of 13 national science and technology organizations (ministries, departments, national agencies, national councils, national research centers) and 18 higher education institutions, mostly public universities, in Mexico, Argentina, Brazil, Colombia, Costa Rica, Ecuador, Uruguay, Chile, Nicaragua, Peru, Bolivia and El Salvador. Table 1 shows the distribution of the answers obtained by country and organization type.

Table 1: Answers by country and organization type

Country	Organization type	Number of responses	Total	%
Mexico	HEI	3	6	18%
	NSTO	3 ¹		
Argentina	HEI	0	4	12%
	NSTO	4		
Brazil	HEI	3	4	12%
	NSTO	1		
Colombia	HEI	1	3	9%
	NSTO	2		
Costa Rica	HEI	2	3	9%
	NSTO	1		
Ecuador	HEI	3	3	9%
	NSTO	0		
Uruguay	HEI	2 ²	3	9%
	NSTO	1		
Chile	HEI	1	2	6%
	NSTO	1		
Nicaragua	HEI	1	2	6%
	NSTO	1		
Peru	HEI	2	2	6%
	NSTO	0		
Bolivia	HEI	0	1	3%
	NSTO	1		
El Salvador	HEI	1	1	3%
	NSTO	0		
Total			34	100%

Note: Higher Education Institutions (HEIs) / National Science and Technology Organizations (NSTO) / 1- three answers from the same NSTO / 2- two answers from the same HEI

III. RESULTS

III.1 General characteristics of the mission-oriented research stimulus programs

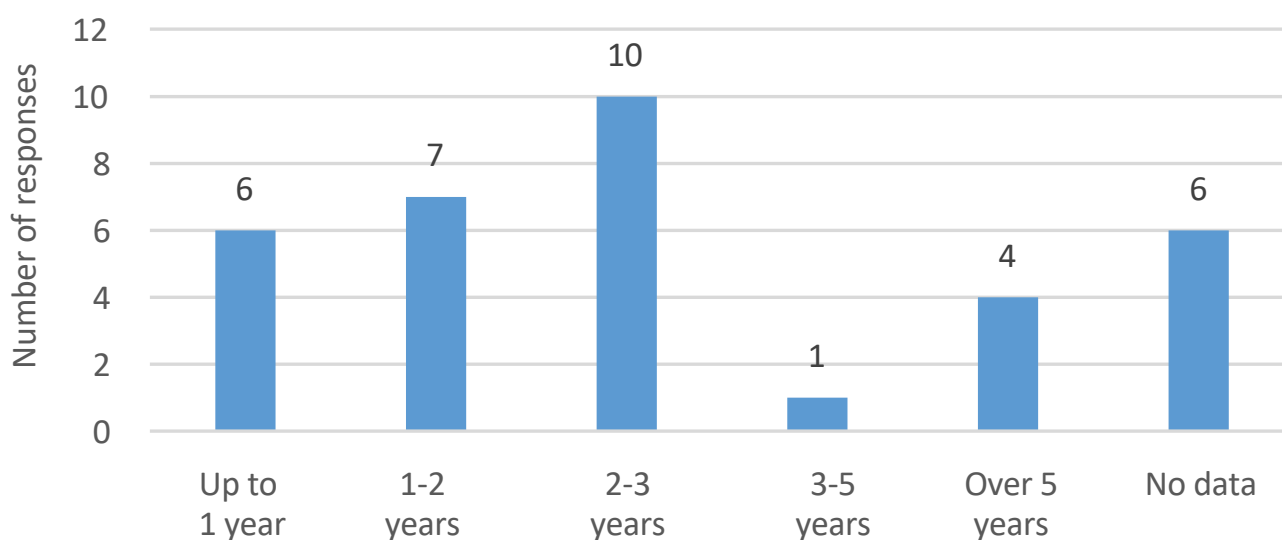
III.1.1 Time aspects

Some 44% (15) of responses stated that the mission-oriented research stimulus programs in search of solutions to social and economic development problems in the countries, surveyed in this consultation, are relatively new as they were created in the last decade; 21% (7) said they have existed for 10-20 years; and the oldest (1 program) was created in 1992, accumulating thirty years of experience. For the 11 remaining cases, it was not possible to determine the programs' creation dates: 6 had missing information and 5 responses declared "don't know."

Furthermore, 62% (21) of the responses indicated that since their creation the programs have had regular calls for the submission of projects to contestable funds for said research; and only 5 responses (15%) stated that the calls were not regular. The 8 remaining cases are distributed as 3 "not relevant," 2 "don't know" and 3 with no data.

Funding periods vary, but a broad majority (68%) of responses said that the programs surveyed fund research of up to one, two or three years' duration; 3% (1) of three to five years; and 12% (4) research projects over five years (see figure 1). The remaining 6 cases refer to no data.

Figure 1: Funding periods



Most of the responses (53%, 18 cases) state that calls for the different programs are annual; in one case the calls are every two years, and in another every three years. Furthermore, three responses (9%) stated that the programs do not have specific calls for submissions, but rather that research projects can be submitted at any time and are evaluated as they are received. Lastly, 24% (8) of the answers indicated "other" for the periodicity of calls for submissions, mostly related to the availability of resources of the funding institutions or due to being recently-created programs whose periodicity is not yet established. The remaining three cases refer to no data.

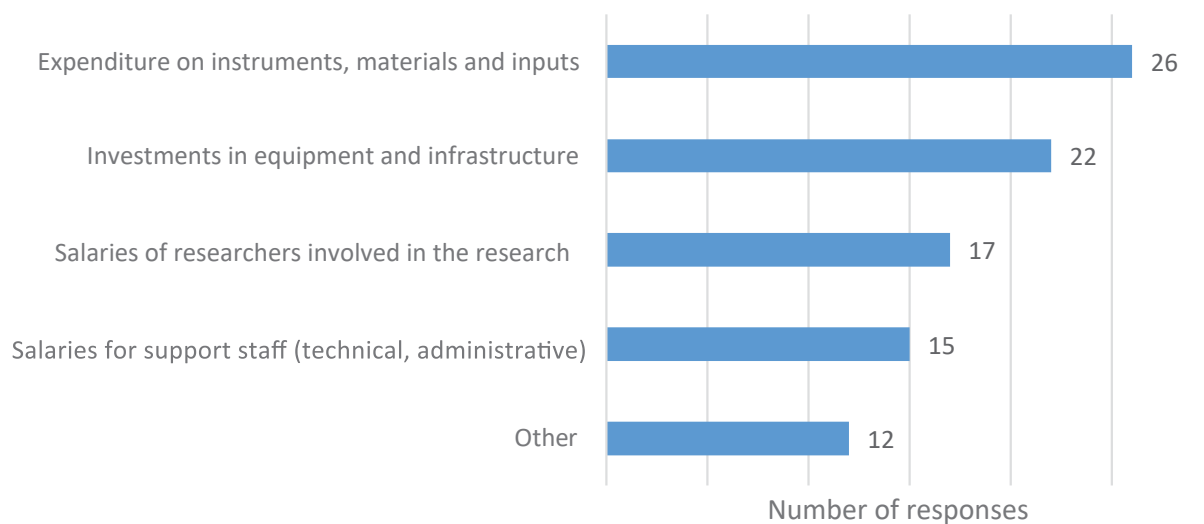
III.1.2 Financial aspects and competition level

The questionnaire asked which areas can be funded with the resources assigned through mission-oriented research stimulus programs. Some 76% of the responses state that the resources assigned are for funding expenditure on instruments, materials and inputs necessary for research activities; 65% stated that they permitted investments in equipment and infrastructure; 50% payment of salaries of the researchers involved in the funded research projects; 44% fund the salaries of technical and administrative personnel of the research funded; and 35% fund other areas, generally related to the payment of technical services, bibliography, travel expenses for fieldwork and economic support for students involved in the research (see Figure 2).

The level of competition for resources varies by program. In 24% (8) of the programs surveyed, the proportion of projects funded in relation to those submitted does not exceed 25%, with those programs being the most competitive. That proportion is between 25 and 50% for another 24% (8) of programs surveyed. The competition levels decrease to between 50 and 75% of the proportion of projects funded in relation to those submitted for 18% (6) of the programs; and for another 18% (6) that ratio is 75% or

higher, that is, for the lowest level of competition, for every 4 projects submitted, 3 or more are funded. The remaining 6 cases refer to no data.

Figure 2: Funding areas



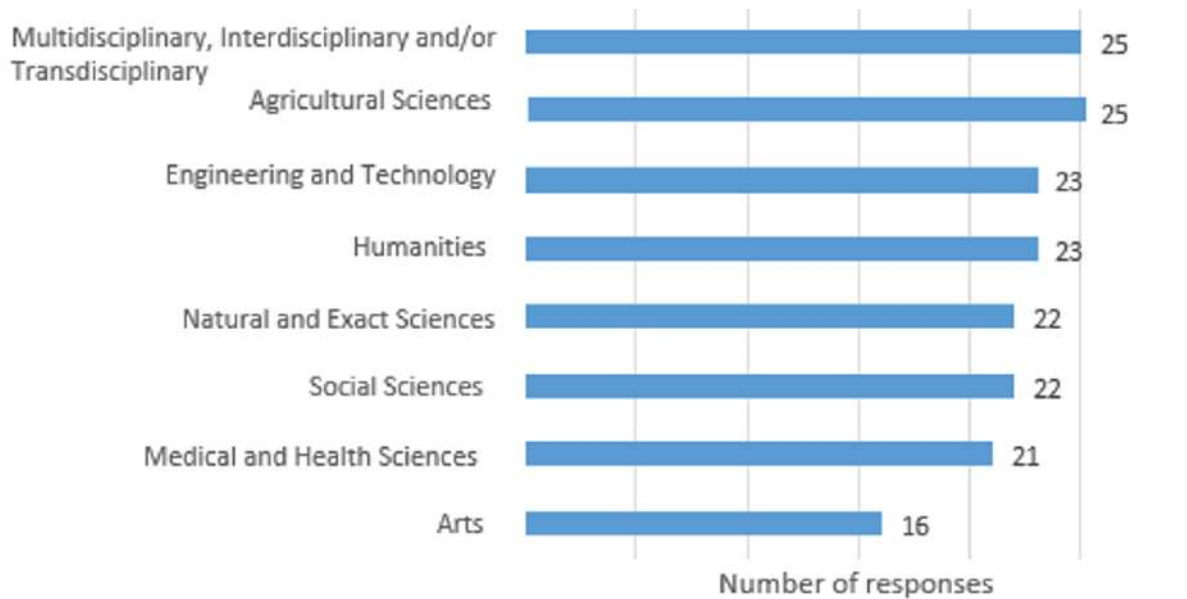
III.1.3 Cognitive aspects

One specificity of the mission-oriented research stimulus programs is the possibility that the research is conducted through interaction and collaboration with academic actors—researchers—and non-academic actors such as companies, cooperatives, smallholder farmers, family farmers, government offices, government departments and ministries, NGOs, social and trade union organizations, education centers, etc.

In this regard, the questionnaire asked who would be responsible for projects submitted to mission-oriented research stimulus programs. Some 38% (13) of the responses stated that those responsible for research projects submitted could be academic and non-academic actors of any type who contribute knowledge to the proposed research. However, most responses (56%, 19 cases) stated that only academic actors could be responsible for the projects. The remaining two cases had no data.

Figure 3 shows the fields of knowledge—alone or combined—that can be involved in projects submitted to mission-oriented research stimulus programs. Of the programs surveyed, 74% allow proposals of multi-, inter- or transdisciplinary research projects in agricultural sciences, 68% in engineering and technology, in humanities, 65% in exact and natural sciences, in social sciences, 62% in medical sciences and health, and 47% of the programs admit the submission of projects related to research in the arts.

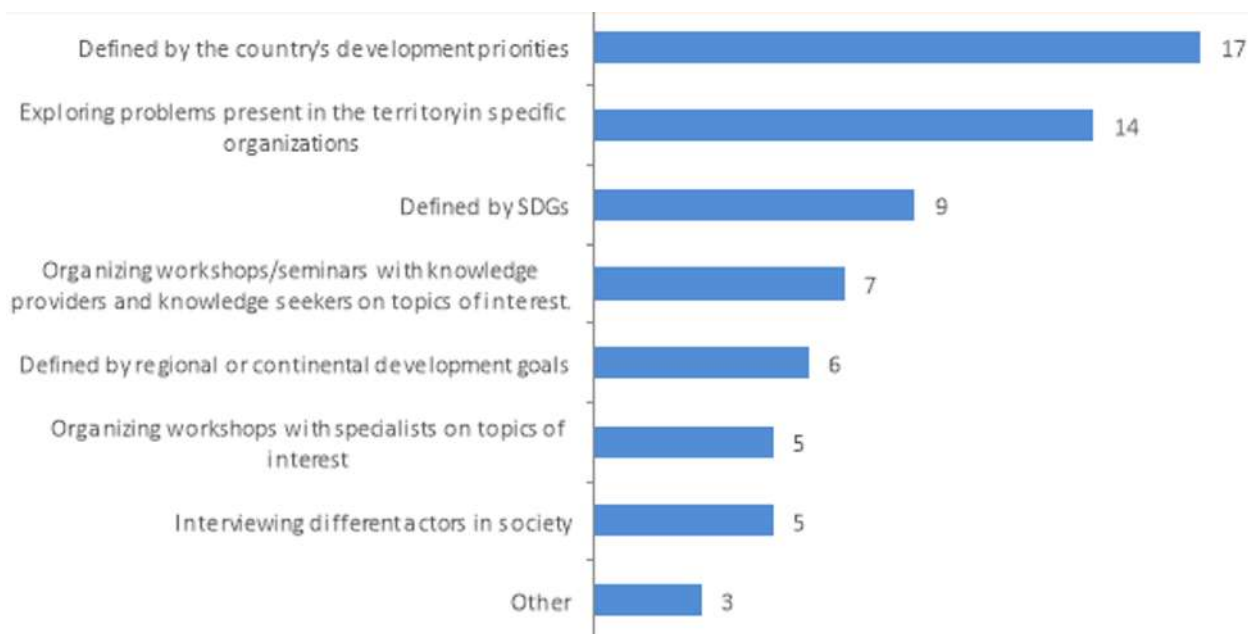
Figure 3: Knowledge fields that may be involved in submitted projects



One important challenge to orient research and knowledge production towards solving problems that affect the social and economic development of the countries is the identification of these problems. To address this aspect, the questionnaire consulted on whether the framework of the diverse mission-oriented research stimulus programs defines the problems that the research projects address. Most responses (59%, 20 cases) stated that the framework of the program defines the problems to be addressed by the research projects. In contrast, 32% (11) of the programs surveyed do not define the problems that the projects must address, and the remaining 3 cases had no data.

Figure 4 presents the strategies used by the funding institutions to define the problems that the research must address. In 85% of the responses that indicated that the programs identify problems, these are defined in agreement with the country's development priorities; in 70% they are defined by exploring problems in the territory or in specific organizations; in 45% according to Sustainable Development Goals (SDGs); in 35% through the organization of congresses and seminars that bring together knowledge supply and demand in areas of interest; in 30% according to the development goals of the region or continent; in 25% through the organization of workshops with specialists in areas of interest; in 25% they are defined through interviews with diverse social actors; and in 15% according to other strategies, generally associated with the interests of the projects' co-funding agents.

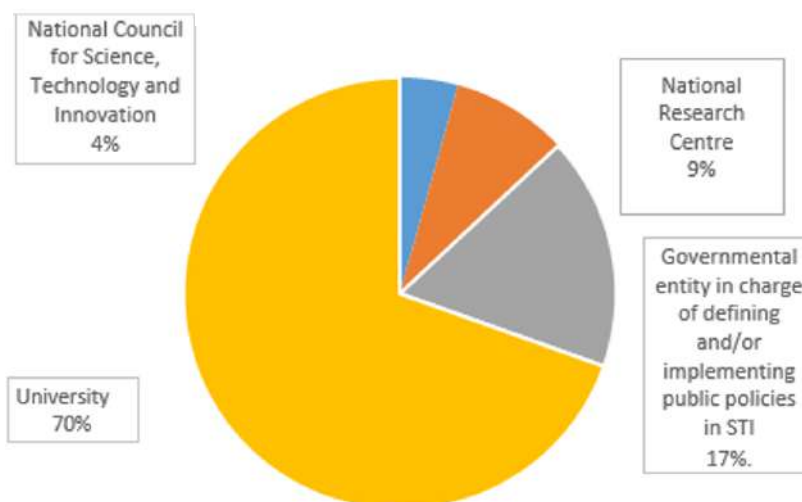
Figure 4: Strategies for identifying problems to be addressed by research



III.2 Responsible assessment of mission-oriented research proposals

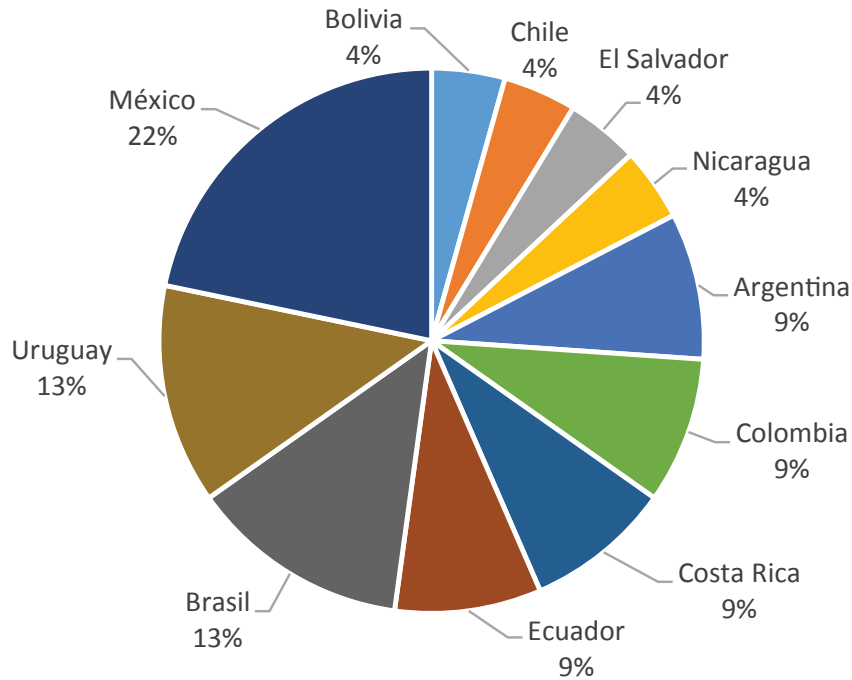
The broad majority of institutions surveyed stated that they implemented responsible research assessment.⁴ Asked whether their institution implemented responsible research assessment, 68% (23) said they did, 12% (4) said they did not, and the remaining 21% (7) did not know. Of those who said they implemented responsible research assessment, 70% are universities, 17% government bodies related to the design and implementation of public STI policies, 9% research centers and 4% national STI councils of different countries of Latin America and the Caribbean (see Figures 5 and 6),

Figure 5: Responsible research assessment by type of institution (n = 23)



⁴ Although most of those surveyed stated that they implemented responsible assessment, caution should be exercised and it is necessary to interpret the results presented in the following sections of this report, as they make it possible to contrast and weigh some of the statements made.

Figure 6: Responsible research assessment by country (n = 23)



According to the information offered freely by those who stated that their institution implements responsible research assessment, such assessment involves: 1) the development of assessment processes to ensure quality, relevance and the strengthening of research processes locally, regionally and nationally in all knowledge fields; ii) where blind assessments are used, these are generally conducted by external reviewers, specialists in diverse fields and assessment committees, avoiding biases in terms of geography, institutions, subject, gender and under-represented groups; iii) in some cases, and in order to guarantee the relevance of research results to solve specific problems, the assessment contains open science criteria, and considers ethical aspects, social and productive significance and the relevance to public policy of the research projects submitted. In general, (iv) institutions provide protocols or guidelines for project assessment; v) assessment guidelines, the goals of calls for the submission of projects from contestable funds, and the results of assessment processes are often made public. In other cases, (vi) special emphasis is placed on feedback given to those who submit research projects regarding the results of the assessment process; and vii) in certain cases, funded research projects are monitored (reports on research progress and resource execution), and in one case "co-assessment, hetero-assessment and self-assessment" processes are implemented annually.

Furthermore, the broad majority of the total responses obtained report that their organizations promote and encourage various aspects of responsible research assessment. Of the total responses obtained: i) 85% (29 cases) said that their organization greatly promotes the ethics and integrity of research projects, their associated teams and the people involved in assessment processes; and ii) the equity, diversity and inclusion of under-represented groups (women, young people, etc). in the assessment process of projects and their associated teams; iii) 82% (28) greatly encourage the social commitment and participation of society actors; iv) 79% (27) greatly promote interdisciplinarity; and v) their assessment processes take into consideration geographic, institutional, thematic and gender balances in the distribution of research resources; and (vi) 65% (22) value aspects of open science and open access (see figures 7 and 8).

Figure 7: Promotion of various aspects in the assessment processes of projects submitted to organizations

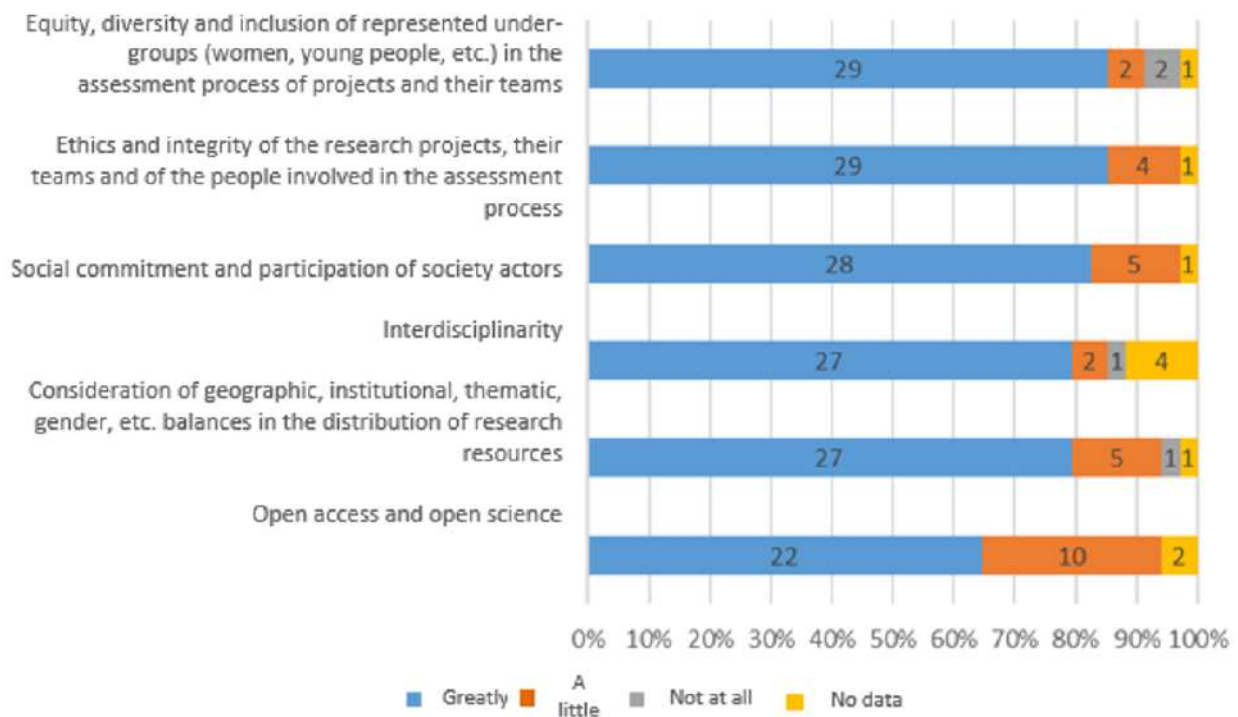
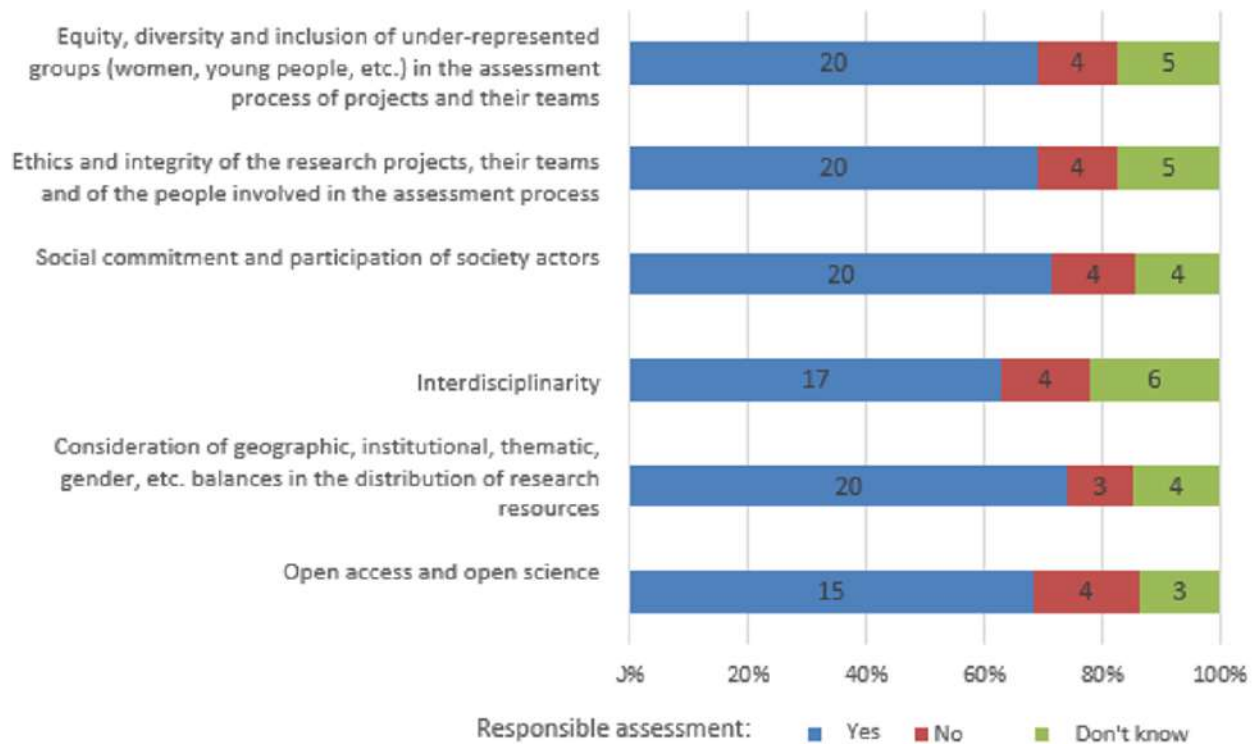


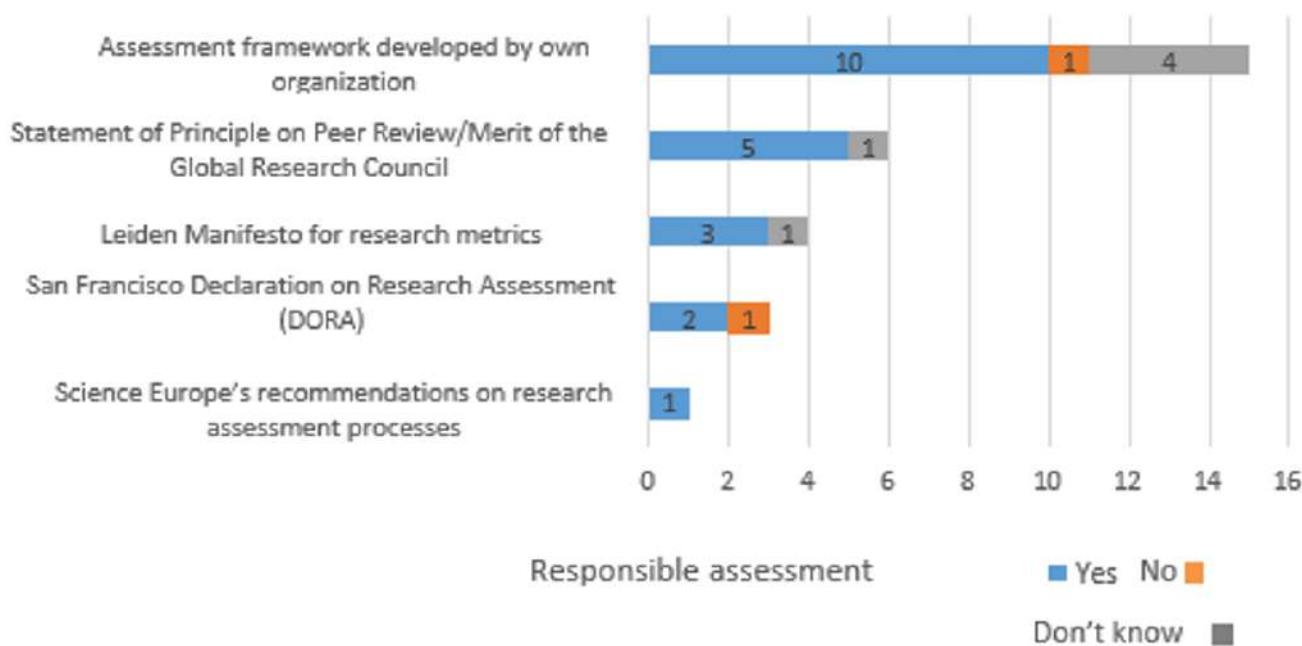
Figure 8: Promotion of various aspects in the assessment processes of the projects presented in the organizations according to whether they implement responsible assessment



III.3 Support for responsible assessment statements

Although the broad majority of responses stated that their organizations promote and encourage diverse aspects of responsible research assessment, few institutions stated that they supported or adhered to any international statements, recommendations or principles of responsible assessment. Of the total responses obtained, only 18% (6) support the statement of principle on peer/merit review of the Global Research Council⁵; 12% (4) adhere to the Leiden Manifesto for research metrics⁶; 9% (3) to the San Francisco Declaration on Research Assessment⁷ (DORA); and 3% (1) follow Science Europe's recommendations on research assessment processes⁸ (see Figure 9).

Figure 9: Support for statements, recommendations or principles where responsible research assessment is implemented



From the total responses that stated that they adhered to or supported any of these statements, recommendations or principles (14), 76% (11) stated that they implemented responsible research assessment, of which the broad majority of 72% (10) were universities, 14% (2) research centers and the remaining 14% (2) government bodies responsible for the design and implementation of STI policy in different countries (Bolivia, Brazil, Chile, Colombia, Ecuador, El Salvador, Mexico, Nicaragua and Uruguay).

A considerable proportion of the total responses, 44% (15), stated that the assessment framework to which they adhere is developed by their own organization. Of these responses, 53% (8) were universities, 20% (3) government bodies responsible for the design and implementation of the STI policy, 20% (3) national STI councils and the remaining 7% (1) a research center in different countries (Argentina, Colombia, Ecuador, El Salvador, Mexico, Nicaragua, Peru and Uruguay).

⁵ https://www.globalresearchcouncil.org/fileadmin/documents/GRC_Publications/Statement_of_Principles_on_Peer-Merit_Review_2018.pdf

⁶ See http://www.leidenmanifesto.org/uploads/4/1/6/0/41603901/manifesto_cast.pdf

⁷ See <https://sfdora.org/read/>

⁸ See <https://www.scienceeurope.org/our-priorities/research-assessment/>

III.4 Assessment Implementation

III.4.1 Strategies for quality responsible assessments

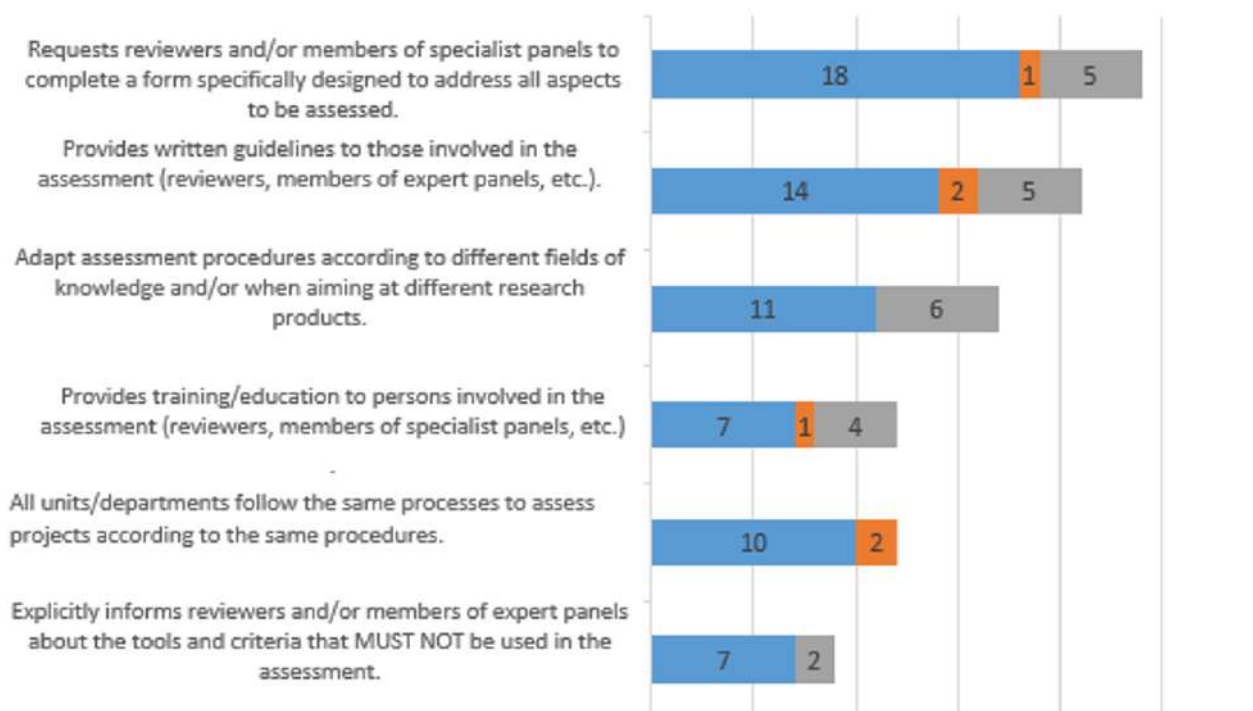
In terms of the general characteristics of assessment processes implemented in the organizations surveyed, the broad majority—71% (24)—of the total responses state that they ask reviewers and/or members of specialist panels to complete a specially designed form to address all the aspects to assess in research projects, but only 26% (9) state that their organization informs them explicitly about tools and criteria that must not be used in the assessment.

Although 62% (21) state that their organization provides written guidelines for people who participate in assessment (reviewers, members of specialist panels, etc.), only 35% (12) state that their organization provides them with specific training.

Lastly, 50% (17) adapt their assessment procedures according to the specifications of the knowledge fields and/or when they want to obtain different research products. In contrast, only 35% (12) of the total responses state that all the units/departments in their organization follow the same processes and procedures for assessing projects.

Figure 10 shows these results according to whether organizations state that they implement responsible assessment.

Figure 10: Some characteristics of the implementation of assessment processes in organizations



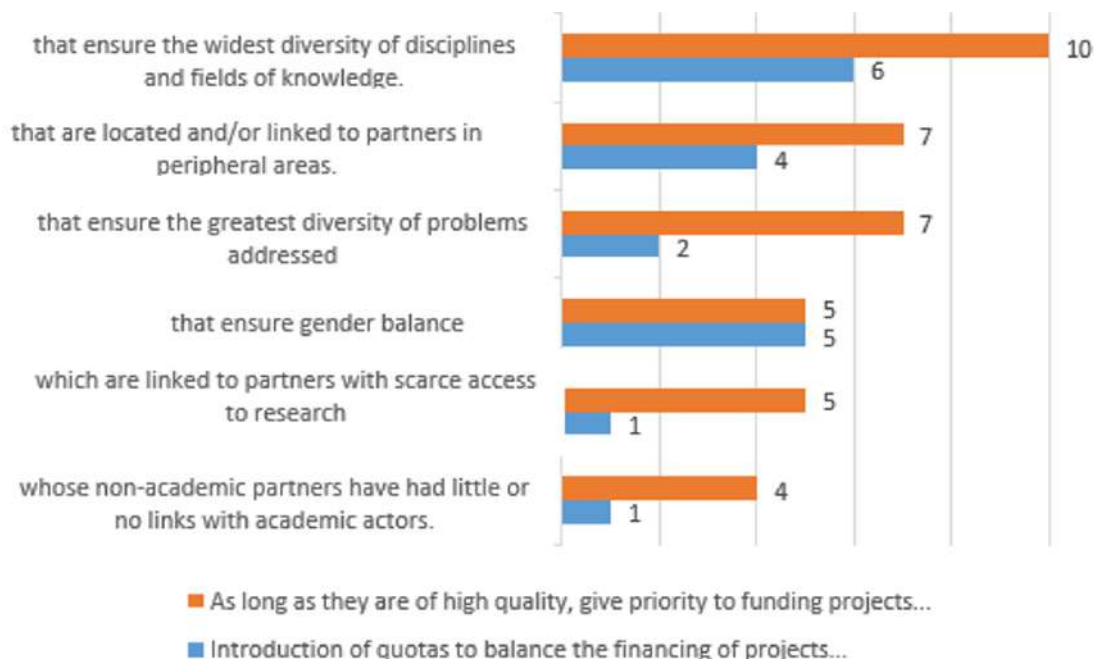
The aspects covered by the written guidelines and/or specific training for people participating in the assessment, as provided by the organizations, are: i) the tasks and roles that these individuals must undertake (91%); ii) the tools, metrics and criteria to use in the assessment (86%); iii) the definition, identification and treatment of conflicts of interest (77%); iv) ethical behavior rules to guarantee impartiality on gender, race, disciplinary fields, organizations affiliated to the projects and the academic seniority or position of the applicants (55%); and v) the procedures and organization of meetings of the specialist panel (45%).⁹

⁹ The percentages are calculated on the total of responses that stated that their organization provides written guidelines/specific training for people who participate in the assessment, corresponding to 22 of the responses.

Other strategies to guarantee diversity and inclusion, such as certain policy adjustments to address any possible bias or discrimination observed in the selection process of research proposals to be funded, are used comparatively less in the organizations surveyed, particularly the introduction of quotas to balance the assignation of resources or funding for research.

While 29% of responses state that they are always high-quality, their organization introduces policy adjustments that prioritize funding for those projects that ensure greater disciplinary diversity and diverse knowledge fields; only 18% introduce quotas for this purpose (see Figure 11).

Figure 11: Policy adjustments to mitigate potential biases in research project funding (n=34)



Similarly, while 20% of the high-quality projects state that they prioritize those that are local and/or related to partners based in peripheral areas or which ensure the greatest diversity of problems addressed, only 12% and 6% respectively state that their organizations pursue those goals with the introduction of quotas in funding (see Figure 11).

Although the broad majority of responses (79%) state that their organization greatly promotes certain balances in the distribution of the allocation of resources for research, particularly regarding gender parity (see sub-section III.2), only 15% of the responses indicated the introduction of quotas and/or prioritizing funding—among the high-quality projects—of those that ensure gender balance (see Figure 11).

Lastly, while 15% and 12% of responses indicated that their organization gives priority in high-quality projects to those that are tied to partners with scarce access to research and/or those non-academic partners with scarce or no connections with academic actors, only one response was obtained that indicated the introduction of quotas to ensure balances in these two aspects (see Figure 11).

III.4.2 Assessment methods implemented

Of the total responses, 91% (31) stated that their organizations use diverse methods for the assessment of research projects submitted in calls, which are implemented with a combination of qualitative and quantitative assessments. The remaining 9% corresponds to no data.

In the case of qualitative assessments, the methods used by the organizations are: i) 38% of responses indicate panels of internal specialists and 29% specialists external to the organization, who

discuss and review the assessment reports of the projects to classify them according to whether they are fundable; ii) 35% of responses indicate internal double blind¹⁰ peer review and 26% external double blind peer review; iii) 35% indicate external single blind¹¹ peer review and 24% external single blind peer review; and (iv) 12% indicate open reviews¹² by internal experts or specialists and 3% open reviews by external experts or specialists. Lastly, and in the case of quantitative assessments, 32% of responses indicate that the projects are assessed, ordered and classified as fundable or non-fundable according to quantitative criteria, though none of the organizations surveyed uses only quantitative assessment methods; on the contrary, they implement them in combination with one or more qualitative assessment methods. Table 2 shows these results.

Table 2: Assessment methods implemented

Assessment methods		Type	External or Internal to the organization	Number of responses
Qualitative	Peer review	Double blind	External	12
			Internal	9
		Single blind	External	12
			Internal	8
		Open	External	1
			Internal	4
	Specialist panel	Not applicable	External	10
			Internal	13
Quantitative	Quantitative criteria	Not specified	Not specified	11

Notes: Number of responses with complete information in at least one assessment method 31/
Number of responses with missing data in all assessment methods 3

In addition, those that stated that they used external and/or internal specialist panels as assessment method—20 responses in total—were consulted on the criteria that their organization uses for forming these panels. The essential criterion for forming these panels is the degree of experience and academic knowledge, as this was stated by 100% of responses. The second-most important criterion is the degree of practical experience and knowledge of development problems¹³ to be addressed by the research projects, which was stated by 75% of responses.

The criteria used for forming panels also reflect certain strategies implemented by the organizations to prevent possible cognitive, gender and/or geographic biases. The criteria for forming the specialist panels must guarantee disciplinary diversity (65% of responses), gender parity (45%) and territorial diversity (5%). Figure 12 shows these results.

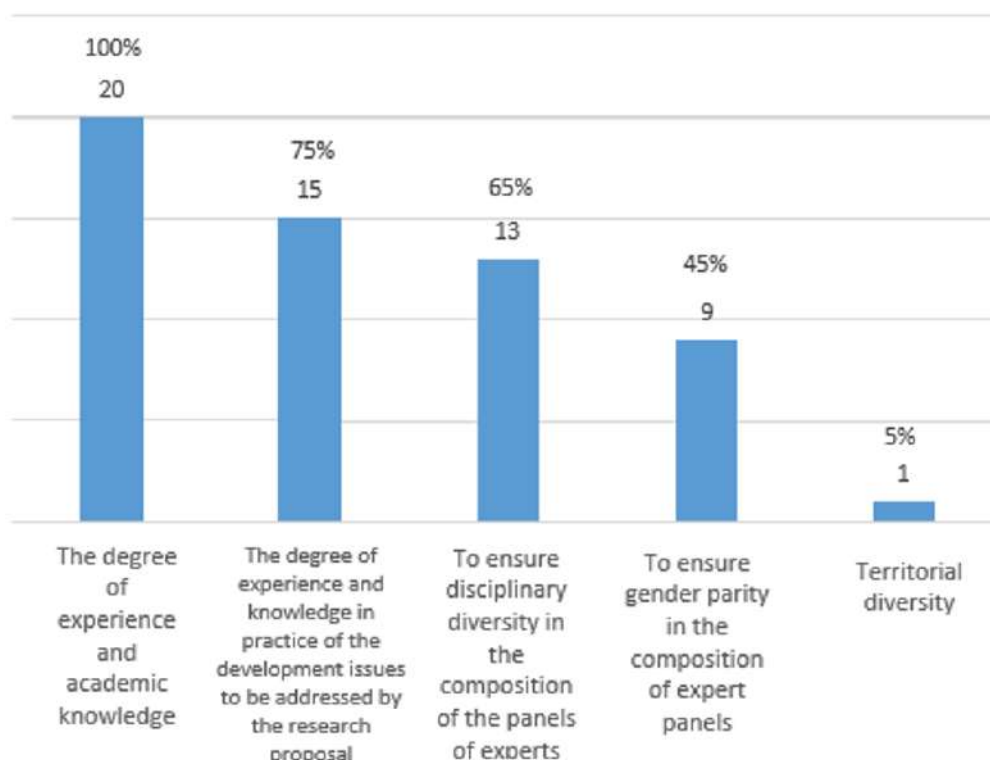
¹⁰ The reviewer does not know the identity of the applicant and vice versa.

¹¹ The reviewer knows the identity of the applicant but the applicant does not know the identity of the reviewer.

¹² The identity of the reviewer and the applicant is known to all.

¹³ The term "development problems" was used to refer broadly to social and economic development problems in the countries (problems in the area of production of goods and services, public policy, health, social exclusion, poverty, environment, energy, etc).

Figure 12: Criteria for the composition of internal and/or external expert panels (n=20)



III.5 Assessment criteria used and information inputs required

III.5.1 Assessment criteria used

III.5.1.1 Criteria for assessing the academic merits of mission-oriented research projects

The aspects to be assessed that the organizations consulted require of reviewers and/or specialist panels in their appraisal of the academic merits of mission-oriented research projects can be grouped into five dimensions. These constitute the notion of research quality which, according to the responses obtained and the relative importance assigned, can be ordered as: i) theoretical and methodological rigor; ii) relevance and academic impact; iii) appropriateness and impact of research in solving problems; iv) experience and capacity of research team; and v) originality.

According to the responses obtained, the broad majority state that the main aspect to assess is the technical and methodological rigor of the research projects submitted. Specifically, 82% state that the clarity of the description of the problem to be studied is a very important assessment criterion. Other relevant aspects are the suitability of the research design, the methods and techniques for meeting the proposed goals (79%); the accuracy and concordance of the goals, questions and hypotheses (76%); and the robustness of the rationale in the research submitted (74%). Other aspects indicated as very important were the feasibility of the research in relation to the concordance between the allocation of resources, the goals, expected results and activities schedule (56%); and the suitability and up-to-dateness of the bibliography, which lends theoretical and methodological rigor to the projects. These two aspects were considered moderately important by almost one quarter of the total responses (see Figure 13).

The second-most important aspect required by the organizations in appraising projects' academic merits was their relevance and academic impact. Of the total responses, 68% stated that the conceptual relevance or academic interest of the problems to address was very important. This is followed by i) the appropriateness and scope of the dissemination strategies for research results (stated as important by 47%); and ii) the generation of spaces for graduate and postgraduate education and the development of

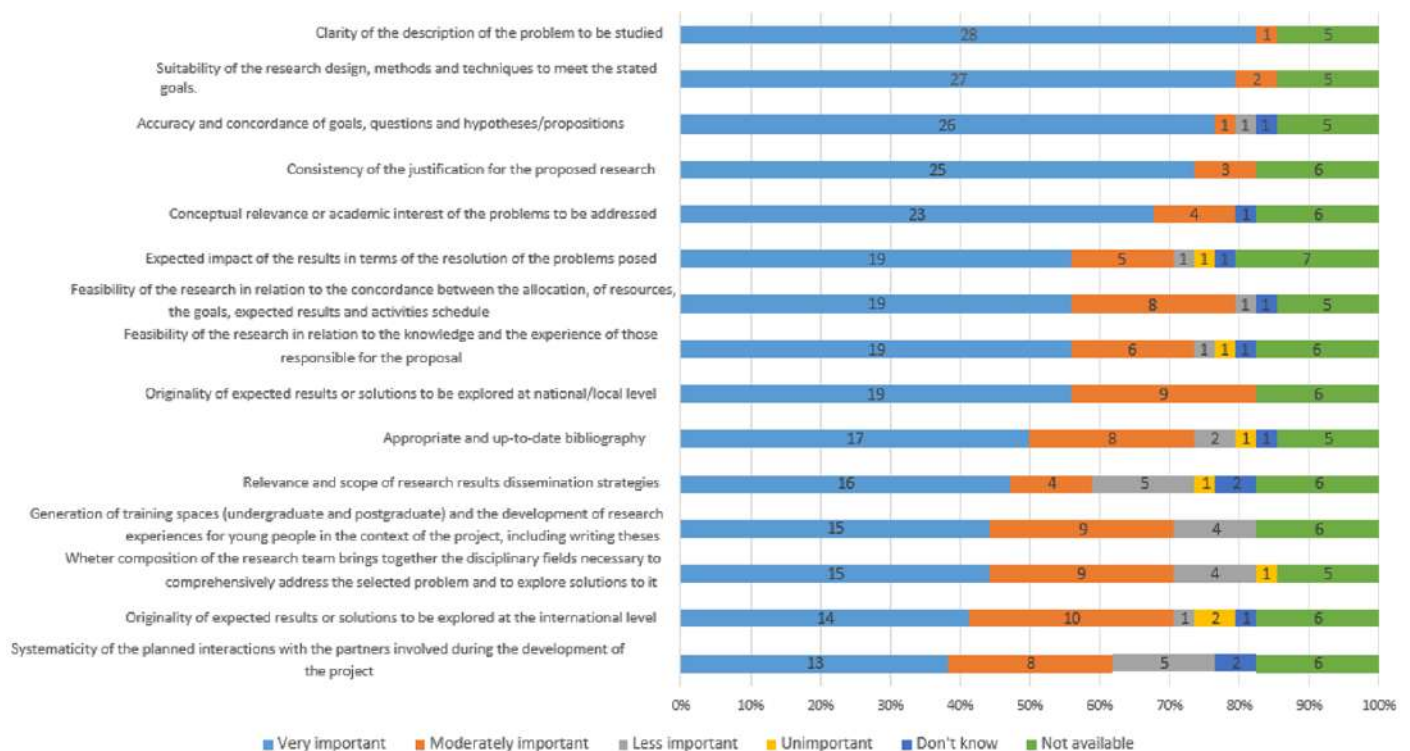
research experiences for young people in the context of the project, including the writing of graduate and postgraduate theses (44%) (see Figure 13).

The third quality dimension is the appropriateness and impact of the proposed research. Of the total responses, 56% list as very important the expected impact of research results in terms of solving problems raised. However, only 38% of responses indicated as important the systematicity of interactions expected with partners involved during the project; nonetheless, 24% stated this criterion as moderately important (Figure 13).

Some 56% of responses indicated as very important for their organization the viability of the research in relation to the knowledge and experience of those responsible for the submission. Likewise, 44% indicated as very important that the composition of the research team should include the disciplinary fields necessary to fully address the problem and explore solutions (see figure 13).

Lastly, responses stated original or novel aspects of the research projects as important. According to the responses, while 56% state as very important the originality of the expected results or solutions to explore in the national/local sphere, this proportion decreases to 41% in relation to the originality of the solutions to be explored at international level (see Figure 13). That is, while the originality of the mission-oriented research project is important, less priority is given to this than other aspects assessed in the quality of these projects. Furthermore, the assessment of the projects' academic merits implemented in the organizations surveyed assigns a comparatively greater importance to the newness or originality of research results and/or solutions at a local or national level rather than internationally.

Figure 13: Assessment criteria for appraising projects' academic merits



III.5.1.2 Criteria for assessing the capacity of problem-oriented research projects to fulfil instrument goals

In addition to appraising projects' academic merits, the assessment of problem-oriented research projects requires a specific appraisal of projects' capacity to fulfil the goals of the instrument, program or call for submissions, that is, their capacity to contribute a specific solution to a concrete practical problem (social, productive, or related to public policy, health, environment, energy, etc). according to the goal of each call or program.

The organizations surveyed require that reviewers and/or specialist panels assess diverse aspects to appraise this capacity. These can be grouped into five dimensions according to the responses obtained and the relative importance assigned: i) newness/originality; ii) transfer and appropriation of scientific and/or technological knowledge; iii) the potential impact on society, the economy, politics and/or on SDGs of the expected results of the research; iv) implementation of research results or implementation of solutions explored; and v) experience and capacity of the research team.

Some 71% of the responses state as very important the robustness of the justification of the need for original research to solve the problem in hand. This is the evaluation criterion most commonly used by organizations to weigh up the appropriateness of projects for solving problems (see Figure 14).

The second-most important dimension to appraise the capacity of projects to fulfil the goals of the program or call is the transfer of scientific and/or technological knowledge generated in the context of the project and its appropriation by actors or partners in the solutions explored. Of the total responses, 68% state as very important the relevance of the need or problem addressed by the project for partners interested in its resolution; 59% indicate the appropriateness of results expected from the research for partners and the same percentage state the concordance between the problem and partners' expectations. Curiously, a number of assessment criteria that are important to organizations were only considered very important by a smaller percentage of responses. These are: i) planning strategies to apply research results or implement solutions in collaboration with participating partners (44%); ii) the adaption of transfer mechanisms and appropriation of the results by partners (41%); iii) specific characteristics of partners involved in the proposal as potential co-funders and/or co-producers of knowledge (38%); and iv) the willingness and ability of partners to implement solutions (29%) (see Figure 14).

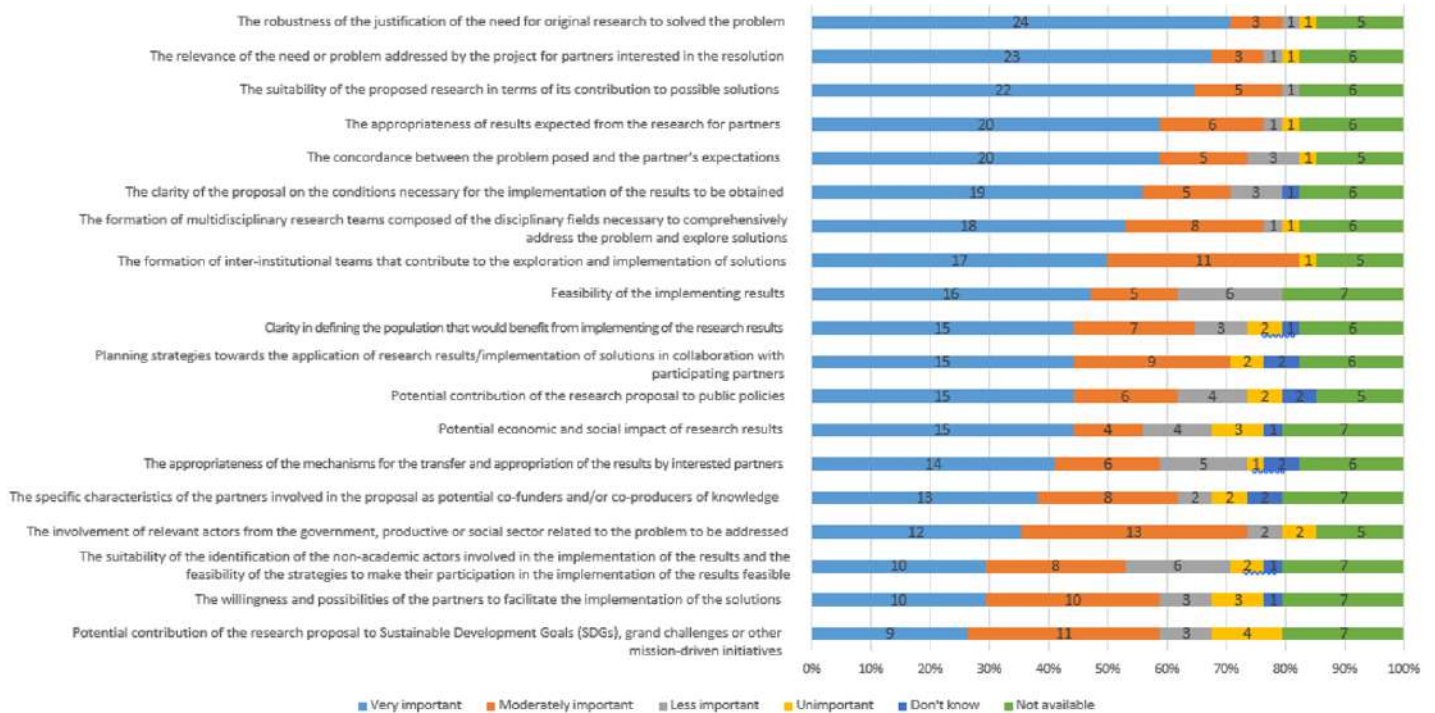
The third-most important dimension for appraising the capacity of projects to fulfil the goals of the program or call is the potential social, economic, political or SDG impact of the research results. Of the responses, 65% stated as very important the appropriateness of the research proposed in terms of its contribution to possible solutions; 44% the potential contribution of the research project to public policies and/or the potential economic and social impact of the research results; and 26% the potential contribution of the research proposal to SDGs, grand challenges or other mission-oriented initiatives (see Figure 14).

With regards to the implementation of research results and solutions explored, the aspect most commonly chosen by organizations to be assessed by reviewers and/or specialist panels is the clarity of the research proposal on the conditions necessary for the implementation of the results, as 56% of responses stated this criterion as very important. This is followed by the formation of inter-institutional teams that contribute to the exploration and implementation of solutions (50%), the feasibility of the implementation of the results (47%) and the clarity in defining the population that will benefit from the implementation of the research results (44%). Aspects of less importance in the assessment are the involvement in the project of relevant actors from the government, productive or social sector related to the problem addressed (35% of responses) and the suitability of non-academic actors involved in the implementation of results and the feasibility of strategies to make their participation viable (including the population affected by the problem) (29%) (see figure 14).

To appraise projects' capacity to fulfil the goals of the program or call, the organizations require that reviewers and/or specialist panels assess the experience and capacity of the research team associated with the project. Some 53% of responses state this is very important in the assessment of the formation of

multidisciplinary research teams, made up of the disciplinary fields necessary to fully address the problem selected and the exploration of solutions (see Figure 14).

Figure 14: Assessment criteria for appraising the capacity of targeted research projects to meet instrument goals



III.5.2 Information inputs for assessment

Given the assessment methods implemented by the various organizations surveyed, mostly qualitative or in combination with quantitative methods (see subsection III.4.2), the strategies they follow to attain responsible assessments (see subsection III.4.1) and the criteria used to appraise both the academic merits of the research projects and their capacity to fulfil the goals of the call (see subsections III.5.1.1 and III.5.1.2), it is to be expected that the main information inputs for the assessment are the research proposal, the assessment reports, the resumes of the people who will conduct the research, and the expressions of interest in research from partners involved.

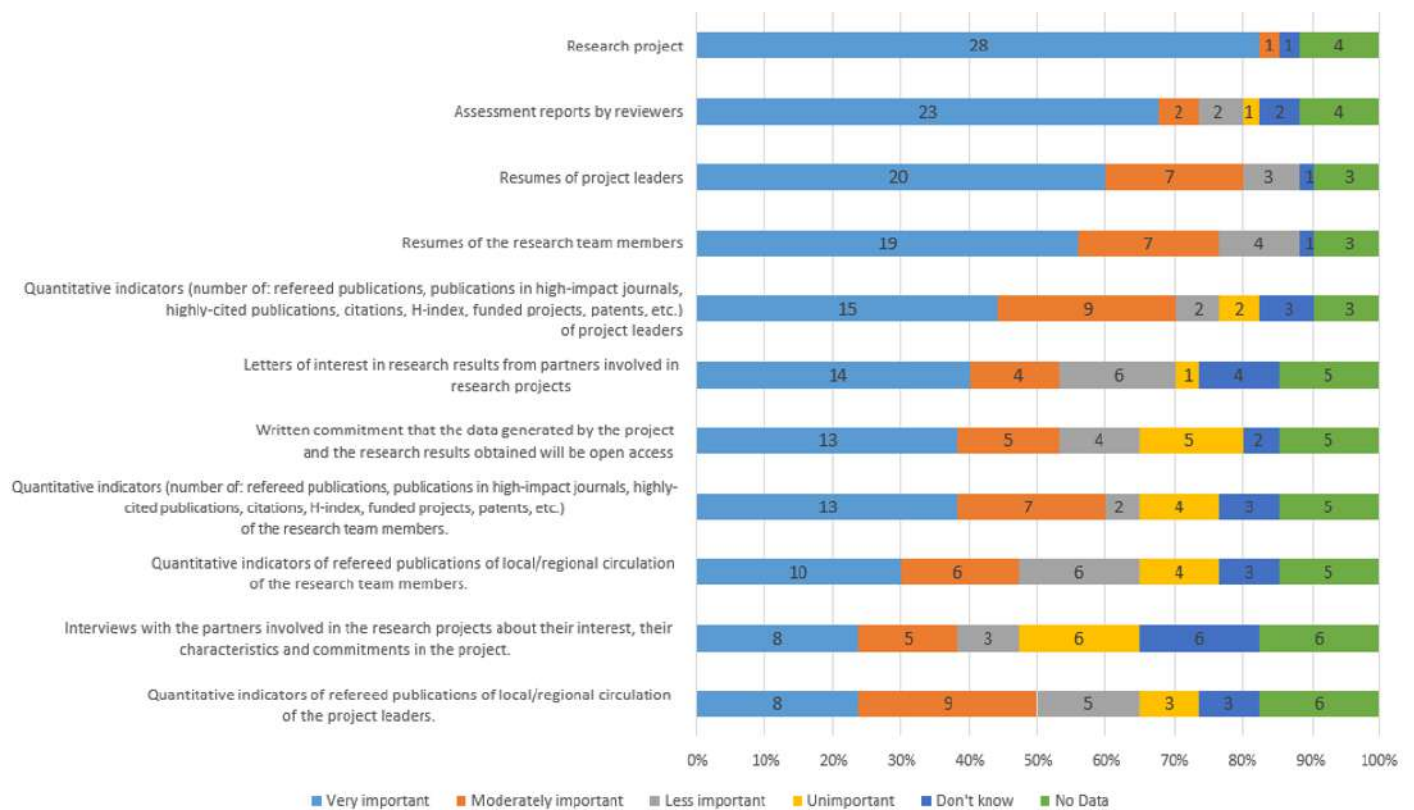
As Figure 15 shows, the main information inputs required by the organizations for the assessment are: i) the research proposal or project, with 82% of the responses listing this as very important; ii) reviewers' assessment reports, stated as very important by 68% of responses; iii) the resumes of those responsible for the projects (59%) and other research team members (56%); and iv) quantitative indicators of those responsible for the projects (44%). All these information inputs were indicated as very or moderately important by at least 70% of responses. Thus, the expectation raised in the previous paragraph is partly fulfilled, as, and this will be seen below, these information inputs do not include any that represent partners' expressions of interest in the research.

In fact, just over half the responses (53%) stated that letters of interest in the research results from partners involved in the research projects are very important or moderately important, while 18% stated that they are less important and 3% that they have no importance. Furthermore, only 38% of responses stated that interviews with partners involved in the research projects on their own interests, characteristics and commitments in the research are very or moderately important; 9% stated this as less important and 18% not important at all. This is one of the information inputs less required by organizations for the assessment of oriented research proposals (see Figure 15).

Additionally, and from the open science perspective, an area that is gaining importance in assessment and STI policy agendas (UNESCO, 2011; Babini and Rovelli, 2020), it is interesting that 53% of responses consider very important or moderately important the written commitment that the data generated from the project and the research results will be open access (see Figure 15).

Lastly, while 59% consider very important or moderately important for their organizations' assessment information about quantitative indicators (number of publications in high-impact journals, highly-cited publications, citations, H-index, projects funded, patents, etc.) of research team members, this percentage drops for quantitative indicators of refereed publications with local/regional circulation (see Figure 15).

Figure 15: Information inputs and their importance in the assessment of research projects



III.6 Transparency

The transparency of assessment processes is very important, as this contributes to greater rigor and responsibility in making judgments on the projects submitted. It reduces bad assessment practices, any discretionary aspects that reviewers or specialist panels may have, and prevents biases in the allocation of resources for research deriving from disciplinary, thematic or institutional favoritism. Additionally, public communication on the assessment criteria and personalized feedback, with detailed assessment reports for those responsible for the projects submitted, also contribute to the assessment representing a space for learning and improving research and those who undertake it.

According to the responses obtained, most of the organizations surveyed that promote and fund research in the region have transparent assessment practices and collaborate with researchers' learning to improve the quality of their research. These results are presented below.

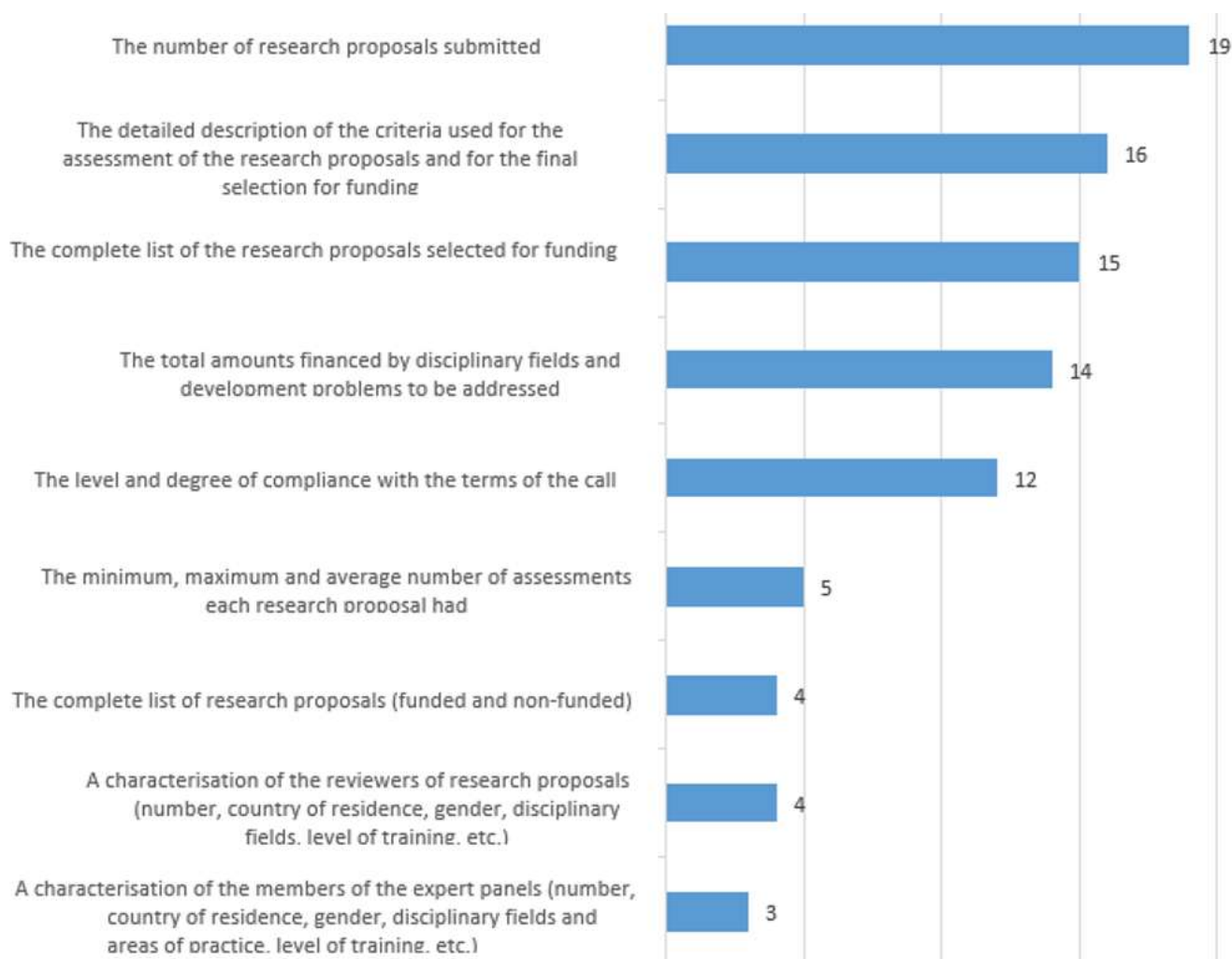
III.6.1 Public communication of assessment results

The broad majority of responses (76%, or 26 cases) state that assessment results are public and accessible. Only 5 responses (15%) stated that they are not and the remaining 9% (3 cases) correspond to no data.

The organizations that claimed to make assessment results public and accessible were asked what information they publish. Of these responses, 73% stated that they publish the number of projects submitted; 62% said they publish a detailed description of the assessment criteria used, both for the review of research proposals and for the final selection to be funded; 58% publish the full list of projects funded, including their titles, researchers' names and institution, the issues they address, the disciplinary fields and non-academic actors involved, and the resources assigned; 54% publish the total sums funded by disciplinary fields and development issues to address; and less than half (46%) publish the level and degree of fulfilment of the terms and conditions of the call (see Figure 16).

The assessment information published gives less importance to the minimum, maximum and average number of assessments that each research proposal had (19%); the complete list of projects not funded (15%); the number and profile of the reviewers (15%) and members of the specialist panels (12%) by country of residence, gender, disciplinary fields in which they are involved, education level, etc. (see Figure 16).

Figure 16: Assessment information made public and accessible (n=26)



III.6.2 Personalized feedback for research project leaders

Some 65% (22 cases) of the responses stated that they provide research project leaders with personalized feedback or an assessment report of their proposal; 26% (9 cases) state that they do not, and that instead they send notification of whether their proposal was selected for funding; and the remaining 9% (3 cases) correspond to no data.

Additionally, those who responded that research project leaders receive personalized feedback which notify whether the proposal was selected for funding and provide detailed suggestions to overcome their main weaknesses were surveyed on the specific characteristics of their feedback. Of these responses, 41% (9 of the 22 cases) said the feedback included all the assessments made by the reviewers and an overall judgment by the specialist panel; 32% (7 of 22 responses) said that the feedback includes an overall judgment by the specialist panels; and the remaining 27% said the feedback includes all the assessments made by the reviewers.

IV. FORMS OF ASSESSMENT OF MISSION-ORIENTED RESEARCH PROPOSALS IN SEARCH OF SOLUTIONS TO DEVELOPMENT PROBLEMS IMPLEMENTED IN LATIN AMERICA: A SUMMARY OF THE RESULTS

The goal of this study was to report on the results of the survey into the forms of assessment of mission-oriented research proposals, and the assessment characteristics, processes and criteria implemented by national science and technology organizations and higher education institutions that promote and fund quality research in various countries of Latin America and the Caribbean.

The survey was conducted between September and November 2021 as part of the project "Research assessment in change: inclusivity in science systems and mission oriented projects in research funding initiatives from the Global south. Reshaping quality evaluation through grounded and progressive methodologies" coordinated by CLACSO through FOLEC and funded by the IDRC.

The goal of the survey was to find, analyze and visibilize relevant, quality assessment experiences and practices implemented in the region for the funding of mission-oriented research projects looking for solutions to social and economic development issues in Latin American and Caribbean countries, to contribute to the development of research and assessment systems that are more inclusive, responsible, pluralistic and diverse.

This is an exploratory, observational study (Kish, 2004) offering a first approach to identify the assessment procedures, criteria and practices implemented by some of the organizations that carry out mission-oriented research stimulus programs in the region. As far as we are aware, this is the first survey for the region on the forms of assessment implemented for projects submitted to contestable funds in the calls of different mission oriented research stimulus programs in the different countries of Latin America and the Caribbean.

The online questionnaire consisted of 33 questions, mostly closed, and was implemented through the Survey Monkey platform. It was distributed by CLACSO-FOLEC and included the collaboration of the Association of the Universities of Latin America and the Caribbean (UDUAL). It was directed at and answered by a total of 34 specialists and/or authorities responsible for mission-oriented research stimulus programs of 13 national science and technology organizations (ministries, secretariats, national agencies, national councils, national research centers) and 18 higher education institutions, mostly public universities in Mexico, Argentina, Brazil, Colombia, Costa Rica, Ecuador, Uruguay, Chile, Nicaragua, Peru, Bolivia and El Salvador.

According to the results obtained, the surveyed programs to stimulate mission-oriented research in search of solutions to the social and economic problems of the countries are relatively new, with around half created in the last decade. Since their creation, most of the programs have had regular annual calls for contestable funds, with variable levels of competition, to fund research projects of one, two or three years' duration.

In half or more of the programs surveyed the resources assigned are for funding expenditure on instruments, materials and inputs necessary for research activities, investment in equipment and infrastructure and the payments of salaries of researchers involved in the funded research projects.

In most of the programs surveyed only academic actors, i.e., the researchers themselves, may submit projects. However, cases were also observed in which non-academic actors can submit projects. The fact that both academic and non-academic actors can submit projects is a relatively new practice, as part of opening up research agendas to problems affecting diverse actors of society, the economy, culture and politics (Gras & Cohanoff, 2021) and which is aligned with UNESCO's open science recommendations (2021). Furthermore, one characteristic of problem-oriented research is the possibility that such research is conducted through interaction and collaboration between academic and non-academic actors.

Another characteristic of problem-oriented research is the fact that the problems are multidimensional and complex, and as such require approaches from diverse fields of knowledge. Most of the programs surveyed make calls for submission of research projects in all the fields of knowledge. Furthermore, around three quarters of the programs admit the proposal of multi-, inter- and transdisciplinary research projects.

One important challenge for orienting research and knowledge production towards solving problems that affect the social and economic development of these countries is their identification. Most of the programs surveyed define the problems that must be addressed by research projects. The strategies most commonly used by the organizations responsible for the programs to define these problems are the country's development priorities and/or exploring problems present in the territories or in specific organizations.

Most of the organizations surveyed state that they implement responsible research assessment. At least two thirds state that their organization promotes diverse aspects of responsible research assessment, such as: the ethics and integrity of the research projects, their teams and the people involved in the assessment processes; the equity, diversity and inclusion of under-represented groups both in the assessment and make-up of research teams; social commitment and actors' participation in society; interdisciplinarity; the consideration of geographic, institutional, thematic and gender balances in the distribution of resources for research; and the consideration of open science and open access aspects.

However, few organizations formally support any of the statements, recommendations or principles of responsible assessment that exist internationally. The Global Research Council's Statement of Principles on peer/merit review has the most adherents among the organizations surveyed, with a total of 6 responses (18%). This is followed by the Leiden Manifesto on research metrics (4 organizations), the San Francisco Declaration on Research Assessment (3) and Science Europe's recommendations on research assessment processes (1 organization).

The main strategies used by most of the organizations surveyed to attain responsible quality assessments are:

- i) requesting that reviewers and/or specialist panel members complete a specifically designed form to address all the aspects to assess in research projects;
- ii) providing written guidelines for reviewers and specialist panel members on the tasks and roles they must undertake; the tools, metrics and criteria to use in the assessment; the definition, identification and treatment of conflicts of interest; ethical behavior rules to guarantee impartiality in gender, race, disciplinary fields, organizations assigned to the project and the academic seniority or position of the applicants; and the procedures and organization of specialist panel meetings;

- iii) adapting assessment procedures according to the specificities of the fields of knowledge and/or when they seek to obtain different research products.

Other strategies, such as informing explicitly on the tools and criteria that must not be used in the assessment, providing specific training to assessors or certain policy adjustments (giving priority to certain high-quality projects or introducing quotas) to address any possible bias or discrimination observed in the selection process of projects to be funded, are relatively less used in the organizations surveyed. Of those organizations that introduce these policy adjustments, most prioritize high-quality projects to ensure cognitive diversity and a diversity of problems to address and inclusion or territorial coverage, as they prioritize projects that are based in or related to partners located in peripheral areas.

The results also show that almost all the organizations surveyed (31 of 34) use a combination of qualitative and quantitative assessment methods. The survey did not register a single case of an organization that used quantitative methods alone to assess, order and classify projects as fundable or non-fundable. On the contrary, such methods are implemented in combination with one or more qualitative assessment methods.

The combined qualitative assessment methods used by the organizations surveyed are peer review (single or double blind, internal or external to the organization) of the research proposals and specialist panels (internal or external to the organization) who discuss and review the assessment reports to classify the projects according to whether they are fundable. Some organizations implement open reviews of research proposals, although these are a minority.

The priority criterion for being a member of the specialist panels is academic experience and knowledge, followed by practical experience and knowledge of the problems to be addressed by the research projects. Other criteria used for panel members reflect certain strategies implemented by organizations to prevent potential cognitive and gender biases, as 65% and 45% of responses respectively said that the criteria for the composition of these panels must guarantee disciplinary diversity and gender parity.

One specificity of the assessment of problem-oriented research projects is that as well as requiring an appraisal of their academic merits, they require a specific assessment of the capacity of said projects to fulfil program goals, i.e., their capacity to contribute with a specific solution to a concrete practical problem, whether social, productive, in public policy, health, environment, energy or otherwise. At least half of the organizations surveyed consider this specificity, implementing an assessment of the academic merits of the projects and of their capacity to contribute solutions for the problems they address.

The aspects that the organizations require of reviewers and/or specialist panels in assessing the academic merits of the research proposals can be grouped into four dimensions of the notion of research quality that, in accordance with the responses obtained and the relative importance assigned to them, can be ordered thus:

- i) Technical and methodological rigor, considered very important by at least three quarters of responses: the clarity of the description of the problem, the suitability of the research design, the methods and techniques for fulfilling the goals presented, the accuracy and concordance between the goals, questions and hypotheses, and the robustness of the grounding of the research proposed;
- ii) Academic relevance and impact, stated as very important by at least two thirds of the responses: the conceptual relevance or academic interest of the problems addressed, the appropriateness and scope of the strategies to disseminate the research results, and the generation of spaces for graduate and postgraduate education and to develop research experiences for young people in the context of the project, including writing graduate and postgraduate theses, were indicated as very important by a little less than half of the responses.

- iii) Experience and capacity of the research team, which the majority of responses stated as very important: reviewers' and/or specialist panels' appraisal of the viability of the research in relation to the knowledge and experience of those responsible for the proposal. A little less than half of the responses stated as very important that the make-up of the research team included the disciplinary fields necessary to fully address the problem selected and the exploration of solutions;
- iv) Originality, with most of the responses deeming very important reviewers' and/or specialist panels' appraisal of the originality of the expected results or solutions to explore in the national/local area. This percentage drops to 41% when originality is appraised in the international sphere. It can be said that assessment is contextualized, as it fundamentally considers that research results and/or solutions to be explored be at least new or original for the local/national sphere, that is, that the research results should represent the possibility to generate a solution that is not available locally.

The aspects to assess that the organizations surveyed require of reviewers and/or specialist panels to appraise the capacity of research proposals to fulfil the program goals can be grouped into five dimensions regarding research quality and relevance, ordered as:

- i) Newness/originality; nearly three quarters of responses list as very important the robustness of the justification of the need of original research to solve the problem in question;
- ii) Transfer and appropriation of scientific and/or technological knowledge; over two thirds of responses give as a very important aspect in the assessment the importance of the problem in question in the project for the partners interested in its resolution, and around 60% state the relevance of the research results expected for the partners interested and/or the concordance between the problem in question and the expectations expressed by the partners. However, less importance was given to the planning of strategies for implementing solutions in collaboration with participating partners (44% deemed this very important); the suitability of the mechanisms for transfer and appropriation by the partners of the results obtained (41%); the specific characteristics of the partners involved as potential co-funders and/or co-producers of knowledge (38%); and the willingness and possibilities of the partners to implement of solutions (29%).
- iii) Potential social, economic, political and/or SDG impact of expected research results. Two thirds of responses deemed the relevance of the research proposed in terms of its contributions to possible solutions to be very important. 44% deemed very important the potential contribution of the research to public policies and/or the potential economic and social impact of the results. 26% of responses considered very important the research's potential contribution to SDGs, grand challenges and other mission-oriented initiatives.
- iv) Implementation of the research results or implementation of the solutions explored. The project's clarity on the conditions necessary for the implementation of results obtained was deemed very important by most responses. This was followed by the make-up of inter-institutional teams that contribute to the exploration and implementation of solutions; the feasibility of implementing the results and the clarity in defining the population that would benefit from the implementation of the research results, which half or less of the responses deemed very important. The involvement of relevant actors from the government, productive or social sector related to the problem addressed, the suitability of the identification of the academic actors involved in the implementation of the results, and the feasibility of strategies to make their participation viable are aspects deemed very important by approximately one third of responses;
- v) Experience and capacity of the research team. Most responses deemed very important the make-up of multidisciplinary teams, composed by the disciplinary fields necessary to fully address the problem selected and the exploration of solutions.

The information inputs considered very important by the broad majority of the organizations surveyed are the research project, reviewers' assessment reports and the research project team members' resumes (including project leaders). A little less than half of the organizations surveyed deemed very

important quantitative indicators (number of publications in high-impact journals, highly-cited publications, citations, H-index, projects funded, patents) of project leaders.

The above is not surprising, given the assessment methods implemented by the diverse organizations surveyed, the strategies they follow to attain responsible assessments and the assessment criteria they use to appraise both the academic merits of the research projects and their capacity to fulfil the goals of the call for submissions. However, only 41% of responses deemed the letters of interest in the research results of the partners involved in the research projects a very important information input, and 21% deemed them less important or not important at all. Similarly, only 24% of responses deemed very important interviews with partners involved in the research projects to evaluate their interest, characteristics and commitments in the research; in contrast, 37% stated that this information is less important or not important in the assessment.

From the open science perspective, most responses state that a very important or moderately important information input for the assessment is the written commitment that the data generated by the project and the research results obtained will be open access, thus promoting the dissemination of the solutions found. However, indicators on refereed publications with local/regional circulation that could potentially contribute to local/regional dissemination of research results are considered very important information inputs for assessment by less than a third of the organizations surveyed.

Lastly, most of the organizations surveyed, all of which promote and fund quality research in the region, have transparent assessment practices and collaborate with researchers' learning to improve research quality.

Three quarters of responses state that their organization makes assessment results public and accessible. In all these cases, the number of projects submitted is published; a little less than two thirds publish details of the assessment criteria used, both for the appraisal of the research proposals and for the final selection of projects to be funded. Most responses state that the full list of funded projects is made public, including their titles, researchers responsible and the institution they belong to, the issues addressed, disciplinary fields, non-academic actors involved, resources assigned, and the total sums funded by disciplinary field and by issue.

Two thirds of responses state that their organization sends research project leaders personalized feedback or assessment of their proposal which notifies whether the proposal was funded, provides detailed suggestions to overcome their main weaknesses, and includes in a large number of cases (41%) all the assessments made by the reviewers and an overall judgement drawn up by the specialist panel. In 32% of cases it includes a global judgment drawn up by the specialist panel, and in the remaining 27% all the assessments made by the reviewers.

V. POLICY RECOMMENDATIONS AND IMPLICATIONS

Based on the results obtained, there follows a set of policy recommendations to broaden and deepen responsible assessment processes of mission oriented research projects implemented in the region. These are structured into six dimensions underlying these processes: i) ethics and integrity; ii) diversity and inclusion of under-represented groups; iii) social commitment and participation of society actors; iv) interdisciplinarity; v) geographic, institutional, thematic and gender equity in the distribution of resources for research; vi) open science and open access.

V.1 Ethics and integrity of assessment processes:

- ✓ Clarify the ethical norms of behavior that must be followed by the individuals responsible for assessment to guarantee impartiality with regards to gender, ethnicity, disciplinary fields, organizations assigned to the projects and applicants' academic seniority or position.
- ✓ Provide specific training for people responsible for project assessment.
- ✓ Notify reviewers and specialist panels explicitly of the tools, criteria and metrics that must not be used in project assessment.
- ✓ Broaden and further the transparency of assessment processes, with an emphasis on the provision of public, accessible information on the profiles of reviewers and members of specialist panels by country of residence, gender, disciplinary fields and education level.
- ✓ Broaden and further efforts towards developing personalized feedback for those responsible for projects, including all the assessments/reviews received and an overall judgment detailing the main strengths and weaknesses of the research proposal and suggestions to overcome these issues.

V.2 Diversity and inclusion of under-represented groups in assessment processes

- ✓ Promote disciplinary diversity and territorial, institutional and gender inclusion in the make-up of specialist panels responsible for assessment.

V.3 Social commitment and participation of society actors

- ✓ Recognize and appraise in the assessment of mission oriented research projects:
 - the systematic nature of interactions with non-academic partners involved;
 - the planning of strategies to implement research results;
 - the suitability of mechanisms for transferring and appropriating results obtained from the research;
 - the characteristics of the non-academic partners as potential co-funders and co-producers of knowledge;
 - the potential contribution of research results to public policy, SDGs, major challenges and other missions;
 - the involvement of non-academic actors (governmental, productive and/or social) related to the problem to be solved, in the implementation of research results.

V.4 Interdisciplinarity

- ✓ Promote the adaptation of assessment procedures according to the specificities of the knowledge fields and results and products of research to be obtained.

V.5 Geographical, institutional, thematic and gender equity in the distribution of resources for research

- ✓ Analyze the appropriateness of certain policy adjustments to address possible biases or discrimination observed in the selection of projects to fund, such as the introduction of quotas and/or prioritizing those high-quality projects that:
 - ensure greater diversity of knowledge fields, disciplines and problems to address;
 - promote gender balances;
 - are localized and/or connected with partners based in peripheral areas;
 - are connected with non-academic partners with limited access to research or who have had scarce or no connection with academic actors.

V.6 Open science and open access

- ✓ Advance in the knowledge of experiences of openness of the assessment processes, promoting the analysis of its appropriateness and reflecting on opportunities and challenges in its implementation.
- ✓ Promote the co-responsibility of academic and non-academic actors in the research proposals and consider in the assessment the expressions of interest of non-academic partners involved in the proposals to collaborate with the openness of the research agendas and the problems affecting diverse actors of the society, economy, culture and politics.
- ✓ Recognize and value in the assessment the commitment to open access to the data generated and the research results obtained in the project.
- ✓ Recognize and value in the assessment the performance in indicators of refereed publications of local and regional circulation.

Lastly, it is hoped that the results and recommendations made in this study will contribute to broadening and furthering global and regional efforts to transform assessment, adopting the best practices and main regional trends identified in this study which, in addition to others, strengthen STI systems and make them more inclusive, diverse, pluralistic and democratic, promoting a change in research assessment led by more open, collaborative and participatory practices. FOLEC and CLACSO in collaboration with other Latin American and international networks and institutions that have participated in this study maintain their commitment to these efforts.

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