

**REPORT ON THE  
RESEARCH ASSESSMENT  
IN URUGUAY,  
IN A REFLEXIVE  
PERSPECTIVE**

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## **Objectives of the consultancy and general structure of the report**

This consultancy emerged within CONICYT as a result of a report that observed a series of inconsistencies in the signals that the evaluation systems generate in the country, regarding the importance of strengthening the link between the science, technology, and innovation (STI) system and the social reality of the country, as well as in other aspects related to the internal health of the research ecosystem. The observations related to the evaluation were collected within the framework of the process of reflection and analysis aimed at a new institutional design of the STI area promoted by the Ministry of Education and Culture. In particular, incentives and disincentives that influence the performance of scientific and technological activities were identified. The general objectives proposed by CONICYT in its call for proposals were: a) to systematize and analyze the experiences of researcher career evaluation in Uruguay within the framework of current international debates and b) to prepare recommendations for the different researcher evaluation systems in the country. These goals were enriched with specific objectives: a. To compile and analyze national, regional, and international background documents to evaluate researchers, identifying the critical dimensions to be observed in the Uruguayan experience. b. To systematize the evaluation for admission and promotion in the National System of Researchers (SNI) and examine its relationship with the existing researcher profiles in the different institutions in Uruguay. c. To explore in depth the Total Dedication Regime (RDT) of the University of the Republic and the different evaluation systems existing in other national institutions of higher education, science, and technology. d. To carry out an exploratory study of the knowledge production profiles of the researchers classified in the SNI, taking into account their insertion in national institutions of higher education, science, and technology. e. To understand the perceptions of the different actors of the research evaluation system in Uruguay and their current priorities through interviews and/or focus groups with researchers, peers, members of evaluation commissions, referents of the scientific field, civil servants, and union representatives. f. To elaborate recommendations for the modification of the current research evaluation system to promote evaluations based on comprehensive and contextualized basis, headed by responsible, reflective, transparent and equitable principles. g. Participate in organizing and coordinating a workshop with national institutions of higher education, science, and technology, as well as researchers, to present the main conclusions and recommendations of the consultancy.

In order to achieve these objectives, the reflexible perspective of the Sociology of Evaluation was adopted, and the methodological approach combined qualitative and quantitative strategies, as well as a wide range of documentary material collected from all national institutions. To analyze the concrete evaluation experience at different scales (institutional and national), interviews and focus groups were conducted with members of evaluation committees, officials, academic-scientific referents, and researchers. The interviews were analyzed through Atlas.ti (See details in Part 2 of this report). An exploratory study of academic trajectories was carried out to examine the relationship between researcher evaluation systems and knowledge production and circulation profiles. With all the empirical material collected, the strengths and weaknesses of the researcher evaluation systems in Uruguay were identified, and a set of recommendations and a workshop (with participants and agenda to be defined by CONICYT) are proposed.

In the first part, global and regional debates on academic evaluation are developed according to the critical dimensions that make the focus of the consultancy. The second part delves into the institutions and agents that make up the science, technology, and innovation system in Uruguay,

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especially in the description of those that have evaluation systems on individual trajectories through the analysis of regulations and interviews oriented to know the functioning of the evaluation processes and self-perceptions of the actors. The third part analyzes the profiles of production and circulation of knowledge of the SNI researchers based on the career most-relevant productions selected by them to apply for renewal or promotion. Finally, conclusions, synthesis, and recommendations are presented.

## SECTION 1

### **Introduction. The debate on research assessment and the dimensions of observation for the case of Uruguay.**

Peer review emerged in the mid-17th century as a judgment on the merit of a scientific contribution by specialists external to the team producing it. These peers were knowledgeable about the object in question, and they analyzed the results to determine whether the work was publishable in a journal. That evaluation practice took on new forms after the second post-war period when the State began to systematically direct the development of scientific and technological knowledge (Rip, 1994; Albornoz, 2003). As research was institutionalized in universities, evaluation became an increasingly complex instrument designed to select researchers, evaluate institutions, or grant research project subsidies. Undoubtedly, a critical element that transformed the academic evaluation process was the indexing of journals. The relevance that the rating of publications was acquiring in the academic world during the twentieth century even led to the emergence of a discipline, bibliometrics, which became increasingly central in these processes (Gingras, 2016).

From the 1990s onwards, we can say that this practice of peer review extended to other fields and conditioned the funding of institutions and projects and the promotion of people's academic careers. The main instrument of this evaluative turn in Latin America was the establishment of external accreditation standards for universities and salary incentives to encourage research. This heteronomous interference was largely effective, although with differential nuances in each country, depending on the strength of the institutional autonomy of the universities, the role played by the rectors' councils, the weight of the student movement, and the influence of the teaching unions. In tune with what happened in other latitudes, these evaluation policies stimulated research practices and directly affected the admission or permanence of teaching, organizing professional segments with different hierarchies (Araujo, 2003; Naidorf & Perrota, 2016). This historically impacted a concomitant devaluation of teaching, human resources training, extension, transfer, and management activities (Echeverry-Mejía, 2021; Schimanski & Alperin, 2018).

In eleven countries of our continent, these incentive systems are derived in constructing national categorization systems in which typical features are observed <https://impactoabierto.org/mapa/> (Vasen & Sarthou, 2021). The categories granted cover the entire body of researchers. They are awarded through regular calls for applications in which massive applications are received, both for admission into the system and for promotion. Some systems grant an enabling category (PRIUNAR, Argentina), others a salary supplement (SNI Mexico, SNI Uruguay), funding to develop a project (Bolsa de CNPq, Brazil), or a position/position (CONICET, Argentina). However, all of them imply a significant mobilization of peer committee structures and represent a complex challenge in the evaluation process, especially regarding the instruments capable of objectifying the merits of the persons evaluated (Beigel & Bekerman Coord, 2019). Generally, national categorization systems resolve these difficulties through weighting schemes prioritizing scientific production, understood almost exclusively in publications. The use of quantitative indicators predominates, as does the valuation of journals or the impact factor, according to the particularities of the country and the discipline. This productivism, added to other dynamics of the academic field, marks a series of asymmetries manifested in the accumulation of resources

in a few metropolitan institutions and an unequal recognition of women scientists (Beigel et al., 2023).

The biases of databases produced by commercial companies, such as Scopus and Web of Science, and their effects on the valorization of specific formats, languages, and circuits over others have been widely studied (Martin-Martin et al., 2018; Marginson, 2021; Siler & Larriviere, 2022). The articles included in these systems were identified as the only scientific goods of international quality exported by countries, increasingly relegating the production published in national journals or languages other than English, which resulted in the devaluation of this production in national and international evaluation processes. Likewise, these indicators of scientific production were determinants for the construction of university rankings and world science reports that labeled science from the Global South as marginal or underdeveloped. Finally, they impacted the standardization of publication styles and the increasing homogenization of research profiles (Goyanes, 2015; Invernizzi, 2022).

For this reason, the debates on scholarly evaluation at the global level put the limitations of bibliographic information sources at the forefront of observation because they condition the visible landscape of the scientific production of a country or an institution. There are new sources of information and open infrastructures that can collaborate to build a more complete picture of the available scientific production and, on that basis, explore a better balance between global and local standards. By making information available on the complete trajectory of researchers, these sources open new perspectives for the contextualized use of indicators, the promotion of the diversity of individual and institutional profiles, and the consideration of academic age.

This advice arises as a result of the report that the National Council for Innovation, Science and Technology (CONICYT) made on the National Strategic Plan for Science, Technology, and Innovation (PENCTI) in October 2022, which allowed it to observe a series of inconsistencies in the signals that such evaluation systems generate, both about the importance of strengthening the linkage of the science, technology and innovation (STI) system with the productive and social reality of the country, as well as in other aspects that make up the internal health of the research ecosystem. The aspects related to the evaluation have been collected within the framework of the process of reflection and analysis aimed at a new institutional design of the STI area promoted by the Ministry of Education and Culture. In particular, the incentives and disincentives that influence the performance of scientific and technological activities were identified. The report argues that, on many occasions, it is perceived that fundamental aspects for strengthening research, such as academic management, human resources training, knowledge transfer to social actors, building and strengthening capacities for research and innovation, and interdisciplinary crossroads, among other aspects, are not duly valued.

This report fulfills objective a) proposed in the work plan of this consultancy, which consists of offering a current panorama of the global and regional discussion on academic evaluation, focusing on the evaluation of researchers. This systematization is organized based on the critical dimensions we have identified to observe the situation in Uruguay. These dimensions are 1) The concepts of academic excellence and quality; 2) Peer evaluation and the distortions produced by the journals' Impact Factor; 3) The controversy between quantitative-qualitative approaches to evaluation; 4) Social relevance of science; 5) The limitations of global sources of information and the importance of national databases; 6) Incentives for Open Access to publications and the effects of APC payment; 7) Specificities of evaluation in social sciences and humanities; 8)



National researcher categorization systems and evaluation governance; and 9) Studies on researcher evaluation in Uruguay.

### **1) The concepts of academic excellence and quality**

The globalization of the model of the evaluating State (Neave, 1990, 1994) generated a proliferation of research incentive systems and external accreditation of universities that gradually universalized indicators of evaluation of research “excellence” (Bianco et al., 2016). This notion moved away from the idea of “quality” that was historically defined by the expert peers of a journal based on the originality of scientific work, its rigor in handling empirical material, and knowledge of the available literature. To a large extent, this occurred because quality became inextricably linked to the “excellence” of the journals and disassociated from the individual contribution of each researcher. The Impact Factor, university rankings, and the growing commercialization of scientific publishing completed this movement, as shown below. Kraemer-Mbula et al. (2020) argue that “excellence” is a normative concept that implicitly implies that selecting the best proposals or researchers over others through a single ranking is possible. Quality, however, resists quantifications; no known rankings of originality or rigorousness indexes exist.

Excellence implies an evaluation by comparison because it is a competition for research funding, for a position for which publications in the best journals or other types of resources are required. Not surprisingly, excellence is understood to be developed only in elite science. Those “best” researchers are not only masters in specialized fields but are taken for granted to be creative and original, hence prestigious. This standardized paradigm of excellence, supposedly global, is problematic for evaluating research produced in the countries of the South because that is not where these standards originated and, therefore, they have a part of strangeness and another part of the “must be” that researchers themselves consider a goal.

In Latin America and the Caribbean, a discussion has been going on for several decades about the difference between “excellence” and “academic quality”, especially around the confusion between journal impact and the “quality” of each scientific contribution published (Latindex, 2011). The rewards offered by evaluation systems based on impact indexes had an increasingly significant impact on the styles of production and circulation and the devaluation of indexed journals in the region.

Some studies suggest that this discouraged interdisciplinarity and creativity, reinforcing a tendency to produce knowledge that is not applicable in the local context (Invernizzi, 2022). The competitive nature of this notion of excellence consolidated the cumulative advantage of specific countries and institutions in university and journal rankings, generating more significant asymmetries in access to funding (Vessuri et al., 2014; Gras, 2022).

The growing concern of universities in non-hegemonic countries to improve their positions in the rankings promoted heteronomous internationalization policies to increase collaborative research and encourage publications in the mainstream circuit (Robinson-García & Ràfols, 2019). Wherever these trends took hold, there was a national segmentation of circulation circuits with academic elites of opposite orientations. Some were integrated into the discussions of mainstream journals and accustomed to writing in English, while others created spaces for publication in native languages and national journals. The latter phenomenon is more common in the social and human sciences, but it can be observed in all areas when studies of complete

trajectories of researchers are undertaken (Beigel, 2014). The truth is that academics in low-income countries face additional obstacles in the development of their careers (lack of mobility, infrastructure problems, digital divide) with which the pressure to publish in high-impact journals has had negative consequences for the intellectual, human and labor quality of universities (Faber, 2021).

Sutz (2020) wonders why universities in the Global South run the same race as those at the top of university rankings if the latter do not generally participate in that market for higher education services. The main answer is that these universities and their performance constitute a beacon indicating where the world should be heading. Through the evaluation systems, these criteria were applied in universities with totally different contexts. This productivism finally affected the valuation of other faculty functions, such as teaching, extension, technological production, human resources training, and scientific institutions and capacities management. Reflection workshops conducted in Uruguay evidenced that these measurements of individual academic performance devalue collective work and have a negative impact on the development of research teams and groups (UdelaR, 2018).

However, this quantification of “excellence” did not colonize all regions and institutions. In the margins of maneuver that each scientific system and each institution has, there are spaces of freedom for a quality scientific production based on qualitative criteria. Paradeise and Thoenig (2013) studied numerous departments in different universities in European countries and observed a negotiation process with different balances between global and local criteria. Standardization based on impact indicators exists, but at the local level, there is more diversity than international databases and researchers' perceptions suggested.

## **2) Peer review and the distortions produced by the journals' Impact Factors**

Peer review is generally regarded as the archetypal evaluation of science. The premise is that this quality judgment is an expert decision that experts can only make. The peer review process is based on those with sufficient knowledge about the development of the field. This trust in peers is based on the cognitive dimensions of evaluation and conceives the “extra-cognitive” dimensions as corrupting influences. For Lamont (2009), however, the evaluation process is interactive and culturally embedded in evaluators' “social identity”, marked by their self-perceptions and how others classify them. Thus, evaluators' definitions of quality are marked by their beliefs about prestige, intellectual trajectories, and social identities.

In recent decades, the growing centrality of bibliometrics has helped to displace this traditional peer review by using the citation impact of journals as a unit of measurement of “excellence”. The citation level of that journal, however, does not say much about the scientific strength, circulation, or originality of the individual contribution of a researcher being evaluated, and this has been widely noted as problematic (Gingras, 2016; Ràfols, 2019). This displacement is not simply because articles are no longer read, as is commonly said in the corridors of universities, and scores are only assigned according to journal rankings. Biagioli and Lippman (2020) posit that something much more radical occurred when the scientific quality of an article ceased to be relevant and became solely a consideration of journal metrics: that article became a valuable unit of measurement and an exchangeable currency. An author can trade articles to obtain an academic position. Then, that institution can trade those and other publications to improve positions in a global ranking, which can be converted into more student enrollment, donations, or grants for the university (Aksnes et al., 2017). Thus, the use and abuse of the Impact Factor

turned the task of evaluation, supposedly based on classifying, valuing, and recognizing, into its counterpart consisting of excluding, de-valuing, and discarding. This growing commercialization of scientific communication has also led to the systematic appearance of questionable publication practices and predatory journals (Pölönen & Sivertsen, 2021).

So what role does traditional peer review play today, given the centrality of bibliometrics and the effects of the impact factor? How much room do these peer review committees have to establish quality criteria based on the originality of scientific contributions in the framework of the complex national categorization systems of Latin American countries? Can quantitative indicators be discarded? Is it now appropriate to place all the evaluation weight on a group of peers? Several studies show that experts are also mediated by the rating of the journals enshrined in the rankings. Therefore, evaluations in peer committees also rest on these assessments (Beigel & Bekerman, 2019; Kulczycki, 2023). There is also the risk of depositing all decisions in a small group of peers. At the same time, among researchers, it is expected to hear that not all evaluations are well-intentioned, and more than once in their career, they felt that those judgments were based on conflicts of interest or animosities (Avanço et al. et al. ia 2021). Finally, it is fundamental to consider that the evaluation system is collapsed. Historically, being summoned as an expert for evaluating projects, teaching positions, or journal articles was considered a recognition and an obligation in a field reproduced based on the accumulation of symbolic prestige. However, with time, the overload of tasks and the growing number of evaluations present severe difficulties in complying with the times and norms of the process (Aguado & Becerril, 2021).

There are currently four commonly used evaluation modalities: a double-blind, blind evaluation, unilateral blind, and the most recent open evaluation (Pontille & Thorny, 2020). However, the latter has not reached the academic community's consensus that the abandonment of anonymity has not yet been achieved since it has not yet been proven that its benefits outweigh its adverse effects (Ford, 2021). Some journals offer open evaluation options but in the sense of publishing different versions of a paper through the pre-print mechanism. Few add the open publication of the opinions. According to Guglielmi (2021), unlike traditional peer-reviewed journals that share the article in its final version only, pre-prints allow for accelerating the process of knowledge circulation and the reflection produced by collaborative research. Others point out that it also implies a risk of disseminating inconsistent or erroneous research because the absence of a final peer review implies that the work does not yet have the necessary quality to guarantee the rigor expected by the academic audience and non-expert readers. In its favor, it is argued that this is an ultimately progressive form of evaluation that includes many exchanges during the process and can significantly impact the prevention of fraud, abuse, and poorly informed publications (Pontille & Thorny, 2020).

### **3) The controversy between quantitative-qualitative approaches to evaluation**

Promoting a more transparent and qualitative evaluation is essential to correct the harmful effects of impact indicators and productivism (Mollas-Gallart, 2020; Ràfols, 2019; Sivertsen, 2016). The shortcomings of purely quantitative assessments are already part of the international consensus reached in several international initiatives such as the San Francisco Declaration on Research Assessment (DORA, 2012), the Leiden Manifesto (2015), the Helsinki Initiative on Multilingualism (2019), the Latin American Forum on Scientific Assessment (FOLEC,2020), and the more recent Agreement on Reforming Research Assessment (CoARA). In the case of DORA,

the idea of “responsible evaluation” of research consists of paying greater attention to the quality of research results than quantity. It also proposes the adapted use of diversified indicators and processes, dispensing with the publication impact factor as a surrogate measure of the quality of individual research articles. The statement makes specific recommendations for publishers, metrics organizations, and other academic stakeholders. It recommends that funding agencies clearly state the criteria used to evaluate the scientific productivity of applicants for research funding, especially for early-career researchers. From Uruguay, DORA currently has the signatures of 12 organizations and nine individual signatures from different universities. The organizations are primarily journals; only one university (ORT) has an institutional signature.

In Europe, multiple initiatives are being deployed to reform academic evaluation systems that have put the discussion on quantitative indicators to measure scientific production at center stage. One of these is CoARA, launched on July 20, 2022, in collaboration between the European University Association, Science Europe, and the European Commission. The document, which is gradually reaping more and more signatures, analyzes three evaluation contexts: a) individual careers (admission or promotion), 2) research projects applying for funding, and 3) institutions or research units being evaluated for external accreditation or funding. The recommendations are, however, more applicable to evaluating individual projects and careers than to institutions. The signatory organizations are committed to ensuring that: a) their evaluations will recognize and reward the plurality of contributions of researchers in their careers and not only their publications or funds acquired from abroad, b) academic differences between disciplinary fields will be respected, and c) new qualitative dimensions of research such as open science in its full breadth, research integrity, and social relevance will be encouraged (CoARA, 2022).

Within this framework, there have been exciting experiences of transforming curriculum formats in a qualitative direction, such as the case of the National Science Foundation in Switzerland, which includes narratives and information on academic age in the new format and eliminates the complete list of publications. However, the pilot tests and the opinions collected among researchers show opposing assessments of these changes (Strinzel et al., 2022). Other exciting experiences arise from the refusal to participate in the University Rankings, as in the case of the Dutch University of Utrecht, which decided not to contribute data to THE Ranking <https://www.uu.nl/nieuws/waarom-de-uu-ontbreekt-in-de-the-ranking>.

Ràfols & Molas-Gallart (2022) analyze this critical movement concerning productivism, considering the European agreement auspicious because it can promote change at the national and institutional levels. However, they dissent regarding abandoning any indicator based on publication metrics, which has generated controversy around quantitative indicators that deserve special attention. Sivertsen and Rushforth (2022) state that CoARA clearly explains the harmful effects of using impact indicators, which are generally accepted by evaluation specialists. However, they argue that in their formulation, they propose abandoning all indicators of scientific production. Ràfols & Stirling (2021) recognize that already in its origins, in the 1980s, it was argued that bibliometrics could not determine the intrinsic academic quality of scientific production but operationalized it by using publication data in different ways. One of the main difficulties of the mechanical use of these indicators was simplifying and impoverishing the idea of quality. However, abandoning all types of publication indicators can mean a setback in the objectivity levels achieved to know the journals, international collaboration, and the circulation of knowledge. Opening up complementary indicators may mean that evaluators and funding agencies have more options before taking only the opinion of a small group of peers.

Indeed, moving now only to narratives evaluated by peer committees may return us to old distortions. This is why the “responsible use of quantification” makes sense, with various indicator models that can be used to support but never replace expert assessment (Hicks et al., 2015). What is essential is that the indicator is not an end in itself. The starting point is to ask what is being evaluated and for what purpose instead of proposing cross-cutting indicators for all profiles, disciplines, and types of projects. From there, it can be defined whether the quality of observational research can be assessed according to immediate products such as publications or intermediate products that can be measured according to the use of specific agents in the environment or by their social relevance or contribution to formulating environmental or public health policies (Ràfols & Stirling, 2021). For this, it is essential to evaluate the scientific practices in four dimensions: trajectory, academic commitment, social commitment, and capacity building. Quantitative clustering helps know these dimensions or show different profiles from more established groups or those arising from bureaucratic guidelines (Robinson-Garcia et al., 2019).

This multidimensional evaluation perspective also contributes to the Latin American Forum for Academic Evaluation (FOLEC), created in 2019 within the scope of the Latin American Council of Social Sciences (CLACSO) 2. FOLEC has advocated for a transformation of science evaluation based on a comprehensive look at the people evaluated, contemplating all the university's missionary functions. However, Babini and Rovelli (2021) state that, in the region, changes in evaluation processes have not yet had significant development, even though many institutions have signed the DORA and CoARA declarations because discussing the current models implies a cultural change. Moreover, there is a severe difficulty in proposing alternatives that, at the same time, reasonably embody objectifiable criteria, address substantive issues of academic work, provide comparability among diverse situations, and limit the time devoted to evaluation tasks (Sutz & Gras, 2023).

#### **4) Social relevance of science**

In recent years, concern about the usefulness of science and whether the scientific investment of countries brings any concrete benefit to development, productive expansion, or the population's quality of life has been revitalized. In short, it aims to determine whether such investment has a return and how to measure it (Piovani, 2019). It is a long-standing issue that accompanied the institutionalization of science, becoming the alter ego of a growing demand for academic freedom to determine research agendas. It also unfolded as a tension that was part of the process of development of transfer and extension functions in universities in the region; according to Versino, Guido, and Di Bello (2012), the interpolations in favor of academic autonomy gradually left behind the utility criterion as the idea of science as a neutral, disinterested activity whose sole purpose was the search for actual knowledge spread. Thus, the idea of utility lost ground as the scientific ethos spread in an increasingly internationalized field. Along with the benefits of this autonomist conception, academicism was promoted, pushing the concern for scientific research's social impact out of the way.

Bornmann (2012) considers that many scientists see social impact measurements as a potential way of cutting funds for basic research, thus depreciating “pure” scientific contributions. However, it also happens that not even the researchers themselves are aware of the social impact of their research because their inclusion in evaluations is infrequent, and knowledge about these experiences is scarce. Therefore, the question posed by Sivertsen and Meijer (2020)

is pertinent: Is “impact” really the correct term? There is rarely a clear causal relationship between published research and social impact. The production and use of knowledge is a process of interaction and co-creation rather than a linear process that has effects outside the research. Any social impact of research results from a long time, having multiple intervening agents that may be located locally or internationally. Moreover, the impact differs according to the fields and subfields of research because the social relationships established between agents and institutions are different.

In this sense, it is necessary to note that the utility of science has particularities and risks for the social sciences and humanities because they can be the object of an analysis based on efficiency and the generation of products or services of mercantile interest. The diffusion of applied science as the prerogative of the engineering, exact, and natural sciences has directly ignored the social and human sciences' potential to intervene in society's problems. At the same time, there is a gigantic stock of information on the most diverse topics and a considerable production that often remains within academic boundaries. This is due to the combination of the lack of habit on the part of the scientific world to dialogue with other knowledge and other audiences and the difficulty of the world of government management to make informed decisions.

In the case of Latin America, Erreguerena (2021) recalls that the search to involve the scientific system in the resolution of relevant social problems within the framework of economies and social processes increasingly dependent on intensive knowledge led to proposals and theoretical reflections from the 1970s to the present day. The tradition of Latin American Thinking on Science, Technology and Development (PLACTED) problematized the relationship between scientific research and society, promoting models of scientific policies linked to resolving relevant social problems. Jorge Sábato, Amílcar Herrera, Oscar Varsavsky, and Natalio Botana in Argentina, Máximo Halty-Carriere (Uruguay), Helio Jaguaribe (Brazil), Miguel Wionczek (Mexico), Osvaldo Sunkel (Chile), Marcel Roche (Venezuela), among others, promoted new theoretical paradigms, accompanied by public policy proposals, aimed at contributing to industrial development, developing new technologies, promoting a new type of link between universities and productive sectors.

Now, when talking about the social impact of science, it always refers to the search for evidence on a product or an individual use, focusing on one end of an interaction and demanding an extra effort by researchers to demonstrate its value to both authorities and funding agencies (Suárez & Fiorentin, 2018). Bianco M. and Sutz J (2014) argue that evaluating the contribution to the resolution of social problems (including productive and economic ones) entails a series of difficulties: academic evaluations attend to essential criteria of originality, soundness in methodology and contributions to knowledge, but overlook the valuation that non-academic actors may have, whether they are users or beneficiaries of specific knowledge. In this sense, university extension developed interactions with the community with much potential for democratizing knowledge. However, better articulation with research functions is required to stimulate social actors' effective participation in knowledge development (Tomassino & Cano, 2016).

Vélez Cuartas et al. (2019) argue that in Latin America, there are at least two problems in promoting the interactions of knowledge production with society, and this affects the paths that can be chosen to evaluate them. The first is structural, since the indicators that universities have to measure their impact and their relationship with the environment, in terms of the creation and projection of their knowledge, are insufficient. The second problem is that the measurement

models applied so far have concentrated mainly on individual publications and not on linkages through research, teaching, and extension articulated and intertwined among themselves and the environment. For this reason, these activities have been undervalued in evaluating research performance (Codner & Perrota, 2018; Rikap & Naidorf, 2020). In recent years, transfer activities have begun to receive more attention because it is becoming increasingly clear that the citation “impact” of journals says nothing about the societal impact of research.

### **5) The limitations of global data sources and the relevance of national databases**

Criticisms of the use of journal impact indicators in research evaluation highlight the question of the data sources used to assess a trajectory or to measure the circulation of an output. Marginson (2021) argues that the consolidation of the very idea of global academic prestige was built on mainstream databases such as WoS and Scopus, whose structural biases have been widely observed. This not only determined the recognition of specific individuals, institutions, or groups over others, but these sources have also been the means to compare countries' production by including certain types of publications and leaving out the rest. Thus, an article in journals in the WoS or Scopus collection became the materialization of an “international export” of scientific knowledge. In contrast, articles published in other indexing systems, such as SciELO or Redalyc, were devalued as “peripheral science”. International and regional science and technology reports thus legitimized these productions as a standard for measuring the scientific development of countries. Some reports, such as those of RICYT, have recently attempted to offer alternative regional indicators, but the lack of interoperability between these sources generates difficulties for comparison (Sánchez et al., 2022; Gallardo, 2022).

The debate about data sources revolves around coverage, citations, transparency, and different means of judging existing metrics (Biagioli et al., 2019; Siler & Larriviere, 2022). Google Scholar (GS) has been the central database explored for its broader scope regarding regions and multilingualism (Orduña-Malea et al., 2014). Early comprehensive studies analyzed unique GS citations and reported that 70% came from full-text sources and significant disciplinary differences between document types, suggesting the existence of extensive non-Web of Science collection output (Kousha & Telwhall, 2008). Martin-Martin et al. (2018) revealed a growth in citation coverage in GS that currently reports more consistent values across subject areas. However, the quality of the metadata it provides remains strongly contested. Güleda Doğan (2022) recalls that GS is a scholarly search engine and not a citation index, to which it should be added that, being a commercial company, it offers increasingly onerous services that do not allow contributing to the generation of open and interoperable platforms.

The bibliographic services that provide new opportunities to explore scientific production beyond WoS and Scopus: Dimensions, Lens, CrossRef, and, more recently, Open Alex are particularly relevant in this debate. The latter is probably the most promising source for expanding article coverage. Born from Microsoft Academics after its definitive closure, it is in full development with top-level bibliometric teams that plan to strengthen it as a non-commercial open infrastructure (Maricato et al., 2023; Unzurrunzaga et al., 2023). In Latin America, studies are being conducted that combine national data sources from a specific universe of researchers rather than harvesting articles from global databases. These make it possible to illuminate a significant proportion of articles in languages other than English, published in university journals and not indexed in mainstream databases (Vélez Cuartas, Beigel, et al., 2022; Digiampietri, Gallardo, Baranger and Beigel, 2023).

In this context, national information systems, institutional repositories, and curriculum platforms are becoming increasingly important to have sources that make it possible to know the totality of the scientific production of the evaluated researchers and other formats of production and interaction with society. The “Norwegian Model” is a successful experience that integrates information from individuals, projects, and institutions, and it simultaneously offers better inputs for a more qualitative and contextualized evaluation. Organized from a CRIS (Current et al.), the evaluation of scientific production is based on a national and qualitative (peer-based) ranking of journals worldwide, thus valuing international but also national quality and native language publication fields (Sivertsen, 2018; Beigel, 2021).

Institutional repositories are undergoing rapid development globally and in Latin America, and they are in step with implementing open science laws and policies. Many repositories have systematically advanced in harvesting and curating institutional output but are not yet advancing in developing their full potential to provide the basis for an integrated information infrastructure. Driven by the working group on “Next Generation Repositories” (NGR), which has been operating in COAR since 2016, the architecture and technology needed to advance in a new repository format capable of offering new integrated services are being discussed. In this regard, a fundamental source of information is national curriculum platforms such as Lattes in Brazil, SIGEVA in Argentina, and CV Uy in Uruguay. These self-loading systems require permanent curatorship and dialogue with users and evaluators. However, they can provide suitable structures for an increasingly responsible research evaluation or, on the contrary, present themselves as significant barriers to a change in evaluation practices.

### **6) Incentives for Open Access to publications and the effects of APC payment**

There is an international trend in favor of open access to scientific production accompanied by efforts to make the human right to science a reality. The COVID-19 pandemic played a significant role in this direction. It quickly impacted the scientific policy of countries and institutions that began to promote incentives for this type of publication, even conditioning the granting of research funds to open access to the results. This is a laudable and shared goal in the academic community, which directly impacts academic evaluation systems that use this issue to generate rewards or incentives. We are referring to the exponential increase of Article Processing Charges (APC) payments that not only constitute a scourge for peripheral scientific fields but also for the most advanced countries <https://www.cnrs.fr/en/cnrsinfo/publication-costs-we-are-edge-abys>. The UNESCO Recommendation on Open Science (2021) echoed the latent tensions in the transition to open access with APC because it deepens the commodification of science and projects new inequalities between hegemonic and non-hegemonic countries that must be considered in any evaluation system reform.

Although open access has antecedents dating back to the 1970s, its acceleration, and consolidation began with the Budapest Declaration (2002), which defined open access as the free and open availability of knowledge, with no restriction other than access to the Internet and the obligation of the user to acknowledge the authorship of what he/she was using. Scientific production could be published in an open-access journal (Golden Way) or archived in a



repository (greenway). As open access gained consensus in the academic culture, recognizing the benefits of increased visibility of science, it gained ground in the publishing world, where it was quickly realized that articles available in open access were more “successful”. Editorial processing charges or publication charges, on the other hand, have been around for quite some time. However, they first appeared with the publication of *The Physical Review*, which in 1930 began charging fees to finance the management of the journal. During the 20th century, these charges were intermingled with the fees or memberships of scientific societies.

However, this practice took on another dimension in 2003 with the appearance of the mega journal *Public Library of Science - PLOS*, which was born as a model charging authors to publish their articles. In the same vein, *BioMed Central* decided that all new journals would be built and optimized for Open Access, recognizing that they could only be supported financially by charging APCs. However, an open-access initiative in Europe brought about a radical change in the publishing industry, the repercussions of which rapidly expanded a new open-access publishing model that would soon shift publishing costs to authors or institutions. Plan S (Coalition S) emerged as an initiative in 2018 to promote the idea that all publicly funded research should be obliged to publish its results in open access.

Numerous studies have quantitatively measured this expenditure globally (Haustein, Larivière, et al., 2023). For Latin American countries, there are studies in Colombia, Argentina, Brazil, and Chile that certify its upward trend (Pavan and Barbosa, 2018; Vélez Cuartas et al., 2019; Krauskopf, 2021; Beigel and Gallardo, 2022). In the case of Uruguay, according to Aguirre, Maldini et al. (2022), 28 % of the national production is available in open access for 1980-2019, and half of those articles are published in journals that charge APC. The publications with the most citations, however, are those that are circulated through the green route. On the other hand, they highlight that Uruguayan papers in international collaboration are more frequent in open access. Counting these payments reliably is difficult because the journals do not publish this information transparently. Negotiations are made directly between journals and authors, with waivers or discounts applied according to each “client”. In addition, many of these publications are collaborative, and several people or institutions pay the APC. However, the common denominator of the conclusions of these empirical studies is that the APC problem is particularly prevalent in specific disciplines: more than 60% of the paid registrations belong to the Biological Sciences and Health, followed by the Agricultural Sciences, Engineering, and Materials, with a relatively lower incidence in the Exact and Natural Sciences (Beigel and Gallardo, 2022; Vélez Cuartas, Beigel, et al., 2022). This change in the journal access model directly impacts the increase of predatory and spurious journals but also imposes a significant obstacle to advancing open science policies in countries that cannot afford these costs.

## **7) Specificities of evaluation in the social sciences and humanities**

There are few studies of publication trajectories based on empirical studies with primary data obtained from curricula. However, those that do exist make it possible to visualize the specificity and internal diversity of the circulation styles of social scientists. A study of the universe of researchers in the social and human sciences of CONICET (Argentina) shows five different publication styles, the most widespread being the orientation towards publication in Latin

America (Baranger & Beigel, 2020). In the case of Brazil, Mugianini et al. (2019) analyzed the publications included in the *curricula vitae* of 260,663 researchers registered in the Lattes Platform. They found that Brazilian journals occupy a significant portion of the articles of these individuals in all scientific areas, revealing the usefulness of national journals as publication vehicles for Brazilian authors. On the other hand, of the total number of journals detected (23,000), 60% are not indexed in SciELO, Scopus, or WoS.

Despite the sustained advance of the “paper” format, books remain a frequent modality of writing and publication in the social sciences and humanities. Almost three-quarters of the references in articles in these disciplines refer to books rather than journals (Gingras, 2016; Engels et al., 2018). However, most studies also note that the publication of books in English is growing at the expense of books in native languages (Giménez-Toledo et al., 2017). This is not a phenomenon that crosses all disciplines and institutions equally. In the United States, for example, sociologists in private universities prefer book publication, while those in public universities prefer to publish articles. The book's survival is stimulated because, in these disciplines, both the book and the article may be needed equally at different research moments (Sivertsen, 2019). In addition to the international insertion of the research, its social relevance for the culture and society in which it is being produced has to be weighed. The social and human sciences would probably lose their *raison d'être* and the support of their society if they were disconnected from their cultural context to communicate only in international journals read by foreign peers. In practice, researchers in these disciplines do both: they publish in books, journals, and more than one language. What hinders the valorization of these productions in the evaluation processes is that while indexed journals guarantee that peers have evaluated the contents, no global or regional indexing system has been developed for academic books. Undoubtedly, university publishers are a central element for a book appraisal policy by clearly informing the peer review process of the contents (Babini, 2018).

It is worth mentioning here, especially the difficulties faced by research in the arts in valuing its production in the evaluation processes. In some countries, modifying this type of practice has been possible, and specific evaluation criteria have been used. In general, however, ignorance or devaluation prevails. Metrics adapted to the formats of production and circulation of artistic research can complement qualitative evaluations based on peers' opinions. When, on the contrary, evaluation is based on indicators constructed for the sciences, which clash with disciplinary practice or merely seek to control or stimulate productivity, resistance multiplies, and evaluation processes lose meaning and legitimacy (Giménez-Toledo, 2015).

## **8) National Researcher Classification Systems and Governance**

The researcher categorization systems in eleven Latin American countries are different from one another but have a common denominator in terms of the standardizing role they produce between and within disciplines. For Vasen and Sarthou (2021) they fulfill three main objectives.

The first is linked to the systematization of information on the people who conduct research in the country, their institutional registration, and their disciplinary orientation. A second purpose is to differentiate between a broader set of people associated with science and higher education, those engaged in research, and those mainly engaged in teaching. Thirdly, there is a component of recognition. Those who enter the system obtain different rewards, which may be symbolic (occupying prestigious segments or qualification to lead projects) or economic (salary supplements).

To produce these classifications, these researcher categorization systems apply some processes standard to most countries where they are implemented. An admission requirement consists of affiliation to a university or research institution. The process of evaluation of applications is centralized, taking into account disciplinary rather than institutional or regional particularities. In many countries, the use of impact indicators of journals indexed in Web of Science or Scopus reigns, and in certain countries such as Mexico or Brazil, these metrics are a determining factor for admission. The system grants admitted applicants a symbolic recognition, a “category”, which materializes in different ways depending on the country: in a seal of prestige, an enabling condition to lead projects or enter teaching or greater visibility within the scientific community (Beigel and Bekerman Ed. 2019). The focus of the activities evaluated is on published products, even if people also develop other tasks such as technological linkage, human resources training, extension, or management. Less attention is given to the fact that personal trajectories are built in the training process, the workplace, and the research team. Thus, asymmetries that mark the itinerary of groups, topics, and collaborations can be ignored. Thus, with all the advantages they entail, categorization systems have difficulties in capturing the complexity of individual profiles and agendas, as well as the heterogeneity of the circuits in which the institutions of each country participate.

One of the most persistent inequalities observed in academia is the gender gap, which has led many studies to propose the existence of a sexual division of labor, which is initially explained by the traditional responsibility of women in caregiving tasks (not only maternity but also multiple forms of reproduction of life). This has been called the “double workday”, the “Matilda effect” and the “scissors effect” (Wainerman, 1998; Maffia, 2007). When productivity defines promotions, men publish more, especially in English (Beigel & Gallardo, 2020). However, Derrick, Chen, Van Leeuwen, et al. (2021) consider that, in recent times, this maternal burden has been changing in the new generations and analyze how this task of care is manifested, both for men and women, in scientific production, which is the cornerstone for academic promotion. For this reason, it is relevant to make visible other factors specific to the academic field that reproduce the hierarchies established in the social structure. We refer to social capital and networks that favor international circulation. These are primarily conferred in doctoral training and depend on participation in research teams. In many cases, there is a sexual division of labor that tends to place administrative tasks in the hands of women while men concentrate on management tasks. All this directly affects the circulation circuits, citation patterns, and the scales of recognition individuals achieve. Consequently, the gender gaps observed in scientific production and international collaboration can be explained by analyzing the social capital's distribution within the institutional framework and marks the career-building itinerary (Beigel et al., 2023).

The fact that quantitative indicators of scientific production frequently define admission or promotion in categorization systems reinforces these structural asymmetries. It tends to homogenize ideal profiles that devalue multifaceted researchers who carry out outreach or

extension activities or manage institutes. In recent years, some research agencies and universities have begun to incorporate criteria to compensate for gender inequalities, such as the extension of evaluation periods in situations of maternity or caregiving. Progress has also been made in establishing new indicators to evaluate technological linkage activities in the evaluation process. The same does not occur with university extension, which has a long and powerful tradition in Latin America in our universities. However, these activities are often not incorporated as a module to be reported in the form of calls for proposals. In order to value these trajectories, it is essential to have integrated information systems that make it possible to know not only the products of research but also all the activities of the evaluated academics.

## **9) The universe of researchers in Uruguay**

The universe of researchers in a country is always complex and closely marked by the operational definitions used. International statistics equate it with full-time personnel, but this data is generated with significant differences depending on the case since some countries include scholarship holders while others do not. National studies present essential differences that make comparison difficult since some countries include full-time teachers (categorized or not). In contrast, others consider researchers to be those who participate in a categorization process. One of the significant challenges for researchers in constructing national universes is the problem of sources. However, assuming that we have the necessary and updated data, there is an additional issue: the existence of people with double positions and different dedications (teaching/research positions) or double categorization (for example, in Uruguay, SNI/RDT/PEDECIBA).

The CITINDE study (2022) proposes an operational definition of the universe of researchers in Uruguay including a) People categorized in the SNI, b) People in RDT at UdelaR, c) People holding teaching positions at UdelaR with high dedication (30 hours or more) and who reported research results, in the period 2019-2021 and d) People holding research positions at the National Institute for Agricultural Research (INIA) and who reported research results, period 2019-2022. This panorama allows us to recognize different profiles, which is one of the main dimensions of our study. It will be necessary to add other groups, such as teachers from private universities who report research results, teachers from UTEC who report research results, people who hold positions at the Pasteur Institute, IIBCE, CUDIM, as well as other non-public institutions such as CINVE. It is also relevant to include PEDECIBA researchers who, although they are generally professors at UdelaR and are often DT and SNI, constitute a significant group for the objectives of this consultancy.

This study dialogues with the report of the Ibero-American Network of Science and Technology Indicators (RICYT) indicating that, in Uruguay, in 2020, the number of those doing research (in natural persons) per 1000 members of the Economically Active Population (EAP) was 1.78. Uruguay's EAP was 1,786,700 people, and the count yields a figure of 3180 as an approximation to the number of people doing research in Uruguay in 2019-2020. All of this allows us to assume that this definition fits the criteria for international comparison and that it is reasonable to think that by 2022, this universe will increase to the number of 3482 people doing research in Uruguay. Sutz and Gras (2023) analyzed the existing categorizations and the crossing, allowing us to

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construct an initial universe of 3,842 people without overlapping, with a cut-off in August 2022 (we return to this in part 3 of this report).

Delimited this initial universe, it is essential to consider the survey conducted by CiTINDe in 2022, with a sample that is relatively well represented in terms of gender, area of knowledge, and age, with a slightly higher response rate for women, social sciences, the age range of 44 to 59 years and people participating in the RDT of UdelaR. Although we will address the contents of this survey in greater detail in the third and fourth parts, it is worth highlighting here some consensus on the part of the respondents about three points: a) the perception that quantitative evaluation of scientific production predominates and this has adverse effects b) the existence of lousy publication practices on the rise and c) the idea that the current evaluation systems do not encourage researchers to work with non-academic actors or to know or better address their problems.

The academic evaluation in which this universe of researchers participates is not univocal at the national level nor concentrated in a single categorization system. On the one hand, the National System of Researchers (SNI), created by Law in 2007, produces periodic evaluations based on peer committees and offers an additional salary according to the level granted. It is organized into four levels (Initiation, Level I, Level II, and Level III). It is managed by an Honorary Commission composed of members of the scientific community, elected at the proposal of the University of the Republic, the National Innovation Agency (ANII), and the National Council for Innovation, Science and Technology (CONICYT). In order to evaluate the applications, they are first analyzed by the technical advisory committees divided by subject area, which issue an opinion submitted to the selection committee. The selection committee - comprised of representatives from all areas - reviews the results. Finally, the Honorary Commission makes the final decision and resolves dissenting opinions in cases where there is a difference of opinion. The designation in the awarded category lasts between 3 and 4 years, depending on the level. There are annual application calls, and the evaluation process lasts approximately six months. Economic incentives have always been one of the main characteristics of the SNI, but its value is not very high. The latest SNI report analyzes the 2022 call for proposals results, which shows an increase from 1825 to 2171 categorized researchers. Tables 1, 2 and 3 show a growth in all the areas of knowledge and levels of the system and a gender composition close to parity: 52% are male. Seventy percent of the current total of categorized researchers belong to the University of the Republic, which shows a slight decrease in the participation of this institution, which in 2018 accounted for 78% of the total.

**Table 1**

*Number of researchers categorized in SNI (2023)*

Level	Category	Quantity
Initiation	Active	673
Initiation	Associate	55
Level I	Active	866
Level I	Associate	82
Level II	Active	341
Level II	Associate	26
Level II	Emeritus	1

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Level III	Active	101
Level III	Associate	6
Level III	Emeritus	20
<b>Total</b>		<b>2171</b>

Source: ANII on prisma.uy

**Table 2**

*Researchers categorized in SNI by knowledge area (2023)*

Area of Knowledge	Quantity
Natural and Exact Sciences	729
Social Sciences	444
Agricultural Sciences	290
Medical and Health Sciences	279
Engineering and Technology	221
Humanities	208
<b>Total</b>	<b>2171</b>

Source: ANII on prisma.uy

**Table 3**

*Researchers categorized in SNI by area of knowledge and year, 2009-2023*

Year	Natural and Exact Sciences	Engineering and Technology	Social Sciences	Medical and Health Sciences	Humanities	Agricultural Sciences
2009	444	117	189	147	89	127
2010	509	149	275	172	125	180
2011	495	154	300	188	128	205
2012	522	148	342	198	142	205
2013	549	152	357	193	148	191
2014	567	153	326	198	148	177
2015	613	169	350	210	159	189
2016	632	174	377	214	160	185
2017	647	167	379	217	156	191
2018	667	162	387	225	169	212
2019	672	186	403	232	169	228
2020	684	195	412	247	172	253
2021	695	206	417	262	195	259
2022	719	205	431	274	201	271
2023	729	221	444	279	208	290

Source: ANII on prisma.uy

The Total Dedication Regime (RDT) of the Universidad de la República can also be considered a categorization system in terms of the type of evaluation carried out, the levels at which it is

classified, and the economic stimulus it implies. However, it is a more complex evaluation system. Because it is much older than the SNI, it has had an evolution and a history closely linked to the expansion of the university itself. The RDT was created in 1958 to stimulate integral dedication to university tasks. This integralism advanced in the 1990s towards a greater emphasis on the tasks of knowledge production and support for various activities that facilitate and promote it. As admission to the RDT became a competitive process, the importance of background increased, although the quality of the proposal continues to play a central role. Full-time teachers are professors who must fulfill the three university functions based on approved and periodically evaluated work plans, with a regime of exclusive dedication to the UdelaR. They may also assume responsibilities related to co-governance and management.

The country has other researcher evaluation systems, such as the Basic Sciences Development Program (PEDECIBA) and the ORT University stimulus system. In addition, there are other universities, such as the Technological University of Uruguay (UTEC), the University of Montevideo, the Catholic University of Uruguay, and other research institutions with specialized profiles, such as INIA, IIBCE, LATU, and the Pasteur Institute (we will return in depth to each of these systems in the second part).

The evolution of these evaluation systems, especially the SNI and PEDECIBA, has had a relevant impact on the increase of knowledge production in the country, as shown by Aguirre (2015) in the study of Uruguay's publications in Web of Science. On the other hand, Picco, Aguirre, Maldini, et al (2014) analyzed the same period of production in the national CVUy curriculum system and identified two differentiated patterns: a) the group of Social Sciences and Humanities, which is characterized by the predominance of publication in books, in Spanish language, individually authored, publishing assiduously in national and non-refereed journals, and b) the Natural and Exact Sciences that privilege articles in English and collectively authored in refereed, international and indexed journals.

In the Workshop and Reflection on Academic Evaluation held in 2018 at the University of the Republic, the main problems of academic evaluation in the country were raised and discussed. One of the main issues was the lack of clarity in the objectives and the persistence of decontextualized evaluations that do not consider the integrality of the functions of teaching, research, extension, management, and institutional construction (CSIC, 2018). Participants in this workshop posited that they were subjected to systematic over-evaluations that provided differential and often conflicting signaling systems. In particular, two types of tensions stand out. One is associated with the evaluations carried out in the National System of Researchers and those derived from the evaluations implemented at the UdelaR. Another, within the UdelaR itself, is between the evaluation carried out in the RDT and that carried out in the renewal and access to teaching positions. They emphasize that standardized evaluations devalue any research product other than scientific articles. Criticisms were raised regarding using bibliometric indicators as a tool for evaluation. Finally, they highlight the importance of the comprehensiveness and quality of academic activity and raise the need for greater alignment/coordination between the objectives of the UdelaR and the incentives provided by ANII through its National System of Researchers (CSIC, 2018).

For its part, the Association of Researchers of Uruguay (Investiga uy) has just published a report entitled “Propuesta de Reordenamiento del Sistema de Investigación e Innovación para el Uruguay” where it proposes a budget increase, as well as the creation of a Ministry for Research and Innovation. In addition to promoting the participation of researchers in the governance of

the country's scientific system, this association promotes policies aimed at modifying the existing inequalities and asymmetries, so we can expect an active involvement of this trade association in the discussions on the evaluation, as well as of researchers in general, in the Workshop where we will present the conclusions of this assessment, scheduled for March 2024.

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## **SECTION 2**

### **Introduction**

#### **Uruguay's Science, Technology, and Innovation system: key institutions and actors**

The development of scientific research in Uruguay has a rich and dense history, with milestones that have impacted its current conformation and the primary modality of its expansion. The University of the Republic (UdelaR), founded in 1849, was and remains today a central player in the system. Particularly noteworthy is the creation of the Total Dedication Regime (RDT), which, since 1958, has promoted teaching profiles integrally devoted to university functions, with particular emphasis on the production of knowledge. Another relevant milestone during the 20th century was the creation of the Clemente Estable Biological Research Institute (IIBCE) in 1927, which promoted scientific knowledge in different fields of biological sciences. In 1961, the National Council for Innovation, Science and Technology (CONICYT) was created to promote the country's scientific capabilities. Its functions have been redefined at different stages, and it currently functions as a deliberative advisory body to the public authorities in matters of science, technology, and innovation. In the 1960s, an actor who played an essential role in the development of the UdelaR is also worth mentioning. We are referring to the Association of University Teachers of Uruguay (ADUR), created in 1964 and has a long history up to the present day. As the board of directors members said: "ADUR was born twice. It was born in the 60s as the Federation of University Teachers of Uruguay. Then, during the dictatorship, it was outlawed. Only when democracy made it possible was it reborn as the Association of Teachers of the University of the Republic, reclaiming its previous identity" (Board of Directors, ADUR).

The effects of the military dictatorship (1973-1985) on the development of universities and scientific research in the country have been widely analyzed. Several studies explain its consequences on the whole development of the STI system during the end of the 20th century and the beginning of the 21st century. Among the efforts to rebuild the scientific field with the return to democracy was the creation of the Basic Sciences Development Program (PEDECIBA) in 1986, financed by the United Nations Development Program (UNDP) through an agreement between the UdelaR and the Ministry of Education and Culture (MEC) stands out, making possible the repatriation of experts and fostering research in these disciplines. Finally, in 1989, the National Institute for Agricultural Research (INIA) was created, promoting research and technology transfer in the sector.

The nineties began with a critical institutional change for research development at the UdelaR. We refer to the implementation of the Sectorial Commission for Scientific Research (CSIC), whose purpose was the integral promotion of research in all areas of knowledge. It was integrated by a representative of each order (students, teachers, graduates) and a delegate from each area of knowledge. Since its creation, CSIC has implemented programs to stimulate research, train human resources, generate infrastructure, and supervise and evaluate the Total Dedication Regime, which was reactivated in 1986. In 1991, the CONICYT-BID program began to be implemented, providing funding for research and modernization of the scientific-technological infrastructure. This decade saw the emergence of two new tools for promoting research under

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the management of CONICYT: the Clemente Estable Fund (1994) and the National Fund for Researchers (1999).

Among the institutional innovations of the 2000s was the creation, within the MEC, of the National Directorate of Science, Technology, and Innovation (DINACYT), which would be responsible for the execution of scientific policy, as well as the administration of the new IDB technological development program. In 2004, through an agreement between the governments of Uruguay and France, the Institut Pasteur de Montevideo was founded, part of the International Network of Pasteur Institutes and dedicated to scientific research in biological medicine. In 2005, the Ministerial Cabinet for Innovation (GMI) was created with cross-representation from different ministries, and a year later, the National Agency for Research and Innovation (ANII). These bodies, together with a reformulated CONICYT, constituted the tripod on which it was proposed to manage the sector, with the GMI having a strategic definition role, CONICYT an advisory role, and ANII in charge of the execution of the promotion, making funds available for research projects, national and international postgraduate scholarships, incentive programs for innovative culture and entrepreneurship, both in the private and public sector. In 2007, the National System of Researchers (SNI) was created, which absorbed the National Researchers Fund, designed to promote, through periodic evaluation, the categorization and incentive of researchers. Since then, it has been an independent structure whose administrative management is carried out within the framework of ANII. Also during these years, the Timbó portal, an acronym for Trama Interinstitucional y Multidisciplinaria de Bibliografía Online (Interinstitutional and Multidisciplinary Online Bibliography Network), was launched, providing free access to the most updated information resources published worldwide.

In 2009, it was necessary to mention the creation of the National Academy of Sciences (ANCIU), which aims to provide advice to the different actors of the national scientific system and position Uruguayan science in the global science conversation. In its origins, “it was formed from the election, by foreign scientists, of the first 15 members. Later they were doubled to the number of members, the number with which it currently operates” (ANCIU president). During the pandemic, ANCIU played an essential role in providing experts and inputs in the conduct of the epidemiological process, and several ANCIU members were key players in the state strategies deployed against COVID-19 in the framework of their participation in the Honorary Scientific Advisory Group (GACH).

After five years of work, in 2010, the National Strategic Plan for Science, Technology, and Innovation (PENCTI) was approved. Although there is currently a consensus on the need to reformulate and update it, at the time, it was a roadmap that indicated sectoral priorities and cross-cutting policies. “The PENCTI has the virtue of having been made with the participation of all the actors in the system. Although we all agreed on the need to set clear strategic focuses, the Plan mentions too many topics because, logically, each of the actors believes theirs is the central one. However, it is necessary to prioritize” (ANII president). A good part of the difficulties in implementing the plan is attributed to the institutional design and governance of the sector: “We detected, through conversations with different groups and people in the area of Science, Technology, and Innovation, that in the last twenty years, Uruguay has made a series of trials in governance, but there is dissatisfaction about the expected results” (director DICYT). In 2021, as part of the process of strengthening the STI area in the Ministry of Education and Culture (MEC), the incorporation of the National Secretariat of Science and Technology resources that were in the Republic Presidency was finalized. In the Budget Law 2020 - 2024, the competencies and the



The name of the executing unit linked to science and technology was modified, and the National Directorate of Innovation, Science, and Technology (DICYT) was renamed. The Law approved in 2020 established that the ANII and the Ceibal Center would be coordinated with the Executive Branch through the MEC. The central function of DICYT is the design, coordination, and evaluation of policies and programs for developing science, technology, and innovation throughout the national territory. However, actors in the field and available studies agree that weaknesses persist in the governance structure of the sector.

Regarding the evolution of the university scientific field, it is worth mentioning the survey of research institutions conducted by the Ministry of Education and Culture (Baptista et al., 2019), which identified forty-three (43) institutions conducting research in Uruguay. Of these, eight (8) correspond to the Higher Education sector, twenty (20) to the Government sector, and eighteen (18) to Private Non-Profit Organizations. In turn, within the institutions covered in the survey, it identifies nine hundred and thirty-four (934) units that, among their activities, carry out scientific research and/or experimental development. Of this universe, three-quarters are linked to higher education institutions, mainly the University of Rio de Janeiro, with a solid territorial concentration in the metropolitan region.

In the context of the COVID-19 pandemic, the novelty brought by the new decade was the emergence, in 2021, of the Association of Researchers of Uruguay (investiga.uy), born to represent all areas of knowledge and public and private institutions. Unlike ANCIU, its role is mainly linked to trade union activity, and it currently has more than 1,000 members. “Its name reflects some of the things we want. First, to be an association open to the entire community of researchers. In that sense, all the branches of knowledge in Uruguay are reflected in all the public and private institutions that develop scientific research. Moreover, this is also reflected in the constitution of its authorities, which maintains the criteria of distribution of the board of directors members by areas of knowledge. We are grouped into three main areas: exact and natural sciences, human and artistic social sciences, and agricultural, health, and technological sciences” (president Investiga.uy). Regarding the Association's objectives and scope of action, the vice president told us: “Our objectives are linked to a trade union type of activity, although we do not consider ourselves a trade union of researchers, but an association with broader objectives. We want to reflect on other dimensions and other issues, such as, for example, active participation in science and technology management bodies. We propose to be spokespersons for the community of researchers in developing scientific policy and to carry out dissemination activities, promote science, and act as a link with other state and private organizations” (vice-president Investiga.uy).

### **Available studies on Science, Technology, and Innovation (STI) in Uruguay**

In recent years, the field of Science, Technology, and Innovation (STI) in Uruguay has been the subject of in-depth reflection and analysis based on empirical observations. Aimed at guiding a new institutional design of the area, different studies, conducted by experts in different aspects of the subject, have consolidated a diagnosis of the main strengths and weaknesses of the field, including discussions of their results in participatory workshops. In this sense, from different areas of the MEC, especially the National Directorate of Science and Technology (DINACYT); ANII

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and CONICYT; the University of Uruguay, mainly through the Sectoral Commission for Scientific Research (CSIC), the interdisciplinary nucleus Science, Technology and Innovation for a New Development (CiTINDe) and PEDECIBA; the UNESCO Office in Montevideo; as well as spaces such as the Association of Researchers of Uruguay (Investiga. uy) and the National Academy of Sciences of Uruguay (ANCIU), among others, have been producing materials with updated information on different aspects of the STI scenario in the country. Among these materials, the following have been of particular interest for this advisory, from the most recent ones backward:

- Relatoría de Talleres sobre reordenamiento institucional del área de Ciencia, Tecnología e Innovación de Uruguay. National Directorate of Innovation, Science and Technology (2023).
- Propuesta de reordenamiento del sistema de investigación e innovación para el Uruguay. Towards a sustainable development based on knowledge. Asociación de investigadoras e investigadores del Uruguay (Investiga.uy) (2023).
- Material of the interdisciplinary nucleus Science, Technology and Innovation for a new development (CiTINDe): Who researches in Uruguay: numbers and some characteristics. Consulta Investigan Survey (2023).
- Consultoría 1. Survey and evaluation of the regulations for the development of science, technology and innovation policies and activities in Uruguay. Graziella Romiti, Gustavo Fischer, Ezequiel Tacsir and Atilio Deana (Romiti & Asociados) (2022).
- Consultancy 2. Characterization of actors and their capabilities in the R&D&I system in Uruguay. Fernando Amestoy and Andrea Barrios (Novarum Group) (2022).
- Consultancy 3. Evaluation of resources and instruments for the promotion of science, technology and innovation. Darío Codner, Alejandra Mujica and Mariano Pereira (Novarum Group) (2022).
- Consultancy 4. Dynamics of the functioning and articulation of Uruguay's science, technology, and innovation system. General principles for a new design. The consulting team was coordinated by Roberto Kreimerman and Daniel Meehroff (Ricaldoni Foundation) (2022).
- Informe final sobre el Plan Estratégico Nacional de Ciencia, Tecnología e Innovación PENCTI 2010. Dario Gabriel Codner (2022).
- Analysis of the National Strategic Plan for Science, Technology and Innovation. National Council for Innovation, Science and Technology (2022).
- Bases for the institutional reorganization of the Science, Technology and Innovation area. Ministry of Education and Culture (2021).
- Mapping of limitations and development of proposals for the valorization of research. Final consultancy report for Uruguay XXI, ANII, PEDECIBA, and SNCYT. Federico Vasen (2020).
- Mapping of research institutions and activities in Uruguay. Montevideo, Dirección para el desarrollo de la ciencia y el conocimiento, Ministerio de Educación y Cultura. Belén Baptista Coordinator (2019). Rapporteur of workshop on Science, Technology and Innovation Policies in Uruguay (2017). Learnings from the last decade and future scenarios. Baptista, Belén Coord. (2019).
- Sistema Nacional de Investigadores (SNI): Informe elaborado por la Unidad de Evaluación y Monitoreo de la Agencia Nacional de Investigación e Innovación (2018).
- CSIC- UdelaR. Rapporteurship of the Workshop and reflection on academic evaluation. CSIC Academic Unit (2018).

As we can observe, the variety, depth and timeliness of the works above and the publications of authors and institutions linked to the subject constitute a relevant asset of the Uruguayan scientific field. Among the different studies and diagnoses, it is possible to find a set of agreements and consensuses, transversal to the approaches and disciplines addressed, regarding the needs that Science, Technology, and innovation in Uruguay face today. Among the agreements on the diagnosis and the actions agreed upon, it is worth highlighting those relevant to the objectives of this consultancy:

- Need for a State Policy on Science, Technology and Innovation (STI).

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- Definition of a new institutional configuration and governance of the National STI System, enabling institutional hierarchization, planning, promotion, implementation, and evaluation of STI policies.
- Articulation among the different actors for the updating, with participatory methodologies, of the National STI Strategic Plan (PENCTI 2010).
- Increase, and subsequent long-term sustainability, of investment in STI both as a percentage of GDP and in total funds in dollars.
- Attention to asymmetries in the territorial development of STI in the country.
- Need to implement cross-cutting actions to reverse gender inequalities in scientific careers.
- Existence of regulatory overlapping and dispersion of human resources, agencies, and entities that act within the scope of STI.
- Convenience linking research agendas to economic, social, and environmental demands, promoting synergy between the productive sector, social actors, academia, and the State/government.
- Promotion of incentives for applied research, linkage, and technology transfer.
- Strengthening of the processes for evaluating the results and social impact of STI policies.
- STI policies.
- Analysis and review of the evaluation system for the research career.

Although this last point indeed gave rise to and constitutes the central axis of the present consultancy, the consolidated diagnosis of the different issues under discussion in the scientific field in Uruguay allows us to build a broader scenario that should be present to explore the feasibility of the recommendations that will emerge from this study.

### **Institutions that develop research assessment in the country.**

Founded in 1849, the University of the Republic (UdelaR) is the largest public university in Uruguay, forming, together with the Technological University and the Institutes grouped in the Council for Education Training, the conglomerate of state-run Higher Education in the country. Its rich history is nourished by the impact of the 1918 Reform movement of Cordoba and its main demands. Autonomy and co-government were fundamental banners of the reformist movement at the continental level, and the UdelaR crystallized them through intense processes of struggle (student strikes, inter-campus assemblies, marches) that led to the inclusion of both banners in the institutional regulations and functioning. Thus, autonomy was consecrated by the Organic Law 12.549 of 1958 and currently has Constitutional rank. This autonomy, including its normative, economic, and academic dimensions, implies the co-government of its cloisters or orders (students, teachers, and alums), which, with different electoral weight, directly elect their representatives in the university bodies called to designate the Central Board of Trustees, the Rector of the University and each of the Deans of the different Faculties that make up the general university structure. At the same time, they participate in discussions and definitions of the different topics that are part of the university agenda. Currently, the UdelaR concentrates 90%

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of the university student enrollment and 76% of the graduation. In recent years, especially since 2007 and in the search for more significant geographical and social equity, the UdelaR began a process of institutional development outside the metropolitan area, creating Regional University Centers located in the Northern Litoral (Artigas, Salto, Paysandú, and Río Negro), the East (Maldonado, Rocha, Treinta y Tres and Lavalleja) and the Northeast (Rivera, Tacuarembó and Cerro Largo). According to the interviewed referents, “Arocena's management (2006-2014) bet a lot so that the development and growth of the University towards the interior was not only educational expansion but was based on quality research” (UdelaR -CONICYT Representative).

UdelaR has a leading role in undergraduate and graduate offerings and a substantial part of human resources dedicated full-time to research. It offers 99 bachelor's degrees, 47 technical degrees, and ten intermediate degrees. It offers 37 doctorates, 101 Master's degrees, and 196 specializations. Available consultancies and studies indicate that in percentage terms over GDP, there was a decrease in investment in research and development from 2007 to 2013. From that year, a recovery ends in 2018 to fall again, similar to the investment in current dollars. It is important to note that the investment in R&D made by UdelaR did not suffer these oscillations, maintaining an upward trend on average from 2005 to the present. This has positioned UdelaR in a central and pivotal place for STI in the country. As we will see below, UdelaR has developed its evaluation system for its full-time professors, which will be addressed in Chapter 2 of this part.

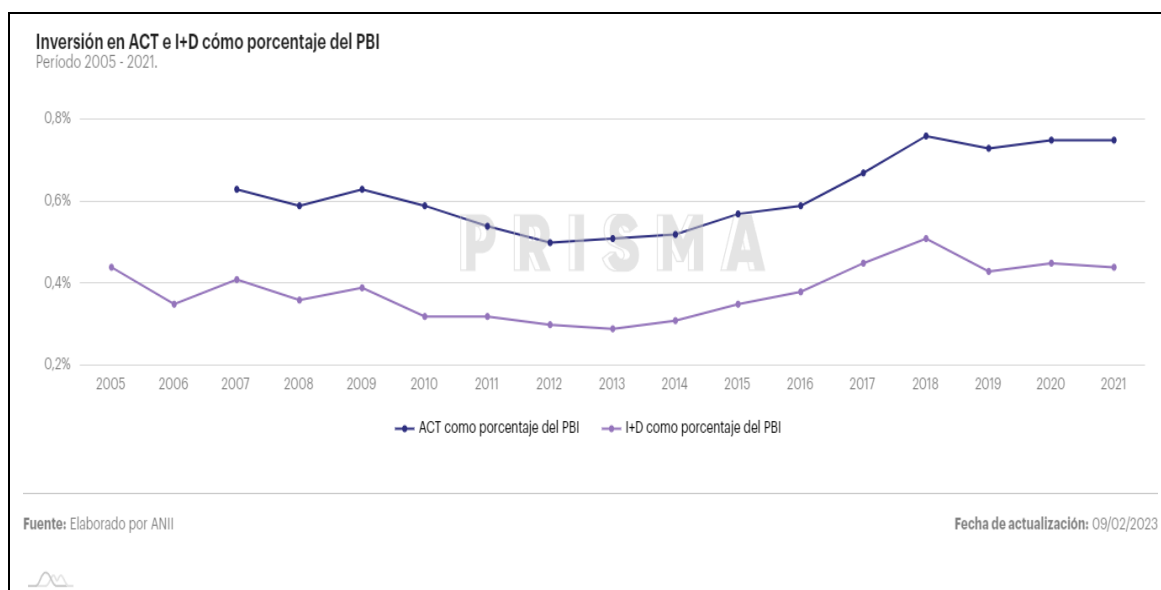
In addition to UdelaR and PEDECIBA, other institutions and programs mentioned above (IIBCE, INIA, Institut Pasteur) have their own academic evaluation systems. Finally, other public universities make up the sector and carry out academic evaluations of their personnel (See Chapter 4 of this report). It is worth mentioning that the Technological University (UTEC), created in 2013, has a clear technological profile oriented to research and innovation, with a vast territorial offer through the Regional Technological Institutes (ITR). As for private universities, since the sanctioning of normative frameworks that regulated the installation and operation of these (Decree 08/1995), different educational initiatives institutionalized their operation and included research activity in their substantive functions. We refer to the Catholic University of Uruguay “Dámaso Antonio Larrañaga”, the first private religious university in the country, with antecedents, but formally constituted as a university in 1985. Universidad ORT Uruguay, a member of World ORT, an international educational network founded in 1880 by the Jewish community of St. Petersburg (Russia), with antecedents since the middle of the last century and obtaining its recognition as a university in 1996. The University of Montevideo is a Christian university that began its activities in the 1980s and was formally recognized as a university in 1997. To a greater or lesser extent, all these universities conduct research and evaluate their personnel for their performance in their functions, which will be analyzed in Chapter 5. In the same year, the Universidad de la Empresa, a secular institution with strong links to the business sector, was also recognized, offering, in its seven faculties, a wide range of training in professional careers. CLAEH University (Latin American Center for Human Economy) traces its origins to 1947 when, influenced by the ideas on economics and humanism of the Dominican priest Louis-Joseph Lebret, a group of young people created the Teams for the Common Good and began to research social reality. Since 1997, it functioned as a university institute, and in 2017, it started its work as a private university. In the latter two cases, academic evaluation within them was not recorded, so they are not part of this study.

## Research funding and the competition for projects at ANII

Even though the objectives of this study refer exclusively to the academic evaluation of researchers and not of projects or institutions, the panorama we have built based on the existing reports cannot ignore the fundamental relationship between academic careers and research funding. For this reason, it was necessary to know the existing promotional instruments within the framework of ANII, the dominant academic profiles in the management of approved projects, as well as the possibilities of access to such funding, which are at the heart of the concerns of researchers and trade associations in the country. These possibilities of access to funding are not divorced from a phenomenon observed by all studies and agreed upon by the actors in the system, which determines that the level of investment in R&D in Uruguay (0.44% of GDP by 2021) is below the global world average, as we can see in Figure 1 (Prisma, 2023). It is even below the regional average for Latin America and the Caribbean (0.63% of GDP), according to the study developed in 2023 by Investiga.uy.

### Graph 1

*Investment in TCA and R&D as a percentage of GDP*



The National Agency for Research and Innovation was created in response to the growing focus on innovation and the need to promote the development of technical and professional knowledge from the public sector. It makes funds available for research projects, national and international postgraduate scholarships, and incentive programs for innovative culture, with undertakings for both the private and public sectors. The researchers and referents interviewed for this assessment coincide in mentioning that the calls for these funds are very competitive because few projects are financed. Commonly, they receive good reports and even excellent comments about their projects, but they do not receive funding. “The competition is so great that, in some cases, out of ten projects submitted, only one or two are approved, or a third in the larger funds, so they end up biased towards academic profiles and not towards applied ones” (Researcher PEDECIBA). In Investiga.uy, there has been an essential complaint in this sense because researchers feel that since the funds are so narrow, those with the highest published production end up winning the calls for proposals, leaving out many quality projects and greatly

restricting the country's research agenda. "There is very little funding; for example, in the last call for proposals, the Clemente Estable fund financed 53 projects out of 208 that had been submitted. In other words, many projects evaluated as excellent were left out. So, the evaluation issue is critical because, due to the lack of funds, the competition is criminal, and it becomes more difficult to believe that what determines success is the scientific quality of the proposal" (Researcher member of Investiga.uy). In Annex I, we have compiled the information referring to the calls for proposals of all ANII funds and the relationship between projects submitted and those financed in which the information was available. It can be seen that generally, one-third of the projects are approved in more considerable funds and even smaller proportions in some funds.

Two funds deserve a particular comment due to their size and interest in the scientific community of Uruguay: the María Viñas Fund (modality I and II) and the Clemente Estable Fund (modality I and II). The first arose with the resolution of ANII's Board of Directors to create an applied research fund, which it decided to name in honor of Dr. María Viñas' outstanding activity as a researcher. The Fund aims to finance applied research projects in all areas of knowledge, i.e., projects consisting of original work carried out to acquire new knowledge with a specific practical objective. The projects are expected to result in original work that contributes to the concrete solution of a relevant problem, making explicit the applicability and transferability of the expected results. The modality I is aimed at consolidated researchers. The definition of consolidated researcher for this call is similar to that determined in the National System of Researchers (SNI) requirements for levels I, II, and III, where it is stipulated that the researcher must have an academic level of doctorate or equivalent production. However, it is not a requirement to belong to the SNI, which is relevant to mention that the SNI category does not qualify for specific lines of funding. Still, it functions as a parameter to define a researcher who could be accredited to direct a project of this magnitude. In the 2023 edition, projects that contribute to climate change mitigation and adaptation will also be financed, and they will be evaluated by a group of experts in the field. Modality II of the María Viñas Fund is aimed at researchers in the process of academic consolidation. Those who carry out their research in the framework of national institutions are typically researchers categorized in the National System of Researchers (SNI1) at the Initiation level or level I in their first period under this category. Researchers who do not belong to the SNI are also eligible, and it is not a requirement to be categorized. However, some parameters related to this system's categories have been established. The amounts to be financed range from Uruguayan pesos 1,200,000 to 1,900,000 depending on the modality, with a duration also ranging from 24 to 36 months. In the last call for proposals, 43 out of 133 projects evaluated in Modality I and 34 out of 123 in Modality II were financed.

The Clemente Estable Fund, on the other hand, was created within the orbit of ANII to support scientific research projects of excellence, classified as a priority for the country, both experimental and theoretical, which are undertaken primarily to obtain new knowledge about the foundations of phenomena and observable facts. It is not a requirement that this new knowledge have any particular application or use. The modality I is aimed at consolidated researchers who carry out their research within the framework of national, public, and/or private non-profit institutions whose activities include research. The definition of the consolidated researcher is similar to that determined in the National System of Researchers (SNI) requirements for levels I, II, and III, where it is stipulated that the researcher must have an academic level of doctorate or equivalent production. Modality II (call for applications 2022) is aimed at researchers in the process of academic consolidation as independent researchers, i.e., researchers categorized in the National System of Researchers at the Initiation level or level I in

their first period under this category. However, as in the case of the María Viñas Fund, it is not a requirement to belong to the SNI for both modalities. The amounts to be financed also range from US\$ 1,200,000 to 1,900,000, and the duration is from 24 to 36 months, depending on the modality. In the last call for proposals, 53 out of 208 projects evaluated in both modalities were financed.

### **Methodology of the study**

The fundamental basis of this part is the 55 interviews conducted with institutional referents, authorities, researchers, evaluators, and technical personnel of the different evaluation systems in Uruguay (See list in Annex IV). The individual interviews and focus groups were oriented toward learning about the functioning of the evaluation processes and the actors' experiences, representations, and self-perceptions. Especially in the SNI, many members of the Commissions under which the evaluation process unfolds in its different stages were interviewed in a balanced manner according to the areas of knowledge, gender, and grades of the individuals. The aim was to understand the interpretation of the evaluation criteria in applying the regulations, primarily to determine which merits are indispensable for admission and promotion to the different levels, to know the styles of production value, the indicators in use, and the functionality of the computer supports. The interviews were designed in a semi-structured format to be analyzed later using Atlas.ti software. Although 60 interviews were carried out, including all the institutions that carry out academic evaluations, only the interviews with SNI, RDT-UdelaR, and PEDECIBA Commissions members were processed in Atlas.ti. Initial coding was established based on the study's objectives, and each question was enriched from the elements emanating from the interviews (“in vivo” coding), the result of which is presented in the following table.

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**Table 1**

*Coding in Atlas.ti*

<b>Comunes</b>	Retorno del exterior	Proced_Evaluación	PEDECIBA_Protagonismo
APC	RRHH	Produc_Relevante	PEDECIBA_Revistas
Arbitraje	Segregación Vertical	Producción técnica	PEDECIBA_RRHH
Autonomía	SNCTI	Producción_período	<b>RDT-UDELAR</b>
Básicas vs Aplicadas	Sobreevaluación	Reconoc_Internacional	CCRDT_Evolución
BG (Brechas de Género)	Tamaño sistema CyT Uy	Recurso reconsideración	CSIC_Evolución y funciones
BG Evaluación	Acceso Abierto	Reingreso	DT
BG Roles de género	<b>Por sistemas</b>	Remuneración	RDT_Complemento salarial
BG Tareas cuidado	<b>SNI</b>	Renovación	RDT_Criterios
Cocardas	Ámbito_Prestigioso	Salida del Sistema	RDT_Dif otros Sistemas
Convergencia flexible	Autocensura	Tarjetas Amarillas	RDT_Eval Externo
Criterios	Autodescripción	<b>PEDECIBA</b>	RDT_Evaluación
CVUy	Capacidades Institucionales	PEDECIBA	RDT_Financiamiento Proyectos
Diferencias disciplinarias	Casos Dudosos/Disidencias	PEDECIBA_APC	RDT_Gobernanza
Divulgación	Clasificación_Revista	PEDECIBA_Alícuota	RDT_Habilitaciones
Endogamia	Comisión Honoraria	PEDECIBA_Comisión Directiva	RDT_Ingreso
Enseñanza	Comité Revisión	PEDECIBA_Criterios	RDT_Ingreso vs Renovación
Eval_Cuali-Cuanti	Comité Selección	PEDECIBA_Cursos posgrado	RDT_Plan de trabajo
Eval_integral	Criterios SNI	PEDECIBA_Dif otros Sistemas	RDT_Promoción
Extensión	Dirección proyectos	PEDECIBA_Docencia	RDT_Propósito
Financiamiento	Emérito	PEDECIBA_Estructura organizativa	RDT_Renovación
Gestión	Eval_Calidad	PEDECIBA_Evaluación	RDT_Renovación tiempo reducido
Idioma de publicación	Final de carrera	PEDECIBA_Gobernanza	RDT_Resol año 2012
Independencia	Habilitaciones categoría	PEDECIBA_Grado 3	UDELAR
índice h	Impacto	PEDECIBA_Grado 4	UDELAR - Funciones
Internacionalización	Juicio	PEDECIBA_Grado 5	UDELAR_Carrera docente
Libros	Lectura_artículos	PEDECIBA_Internacionalización	UDELAR_Coordinación Académica
Maternidad/paternidad	Línea de trabajo	PEDECIBA_Lugar de Trabajo	UDELAR_Servicios
Pares Evaluadores	Mérito_Sufic_Iniciación	PEDECIBA_Pares Evaluadores	<b>OTROS</b>
Perfiles	Mérito_Sufic_Prom_NI	PEDECIBA_Perfiles	INIA
Programas doctorado uruguayos	Mérito_Sufic_Prom_NII	PEDECIBA_Plan de Trabajo	Maria Viñas_Inv Aplicada/basica
Protagonismo	Mérito_Sufic_Prom_NIII	PEDECIBA_Procedimiento Evaluación	Maria Viñas y SNI
Proyectos internacionales	Notas internas	PEDECIBA_Promoción	

For the preparation of this monographic report, the textual quotations from the interviews were slightly revised to extract onomatopoeias, reiterations, or silences that could generate confusion without altering the content of the interviews in any way.

## CHAPTER 1

### The National System of Researchers (SNI)

The National System of Researchers (SNI) was created by Law 18.172 (2007) within the scope of the National Agency for Research and Innovation (ANII) to promote the growth of the scientific community with activity in the country or Uruguayans abroad using categorization, evaluation and the assignment of an economic incentive according to each level. It is currently divided into six areas of knowledge: Agricultural Sciences, Natural and Exact Sciences, Humanities, Social Sciences, Engineering and Technology, and Medical and Health Sciences. The ANII calls for annual calls for admission (reinstatement) and periodic calls for permanence, but the SNI has the autonomy to make the final decisions on the categorization process. The list of approved researchers is also published on the official website, along with data for their respective categories and levels. The System is organized into three categories: a) Active Researchers, “the applicant must accredit the development of research, scientific, technological and/or innovation tasks in the country”; b) Associate Researchers, “applicants of equivalent merits to Active



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Researchers, but residing outside the country, who in no case will be entitled to the economic benefits of the SNI” and c) Emeritus Researchers, distinguished by the Honorary Commission for life. In turn, according to the SNI Regulations, Active, and Associated Researchers are classified into four levels:

INITIATION LEVEL. Candidates must demonstrate significant participation in research activities supported by publications or other forms of communication or documentation of results in the three (3) years before the S.N.I. call. Preferably, they should be engaged in advanced training in doctoral programs. This category is open for up to three (3) years, allowing successive renewals of up to three (3) years. Being part of the initiation level for more than six (6) years will not be possible.

LEVEL I. Candidates must have an academic level of doctorate or equivalent production, having demonstrated, within the five (5) years prior to each S.N.I. call, the capacity to carry out original research independently. This category's permanence will be up to three (3) years, with successive renewals of up to three (3) years.

LEVEL II. Candidates must have an academic level of doctorate or equivalent production. They must be consolidated researchers who demonstrate a solid trajectory of work, particularly in the five (5) years before each S.N.I. call, having developed their line of research with sustained production of original knowledge and researcher training activities. Activities aimed at the creation of research capabilities will be valued. The initial permanence in this category will be up to three (3) years, with successive renewals of up to four (4) years.

LEVEL III. Candidates must have an academic level of doctorate or equivalent production. They should be researchers with outstanding trajectories in their area, with original knowledge production in the five (5) years before each call of the S.N.I. In this category, international recognition, the creation and direction of research groups, and activities aimed at creating research capacities, both institutional and in the training of researchers, will be especially valued. The initial permanence in this category will be up to three (3) years, with successive renewals of up to four (4) years.

According to the data published in the Prisma portal, the total number of researchers categorized in the SNI as of 2023 was 2169, of which 48% were researchers and 52% were researchers. Most of the staff is in the Active category (91.24% - 1981), while the category representing Uruguayan researchers abroad (Associates) accounts for 7.78% (169), and, finally, Emeritus accounts for 0.96% (21). This distribution has not changed since its creation, so both associates and emeriti represent a small percentage of the universe of SNI researchers. Regarding the proportion by levels, the evolution during the first years (2009 to 2012) shows that the Initiation level sustained an outstanding growth rate, while from 2013 onwards, this growth is observed in Level I, which is evidence of the promotion of rank after the maximum time of permanence in initiation, as well as the gradual progress of the postgraduate system in the country. From 2013 onwards, the admission level's growth rate has been moderate and consistently below Level I. The composition by areas of knowledge maintains over time its observable distribution in 2023, with a sustained weight of Exact and Natural Sciences (34%), Social Sciences (20%), Agricultural Sciences (13%), Medical and Health Sciences (13%), Engineering and Technology (10%) and Humanities (10%). Although the information available in Prisma indicates that the bulk of members of the system carry out their activities at the University of the Republic (69.5% - 1511), the participation of UdelaR was even more significant in the early stages of the SNI (78% for example according to the 2018 Monitoring report), thus evidencing an evolution towards the expansion of the participation of other research institutions in the country. Universities and private companies represented by 2023 9.7% and foreign institutions 5.8%. The third part of this report analyzes the universe of SNI researchers based on data from the 2023 call for proposals, which is currently being evaluated, thus updating these trends to 2024.

The SNI calls are annual and usually open in mid-November and close in mid-December of each year. With the opening of the call, the basis of the call and the evaluation criteria are published based on the Regulation (2014) that establishes the general rules for the system's operation. The

entire evaluation process is based on the curriculum vitae declared in the CVU system, which the system captures and freezes at the closing date of the call (the most recent closed on December 21, 2023). For tenure applicants (who may be promoted to a higher level if the evaluation so suggests), the requested information describes the actions taken since the last evaluation. In each presentation, individuals may request a change of area, extension for maternity, or leaves of absence due to accident or severe illness for one year, as established in the Regulations. The application does not imply the presentation of a research project.

The CVUy has evolved in line with the SNI calls for applications, the suggestions of the evaluation commissions, and the users themselves. Open spaces include a summary of the activity carried out in the last period or the trajectory for applications to Initiation. This summary contains guidelines: “highlight the main activities and contributions made in your overall work, particularly in recent years. Emphasize the significance and impact of your work (...) Emphasize your scientific production, postgraduate training, contributions to other researchers' training, and institutional contribution to research capabilities. Also, indicate here if there is production outside the usual scientific formats where you understand there is a contribution of original knowledge”. The main fields of the CVUy platform are Training, Performance, Production, Evaluations, HR, and Other relevant data.

The CVUy Platform allows you to choose five relevant works, which can be selected in the Production section and Human Resources, selecting tutorials, orientations, and/or supervisions (See Part 3). The Production module has a narrative space where you can synthesize “the significance of your work in the context of the main issues raised in your area.” The types of format it is divided into Bibliographic (Articles in scientific journals, books, publications of work in events, texts in newspapers or magazines, and working papers) and Technical (Technological products, processes or techniques, technical works, charts or maps, short courses, development of didactic material, editing or revision, models, TV or Radio programs, research reports, organization of events, maintenance of works). According to the regulations, the researchers categorized in the SNI must update the curriculum vitae information system every six months (Art.16 Cap. IX Responsibilities).

### **Evolution of the evaluation criteria since the creation of the SNI (2008-2023)**

The first call for applications opened in 2008 with a document on the guidelines for the evaluation process prepared by the Area Technical Commissions. Of a more instructive nature, this document established the stages through which candidates would be placed in the different levels, although the aspects evaluated did not specify differentiations according to each level. The evaluation dimensions proposed were the production of original knowledge, Academic and research training and dissemination, and Institutional development and linkage of research with society. Production accounted for 50% of the total score, assessed by the degree of participation, the volume measured by the career time, and the impact of their contributions. Impact indicators included publication in peer-reviewed journals of international prestige, publications of journal editors' notes, citations, acknowledgments, and invitations. In particular, the impact

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of the most significant consideration is related to the creation of new fields of study. Regarding the second dimension, training and diffusion and dissemination, it is recommended that it cannot exceed 35% of the total score. The greater weight implied by the researcher's training at the two initial levels is differentiated. In comparison, the training of human resources is differentiated for the two higher levels. The last dimension of evaluation of the creation of research capacities and links with the environment should not exceed 25% of the total.

As of 2009, the criteria are presented in a differentiated manner by the six areas of knowledge and by levels, obeying the mandate of the Regime that instructs the Technical Commissions by Area to propose specific criteria. This modality is maintained until the 2015 call for applications, after which the criteria are unified. In this first period analyzed (2009-2015), the most significant reforms will take place in 2012, and from 2013 to 2015, they will remain unchanged. It should be noted that the 2010 call for applications does not establish the criteria for the areas of Engineering and Technology or Social Sciences in the document. The 2012 modifications, on the other hand, aimed to eliminate quantitative aspects of the requirement of scientific productivity measured in several articles. In other cases, the compensation criterion of pursuing doctoral studies for equivalent production was eliminated. Until 2012, a specific section on evaluating publications was in force for all areas. This section emphasized a series of aspects to consider regarding the contributions associated with quality, relevance and impact, international recognition, and the individual contribution of each candidate so that the evaluation would not only focus on quantitative elements.

As of 2016, the evaluation criteria are no longer established by areas of knowledge. However, a unification structured in four dimensions occurs Scientific Production, Researcher Training, Research Capacities, and Equivalent Training. These axes had antecedents in the guidelines of the first call and their reintroduction in the 2012 call. The division by levels is maintained with a more synthetic description of the profiles and subject to the aspects mentioned in the Regulations, emphasizing the adequacy of the contributions to international standards. In 2016, there was a “clear cut in the evolution of the criteria where, in his opinion, the system lost plurality. The National System of Researchers from 2008 to 2015 was much better than the one imposed in 2016 regarding plurality and valued products. The criteria were converging from quality to excellence based on Q1 and Q2 journals, which, before 2016, were much more plural. Okay, it is true, scientific production was always a necessary condition, not sufficient, that is, you had to have 50% of the total weighting; if you did not have that, you were out, fine. However, you had different types of products, especially for the Social Sciences in terms of books, and, above all, an international paper in prestigious journals was not required for the rankings. Especially in initiation, in the beginning, international production was not required, and in the stage after 2016, that was gaining much ground” (Academic Unit, CSIC-UdelaR).

That is to say that, although the 2014 Regulations were still in force and are still in effect today, the general evaluation criteria were oriented to the global publication standards. During the first years of development of the system, each area interpreted, defined and expanded with a certain degree of autonomy the requirements outlined in Art. 8 for guidance purposes for the Selection Committee and the Area Technical Commissions: a) the production of quality research, as an essential condition; b) the training of specialized human resources, c) the link between research and society, in its various forms; d) the contribution to institutional development and e) participation in the work of dissemination and outreach. These dimensions were based on indicators of regularity of production and quality of research measured by criteria of originality,

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scientific relevance, social contribution, and international recognition. Likewise, evaluation, management, and program monitoring activities were also valued. However, over time, the indispensable requirements for promotion upward in the different levels of the SNI, transversal to all areas of knowledge, were consolidated (See details of the evolution in chronological form in Annex II).

In this evolution, which goes from 2008 to the present, the Initiation Level had some critical changes in academic training that gradually resulted in the requirement of a doctoral degree. As we anticipated, in the modifications introduced in 2012, the compensation of postgraduate training for “equivalent production” was eliminated in the two areas that included it (Natural and Exact and Medical and Health) and in the cases of Agricultural, Humanities, and Social Sciences, the master's degrees in progress were incorporated. Participation in research activities expressed in contributions was translated into “recent publications in peer-reviewed journals of international circulation”. For some areas, the requirement of a leading role (first authorship) was introduced. In other words, publications are expected to be recent, have a leading role, and meet international quality standards.

For Level II, the Regulations focus on two aspects: an academic background of a Ph.D. and the demonstration of capabilities to conduct research independently. In 2011, the compensatory requirement “equivalent production” in several areas was eliminated in the same sense in the initiation stage. Production was quantified in the first years based on a minimum regularity of one article per year, with greater emphasis on the prominence, impact, and international character of the journals. The capacity to carry out independent and original research was identified by obtaining funding, participating in academic events, and belonging to research teams.

In level II, the Regulations describe the profile of a “consolidated researcher” with an original research line of his/her own, evidenced in a quality production that initially translated into a “significant volume” with relevant and “high impact” contributions. In addition to these production indicators, the training of human resources, especially the direction of postgraduate theses, is accompanied by the direction of research projects and groups, the supervision of researchers, and the creation of institutional capacities. When the requirements for all areas were unified (2016), this description of the consolidated researcher was reinforced.

Level III constantly evolved within the framework of the original definitions that characterized the higher profile in the 2014 regulations: it is a researcher with an outstanding and internationally recognized trajectory. The main changes at this level are related to the greater demand for production, which must have an international impact or high prestige, according to international standards of international recognition.

As of the 2022 call for proposals, it is essential to mention that a series of annexes have been included. The first one, on Criteria for the evaluation of technical production, aims to provide elements for the judgment of such products through a series of data to be provided by the applicants in a mandatory manner in the Technical Production section of the CVUy. The aim is to know the socio-productive application activities, the individual participation, and the forms of communication of results relevant to the product type. As a whole, it describes the general evaluation criteria specific to the technical production in terms of:

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Originality, at least at the national level, in cases oriented to national application.

Production rooted in research, connected to a line of research and previous results of the researcher and/or contribution of the technical production to the research work as a mechanism for contrasting or evaluating it.

Existence of objective public documentation. This may be in the form of a patent or other form of intellectual property registration, or other public information that, at least, accredits the existence and characteristics of the product.

The second annex refers to the Indicators of international recognition, which describes the elements that demonstrate this requirement of particular weight for Level III of the SNI:

Regional and international **awards and recognitions**.

**Invitations** to give high-profile presentations or lectures at recognized regional or international events, such as plenary lectures (keynote speakers), invited lectures of particular note, and tutorial courses that are part of recognized events.

**An outstanding role in organizing international or regional events, such as a general chair or program chair.**

**Teaching of courses** or tutorials by invitation in prestigious institutions abroad.

**Editor-in-chief**, associate editor, or member of the editorial board of leading journals.

**Systematic role in the review** of renowned publications or events and the evaluation of projects, competitions, and calls for proposals at regional or international level.

**Participation in doctoral tribunals** at regionally or internationally recognized institutions. Invitation to **co-orient** graduate students at internationally recognized institutions

Participation in an **outstanding role in regional or international scientific institutions**.

**It advises** on topics related to his production as a researcher in outstanding international and regional environments.

### Structure and governance of the SNI

The SNI regulations establish that the evaluation is organized through the Honorary Commission (CH), which comprises five members appointed by the Executive Branch: one proposed by the University of the Republic, two by CONICYT, and two by the ANII Board of Directors. The CH appoints the members of the Selection Committee (SC), which in turn proposes the members of the Area Technical Commissions (CTA) and Review Commissions (CR). The SC is responsible for approving the evaluation and categorization criteria proposed for each call and ruling on the set of procedures for admission, permanence, and promotion in the SNI by issuing the corresponding resolution. The SC comprises 2 to 4 researchers for each area of knowledge, categorized at the highest levels, who are responsible for recommending to the CH the categorization of candidates based on the reports of the CTAs.

The CTA are commissions that operate by area of knowledge and comprise 3 to 5 members categorized in the SNI. There are six significant areas of knowledge of the SNI, but in the most recent calls, up to 8 CTAs were opened due to the workload and number of applications received.

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Thus, for the 2022 Call, we have the following CTA: Medical and Health Sciences, Natural Sciences, Exact Sciences, Engineering and Technology, Social Sciences I, Social Sciences II, Humanities, and Agricultural Sciences. The CTAs are responsible for applying the evaluation criteria to the analysis of the applications in their area, preparing recommendations, and submitting a report for each applicant to the SC and an overall report on the call for applications. The Selection Committee is interdisciplinary and comprises 12 to 14 members, approximately 2 per area. Finally, the RCs are convened ad hoc to reconsider aspects of the resolution of each call (SNI Regulations, Art. 2, Chapter II of the Organization).

The ANII coordination in charge of the SNI offers legal advice and administrative and technical support through the CVUy platform, where the evaluation process is mounted. The evaluators do not have access to the files of those who expressed conflicts of interest, nor do they participate in the moments when they are discussed in plenary. The interviewees consider that the management structure accompanying the process is very professional, both in the communication between the different instances and the application of the criteria and decisions taken in the instance in which they have to act. They particularly appreciate the performance of the ANII team coordinating the commissions. “I have the highest regard for the management work of ANII, the SNI, and the officers. Moreover, I would like this to be established because compared with other national evaluation systems and those of other countries in which I have participated, it seems that ours is very good in terms of management support, which is not at all minor” (Member of the SNI Selection Committee). People interviewed from the technical commissions emphasize that “we have an important technical support which are the ANII coordinators, who are there to advise us on the legal aspects and also to give us a little bit of the institutional memory of the Commission” (Member of the SNI Area Technical Commission, Humanities).

The interviews with evaluators from different instances show great harmony within each CTA, between them and the SC, and with the CH in the search for consensual and fairly applied criteria. The dialogue between the different instances and the listening offered by the CH to the arguments expressed by the “judgments” received is perceived in the interviews as a strength of the system. Above all, this is manifested in the interviews about renewals that generate dissent between CTA and CS or renewals that are carefully analyzed for short periods. “The commissions are interested in knowing if we are in tune. Moreover, there are times when the call, this year, for example, in the area of natural and exact sciences, we were very even; that is, the rulings from the CTA agreed with the CS and is very even. Moreover, there were others where we had differences. So we have to talk again and review the criteria to be in tune” (Member of the SNI Honorary Commission).

Although they seem infrequent, an arduous task of complete trajectory analysis is observed in the reconsideration appeals received in the RCs. “Two-thirds of the appeals were more related to promotion than to tenure. Of the six we analyzed, only two cases were appealed for permanence. In these cases, the point is essentially the valuation of the production and whether or not the scientific production was considered sufficient to remain in the system. Moreover, the cases I remember were typically people at the end of their careers. Furthermore, they have been inserted in research perhaps later or with parameters different from the most usual nowadays. Typically, there is production in a single national medium or more book-type publications, but it is obvious without the level of arbitration or impact. So they often go there in weak areas as well. Many things come into play here because one says, well, it is a fragile area, and it is doing some

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research, but, on the other hand, is it of quality or not? What impact does it have? What does it transmit to younger people? Suddenly, some younger people may not be given the admission yet because they are just doing their PhD. However, they already have many more publications than this person, who has been in the system for 20 years but never published something powerful. So there is that tension.” (Member of the SNI Review Commission).

The interviews with different SNI referents state that the CH has complete autonomy to resolve all cases without a comptroller or superior instance to decide on it. Even at the budgetary level, they do not manage with a maximum income quota, permanence, or promotions. It has an intensive operation during the evaluation of each call for applications. It thus expresses an evaluation system self-managed by the academic community, without bureaucratic or external interference in the scientific field. Another strength of the system lies in the time dedicated to learning. “We always try to hold, at the end of the call, and after the period of possible requests for reconsideration has passed, a meeting with members of the CTA, the SC, and some of us from the CH, and we give them the data of the evaluation in that call. The members of the different commissions are interested in seeing if there were discrepancies, how the CH turned to one or the other trial, and why, what was it that we considered to turn to one” (Member of the SNI Honorary Commission).

Another strength of the system lies in the resolution time of the call, which is a process that lasts six months, from the opening of the call in November to the publication of the results at the end of May. Without taking into account the summer recess, the time in which the applications are analyzed is approximately four months. According to consultations with ANII representatives, the Area Technical Committees evaluate between February and March, the Selection Committee in April, and the Honorary Committee finishes in May. The results are communicated, and the option of recusal is open.

The general impressions about the structure and functioning of the system, as captured in the interviews, are of conformity with the system, and the evaluators acting in the review commissions state that few appeals for reconsideration have been received. The interviewees generally interpret this as proof of “how well-oiled the system is” (SNI Review Commission member). A substantial effort is evidenced in all the instances to avoid disagreement between colleagues when receiving opinions. This is reflected, for example, in the maxim shared by all the interviewees that the opinions should not include quantitative data. Adjectives, signals, or recommendations that could generate complaints should be avoided. They refer, for example, to the fact that in one call for proposals, a person receives an indication to publish more. However, in the following call for proposals, he/she publishes more and does not promote to the next level, thus generating “contradictory” signals.

While this is a strength of the system because it implies that there is a series of shared consensuses, other perceptions associated with the scarcity of “complaints” or the low incidence of appeals for reconsideration are observed in the interviews, which show a constant need to avoid “exposing” colleagues. This concern to avoid complaints is based on a constant referred to in most of the interviews, related to the perception of being part of a community in which “everyone knows everyone else” and, therefore, it is necessary to avoid hurting susceptibilities. While these perceptions are associated with care, they can be a virtue of the process, but they can also harbor room for unclear or value-laden messages. In one interview with a member of the Selection Committee, it was suggested that the absence of complaints might indicate that there is no room for complaint or that there may be a block to dissent: “...I would not be happy

to say, the system is good because we do not get complaints. Well, it means that people assumed it was necessary. Now, is everything okay? No, I do not know. It may be the other way around. Maybe it would help if we took more liberty to say, well, this person is not renewing. Always looking for a sign that there has been a signal, that on some occasion they have been told that things are not going well.” (Member of the SNI Selection Committee). Below, we will analyze some “leaks” of this extended imaginary about the small scale of the academic community in Uruguay. We refer to the defections of the system that may remain invisible or the self-censorship that mobilizes people not to apply for renewal when they are afraid of not being up to the demands of the level to which they aspire.

### **The value of belonging to the SNI and the legitimacy of the classification**

Most interviews conducted with researchers and evaluators show that one of the strengths of the SNI lies in the community's appreciation of the evaluation process and its legitimacy in defining who is a “researcher” in Uruguay. Initially created as a salary incentive to stimulate research, some referents consider that it introduced a competition system in higher education. In contrast, others think that it is a system of recognition. Nevertheless, as in other Latin American countries, as an incentive system, it gradually lost its economic value, and despite this, its symbolic value increased. The conversations with the Honorary Commission said, “I see it mainly as a system of academic recognition that was successfully installed. Remuneration is part of this recognition system because remuneration is also associated with recognition. However, it is not what ensures the development of our research career. For example, the three of us are from the same university, the University of the Republic, and the determining factor for our development as researchers, or most of the researchers at the University of the Republic, is, in fact, the Total Dedication. Because it implies a significant increase in the basic salary and an additional salary for research expenses. In the case of the SNI, we have peers who recognize each other in such a way that they assign us different levels of achievement. This might not have been successful, but it was very well-established. In its origin, the great prestige of those who carried it forward was important; I think the system was implemented well and with excellent support. However, at that time, the economic incentive was much higher than it is now because it has remained fixed; it has not been adjusted for inflation. This incentive helped to consolidate the recognition system, especially for the initial levels; it can be decisive”. (Member of the SNI Honorary Commission).

According to ANII referents consulted, the economic power that the incentive initially had was losing its purchasing power because the last update was in 2016. Today, it does not represent an essential percentage of researchers' salaries. There was only a coupling of the number of ANII scholarships to get closer to the number of scholarships offered by other institutions. Their relative value also decreased compared to the payment received by UdelaR professors under the Total Dedication regime.

In short, belonging to the SNI has a salary component but mainly confers a status that makes permanence in the system a very high value in the community. Most of those interviewed considered that the SNI “has given Uruguayan researchers an identity that goes beyond their institution, including those who belong to the largest and oldest university, the UdelaR”.



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(member of the SNI Honorary Commission). “I think that this recognition, being categorized by our colleagues, served as a stimulus, let us say, for all researchers to try to advance, improve, produce, not stay, not stagnate. I think it was a stimulus for that. Its main strength is that the community values it as an honorary recognition based on the merit that each one achieves” (Member of the SNI Honorary Commission). ANII management team members also perceive that institutions value the system, and some private universities even require their research professors to be part of the SNI. Around this categorization system, little by little, evaluation was installed as something normal.

Despite the value of belonging to the SNI and recognizing its categorization as a national parameter of the different stages of a researcher's career, it does not constitute an enabling category for obtaining funding, directing projects, being part of evaluation committees, or directing institutions. Unlike other countries in the region, where categorization plays an enabling role for specific roles or access to funding, in Uruguay, there are no competitive funds available only for SNI researchers, nor are there instances only considered for certain levels of the SNI. “I believe that, in reality, it has an important symbolic value; it has to do with prestige. In reality, the SNI does not arise with the intention of qualifying who is and who is not a researcher, but it arises with the intention of being a kind of prize or stimulus”. (...) “I think it is important that it is not enabling because, in reality, the type of evaluation that is made is quite demanding, and in fact, it happens to people I know who are left out of the SNI or who have had to leave the SNI when in fact they are having research activity but do not manage to reach, let us say, the production standard required by the SNI. I think there is something that is conflictive in terms of how researchers experience it because although this begins as an award, let us say, for performance, in fact, by its very name, which is the National System of Researchers, in reality, the name suggests that it is not an award, but rather belonging or not to a system” (Researcher UdelaR, SNI, PEDECIBA) For most of the people interviewed this is positive because it means that there are no punishments or resources forbidden to those who do not participate in the system. On the other hand, the four levels do not define clear segments of the country's scientific community: “I think it is very good that there is a system that validates that you are a researcher, but when we differentiate between level 1, level 2, level 3, it is more difficult for me to identify the contribution of classifying this person” (Researcher UdelaR, SNI, PEDECIBA).

This perception that highlights the value of belonging to the SNI but expresses disagreement with the classification in levels appears in several interviews. “They do not reflect our community well. There are people at a point in their career, in their vital stage, that we take out and you say, but how come so-and-so is not in the system if he/she is a reference person who keeps on reading, who keeps on giving courses, who keeps on giving lectures. However, well, the rules often force us to leave them out, and we cannot put them in another place that would be good” (Member of the SNI Selection Committee). We will return to this topic below because it relates to the difficulties encountered in some segments of the promotion process within the system, especially in the transition from Level 1 to Level 2 and in Level 3 and the emeritus category.

Like any national categorization system valued by the community, the SNI has an essential impact on the evolution of knowledge production because it gives clear signals regarding the profile of the “imagined researcher” who will be successful in his or her career. Compared to other categorization systems in Latin America, the SNI has the advantage that it is not crossed at all levels by high-impact indicators. However, the regularity requirement in published production

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for admission and permanence directly affects the less academic research profiles. Researchers with a profile more oriented to public communication of science, technological production, or social intervention are forced to dedicate much time to traditional publications, thus orienting people towards a dominant academic profile. In many interviews, it was raised that this profile of “imagined researcher” harms many individuals who do not fit this profile and who probably left the system or decided not to apply due to the rigidity of the merits required for promotion to Level I, and then to Levels II and III. “There are people who have an apparent profile, the famous classic, group leader who writes projects and forms Human Resources, publishes and writes articles, and it is a significant profile. However, many other profiles are essential for the system” (UdelaR researcher, SNI, PEDECIBA).

Several interviewees told us this dominant profile devalues publications with a high social impact. These are spaces for the circulation of knowledge where bridges can be developed between citizenship and knowledge, scientific dissemination, and other interactions with the environment that are not valued in the ideal profile of the SNI. “For example, I published a paper for UNESCO on sex education, but I chose not to publish it in a peer-reviewed journal. We could have published it in the Q1 journal, surely on sexuality and education, but we preferred to publish it in English and Spanish, in UNESCO, which is the governing body in sexual education policies for the world. It has less academic merit and, probably, yes. Maybe if a commission that does not know much about the subject sees it, they will say this is a technical report. But in a scientific journal, it will be read by far fewer people.” (Member of the SNI Area Technical Commission, Social Sciences). According to another interviewee, “There is not much sensitivity to value people who have a double activity. They work in industry, and the scientific field and their scientific production is devalued because they are compared to full-time scientists. We do not have the tools to evaluate some cases of people doing exciting things related to their research in the industrial or professional field. However, the system looks at them with bad eyes, as if it punishes them”. (Member of the SNI Selection Committee, Exactas).

Some interviewees consider that these categorization systems have a great power to guide behavior toward productivism that is harmful to the quality of science and to the fulfillment of the essential functions of the university. “It is like monitoring and punishing; you see how it gets inside you. Which is also very much connected to self-demand as self-exploitation. And that we do not stop and that it does not matter. It is the image of what we do, the representation that we ourselves generate of what we do, like being brainwashed. So it does not matter anymore; my function is not to teach; my function is no longer to train people for research activity. My function is no longer to produce relevant, pertinent, local, original, ambitious, or disruptive knowledge. My function is to produce a certain type of product. So there is a disciplining thing that is very strong in these systems” (Academic Unit, UdelaR -CSIC).

The high valuation of the SNI categorization, together with the fact that a traditional academic profile is promoted, appears in many interviews related to the exits from the system that generate doubts, either at the end of the six years of initiation, for not reaching the standards for renewal, or for being at the end of the career and not qualifying for the emeritus category. All these situations are reported as being experienced with anguish and concern by both those who leave and the evaluators who are not recommended for renewal. “Reinstatements are relatively frequent. Moreover, one of the things that worried us a lot, partly human, is that young researchers, when we did not have this requirement of an advanced doctorate, came and went.

Furthermore, that has a strong subjective impact, which was also part of our concerns: the jump from initiation to level 1, which means having a completed doctorate. So, what we have reasoned a lot, we have talked many times, is that the more advanced they enter in the initiation category, the less traumatizing the passage to level 1 will be” (Member of the SNI Honorary Commission). “But I think that, if you look for statistics, you will see that departures and reentries occur more at the initiation level, at the lowest levels, which is where it is almost natural that there are researchers who are starting their careers, but then their lives change, and they go elsewhere. However, another sensitive point is the end of the career. When people are already retiring, we try to manage it as well as possible. Because in all cases there is a whole trajectory behind.” (Member of the SNI Honorary Commission). When leaving the system, “the determining factor is the low production, that is why one of the delicate areas is the end of the career, when we start to have a decline in our production. Although we always have the recognition of our trajectory, i.e., a level 3, to exit the system, there has to be a very, very notorious situation. That is to say, there is a historical recognition of its trajectory.” (Member of the SNI Honorary Commission).

Given the existence of other researcher evaluation systems in the country, such as PEDECIBA, RDT-UdelaR, or researcher careers, such as those existing in the IIBCE or INIA, we were able to verify that there are no equivalence systems between the categories of these systems and the SNI levels. The interviewees generally stated that this represents an advantage because people can advance in their academic careers according to the institution they are part of, even if they remain stuck at one SNI level for a long time. “Ideally, levels 1, 2, and 3 of the SNI would be the same, with levels 3, 4, and 5 of PEDECIBA, but today they are run, it is easier to be grade 3 of PEDECIBA than level 1 of the SNI, or to be 5 of PEDECIBA than level 3 of the SNI. We have researchers who have not been able to access the SNI” (Academic Director PEDECIBA). “Everyone categorizes you, but I differentiate and value the three things. Whenever I have to identify myself somewhere, that is, in the papers, I always include the three things. Let us say UdelaR is research and teaching, which are exactly the two legs, and PEDECIBA is something else because it implies the formation of high-level human resources. Moreover, the SNI is a more general categorization, no matter what area you are in, and it is at the central level” (Member of the PEDECIBA Steering Committee).

### **The SNI evaluation process**

The evaluation process development typically begins at the end of January or the beginning of February of each year, in the first instance, within the CTAs. It consists of a preparatory stage in which each member must sign the confidentiality statements and raise their conflicts of interest with the cases received, which are frequent. The applications are distributed equally among the different CTA members, primarily by thematic affinity, to have one reporting member for each case and, in some commissions, two. “We try to have each one evaluate within his or her closest area, avoiding conflicts of interest, which, in Uruguay, are always difficult due to the size of the system. Moreover, we always distribute the resumes and then have a meeting, or several meetings, where we review what each one brought to the table. The resolution of the area technical committee is always collective. That is to say, no case is not discussed, or that is only looked at by one person” (Member of the Area Technical Commission, Engineering).

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The experiences of the CTA interviewees from all areas coincide in highlighting as a strength the reflective, personalized, and dialogic nature of the evaluation process they develop. The applications are analyzed on the CVU platform and by the evaluators individually, and when the Committee meets, the cases are presented to the plenary together with a proposed “judgment”. In some CTAs, the distribution of cases tends to assign each file to two members to have complementary views, or this method is applied to doubtful cases. However, the evaluation of no applicant is reduced to the review of that reporting member. Cases are always discussed in plenary, and the resolution is collective. The testimonies generally agree that the “clear” cases of admission or renewal lead to a quick definition. However, in those with divergences, these cases are set aside to be settled towards the end to compare them with similar cases. “We divide them among those of us on the committee so that we have more or less an even number each. And generally according to specialty. An evaluator looks at each application, prepares a report according to our standard format, and then discusses it with the committee. Everything is commented on and then a conclusion is reached, so that evaluator prepares a final report”. (Member of the Area Technical Committee, Exactas). It is expected to “start from the archetypal cases of admission, permanence or promotion at each level and then move on to cases that are less clear or difficult to resolve” (Member of the SNI Selection Committee) “The area technical committees do a wonderful, excellent and exhaustive job, with the framework, with the context of the area. And then, the selection committee is the one that puts on an equal footing the profiles of researchers from different areas and, fundamentally, the requirements that we are demanding for a categorization in initiation or level 1, which are perhaps the most difficult levels to equate between disciplines” (Member of the SNI Honorary Commission).

The drafting of the “judgment” in some CTAs “starts with a summary containing several items on the most relevant aspects of some dimensions to be evaluated. These drafts may contain quantitative information submitted for consideration by the Honorary Commission, which then makes a decision; preparing such materials is considered useful since they provide “additional information to the global vision” (Member of the Area Technical Commission, Agriculture). In another committee, we were told there is a standard format for preparing trial proposals. It is a brief text in which an internal rule of not providing quantitative information is maintained to avoid comparisons between applicants. Similarly, the Social Commission avoids concrete recommendations in the Area Technical Commission. However, it includes general guidelines on some aspects that allow progress in the system, highlighting strengths and weaknesses. The more complex cases, such as level promotions or exits from the system, are dealt with in as many sessions as necessary, and the drafting of the report includes all the members of the Committee in order to clear up any doubts about the arguments supporting the judgment.

Once the “judgments” or opinions of the CTAs are submitted, the Selection Committee (SC) intervenes in an interdisciplinary body that reviews all the applications. “We look at all the curricula vitae. All together, from all areas. But, in general, we see the cases with the colleague from the same area, we inform and present them to the full SC” (Member of the SNI Selection Committee, Exactas). Cases that present dissidence with the judgment of the CTAs are treated with more outstanding care. “The problem, in general, is when one finds that in a period of 3 or 4 years, depending on the level, the scientific production either decreased or was not consolidated and well, sometimes there are different views on what a scientist should do in a period” (Member of the SNI Selection Committee, Exactas). In the Selection Committee, these opinions begin with a draft of who comments on the case, and then the final judgment is elaborated on as a whole. “We have something called the internal notes on the platform. I

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understand that this is something that the investigator never sees. We comment on why the difference in judgment was generated between one commission and the next. It did not seem to us that such and such; it seemed to us that such and such. A new report is generated” (Member of the SNI Selection Committee, Exactas).

This interdisciplinary analysis produced by the SC is an essential element of the system in which all the interviewees express interest, respect, and dedication: “The selection committee always serves as a buffer, the CTA reports sometimes come as if they were very well put together and when you put the different areas in the context of all the researchers, they tend to harmonize, and we go back to review those cases having gone through that sieve” (Member of the SNI Honorary Commission). “Especially in those cases that generate doubts, we are cautious about the difference between evaluating the curriculum of a sociologist and evaluating the curriculum of a mathematician or a biologist. Because there the differences are enormous. So the effort is that, for example, the one with level two is a level two, but according to the area in which he or she works. That is what makes us more time” (Member of the SNI Selection Committee, Exactas).

Thus, the “judgment” on each nomination is built in two instances, one disciplinary and the other interdisciplinary. Disagreements between CTA and CS are submitted to the Honorary Commission and resolved in this instance. However, for some CTA evaluators, the system works in only one direction, from the bottom up, because they cannot resolve dissenting cases once the CTAs issue their judgment. However, this is acceptable because consensus criteria are reached in interdisciplinary instances. However, they point out that this is usually applied in the promotion proposals made by the CTAs and is not successful in the higher instances. “There is no explicit feedback on each case. Although we have meetings afterward with the honorary commission, the decisions taken are not discussed. It is rather the general criteria and so on. There is no case-by-case review. Thus, the system, in that sense, works as a one-way system. It is also true that they play another role, to equalize between areas, so that is fine. However, when the CTA, for example, from engineering, proposes someone as a level 3, it is difficult to take it higher. The previous year, for example, we had proposed two, and neither of them stayed. In contrast, others were promoted to level 2, which we had not considered” (Member of the SNI Area Technical Committee, Engineering).

Once the judgment of each case has been discussed and resolved, the report is submitted to the CH, which re-evaluates the cases and makes the final decisions. According to the ANII referents consulted, the CH has a vital workload since all the applications are sent together. The Commission defines how it will discuss them but receives all the applications for permanence and admission from all areas of knowledge. In the interviews conducted with the CH, it is evident that the cases of dissidence between the first two instances require more attention. “I was saying to the CTA people, well, in the end, we should not try to appease your disparities; each has to do its job. Since the SC also crosses areas, it is natural that it may have a slightly different view from the one that the specific people of the area had. In the cases that come with disparity or are gray cases, we look at them, and we also say, well, yes, there is a part of reason on both sides. It could have fallen this way, or it could have fallen that way. And well, we end up tipping the balance because that is what we have to do many times. The technical commissions know that. We often prioritize the SC if we agree, especially if it is a case discussed in the SC in the plenary and all the areas agreed. Then, to reverse that decision, we must have solid arguments” (Member of the NIS Honorary Commission).

On the other hand, the review commissions (RC) are interdisciplinary and are formed ad hoc once the appeals for reconsideration are known. They are composed of two members of the commission who were part of the resolution and three who were not. “The applicant presents his appeal and his arguments. The committee considers everything: the background of previous applications, the curriculum presented in this application, and the decisions at all levels that evaluated it. We can access all the decisions that may have had some back and forth.” (...) “If there are three previous levels that were unanimous, obviously that is something that is considered. It is more open to a case in which the previous levels had differences, but the truth is that each commission member makes its composition of the case, and then it is argued and discussed, and a consensus is reached. There is also a little comparative analysis because it is a matter of having a certain degree of consistency. So, of course, we are not looking at all the postulates, but those 6 cases that we are dealing with, let us say, it is about not arguing in favor of one and against another. That is to say, to be consistent in our vision.” (Member of the SNI Review Commission).

### **Evaluation criteria and indicators for scientific output**

The evaluation criteria for the SNI calls are updated by the Honorary Commission and are published before each call. Two necessary annexes were recently incorporated: indicators to evaluate technical production and international recognition. “The regulations are broadly drafted to allow for flexibility, and in each call, we set criteria that became more demanding at the initiation level concerning the requirement of an advanced doctorate. We were never outside the regulations; we simply proposed to demand more in each call”. (Member of the SNI Honorary Commission). “Fortunately, the regulations are general enough to make these adjustments without modifying them. That is to say, those criteria we have been adjusting did not have the difficulty of transforming the regulations; otherwise, it would have been much more difficult. Moreover, this gives a dynamism to the way the system works in a very, very, very positive way”. (Member of the SNI Honorary Commission).

A strength of the SNI evaluation criteria is the respect for disciplinary diversity, which is also nourished by the practices developed in other evaluation systems. We refer, for example, to what emerges from the interviews as “flexible convergence”. A good part of the people interviewed have also evaluated other systems, such as the RDT of UdelaR, and this favors respect for the different disciplines, traditions, and production styles. “I was for many years a member of the central commission of total dedication of the University of the Republic, which is also one of the strongest mechanisms for promoting researchers. Moreover, we manage there with a criterion I often use in the SNI: flexible convergence. That is to say, we have general rules. However, we have to interpret them with sufficient flexibility according to each field of knowledge, but this does not mean a double evaluation standard”. (Member of the Area Technical Committee, Social Sciences)

In the interviews conducted with CTA, CS, CR, and CH evaluators, there is a common denominator: the rejection of quantitative evaluations. Including quantitative data in the “judgments” (Member of the NIS Area Technical Committee, Agriculture) is even expressly contraindicated. It also seems clear that the focus is on the published production and the quality

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of the journals, always respecting what each area requires and their differentiated production styles. “We do not count papers. There is discussion about the quality of publications, but basically, we aim at internationally recognized media in their discipline, area of work, and field of knowledge. What we look at is, for example, the publisher's quality and scope of that journal, from the ranking in which it is ranked to its prestige in the discipline.” (Member of the Area Technical Commission, Social Sciences).

There is, however, a requirement of regularity in production that demands a certain minimum number of publications for permanence where quantification materializes. Most of the interviewees agree that one publication per year is reasonable. “There were some cases of level 1 that we recommended to leave the system because, for example, they were people with doctorates for years, consolidated with research groups, and reported one publication in the whole period. (Member of the Area Technical Commission, Social Sciences). The SNI Monitoring report published in 2018 shows that this idea of regularity, in turn, “regulates” the production rhythms of researchers in that it reports an overall average production per researcher of 1.57 journal articles per year, rising to 2.23 for medical sciences and falling to 1.07 for social sciences (ANII, 2018: 22).

A fundamental detail concerns the type of publication considered acceptable for this regularity requirement in the CTAs and where the disciplinary differences emerge. The Scimago ranking quartiles were mentioned as a commonly used instrument for assessing the quality of the applicant's publications. “Yes, actually, we look at the Scopus scores of the journals. We look at whether they publish in high impact journals. If their articles have citations, although there is no pre-established value” (Member of the Area Technical Committee, Engineering). “The Scimago quartiles are always used to evaluate the journal. I think I hear it in all areas, well, except in those areas where the production is exclusively of books, which are already something much more complicated. The quartiles give a pretty clear idea of the quality of the journal. There are exceptions when they are tiny areas of work so that they may have a round number of only eight journals, and the first two are in quartile 1, but all the others are in quartile 2 or 3, so it is tough to publish in the journals with the highest impact. That is why it is analyzed case by case” (Member of the SNI Selection Committee, Exactas).

When asked about the five relevant papers selected by the applicant in his/her CV, which could represent an important input to know each applicant's profile, many people interviewed commented that they are not specially analyzed. There are discrepancies regarding the use of this CVUy instrument; some do not remember that relevant productions have any weight in the evaluation, “either positively or negatively” (Member of the SNI Area Technical Committee, Humanities). “It is one more piece of information to see how the researcher thinks. We place much emphasis on the way the researcher presents his work, and I think (that) this is relevant. Beyond how relevant they are or not, in terms of where they were edited, they are relevant to show a line of work. Moreover, that sometimes seems more important than whether they were published in an American journal or whether they were published in Uruguay” (Member of the SNI Area Technical Commission, Humanities). These five relevant papers accumulate over time and can be much more than five (we will see how this manifests itself in the study of production profiles, Part 3 of this assessment), and this conspires against the use of this information to construct the qualitative judgment. “The first time you entered the CVUy, you marked the five works that you considered most relevant. Ten years later, the five or more still appear, that is, it is not something that you have to change every time, so it loses a little importance even for the

person who looks at it” (Member of the SNI Selection Committee, Exactas). On the other hand, the summary is commonly used, which is a small free text limited in the number of words each researcher writes about what he/she considers to be his/her main strengths in the last period. “It is very equivalent to that of relevance, isn't it? Where he points out what he considers the most important of what he did in the last period. I think it fulfills the same function as the relevant productions and gives us a guideline” (Member of the SNI Selection Committee, Exactas).

When evaluating journals, when they are Uruguayan publications, special attention is given to the institution that publishes the journal. In Humanities and Social Sciences, above all, they mentioned that a primary criterion for evaluating the quality of publications is that the publication should not be inbred. “One of the things you can determine very easily, even if you do not know the discipline, is whether this type of publication is a bit inbred. Alternatively, if the person in question risked a little bit to publish outside” (Member of the SNI Area Technical Commission, Humanities). “One thing that was quite common in Uruguay was that the centers and institutes had their journals, and the researchers wrote in their journals. It seems to me that this is no longer happening, and in this sense, the impact that the National System of Researchers has had is very positive. This implies that Uruguayan researchers are willing to publish elsewhere to make themselves known. They are concerned about the journals in which they publish”. (Member of the SNI Area Technical Commission, Humanities). “For example, it is someone who always publishes in the same journal or in one where the person is on the editorial board. It is not wrong for them to publish once; in fact, you will not prohibit someone on the editorial committee from publishing once in that journal. On the other hand, it is also necessary to attend to the claim of those who say, well, this magazine we made with so much effort that we need to contribute, and they cannot criticize me because I published there. It is complicated, but it is not convincing to try to diversify a little” (Member of the SNI Review Committee).

This prevention against inbreeding, together with the goal shared by the group of reviewers that the system should favor internationalization, has generated a devaluation of national publications that some interviewees recognize as detrimental to the interaction of science with the environment. “There are messages that team leaders used to give, and continue to give, that since an article is something that costs much work, let us publish it in the best place. Not just anywhere, or not in a local publication (...) So what we say about publications meant at least partially a transformation of the habits of researchers, but it did not leave in the background, or did not exclude, local prestigious publications. Some very good local journals were indexed in Latindex, and some were in Scopus. In other words, how an important part of these publications are carried out was greatly improved”. (Member of the SNI Honorary Commission). Other interviewees stated that prestigious local publications are not despised, but few are indexed at a high level.

### **Admission and Renewal**

At the initiation level, the evaluation is mainly organized around two profiles: researchers with recent doctoral degrees or applicants with an advanced doctorate who demonstrate publications resulting from their doctoral research line. In several interviews, it was mentioned that the



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initiation level of the SNI in its beginnings was defined for people with an initiated or “preferably advanced” doctorate as an incentive for teachers to begin this training. The requirements established in the current Regulations (2014) to enter this initial level demand, however, “a significant participation in research activities endorsed through publications or other modalities of communication or documentation of results”. This seems to refer to the second profile of middle-aged teachers who already have academic careers and are starting their doctorate studies. In this category, the total length of time that can be spent is six years, a time that can be very well used by a young researcher to conduct postdoctoral research but maybe a short time if the person uses five years to obtain a doctorate and must comply with the production requirements to enter Level I.

In the interviews, it is emphasized that the coexistence of these two profiles produces difficulties in the evaluation and, above all, that these profiles were changing with the development of postgraduate programs in the country. “The first entries at the admission level, which at that time was called a researcher candidate, in reality, a master's student, an advanced master's student, or with a master's degree recently received. Since doctoral programs did not exist, there was little likelihood, except for people who were studying abroad or came from abroad, that they would enter with doctoral training. As the postgraduate program was consolidated, we understood that we could impose a little more stringent requirements. So, the change in the researcher's profile categorized as an initiation researcher means that the researcher must already have a doctorate degree or be in an advanced doctoral program. He is not yet an independent researcher, is he? However, it means having a couple of publications associated with the doctorate” (Member of the SNI Honorary Commission). “Looking back, it seems to me that there was a positive interaction, that is, a positive incentive from the system as a recognition system, also, which led to the development and institutional design for the realization of doctoral studies in practically all areas (...) and after almost ten years it led us to say well, the doctorate initiated no longer makes sense, but we were already in circumstances to be able to demand it completed or in the process of completion” (Member of the SNI Honorary Commission).

The ANII doctoral scholarships were an essential contribution to the increase in the number of doctoral degrees in the country and the postgraduate scholarships promoted by the universities. Table 2 shows the number of scholarships awarded since 2009, totaling 783 for the country and 242 abroad. The evolution of the SNI evidences the initial demand for the teaching profile without a doctorate that then declines along with the approval rate that drops to 32% in 2011 and then an upward trend to 54% in 2017, a sign of its interaction with the growth of the postgraduate system. The demand for admissions dropped after the first years (until 2013) and began to recover in the following years with the increase of profiles with doctoral degrees. The approval rate accompanied this process, with a sustained increase from 2012 onwards (ANII, 2018).

**Table 2**

*Doctoral fellowships by year and type (2009-2023)*

Year of call	National Doctorate	Foreign Doctorate
2009	1	1
2010	59	3
2011	45	7

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2012	53	21
2013	53	12
2014	74	23
2015	48	27
2016	42	23
2017	55	18
2018	63	33
2019	44	17
2020	47	14
2021	47	16
2022	53	2
2023	99	25
Total	783	242

This process of consolidation at the doctoral level, however, faces some difficulties, as pointed out by some interviewees. On the one hand, some areas still have insufficient development of doctoral programs. On the other hand, the tradition of obtaining a master's degree before entering the doctorate generated long academic training processes. It is only in recent years that the focus has begun to shift directly to the doctoral level. That is why the requirement in the regulations that admit applications without a doctorate has not yet been modified. "There are some later areas, in Humanities, for example, Linguistics or Anthropology, where either there is no possibility of doing a doctorate in the country, or it is very recent, and when a doctorate is just founded in general, the quotas are taken by people already with a consolidated trajectory. That is to say, it does not work at the beginning for young people aged 20, 26, or 27, which is the optimum age to enter. So, there is a shift in these cases that makes the requirements for initiation more complicated, and exceptions are made to this admission rule. However, there always has to be a convincing activity and a relevant doctoral advance, but of course, it is not easy to define what is convincing for the different areas..." (Member of the SNI Selection Committee, Exactas).

On the other hand, the doctoral degree is not the only requirement to enter the initiation level in the system; participation in research groups and autonomy are also analyzed. The initiation level would be the equivalent of a postdoctoral level, but own production is expected, while many researchers with their own production but without a completed doctorate participate in this category. This generates some tensions between young profiles and applicants with an already initiated trajectory capable of opening new lines of research through the execution of projects. To demonstrate these research capabilities, several interviewees indicated that the essential requirement is estimated to be between 2 and 3 articles in the last five years. In Agrarian and Natural Sciences, for example, they commented that the candidate is expected to have the authorial position in the first place between those two articles. "We are looking for him to start to outline a certain degree of independence in his work. He starts to look like an independent researcher. It is tough to bring down to earth in all areas, and this criterion seems a bit general. However well, one begins to see that he starts to have work developments slightly different from what his tutor was, that is to say, with new ideas. Even if he has not put them into practice yet, we always look for that direction towards an independent researcher." (Member of the SNI Selection Committee, Exactas).

Most of the applications to Initiation currently arrive with a completed doctorate or at a very advanced stage (See Part 3). Thus, the requirement of “having a significant participation in research activities supported by publications” for admission to Initiation may be too demanding for a young doctoral candidate around 30 years of age, recently graduated. Moreover, at the same time, it is required that to be promoted to Level I, he/she must have “the capacity to carry out original research independently” (SNI Regulations, 2014). This requirement leads, on the other hand, to some difficulties in moving to Level I, where autonomy is expected, with their own line of research, which also has repercussions on the requirements for admission to the admission level. “There is another issue that I think is a bit demanding, and that is that in initiation, you can be there for only six years, and if you do not achieve the level to be level 1, that is, to become an independent or relatively independent researcher with a production that is positively evaluated, then you are out.” (Member of the SNI Selection Committee, Exactas).

For this reason, a systematic effort to help their colleagues understand that entering too quickly can generate problems to promote to Level I in the limited time of 6 years is observed in the interviews with members of the CTAs. “We do not like to enter too early because in the system, the admission level is the only one with an expiration date (...) We find that afterward, it does not give them the time, delays in the PhD, and does not give them time to get projects of their own. Then they do not have time to move to Level 1, and they have to leave the system, which is unpleasant for everyone” (Member of the SNI Area Technical Commission, Agriculture). “So, in order to try to remedy this, people are encouraged to enter the SNI when they already have good results and clear progress in the doctorate or have finished it, but the advanced doctorate is still being considered so that the years of initiation allow them to make the jump to level 1 if they continue in the SNI system.” (Member of the SNI Honorary Commission).

### **Level 1**

As mentioned above, to pass to Level 1, the student must demonstrate autonomy and a style of production differentiated from the communications of the doctoral thesis. It must demonstrate that it has found its own line of work and is regular in production. In the opinion of some evaluators, the approximate volume should be one article per year or equivalent production to guarantee that he/she is an independent researcher. In general, the training of human resources is valued by demonstrating the first orientations to students. In the case of demonstrating participation in institution-building activities, it should be valued, although it is a requirement for the following levels. On the other hand, some interviewees stated that the first competitive projects are expected to be awarded at Level I. “Although it is logical and desirable to participate in large teams, one must seek to lead projects, publish as first author and tutor” (Member of the SNI Area Technical Commission, Agriculture). “At level one, Human Resources training is not required. However, it is good that he started with this initiative of trying to form degree theses, which are the final thesis of the bachelor's degree. That obviously shows that he is an independent researcher. They are usually the ones who sign as first author because they are still linked to their tutors and laboratory of origin. However, here comes the other problem: what possibilities does one sometimes have to become much more independent” (Member of the SNI Selection Committee, Médicas y Salud).

In some interviews, this leap is evidenced by expressing that Level 1 “consolidated” is for someone who has a clear line of research and is starting to train people. “Level 1 happens to us to have a huge amplitude. We have those researchers who scratch level 1 with the minimum of the minimum, and we have a splendid level 1 that, with a little more flight and training in human resources, is a level 2, right? (...) If one has to say it very quickly, initiation is that researcher who is in his training process or has just completed it and is breaking the shell; level 1 is a researcher who proves to be independent with his own production, already with a clear line of research in which he begins to train people.” (Member of the SNI Honorary Commission). “The leap from initiation to level 1 is the biggest because the interpretation of independent research also weighs. That is the hardest jump, and when they enter very early, they have six years to be in initiation, then jumping to level 1 is very costly, and there they normally leave the system and enter again”. (Member of the SNI Honorary Commission).

### **Level 2**

The most critical dimension for a smooth promotion to Level 2 is the training of human resources, i.e., having thesis supervisors for graduate students. This is understood as an incentive for the system to contribute to postgraduate development. “There are people who often report theses as being in progress, but then those theses are not finished. So, for me, the thesis that should be reported is when it is actually finished because that is the final product. Beyond the fact that obviously every learning process is important and has value. However, well, at level 2, generally, what we look at is that you have completed doctoral theses.” (Member of the SNI Area Technical Commission, Social Sciences). “There may also be the case of researchers who are very focused on their line of research and have very good scientific production, and yet they are not interested in training people. They may not be interested, but that means not advancing in the SNI system. That is clear.” (Member of the SNI Honorary Commission).

In this aspect, many interviews indicate difficulties obtaining thesis directions because it depends on the development of graduate programs in each discipline. Regarding the expected number of theses, they comment that 1 PhD or 2 Master's theses are expected, although it is argued that this is not a quantitative floor and is analyzed on a case-by-case basis. This aspect is deepened in the conversations regarding the level of commitment to the training tasks, and it is mentioned that from the completed doctoral studies, the tutor and the doctoral student are expected to make joint publications. If these two aspects are fulfilled, the passage to level 2 is indisputable. Regarding publications, the tutor is expected to accompany his/her students in the last position, the latter being the first. To prevent the tutoring from being a mere administrative act, they look at the applicant's production to see if “the tutor appears”.

The controversy generated by the strict requirement of having at least one directed doctoral thesis for promotion to Level 2 is a recurring theme in the interviews. “Another topic on which we have different visions is Human Resources training. In some sciences, the only way to produce is to form Human Resources in the laboratory on the bench. There are mathematicians, physicists, and theorists who have their own theories. They develop their ideas, can do it alone or with colleagues, and do not necessarily train Human Resources. In addition to the problem that these areas do not have many students, there are practically more researchers than graduate students. So, this makes it difficult to attract Human Resources to train, and in the SNI, I believe that the training of Human Resources is somewhat overvalued as a requirement for promotion”. (Member of the SNI Selection Committee, Exactas). This impact on researchers from

the interior of the country was particularly mentioned. “For example, sometimes we have colleagues in the interior of the country, for example, and I find it great that a colleague with a doctorate goes, settles, and fights in the interior; I mean, the interior of Uruguay is small towns, let us say, no, it is not Cordoba. They are cities of 50,000, 60,000 inhabitants. So there you have to fight to put the chairs in the halls. Moreover, to argue about schedules, to do several things that, well, in the University or the faculty are solved and there are no doctorate programs, so asking a scientist who lives in the interior to have completed doctorate tutorials, let us say, to be promoted to level two, seems to me to be wrong, simply because the possibility does not exist. We also have private universities, suddenly where there are no doctorates. That is to say, there are simply people who do not have access; they have to go abroad. I do not know, or in Montevideo, but since there is such a shortage of training.” (Member of the SNI Selection Committee, Exactas). The Level 2 profile is that of a consolidated researcher with a proven track record of quality and sustained production over time. In addition to training human resources, in terms of obtaining funded projects, it is expected that, in this instance, they appear as project leaders and demonstrate activity in institutional construction. This trajectory at times seems in the interviews as the result of a “consolidated” Level 2, which shows a relatively broad spectrum of people who are at different stages of their careers: young researchers who already have theses and relevant production together with senior researchers who have managed to direct only one doctoral thesis but sign all their articles as last author. “I think the issue is independence; that is, you have to have a group behind you that you can say is so-and-so's group. Maybe it is one person, maybe it is two people (...) Moreover, well, what is generally noticeable is that he has publications in more important magazines than he had before. Furthermore, in what we call a much more defined leading role. That, for example, in the exact sciences is to be mostly as the last author or as reference author or as correspondence author, as the case may be” (Member of the SNI Selection Committee, Exact Sciences).

We see that Level 2 has a relatively wide range of consolidation levels. Thus, the person who enters Level 2 is expected to have two lines of research: on the one hand, the topic developed in the doctorate, and on the other hand, the expansion to a new line. At the same time, he or she must demonstrate a regional projection and be involved in evaluation activities. “A projection of greater scope has to be assured, much greater scope than in Level 1” (Member of the SNI Area Technical Commission, Humanities). “In level 2, we consider him/her a mature, consolidated, and independent researcher. And who has demonstrated the capacity to train human resources. Like any classification, it can always be closer to the upper or lower end. And it is especially at the lower end where one begins to refine things much more” (Member of the SNI Selection Committee, Medical and Health).

The direction of doctoral theses, together with the quality requirements of the journals, combine to straighten the promotion to Level 2 of those who meet the global standards of the academic career. “You saw that the more scientific part is a little harder and has certain measured parameters. One sees the publications, in which journal they are published, let's say, if they are prestigious journals recognized in the Scimago classification, what impact index the journal has, always with the limitations that we know these bibliometric data have. And also the degree of prominence that the person has. So, level one is someone who has recently completed his doctorate and demonstrates that he is an autonomous researcher. They are young and are in the process of maturing, in the sense of starting to create their own questions and directing projects,

and when we see that there is an interest to start participating as a co-counselor or guide for doctoral master's degrees, we already see this as an element that is leading to the passage to level two". (Member of the SNI Selection Committee, Exactas).

### **Level 3**

It is important to note that access to the highest level of the SNI, Level 3, is not defined through productivity in published articles or only by the impact factor of the journals where they publish but is based on other indicators of international recognition. The interviewees who are in this category, as well as the members of the SC and the CH, agree that this profile should be an international reference in their area of knowledge and a leader within the country. "One of the keys is that this recognition depends precisely on the discipline, which is why we rely on the specialists we have at the different commissions of the SNI. There are areas where they are guided by things like Scimago, that is, the categorization of the journal in which it is published. But clearly, it is very different from what happens in humanities or technology. In other areas, the prestige of the publisher is a factor; all of us who do research know which are the good places where we go to look for information as a reference source. So it is not the idea to put it in a hard algorithm." (Member of the SNI Honorary Commission). "A merit of this type would be to be a reviewer of manuscripts submitted to journals, but a greater recognition would be to be part of the editorial committee, which is not the same as reviewing manuscripts for different journals, even if they are well-referenced journals. In other words, being part of the editorial board and the journal having prestige among researchers in the area is a greater merit. The same happens with being invited to give a keynote at a conference on the discipline that marks a greater recognition" (Member of the SNI Honorary Commission). "Not necessarily everything that is published has to be published in English, and we believe that there are many academic books that are in Spanish, especially in the area of Humanities and Social Sciences, which have a great impact". (Member of the SNI Selection Committee, Medical and Health). "The regulations, in short, define the international impact of your production, as if to say, well, okay, you convinced us. But did you convince anyone else? Did you go out into the world? Do you lead in your discipline?" (Member of the SNI Selection Committee, Exactas).

To give more precision to the indispensable requirements for promotion to Level 3, in the CH interviews, we were told: "The publications between a solid level 2 and a level 3 would be very similar. That is, we are thinking of prestigious publishers, in journals of first, second quartile impact, for example. In the case of social sciences, publications in books from international academic publishers. So there would not be a substantial difference between level 2 and level 3; what makes the difference are the other elements". (Member of the SNI Honorary Commission). On the other hand, some interviewees from the Humanities area perceive that international recognition presupposes publishing in English and outside the country, making it more difficult in these disciplines to achieve Level 3. Indeed, if I had done that thesis in Uruguay, I would not have had any kind of recognition, but since I did it in the United States, that made it possible for me to talk about Uruguayan topics, such as the history of the left, or of the sixties, which was not something very well regarded" (Member of the SNI Area Technical Commission, Humanities). That is to say that there are trajectories that did not have that international recognition but are national referents in an area and have been unable to move up to Level 3. "It seems to me that in almost all areas we have between 10 and 15 at level 3. But Level 3 is a place that is obtained at the end of the career, and even so, we have many researchers who have been influential who are not there" (Member of the SNI Selection Committee, Humanities). "Valuing people who have made careers since Uruguay seems legitimate and important to me. Because those tensions are present at the time of evaluation." (Member of the SNI Area Technical Committee, Humanities).

**Scheme 1**

*Concepts expressed in the interviews related to admission and mobility between SNI levels*



**Rejected Renewals and preventive “yellow cards”.**

The fact that both Level 1 and Level 2 have regular production requirements means that there are situations of non-renewal or exit from the system that are often avoided with warnings or the application of “yellow cards”, as most evaluators call them. This is a person who does not meet the requirements for permanence and is renewed for a shorter period with a message indicating that he/she must improve his/her production or some other aspect. “We call it a yellow card internally because it is a warning, a renewal for a shorter period of time. He is going to have to report back instead of in 4 years in 2 years. When it is resubmitted, both the CTA and we, in the SC, always have the reports of the previous commissions. So if there are no improvements, it is recommended to leave the system.” (Member of SNI Selection Committee, Exactas). “It is like soccer; two yellows is a red.” (Member of the SNI Honorary Commission). “The cases in which someone does not publish anything, really those are usually quite clear. In others, there is some publication, if you will, inconsistent in pace or debatable concerning scope or impact. I would say that many of the reconsideration cases we received were for the application of a shorter permanence. Some claimed they wanted full permanency. Moreover, in a few cases, we have received reviews from people who aspire to a higher level but have not achieved it.” (Member of the SNI Review Committee).

The SNI Monitoring report (ANII, 2018) analyzed the behavior of the tenure rejection rate between 2010 and 2017, evidencing significant rates at the Initiation Level: 37% rejection in 2010, a peak of 52% in 2013, and a decrease to 21% in 2017. This downward trend may be linked

to the increase in doctoral degrees at admission. In contrast, Level I tenure rejection rates remain constant at 14%, with an exceptional drop to 4% in 2014 and again 14% at the end of the period in 2017. No gender differences are detected that disadvantage women. On all occasions that Level 3 researchers applied for permanence in the SNI, they were approved. Moreover, the report concludes that “if we consider the progress in the different levels of the System, we find that the rejection rates of permanence plummet, reaching marginal values at level II and null at level III”. Below, we will see that many interviewees pointed out, however, evidence that indicates that people who do not meet the system's expectations tend to exclude themselves. Personal situations and thematic or institutional changes are considered when evaluating permanence when production levels are low. “Sometimes, in the first instance, the period is shortened, which is also a big dilemma. If level 1 here in the SNI lasts three years, the maximum I can limit to 2 years, because a single year is tough when one is in a process of change, financial economic difficulties or personal difficulties. Even our major tendency (is) to send a notice and not to limit the period. To give enough time because we know that a year flies by and it is tough to get back on track, especially when there are important changes in the line of work, labor difficulties or change of position” (Member of the SNI Selection Committee, Medical and Health). When we look at the number of tenure requests renewed for short periods during 2013 - 2022, most are granted at Level 1 (281). The permanence is reduced to 2 years in 96% of the cases, and there are no significant gender differences. Meanwhile, in Level II (56) and Level III (4), the permanence for a reduced period of time occurs to a lesser extent. It is important to note that, although the permanence reduced to one year is marginal, ten correspond to women of the 14 cases counted in the period. While for levels 1 and 2, the reduction to 3 years, the most benevolent, although also marginal, 16 of the 24 cases were granted to men.

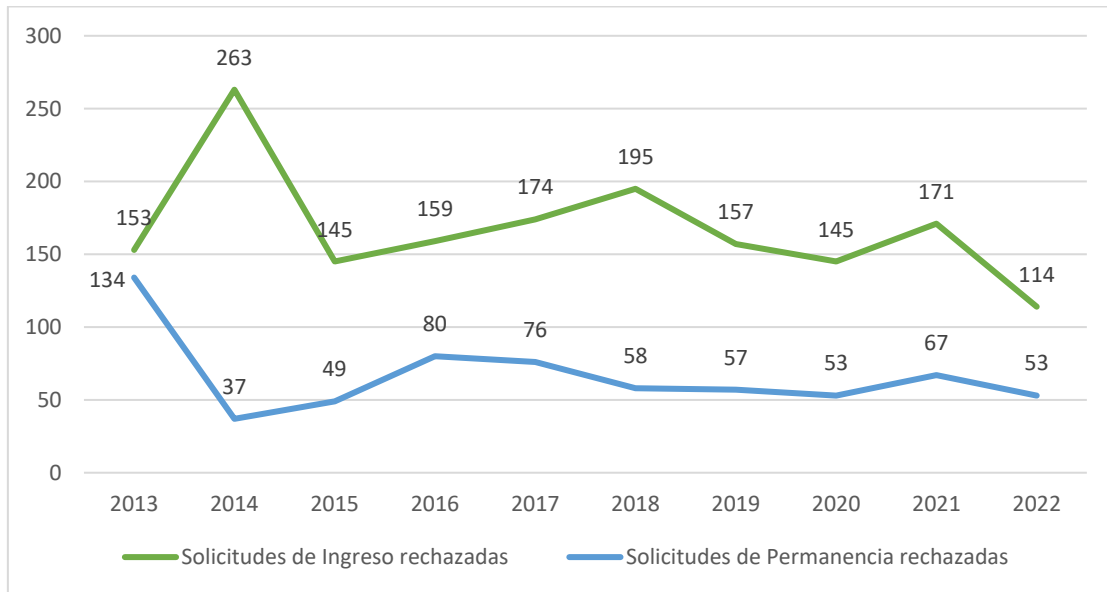
Graph 2 shows the evolution of the rejection rate of admission applications for 2013-2022: it totals 1676 refusals, an essential figure for the dimensions of the scientific community in Uruguay. The absolute values of rejection of permanence applications show a downward trend from the data provided by ANII for the period 2013 and 2022 with an average number of rejections of 66 (max. 134 year 2013 - min. 37 years 2014). Regarding gender gaps in admission and permanence, no significant differences are perceived in the overall averages for the period. Table 3 analyzes the differences by gender per year. It is possible to note that in the renewal, male researchers present the highest number of calls in which they have not had approval for permanence (years 2014, 2015, 2019, and 2022).

**Graph 2**

*Evolution of the number of rejected applications to SNI for admission and permanence. Period 2013-2022*



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**Table 3**

*Percentage differences by sex in rejected applications for admission and permanence Period 2013-2022*

Year	Admission	Permanence
2013	7%	21%
2014	17%	-14%
2015	-6%	-22%
2016	8%	10%
2017	6%	0%
2018	-4%	-10%
2019	-18%	-16%
2020	14%	6%
2021	-2%	7%
2022	-14%	-36%

Note: Values with a positive sign correspond to differences in favour of men.

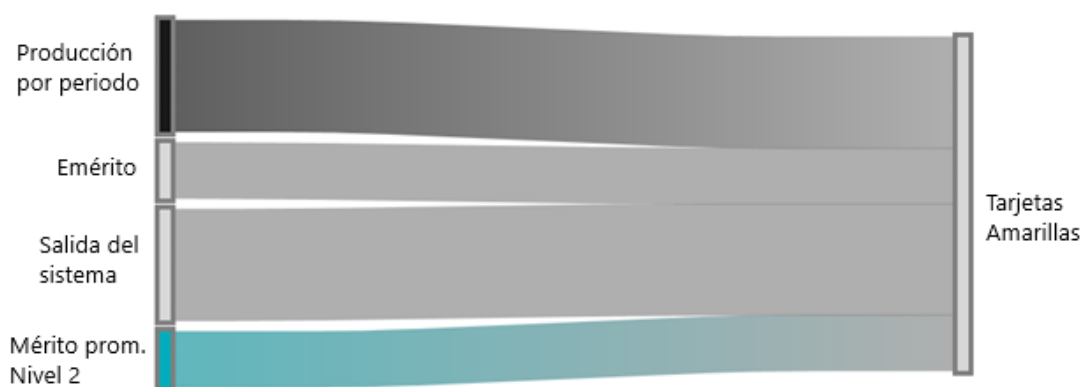
Beyond the good intentions of the commissions and the flexibility evidenced by the people interviewed in charge of the evaluations, yellow cards are experienced as a penalty and a punishment. “The vice that our system has is that it requires having 3 or 4 publications in a period of 4 years, which is more or less the expected average, and when you do not achieve it, anxiety and anguish begin.” (Member of the SNI Selection Committee, Médicas y Salud). “A large number of journals have appeared, especially in the area of biology, health sciences, and exact sciences, many of which have a shallow level of impact and obviously charge a fee. Moreover, many make inhuman efforts to try to publish and pay to remain in the system” (Member of the SNI Selection Committee, Exact Sciences). In the case of older people, who are at the end of their careers, the feeling of penalization appears more clearly because there is no longer a prospect of reapplying with more excellent production in 2 years.

“The reduction is received as a message of punishment, let us say, a penalty. Because we always said that it is like a yellow card when you renew for a shorter period. In the case of an older

person who first goes to the retirement system, then closes his research, finishes student theses, suddenly he is not left with a full period of 4 years. Furthermore, it is not a demerit but simply the trajectory itself, the logical curve of a researcher's trajectory. We have been going around and around, and it is not easy. We were talking about partial renewal, which is not understood as a penalty. However, if this is not explained very well, it will continue to be a penalty". (Member of the SNI Honorary Commission). "There was a moment when the SC proposed that, instead of entering for fewer years to show a doubtful admission, once we decide that a researcher enters at whatever level, we have to give him/her a net admission, that is, the admission has to be for the maximum number of years of the category" (Member of the SNI Honorary Commission).

**Diagram 2**

*Areas of application of the "yellow cards"*



As a result of the conceptual groupings produced by Atlas.ti with the coded interviews, Diagram 2 shows which conceptual relationships are automatically produced by the system from the mention of the "yellow cards". These are mentioned with equal frequency about the insufficient production for the period evaluated (Production per period) and the "red card" which would be the exit from the system. The repetition of these codes in different interviews is evident in the two wider bands displayed from right to left. To a lesser extent, but linked, there are mentions of the effects of the "yellow cards" in stagnating researchers at Level 1 who do not manage to be promoted to Level 2 (in green Merit prom. Level 2) or as a "punishment" for emeritus or retired researchers who do not produce what is expected for the regularity of active researchers.

**Promotion at the SNI**

The question of promotion from Level 1 to Level 2 and from there to Level 3 was addressed in many interviews as a complex process due to the rigidity of the indispensable requirements: training of human resources (passing to Level 2) and international recognition (passing to Level 3). Thesis direction is not equally available in all disciplines because it depends on the development of the graduate program. However, in addition, there is a difficulty established in the ANII scholarship system: to direct scholarship holders there is a maximum limit of thesis supervisors that increases according to SNI level. So for an SNI initiation level, the maximum is

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2; for a Level 1, the maximum is 3 when it is precisely these researchers who require approved theses to be promoted to Level 2. “The number of ANII fellows one can mentor depends on the level in the SNI. So a level 3 can mentor more ANII fellows when it is no longer indispensable for career advancement” (Member of the SNI Honorary Commission). “The transition from level 1 to level 2, that is the point, the knot. Because that is where it is most difficult. And it is difficult for us because there are always many people who have obviously increased their curriculum because they have more years as researchers. But it is very difficult to make that leap. To see that leap from a researcher who does good research with others to someone who has total independence in his research. It is difficult to find in the curriculum sometimes, so what we normally do on the last day or the last two days is to study those comparatively, even if they are from different areas. How many people did he train? How was the variation of his leading role over the years, it was always the same and we always look for a change in the slope”. (Member of the SNI Selection Committee, Exactas).

The historical evolution of the SNI and its criteria also produces some inequities that are related to the typical admission profiles at the beginning of the system and the advancement of profiles that got their doctorate at a younger age and have higher productivity levels. “There are few cases, but they do occur, which are borderline situations. We have identified, for example, that there is a long permanence in level two. Furthermore, when we compare with the level 3 of the area we see that the level two person who remains and who has not been promoted to level 3 has levels comparable to levels three that have been there for a long time, because they entered in another period (...) Moreover, this also happens with younger researchers, especially females. We have been able to identify these cases. However, we always try to reach a consensus. So far, there was no dissent. And there is always a very good argument. The idea is always to reach a consensus. If we do not reach a consensus, that goes to the top of the honorary committee, but we always try to reach a consensus.” (Member of the SNI Selection Committee, Medical and Health).

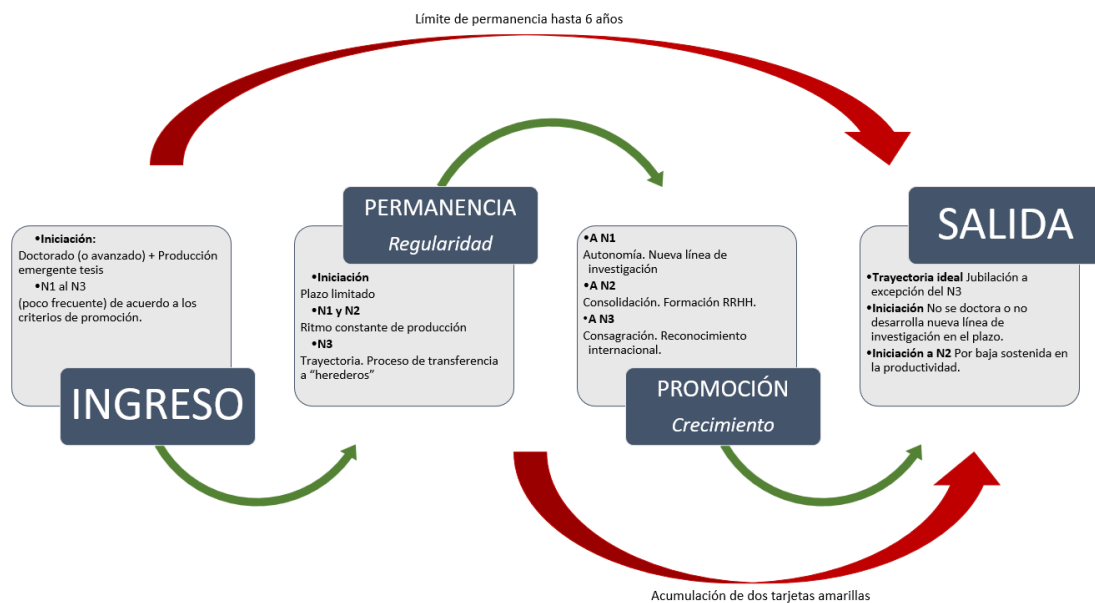
There is agreement that emeritus is an exceptional category for those who reach Level 3, not the natural end of their career. Nevertheless, at the same time, this seems to penalize many researchers who have made relevant contributions, whose production and internationalization curve naturally falls in the years close to retirement. “I think that people between 35 and 55 or 60 are very productive and then, I do not know, they dedicate themselves to their grandchildren. Moreover, well then, you look at the production, and you are evaluating a level that suddenly had a significant production for the country, that trained people. And when you look at the period, you see little production, and you say, well, I have to take him out of the system. And there is no good solution; even at level two, I think you cannot appoint emeriti. Notice that we are now evaluating the people who are leaving, and they are people who began to be trained after the dictatorship. Some people are institutional builders and deans. They are relevant personalities or intellectuals who suddenly did not reach level 3, and one has to take them out of level two; these are undesirable situations. We have people, for example, who were educated in exile and returned to work in the country. They made tremendous efforts, became the mainstays, and may have fought to establish the doctorate, but they do not have the title of doctor. People who suddenly set up an experimental physics laboratory and worked all their lives and have their production. Moreover, the only thing the system can do at the end of their trajectory is to disqualify and declassify them. I do not know how to say it but that seems to me

to be important. It seems to me that there is a lack of tools for the end of the career”. (Member of the SNI Selection Committee, Exactas).

The honorary commission considers solving this with some kind of extension. Some even think of “the case of many researchers in the retirement stage who are not at level 3 and cannot become emeritus, so they disappear from the system. Then, because a person dies or does not reach level 3 to become emeritus, he falls into a kind of black hole, and everything he has done is lost, right? So, we would have to create some windows for people who made an important contribution to the national research system, to the country's scientific community, and who do not reach emeritus status”. (Member of the SNI Honorary Commission). “In that, we have a problem, how to solve in that humane way that I was telling you what we try to address at all levels: at the end of the career, we have some difficulties.” (Member of the SNI Honorary Commission). The fact that Level 3 researchers are very few even makes it difficult for the CTAs to propose promotions. “Promotion to level 3 operates higher up the chain than we do, which makes a little sense because I am level 2, and it is hard for me to propose someone. I mean or evaluate someone's production for that level” (Member of the Area Technical Committee, Engineering).

**Scheme 3**

*Evaluation indicators for admission, permanence, promotion, and exit from the SIN*



**Self-exclusion and defection**

The concern in all instances of evaluation not to expose colleagues and the fact that requests for reconsideration are rare conveys a message that everything works so well that some interviewees have the perception that the one who does not pass feels that he/she should self-exclude or feels that he/she is not a “researcher”. “What happens is that people know what the profiles are. They know what is asked for, and often, they say, well, I will not pass the filter. This is a small environment, everyone knows each other, so sometimes people prefer not to submit if they feel they are not, let us say, up to what is asked” (UdelaR researcher, SNI, PEDECIBA). There are, for example, requests for extensions to avoid leaving the system for some instances

that can be dealt with: due to illness, maternity, accidents. “In order to leave the system, the idea we always have is that someone has had a very poor performance, let us say, that does not give room for anything else. Suppose they come with renewals for successively reduced periods. In that case, there comes a time when the performance is considered bad, and they have to leave the system.” (Member of the SNI Honorary Commission). “I know many cases, there are many people who do not apply to the SNI because they disagree with its criteria. Many people like Real de Azúa or Arturo Ardao wrote essays, trained hundreds of intellectuals, and built the national imaginary, but they wrote essays. All those things that some people still do today, fortunately, but that have very little value outside the academic field. Furthermore, why am I going to apply for the SNI? Moreover, I think there are many” (Academic Unit UdelaR -CSIC). These testimonies often suggest that the generalized perception that Uruguay is a small community, added to the idea that the system works well, produces effects such as the tendency to defection or self-censorship when one senses that one does not achieve sufficient merit. “When there is some researcher who has a very noticeable and sharp drop in production, he usually does not present himself; that is, he waits and leaves a year or two. Because people notice, and they come back two years later. Even though they can ask for a medical leave for a year or something like that, they can ask for maternity leave (...) So you don't get cases where you say that you have been doing nothing for 3 years and then you show up here”. (Member of the SNI Selection Committee, Exactas).

### **The CVUy and the “cucardas”.**

There is agreement that the CVUy platform is a very useful tool for evaluation and that it has been improving over time. “The CVUy is a child of the SNI, as part of the categorization it was in charge of making a CV that was universal for the country, let's say. And, in fact, it is now used in many places and the CVUy is preferred. Since its beginnings it has been continuously evolving. I mean, if I tell you the first CVUy I had to fill out I almost pulled my hair out because it was horrible to fill out. And the first times I had to evaluate with the CVUy I couldn't find anything. Because it gave too much freedom to the researcher to put a certain item in more than one position” (Member of the SNI Selection Committee, Exactas). One of the strengths of its current version is that it contains modules with open summaries that allow a qualitative description of the activities carried out in the evaluated period. These sections are important because they reveal those aspects of their work that the applicants consider relevant. In some interviews it was commented that, when reading these summaries, it is possible to observe the degree of dedication and reflection on the person's own work. Likewise, this section is essential to show, for example, thematic changes or methodological twists that lead to low production at the beginning.

Other interviewees highlighted some aspects that facilitate the evaluation, such as the organization of the production, where what is new since the last evaluation is presented in an orderly fashion. Once familiar with the use of the platform, people feel that it is not laborious to complete the curriculum, as long as it is kept up to date. “CVUy is changing, it is not a static system, in the last few years we have made a lot of improvements that still many researchers did not get to see, or fully dimension. But we are on the way to diversify and improve the information that is registered so that the evaluators have more elements about the articles and

their indexing. All the improvements we have been making arise from the interaction with the user, the feedback we receive from the evaluators and the error reports. We try to record everything, and this has allowed us to identify improvements and problem areas” (Digital Services Unit, ANII).

For evaluation in the SNI, the CVUy seems to work adequately, but not for other evaluation systems in the country. “It has been improving, but I think the CVUy is still lacking. What is clear (...) is the part of Human Resources training, the part of scientific production, of conferences, yes, it is clear. And the professional performance and data, let's say general, no? But the part of institutional affiliation, project and lines of work is very bad and difficult to identify, which takes us some work to try to identify. And you keep looking at it, and when you see that participation is very low, you try to look for elements in other places” (Member of the SNI Selection Committee, Medical and Health).

Depending on the role in which it is used, the CVUy receives opposite considerations in the interviews. A person from the Humanities Area Technical Committee, observes that for the SNI evaluation it is quite useful because it separates and enables crossovers. “I think that the process has been improving and I suppose that we evaluators have been getting used to evaluate with the CVUy no? that it is also an important exercise, let's say, no, then we already know how to handle ourselves. An important thing that the SNI has in the platform is that we can see the CVUy. But we have another version in which the new things added since the last evaluation are in a different color. We have them painted in green. The other stuff is in black and white. So this one if you just want to look at what you did in the period. A machine has already done it and it shows us from the last curriculum that was evaluated, what is new”. (Member of the SNI Selection Committee, Exactas). On the other hand, another CTA member states that the platform is too compartmentalized and exaggeratedly articulated among its categories, which causes limits for both the evaluator and the applicants. For example, it generates confusion about where to upload projects and other activities such as congresses, outreach activities and other dimensions that are diminished. “We don't have elements to go much deeper because we can't be doing parallel research, we have to use what we have there in CVUy.” (Member of the SNI Area Technical Commission, Agriculture).

A bibliometric service of the CVUy platform that is relevant to the object of this study is the mark with a symbol, commonly called “cucarda”, which indicates whether a work is indexed in any database that integrates the Timbó portal service. “The only thing that is done is to put a little stamp, which we call cucarda, when those products are indexed by scopus, web of science, latindex or scielo. We have practically decided to add some more cucardas, one of open access from the unpaywall API and one from Redalyc, which is something that national journals have requested. Also another seal when that production is collected in a repository of the national system. These stamps are important because they show a certain level of quality and access, although it is not in the SNI criteria, but we are interested that, at least, the evaluators have this information and then decide whether they want to use it or not” (Digital Services Management, ANII).

The vast majority of the evaluators, however, expressed that they do not make use of them and in some cases are even unaware of them. Some said that sometimes they can be beneficial to get a quick idea, but they consider that the best way to verify the indexing of the production is to search for the researcher in Scopus. What is looked for are some characteristics of the journal, such as country, institutional affiliation and, fundamentally, whether they are refereed, i.e., that

they meet certain standards. In Humanities, a CTA member, for example, states that he/she does not use them, but if he/she notices that in the last 5 years he/she has not obtained any, he/she looks for other merits that compensate, for example, with the production of books. In most areas, Scimago is used to verify indexation. Among those who said they use them, they emphasize their usefulness in cases where the journal is unknown. One interviewee expressed that the “cucardas” present some errors. This may be due to the indexing service used and not to the CVUy platform as such, but leads to the need to accompany them with a notice or instructions for use. According to some interviewees, CVUy does not warn when the authorship of publications is incorrectly loaded (they refer mainly to the order of the authors). Faced with this failure, they use the DOI, which allows direct access to the article, and through this way they can check the order in which the applicant is listed among the authors. In the interviews, it was mentioned that this occurs because it is first requested to establish oneself as author and this has produced an ordering of the applicant as first author, with or without the intention. Finally, regarding its use in other evaluation systems that still use free or old CV formats, many interviewees explained that their format is not friendly to the requirements of other institutions.

### **Gender asymmetries, Care leave, Motherhood/Paternity**

Concern about gender inequalities is frequently presented in the interviews. It appears as a general and consensual intention to advance in valuing care tasks and fighting against existing asymmetries. These concerns are accompanied by a series of research studies and movements to generate awareness and contribute to the necessary actions to reduce gender gaps. “I think that the three systems suffer, let us say, from the same evil, don't they? In short, this is the scissors effect, in which a huge number of women are at the lower levels, and it is difficult for women to access higher leadership roles. And therefore, to reach the higher categories, then this famous glass ceiling is present in Uruguay, you see it with your colleagues, you have suffered it in the flesh” (UdelaR researcher, SNI, PEDECIBA). The SNI is presented as the most demanding in terms of production, where some interviewees observe that pure and simple productivity continues to weigh without any consideration. When asked about the explicitness of the maternity period or other types of leave, some answered: “No, at the time I made it explicit, I did not need it because I had had reasonable productivity, low, but within reason. And then not anymore because you do not experience it as something that influences your career, but it does have an impact. I had a discontinuity in human resources training. Because my small group, which at that time was very incipient, I was a mother, I had a very productive moment when I started as a researcher; then I had babies. Obviously, I did everything. No, I fulfilled all my tasks 100%, but I could not put any extra personal plus, and I am proud of having done it that way. During the period when my girls were little, I worked my 8 hours and went home, which I did not do before”. (PEDECIBA researcher).

In the regulations, in the chapter on categories and levels, it is established that “In case of maternity during a period, the researchers that integrate any of the levels of the S.N.I. may request an extension of their permanence in the respective level for a period of one (1) year, during which they will continue to receive the corresponding economic incentive”. “You have the possibility to renew, then instead of at three years you evaluate it at four years. However, at four years, I see she does not have enough production, so instead of giving her three years, I

give her two. You gave her one for the extension, but you took it away later. So we said no. She has been dragging this decrease in productivity with logic, and let us not take away the year we gave her now because then, in the end, in 6 years, she had to produce the same, even if she had been a mother. And that is the case, the clearest example I give you.” (Member of the SNI Honorary Commission). Now, the experiences of the interviewed researchers point out that it is not compensated with a leave of absence for a year while breastfeeding or raising a tiny baby. The consequences of caregiving tasks not only affect production during a year but also limit the trajectory in other aspects, such as the formation of thesis students and the creation of groups. “Today, a one-year amnesty is given to women who have children, but I think it is insufficient because think about it, a pregnancy, especially at the end of pregnancy, plus breastfeeding, care. It is not a period where you are 100%. She can dedicate some time to work, unlike men, who can dedicate more time to research because they dedicate less time to parenting. These things have improved, but we are still lacking” (Member of the SNI Selection Committee, Physicians and Health). The honorary committee raises this question about the experience of the maternity extension, “which is very good when not only is it not punished, not only is it not penalized, but it is stimulated, it tends towards equality of gender policies, it seeks to avoid inequalities, at least. Moreover, now, in the new amendment, the same is done with paternity trying; although we know that the woman's career is always delayed more, the father also has the possibility of requesting an extension. Because we understand that it aims at equality in terms of care, that it should be more equal, that the man should also take care” (Member of the SNI Honorary Commission).

### **Academic management and institutional tasks**

Most of the interviewees state that the management burden in the institutions, as well as of the evaluation system itself, is enormous. “It is also important for us and personally for me that I defend what management and institution building are. Because it is a rather thankless task, many times, all of us who have participated in management in co-governance. Scientific institutions work because there are people behind in the management part. Furthermore, that is another thing that has also begun to be taken into account.” (Member of the SNI Selection Committee, Medical and Health). Research management appears as an essential indicator to promote or remain in Level 2 and to consider a researcher as “consolidated”. The relevance of performance in institutional construction is mentioned in the interviews as a significant contribution to the country by making available the networks of contacts and influences gained over the years.

However, most of the people interviewed agree in pointing out that it contributes elements for a permanence evaluation, does not constitute sufficient merit for promotion to level 2, and nevertheless, fulfills an essential function in the development of the system, such as the direction of graduate theses. “This is a very brave issue because Uruguay has systems, such as the UdelaR, which is a University co-governed and co-managed by its actors. The enormous time that the management task takes and how it actually has a minimal valuation, is an important issue, which should be valued in another way. On the other hand, it is also true that management is not research. It is not a question of saying this is research when it is not. However, these are tasks that are very important for the survival of the University, or perhaps also of the research



ecosystem. Perhaps we should have a more global vision, that the research ecosystem transcends research” (Researcher UdelaR, SNI, PEDECIBA).

Many interviewees point out that institutional construction is not a sufficient merit for promotion and also becomes a demerit that leads people to exclude themselves from the system because there is no possibility of remaining in the system on management leave (without pay). If the production minimums are not reached, people do not manage to stay; that is, they leave the system. “This is another problem that I think we can solve with a modification in the regulations, which is the case of many long-time researchers who assume management positions. For example, a deanship, a rectorship, or a directorship of a research institute. What happens with that? It is very difficult for researchers, due to their own management burden, to maintain scientific production and training of human resources in a period of 4 years while carrying out a task of this type, which, many times, is the creation of institutional capacities, a contribution to the country in the area of research. Moreover, we have the case of those who censor themselves and say that I am not going to run because my dedication to the position has meant that I am not productive enough to be able to renew. As a solution to this, although it has to be approved, we thought of giving the researcher an opportunity to ask for a kind of extension in which the time that can last is established, during which he/she remains categorized without receiving the incentive” (Member of the SNI Honorary Commission).

## **CHAPTER 2**

### **The Total Dedication Regime (RDT) of the Universidad de la República**

The teaching staff of the UdelaR is organized according to the type of positions: permanent, interim, contracted, visiting, accessible, and academic management. These in turn are defined, according to their time dedication and functions, in the UdelaR Teaching Staff Statute as High-Medium-Low (Art. 14). This is deployed in the operation in: a) Full Dedication Teachers. These are teachers who must fully comply with the three university functions based on periodically approved and evaluated work plans and under a regime of exclusive dedication to the UdelaR. They will also assume responsibilities related to co-governance and management. b) Full-time professors: These professors with a high teaching load must fully comply with the university functions, with relevant emphasis on two of them. According to their grade, they must also assume responsibilities related to co-governance and management. c) Medium Dedication Teachers: They are teachers with an intermediate workload who must fully develop at least two of the university functions, and d) Partial Dedication Teachers: that is, teachers with a low workload, designed for teachers who “bring their technical or professional experience to the UdelaR” (Guidance document for the teaching career at the UdelaR, 2012:11-12).

The Total Dedication Regime (RDT) was created in 1958 to promote full-time faculty profiles integrally devoted to teaching, research, and extension functions at the UdelaR. To enter the regime, each professor is evaluated based on his or her academic background and a proposal of work to be performed with exclusive dedication, which implies an economic compensation representing approximately 60% of the base salary. Any University faculty member may apply to join the system if the activities align with the fields and disciplines. Admission to the regime is granted for a period of three years, renewable for periods of up to five years.

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Article 74.- The University of the Republic, with the purpose of promoting the integral development of the teaching activity, stimulating within it especially research and other forms of creative activity and the training of new researchers, establishes a regime of total dedication to which all its professors may aspire. *Statute of the teaching staff*

For the renewal instance, professors must submit a report on their previous performance and a plan of activities. Regarding the evaluation process, the Statute states, on the one hand, to consider especially the performance over the expiring period and, on the other hand, the original scientific production, the orientation in research tasks, and activities oriented to specialized teaching (Art. 42). The Statute of the Udelar has undergone recent changes, and some changes that could impact the RDT are currently under discussion.

Article 80 - For the granting of the regime, the aptitudes, vocation, and preparation of the applicant shall be taken into account, for which the experience and dedication in the discipline and the demonstrated capacity for research or creative activity in the same, appreciated concerning the level of responsibility implied by the functional hierarchy of the applicant, conditions which, together with his/her moral solvency, shall justify in intellectual, technical and ethical terms the presumption that the purposes of the regime will be fulfilled. *Teachers' Statute*

According to the latest data provided for 2019 by the Integrated Personnel Administration System (SIAP), Udelar has 1444 teachers in the RDT, representing 14% of the total teaching staff of the university. The RDT levels were structured in Resolution 3 of the Central Board of Directors (2007), from grades 2 to 5. Applicants must hold a teaching position at Grade 2 or higher to be admitted. Table 4 shows the current distribution of RDT teachers by grade: Grade 2 (23.7%), Grade 3 (36.5%), Grade 4 (21.8%) and Grade 5 (18%). About Disciplinary Area, from highest to lowest, is composed as follows: Basic 31.9%; Social and Artistic 27.8%<sup>1</sup>; Technological 15.4%; Health 12.6%; and finally Agrarian 12.3%. Health and Agrarian are more feminized, and Technological more masculinized. According to Sutz and Gras (2022), an essential group of RDT teachers is outside the SNI: 278/1167. At the same time, they point out a significant group of people from Udelar with high dedication who communicate research results, although they are neither part of the RDT nor the SNI (1179/2891). Table 4 also shows that, even with parity in the total distribution by sex, the participation of women decreases as the hierarchy increases to grades 4 and 5<sup>2</sup>.

**Table 4**

*Distribution of RDT teachers by sex and grade. Year 2024*

	GRADE 2	GRADE 3	GRADE 4	GRADE 5	TOTAL BY GENDER	%
<b>MALE</b>	152	253	174	176	755	50,71%
<b>FEMALE</b>	201	291	151	91	734	49,29%
<b>TOTAL TEACHERS</b>	353	544	325	267	1489	100,00%

Source: CSIC-UDELAR DT\_EB2023\_14022024.ods

<sup>1</sup> The official website divides the Social area from the Artistic area.

<sup>2</sup> We are grateful to UDELAR President Virginia Bertolotti for the updated data as of February 2024.

Institutional referents interviewed consider that the RDT is a system of salary hierarchization but also symbolic since it was born as a means to equalize the salary of a UdelaR teacher with that of a Senator of the Republic. Together with the salary percentage that arises from the DT grade, an annual aliquot (equivalent to an annual salary) is received for the expenses of the work plan. These funds are rendered to UdelaR in a manner similar to a project fund, and the teachers' reports are published on the Services/Faculties website. Emerging as an "institutional tool to develop and retain its cadres, the full-time regime tends to be comprehensive, but the central axis is knowledge production. The message is clear; the focus is defined towards the production of original knowledge in its various manifestations" (CCDT- UdelaR member). "In the framework of the sixties, with the organic law, autonomy, and co-government are more fully consecrated. Also, in this context, there is a slow process, but it begins to happen, of greater professionalization of the teaching function in the university; the full-time regime begins to develop, with teachers whose only task, let us say, their source of livelihood is their work at the university and not only teachers who dedicated a few hours to teach" (ADUR Board of Directors). Although the RDT and the SNI seem to have the same purpose of promoting the production of quality knowledge and a similar salary mechanism, there are differences because the RDT includes the three university functions: teaching, research, and extension. "The National System of Researchers is an award for past performance. The RDT guarantees that you do not have to have seven jobs and you can dedicate yourself entirely to academic work. Look ahead" (UdelaR-CSIC Academic Unit).

### **The notion of Teaching integrality**

The activities carried out by the teaching staff under the regime must be evaluated integrally in the sense that they are expected to perform, without neglecting any, the functions of teaching, extension, and research. Likewise, there are still discussions about how to crystallize this integrality: "the full-time regime arose for the purpose of stimulating research. But now, in reality, especially from 2000 onwards, there is a university drive to carry out what we call "integral teaching", that is, the integral fulfillment of the three university functions, i.e., teaching, research and extension and activities in the environment. Here, there is a difference because there are those who understand that the TD must continue to be for the fundamental stimulation of research, and there are others who understand that it must adapt to this new way of understanding the teaching function, which is also part of what is now required by the new statute". (ADUR Steering Committee). The documents published about the RDT evaluation criteria refer to the *Proposals to be considered at the CSIC in the ongoing discussion on how to promote research in a better way at UdelaR and Resolution No. 4 of the Board of Trustees of 2012*. In accordance with the degree and the hourly load, it is emphasized that the evaluation guidelines should be clear. The evaluation contributes to improving the quality of academic activities by promoting conditions such as the consolidation of knowledge on the subject area itself with an ethical commitment in tune with the purposes of the University. About the three functions, the aim is to promote:

- Ability to teach in different contexts in a rich and varied manner, adequately hierarchizing and putting the respective subject matter in an updated perspective, creating environments conducive to meeting the diversity of student profiles, to promote the development of their potential capabilities at a high level, and to evaluate their progress, in order to ensure, guide and stimulate their integral formation as a person.

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- Capacity for the original creation of knowledge and culture, with a vocation to undertake research at the highest level on relevant issues and significant problems, working as a team and prioritizing the long-term continuity of creative work, which implies paying particular attention to training new researchers.
- Ability to contribute to the understanding and solution of problems of general interest, mainly through university extension, which involves collaboration between university and non-university actors in interactive processes where each contributes its own knowledge and learns from others.

Regarding the weighting among the three functions, the regulation establishes that the principle of balance shall govern. However, the characteristics of the different calls for applications made by the University may merit variations on the assigned scores; in no case shall any of the functions reach values far above or insignificant concerning the rest. It is mandatory to frame the activities within a collective environment, under various forms such as laboratories, centers, and departments, to involve teachers with less workload in university work. Undergraduate teaching is also postulated as a mandatory element.

The specificity of RDT compared to other research evaluation systems in Uruguay is that it aims at integrality; that is, this total dedication is expected to be distributed in teaching, research, and extension. "When we talk about total dedication, we are not talking about full-time researchers. Because they are teachers at the University of the Republic, they are assistant professors for grades two, and then they are professors. Adjunct assistant professors, full professors. So, I think that the biggest difference with the SNI is that here, research is being promoted jointly with teaching, extension, research, institutional construction, and academic management. The DT promotes full-time dedication to academic life, in all its terms, and SNI is an award for research performance only" (Academic Unit CSIC- Udelar). But the tension is generated because it is "a regime that was created to promote research, at the end of the 50s, in a professionalist university, which wanted to promote a research promotion instrument to make it compatible with a teaching staff statute where all functions are included. Integrality is highly rich and positive in the university's tradition, but it requires improvements so that teachers are not pressured from different sides. This is an important discussion that accompanies the recent reform of the Statute" (Udelar Research Prorector). Both systems and categories are strongly valued by the interviewees and consulted referents and confer a status that influences when evaluating projects or other calls for proposals. Although it is not formally an evaluation criterion or a formal qualifying category, a grade 5 professor or a SNI Level III represents the materialization of a high academic level for the interviewees.

### **Governance of the RDT, evaluation bodies, and academic autonomy**

The Central Commission of Total Dedication (CCDT) is in charge of supervising the activities carried out under the regime. It comprises seven full members and their alternates, and its appointments contemplate the representation of the disciplinary fields (Technologies and Sciences of Nature and Habitat; Social and Artistic; Health). The CCDT submits reports and recommendations to the Central Board of Directors, for which it may gather information through reports or workplace inspections. This commission operates within the framework of the Sector Commission for Scientific Research (CSIC), a co-governing body responsible for implementing programs to promote research. The CCDT is currently made up exclusively of teachers and not of the rest of the teaching staff, as was the case in its beginnings.

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The participation of the Central Board of Directors occurs when there is dissent between the report of the faculty or service and the report of the central commission. Still, there are no exogenous interventions during the process. "We have absolute autonomy, which does not imply that there are no discrepancies and in those cases, we are basically, a consultative commission. Our decisions are not binding in the sense that the CDC can say it disagrees with and rules against our recommendations. But it is something that happens in, say, 5% of the cases. With the reports of the Services, we have discrepancies, of course, but we have absolute autonomy in making our decisions (CCDT member- UdelaR). "Absolutely, I would even dare to say that our function is somewhat sacralized, but what is certain is that the autonomy we have to make our decisions is unrestricted. Our services do not even dare to ask us, do you understand? We do not have any pressure from the services; what happens afterward, in the CDC, in the cases under discussion, is the responsibility of that body" (CCDT member- UdelaR). "Sometimes they call you to consult you about things. The other day, they called me for the first time to ask me for an external evaluator for a case they did not handle (...) But we have absolute freedom to make decisions" (CCDT member- UdelaR). "I never heard that they had pressured a commission member concerning a case in the university corridor. We have total independence. And we take responsibility for each of the decisions we make collectively. Let's say I think it is important to emphasize that we work as a body, the commission is one, and we work together on the cases; there are no divisions by disciplines or anything like that. So, every time we make a decision, we are very sure of the decision we make, even though we may have arrived after hours of discussion of a case, as has happened to us, and where there has not been a general agreement, but well, or a majority, and we always end up making a collective decision. I think this is also fundamental for the weight of our decision, which is a truly collective decision" (CCDT member- UdelaR).

In order to organize the applications, the CCDT publishes the forms and models of curriculum vitae and work plans on its website as supplies for admission or permanence under which the application will be formalized. The presentation must be made to the corresponding Service (Faculty, CENUR, Institute, or School), which will endorse the presentation by resolution of the respective Council and after a report from the Service's Total Dedication Commission. The CV submitted may be the one provided by the CVUy system, but not exclusively. The Plan of Activities to be developed during three years in the initial period or five years for the Renewal must present the research proposal and the research, teaching, and extension activities. In the case of the Renewal, the Report of Activities developed in the last period must be presented, which will be published on the CCDT web page. On the other hand, for both cases, the applicant must specify "up to three works that he/she considers most relevant or representative of his/her scientific and/or creative production (publications or any form of documented knowledge creation)". On this aspect, in the renewals, these works must be carried out in the last period of work in the RDT. In all cases, it must be accompanied by a section expressing the personal contribution to the work. The guide for the presentation of the curriculum vitae details the main activities evaluated: a) Documented knowledge creation activities; b) Teaching activities in the last five years; c) University extension activities and relationship with the environment; d) Government and University Management activities; and e) Professional activities.

The CCDT carries out an arduous task of personalized analysis of the dossiers that arrive informed from the Services and meets throughout the year, once a week. "In the act that composes the central commission, so many titular members and so many substitutes were elected, but in fact, everyone participates. In the last few years, the flow of files has grown a lot. And I believe that if we were not all working at the same time, it would be almost impossible to carry out the analysis of all the cases we have". The CCDT operates with complete autonomy from the services, which allows them to analyze each case independently. The interviewees consider that these two

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instances could be considered contrary in their orientation, because the services aim to strengthen teachers in RDT to improve their budget. For its part, the CCDT guarantees an evaluation of the academic quality standards achieved. "In RDT, your personal trajectory is mixed with the institution because your performance is evaluated in all the functions you perform in the Service; on the other hand, in SNI, you are evaluated only as an individual" (ADUR Steering Committee). "Dissidences, refusals or rejected admissions, which are rather exceptional, are only dealt with in the central directive council when there is no coincidence between the evaluation of the service and the central commission and it is a meager number because most of them are renewed" (Prorectorado de Investigación Udelar). "There are many dissidences, but I would dare to say that more than 95% of the cases are in agreement" (CCDT- Udelar member). The interviewees pointed out that external peer evaluators are used when the CCDT understands that there are complexities that would require an external view, only then "then we request it, they are problematic cases not so much in quality, but in terms of the nature of the proposed activities, for example, conventional artists or researchers, but because of the topic they dealt with it was very distant or something like that. In a word, when the available evidence does not induce us in any sense and perplexes us, we look for help" (CCDT- Udelar member).

CCDT members note that "there is dissimilarity in the quality and detail of the evaluations of some facilities. However, when we receive the commission's evaluation of each service, we see a comprehensive evaluation that includes the evaluation of the plan. We then re-evaluate; we don't just rely on what the service says; we go to the whole file of the teacher. And we have our own conclusion" (CCDT member- Udelar). In the CCDT, "we are more than ten people from all the areas of knowledge that the university develops. So, we look at it from many angles. Whether it is the plan, the research project as a research project, as well as the interactions with other functions. We have rejected sometimes, but not many times, a poorly developed plan. And, in fact, what is asked is a reformulation of the plan, that is, it is like a possibility for the teacher to reformulate the plan according to certain criteria" (Member of CCDT- Udelar). "Each file that arrives is studied by at least two members (...) the cases are assigned first, we decide together to which dupla, at least two, each specific case goes. Then, the two members, who are usually the ones closest to the area, analyze the cases, eventually during the week, and then present them; that is why this takes me, almost all of them, more than a day, two days of work" (CCDT member- Udelar). "There are cases that have taken us a day: we are dealing with human beings who are making a living with this and deserve our respect. So, we dedicate as much time as necessary" (CCDT member- Udelar).

"I wanted to emphasize the artisanal nature of what we do. It is slow; it is slower than if it were evaluated more quantitatively or otherwise. But that same artisanal way, looking at the details that read suddenly some of the articles submitted by people. That time that it takes us to do it, I think, is the guarantee that our decisions have. That, obviously, sometimes they are wrong, of course, we are, we are not infallible. But I vindicate that artisan work, although perhaps our productivity is lower, but it seems to me that we are on a much firmer and safer path. (Member of CCDT- Udelar). "We do not have a deadline to present the results; it is a commitment among all of us to get the cases out as soon as possible, both for those who enter and for those who renew. The case of renewal is a bit calmer in the sense that the person continues to collect the DT while in the evaluation process. In the case of admission, the rush is that we know that there is a waiting queue and that there are delays until the money appears to be able to finance these new additional charges. On the other hand, in the case of the SNI, where there are a thousand or so cases per year, it has to be dealt with in a certain period of time so that people can be paid in due time and form. In our case, there is also the fact that the folders arrive in drips, not all together and from all the services at the same time" (CCDT- Udelar member).

**Evaluation criteria and the "flexible convergence" among disciplines**

Among the available documents on evaluation criteria, the 2012 "Proposals" document describes the following general evaluation criteria for research and postgraduate teaching activities: a) Publications, other forms of communication of research results, innovative application of knowledge, approval of projects submitted to competitive funds, acceptance of papers in relevant congresses, performance in the evaluation of projects and the review of articles for journals, guidance of research groups. b) Postgraduate teaching (teaching of classes, organization of new courses or orientations, thesis direction, participation in thesis juries, organization of permanent thematic seminars) c) Activities that imply recognition of academic quality (edition or participation in the editorial board of journals, integration or direction of national, regional or international academic organizations, academic invitations of various kinds). Table 5 organizes the evaluation criteria according to degrees and dimensions considered in the evaluation.

**Table 5**

*Evaluation criteria by teaching grade. Own elaboration based on Proposals to be considered at the CSIC in the ongoing discussion on better promoting research at the Udelar (2012).*

Teaching grade	Training	Research/Work Plan	Publications	Other activities
Grade 2	A university degree or equivalent training is highly desirable. Part of the work plan is expected to include postgraduate training itself, aiming at the highest possible level of training.	The initiation stage in research tasks is eventually integrated into the activities of a research group. The work plan should indicate the projection of this initial research.	To have first products. This may be co-authorship (or individual authorship) of articles published in peer-reviewed journals, working papers, book chapters, or books, or any other form of communication of research results. If they are mostly collective modalities, the applicant must detail its participation. Having presented a paper at a national congress, conference, or seminar.	Indicate if you are a member of a research group and the activities carried out in it; indicate if you obtained or participated in competitive research projects.
Grade 3	It is highly desirable to have a master's or doctorate degree or equivalent academic experience. If not, it is advisable that the postgraduate training itself be included in the work plan, aiming at the highest possible level of training.	Ability to conduct independent research. A line of research was formulated and possibly integrated within the activities of a research group. The work plan should reflect the features and projection of this line of research.	As a result of his or her research, the candidate should publish with some regularity. Depending on the area, it is expected to have some publication in peer-reviewed journals, a book or book chapter, or other formal mode of communicating results beyond the gray literature (project reports, theses, etc.). Have communicated results in the form of papers at national and regional congresses.	Responsibility for projects submitted to competitive funds.
Grades 4 and 5	PhD level or equivalent academic experience is highly desirable.	Consolidated researcher with a clearly formulated and systematically executed line of research to be expressed in the	As a consequence of executing the research line, the candidate should publish consistently. Publications should include refereed journals recognized by the	Responsibility for projects submitted to competitive funds and the creation of research capabilities and infrastructure.

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		<p>work plan. Systematic training of researchers: postgraduate tutoring, orientation, or co-orientation of national research groups in which young researchers are initiated or participate.</p>	<p>academic community to which he/she belongs, as well as other modalities of communication of the knowledge produced. Active participation in national, regional, and international events, presenting research results, or organizing events. Regional and international presence (always considering the specificities of the various cognitive areas).</p>	
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Thus, the main purpose of the evaluation criteria that govern the RDT is to consider the various disciplinary forms of validation of knowledge and the valuation of activities in their cultural, artistic, and symbolic dimensions. This transversal consensus that respects disciplinary diversity has been called "flexible convergence" and is a principle shared and valued by all the interviewed referents and cultivated in the CCDT. "One thing that I emphasize about our procedure is that we usually, many times, have disagreements, and for me, those disagreements are capital; they are not something that I try to erase because that is the grace of the plurality of the commission. We build a flexible convergence; we cannot eliminate heterogeneity. At least personally, I understand that the idea of a unique science is futile or vain; there are many ways of producing knowledge. Even within the most mainstream forms, there are important different styles. So, I believe that the main virtue of the commission at this moment is that it accepts these differences and respects them without abandoning its commitment to quality. You create knowledge differently if you are in literary theory than if you are in genomics. You publish differently; you have different rhythms of productivity, of production, and, therefore, of productivity. There are styles of knowledge production that are more solitary, and there are others that are inconceivable. So, in this diversity of situations, those of us who are part of the commission often find it difficult to perceive these multiple nuances, and we involve each other; fortunately, from the human point of view, we respect each other very much, and we work frankly in a great cordiality, then, the grace of this kind of clashes that we eventually have, for me, forms a system of counterweights. A system of counterweights for our own subjectivities, for our own styles, for our own disciplinary cultures. I do not know if you understand what I mean. This is not a guarantee of infallibility. But I do believe that it is a guarantee of seriousness, of rigor in our work, and of respect for what we do. People often say that *we cannot evaluate seriously because there are so many of them*, and for me, that is a disclaimer that once you cross that barrier, you have gone to hell. This has enormous consequences (CCDT member- UdelaR). Flexible convergence is understood as a guarantee of "autonomous knowledge", not only understood in relation to disciplines or global standards but also inwardly, i.e., the iron respect for academic freedom.

In its specificity by teaching grade, we find that the requirements for training teachers who start in grade 2 refer to obtaining an undergraduate degree and the inclusion in the work plan of their own training at a postgraduate level. Thereafter, they are expected to have attained a postgraduate degree or to present a comparable academic activity. In grade 3, the postgraduate degree includes a master's degree and should include your training if you do not have one. Regarding the work plan in grade 2, it should reflect that the applicant is in an initiation stage with participation in research teams. Grade 3 demonstrates the ability to conduct research independently, reflected in a line of work of his/her own. Grades 4 and 5 demonstrate the consolidation of an own line of work and systematicity in research training work. The publications in grade 2 must have first works that include co-authorships with the level of participation duly justified in cases where the collaborations are very numerous. In grade 3, it



should be regular and in the following, consistent. It includes participation in scientific events starting at grade 2 with presentations and ending at higher levels with regional/international invitations. It is established there that participation in projects is valued in grade 2, the spaces of responsibility for these in grade 3, and the creation of research capacities in the higher ones. "There are very valuable documents, such as the *Proposals*, previously elaborated by the CSIC, but there is a dynamism in the evaluation criteria that are being adapted to the real and current world. What happened to a researcher 30 years ago is not the same as it is now. In this context, what persists is the flexible convergence in terms of consensus building, respecting the evolution and consolidation of the scientific community in its various areas and disciplines. That is why the evaluation avoids, by all means, the use of quantitative metrics. We focus on the quality of research and the integrality of the teacher. That is observed with differences when it is a small grade for an assistant grade than for a professor position in its three manifestations, which are grade 3, grade 4, and grade 5, associate, associate, and full professor. What is required for each grade is quite different" (CCDT- UdelaR member).

The time elapsed between the 2012 documents and resolutions and the present time, together with the existence of two well-differentiated evaluation instances (the Services and the CCDT), makes the interviewees consider the need to update the criteria and publish a new regulation. "There is a document, at the central level on the page, which is a relatively old document, if we consider the changes and dynamism. It seems to me that there is an established tradition on which we have worked until now, but right now, we are reviewing the criteria and their application. Up to now, what we have been doing has been to work on a set of laborious agreements built within the commission with respect to what its members understand to be the criteria. And those criteria are specific to the different types of applicants because they are not all the same. I mean that depending on what grade they are in in the teaching career, those criteria adopt a certain configuration. As a matter of fact, what we have built is a consensus regarding what we understand because it is established in the university regulations, what is a grade 2, a grade 3, a grade 4, a grade 5" (CCDT member- UdelaR).

The RDT played a very important role in relation to the evolution of postgraduate studies at the UdelaR and in the country. "Those of us who decided to go for a doctorate and to pursue a research career abroad early on started that academic career that generated, from the point of view of merits, that one was incorporated in these commissions that evaluated other researchers. Around 2010, 2011, doctorates in the agricultural area began, for example, which meant a change in training and, above all, in the dedication of teachers to research, which began to be more and more profound. This also led to opting for total dedication as an incentive to continue this research career, which has made the evaluation a bit more complex because the areas of knowledge have grown a lot, even in the most technological areas, where the production of knowledge is not so easy to evaluate. And well, that is what we have had to face in recent years. It is a bit like what Omar was telling you just now, that there are people within the commission who, in turn, are closer and have worked a lot on the problem of how to evaluate original quality knowledge that is not presented in the traditional forms and standards known until now" (CCDT- UdelaR member).

In the first instance of evaluation, the Service has the autonomy to establish the criteria because the flexible convergence is not only based on the respect of each discipline's styles but also on each Service's institutional evolution. "The RDT in the Economics career of the Faculty of Social Sciences evaluate with the Impact Factor the journals while in the Faculty of Economics (the Institute of Economics) does not use those indicators" (UdelaR representative in CONICYT). "Many times, the doctorate is taken as a requirement; in others, the previous knowledge production is taken, and that, but the document raises postgraduate degrees in general and leaves it open without specifying whether it is a master's degree or a doctorate. So, the services,

although there is no specific document that has updated these criteria after 10 or 11 years, follow this dynamic in different ways, and the criteria adopted by the central commission. But it is not that there are different criteria between the services and the central commission; there is an interaction between the parties to reach the final result" (Member of CCDT- UdelaR). "Having only that 2012 document, the criteria of that document are taken into account, but adapting them to the time because more than 10 years have passed and the University has evolved a lot. But I think we all share the need to update that document, making explicit the most current criteria, but in terms of broad guidelines, respecting the diversity and the consensus reached" (UdelaR Research Prorector). All the interviewees also recalled that the evaluation should consider the special circumstances by which the activities may be affected, such as in cases of maternity/paternity and illness. In this sense, it is customary to postpone the evaluation for one year for those who have had children.

### **Publishing indicators and the evaluation of the output**

The regulations establish that the emphasis should be placed on the valuation of the substantive contribution to the advancement of knowledge that incorporates not only the individual contribution but also the collective contribution. This assessment should be based on expert opinion through peer review to ensure the relevance of the research. In this way, it is proposed to escape from the centrality of metrics and to favor works of greater risk or delay in obtaining results and making possible the conformation of new approaches and knowledge oriented to social benefit. In relation to the production of knowledge, "at least one high-quality academic publication - measured by criteria appropriate to the area of knowledge and the grade of the person in the teaching hierarchy - and also the performance of activities related to high-quality research, which may or may not be other publications" (point 16, Resolution n.4) are required within a period of five years. In the case of professors who do not meet the quantitative requirements for publication, they may justify their contribution, and this must be considered in the terms proposed for the substantive contribution in research. In all cases, the productivity evaluation must be adjusted to the disciplinary diversity with respect to the consensus within each field on the quality of the results based on the support. The three most relevant productions selected by the candidates, which are then analyzed in concrete terms, ensure the evaluation of the quality of works that have not undergone peer review and the relevance of works published in a wide range of journals.

The principle of "flexible convergence" agreed by the CCDT and unanimously shared by all interviewees has a virtuous effect because publications are understood in their complexity, and there is no punishment for publication in books, as we will see in Part 3 of this advisory. On the other hand, there is no widespread use of bibliometric citation indicators (such as the H Index), but using the Scimago ranking to classify journals according to quartiles is very frequent. The concern for the quality of the journal, legitimate in itself, is also linked to internationalization, which is a guiding goal for promotion in the academic career "What we have tended in all these years is to try to achieve a flexible convergence between the different areas of science in the evaluation criteria based on the evolution and consolidation of the scientific community and, for this purpose, we have used different criteria that, in general, avoid the use of metrics. We all clearly understand that areas of knowledge have diverse manifestations in their production and production channels. We must accept that there are different sources of original knowledge production and different manifestations. Now in the case, for example, of the "hard" sciences, let us say, in the basic sciences, a paper in Nature is not the same as a paper in Billiken. So, we

take as a reference Scimago, impact factors of the journals, to make sure that it has certain relevance at international level" (CCDT member- UdelaR). "Yes, we try, I think, to relativize a little the impact, not of the journal but of the citations. There are topics that summon few researchers, although they may be very cutting-edge topics, and, therefore, they will not be cited as much. And well, we also know that the issue of citation among friends is widespread, so let us say we take everything into account. However, we also relativize it, nothing lightly" (CCDT member- UdelaR). "What we do review, as we were saying, is Scimago because we have access to Scopus and not to the Web of Science, so we look at what they document because, many times, in a curriculum, they declare two hundred papers in international journals, but we go to the Scopus filter, and we see that it is not so. So, we try to unify in that aspect. But this is not applicable to all areas, so in areas such as Humanities, the channels and ways of publication are different and, therefore, the databases where they are set are different. And that is what I was alluding to with this flexibility in the convergence of evaluations" (CCDT member- UdelaR).

### **Admission, renewal, and promotion in the RDT**

Admission into the initial category, grade 2, corresponds to assistants who are not considered to be professors. "Formerly, they did not have doctoral training, but this has been evolving, as we have been analyzing, in line with the postgraduate programs in the country and in the full-time regime, it has been established that assistants enter with a doctorate, with a completed postgraduate degree, or a very advanced doctorate, with a certain capacity to demonstrate a generation of knowledge that leads the teacher towards independence. But this is a teacher who is still in the process of training as a researcher and also as a teacher. It must be endorsed by a tutor of higher degree who is committed to accompanying the development plan of that teacher, and this is reflected in a note, sometimes not so emphatic or not so analytical, but a little synthetic, but confirming the tutor's support" (CCDT- UdelaR member). The renewal of total dedication, on the other hand, is usually granted for three years when it is the first renewal and then for five years. "Sometimes, they come from the Services with three-year reports because the period was reduced for some reason. The renewal standard is the regulatory period, but we also go to the researcher's history" (CCDT- UdelaR member).

Aspiring for a teaching position at UdelaR is free, and anyone can apply. It is not a requirement to have Uruguayan citizenship or to have certain degrees. However, the problem they face when applying for teaching positions is the lack of new competitive positions. And only competitive teachers can access the RDT. "There is a huge number of young people who do not have access to a teaching position, and there is a budget constraint, which is a very big bottleneck. And we have competitions, like the ones I participated in this year, for an assistant position with 20 or 25 candidates. This does not apply to all the services, I am speaking for my service, but there is a delay, a very big lag in terms of the system's capacity to generate opportunities for young people. This is very serious, and many of my graduate students have gone abroad" (Member of CCDT- UdelaR). "In addition, the levels of training are increasing and increasingly higher in the lower levels, so it is becoming more and more competitive. I work in the faculty of economics, and right now, I am going to a grade two competition tribunal and we have 18 applicants for two positions; all those applicants are doctors or are enrolled in the doctorate, and there is one person who already has a postdoc and everything, that is, there is a bottleneck there. Then what happens if they apply, or not, to the DT, there is a wide range of situations between the grades 2 because they reflect the reality of each Service, so those who come from sciences rarely do not have a doctorate because the teaching career of that faculty has already formed them, but those who

come from other areas where the machine to form doctors was not so fast generates differences" (CCDT member- UdelaR). "What we are faced with is that there are few positions for the number of prepared people that exist, which means that sometimes there are postdocs aspiring to a grade 2 position, which is detrimental. Also, in many services, the teaching careers are very clogged I mean that they cannot be promoted because there is no creation of positions. So, there is also a series of elements that make that there are overqualified people who suddenly are not in the position that corresponds to them, in the same way, that there are other services where there are fewer people and fewer teachers (CCDT- UdelaR member). "The graduate programs at the UdelaR grew from 30, let us say, to 300 in a short time. Perhaps the whole area of social sciences comes from further back, although the postgraduate programs started a little earlier than in the Humanities. But they started especially the master's degrees, but the doctorates only in 2014 (UdelaR Research Prorector). "There is a problem, it seems to me, of supply and demand there. It seems to me that the training system, the creation system of scientists, has been more efficient than society. So, not all scientists trained by the system find a place within it. And this is a country where the absorption rate of scientists in civil society, in companies, in the economy, even in the state itself, is very low" (Member of CCDT- UdelaR).

For those who are already competitive teachers at UdelaR, the interviewed referents observe that the difficulty of entering the RDT is the lack of resources to generate promotions in the career. "Every so often, there is a call for promotion opportunities (LLOA) where a single call is made for the entire university, which was made on three or four occasions. In the last one, 300 or so people from the social area applied, and the funds were distributed by coefficients to create as many positions as the money reached. However, it was not enough to cover all the cases of overqualification" (UdelaR Research Prorector). The situation in the country's interior and in the CENURs, where there is less academic competition, is not, however, more favorable for the insertion of young PhDs. "They are more fragile careers that are occupying a professor's degree because the conditions for research are weaker and the teaching demands are very high, with fewer resources and infrastructure; that is why when this call for competition was made, there were no more candidates" (CCDT- UdelaR member). Some CENURs "are in a process of consolidation. I am thinking mainly of the northern region, the northern littoral, and the cure, which are the oldest, let us say, although they are all relatively new. In general, all the careers and the teachers who are in the CENURs respond to their reference center in a Service. This gives them a special complexity, because sometimes the reference center, the faculty is in Montevideo, has very little contact with what that teacher does and his task (Member of CCDT- UdelaR).

### **Over-lapped evaluations, the CVUy and SIGEVA information systems**

A problem that systematically arises in the interviews is that UdelaR teachers are subject to multiple academic evaluations. Those who are part of the RDT are usually also SNI researchers. In addition, they may be part of other programs with systematic academic evaluations independent of each other, such as PEDECIBA or, in some cases, the Pasteur Institute. On the other hand, RDT evaluations do not replace the evaluations of the teaching position (effective), with which each professor can be evaluated by 5 different systems, sometimes even simultaneously according to the pace of each of the Services. "They are different, and they are all done on different dates. Then I am renewed in the position, I am renewed in the PEDECIBA, I am renewed in the total dedication, and I am renewed in the SNI on a different date, filling out different papers. One of the things that came out most clearly is that it is urgent to unify. The

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teaching position is the only thing that cannot be moved, but people cannot be evaluated so many times, with different dates in the same year, because the loss of time is enormous" (Academic Unit UdelaR -CSIC).

The interviewees generally agreed with the need to synchronize the evaluation of the effective teaching position of the University, which is done every 5 years, and the evaluation of the DT, which can be every 3 years in the initial grade or 5 years when the renewal takes place. Some people even stated: "We are on the verge of evaluative decency". However, the interviewed referents explain that there is an element that complicates this synchronization in UdelaR, and it is that both work by drip and depend on the evaluation carried out in the Services. The evaluation of the position is done in relation to the needs of the services. It evaluates the three missions, teaching, research, and extension, while the DT is done with the perspective of the University and is more oriented to promote the production of knowledge.

In the Workshop and reflection on academic evaluation held in 2018 within the framework of the CSIC, these overlaps are pointed out, not only between the teaching position and the DT but also adding the other systems, such as SNI and PEDECIBA, among others. One of the main issues raised by the teachers was the lack of clarity in the objectives of the different systems to which they were subjected and that this generates decontextualized evaluations that do not consider the integrality of the functions of teaching, research, extension, management and institutional construction (CSIC, 2018). The participants of this workshop posited that these systems give differential and often conflicting signals. In particular, the tension associated with the evaluations carried out in the National System of Researchers and those derived from the evaluations implemented at UdelaR stands out. Within UdelaR, between the evaluation carried out in the RDT and that carried out in the renewal and access to teaching positions, they raise the need for greater coordination between the objectives of UdelaR and the incentives provided by ANII through its National System of Researchers (CSIC, 2018).

"Indeed, yes, there is an over-evaluation; all of us who are in the SNI, in the DT regime, and with positions in the university feel that. It can happen that three times in the same year; you make the same report emphasizing different parts of your own trajectory. In other words, most of the actors in the system are subject to different regimes. On the one hand, we have the problem that each evaluation does not necessarily coincide with the expiration time of each renewal, and a transition with shorter renewal periods would be necessary in order to match the evaluations. However, integrating different systems such as SNI, RDT, or the teaching position is not viable yet because different things are evaluated. Because when you are evaluated in the full-time regime, you are evaluated against your work plan, which emphasizes research, and when you are evaluated by the faculty, they expect different things from teachers, especially in teaching and extension. Another possibility is to evaluate each function separately, but that conspires against integrality, which is a fundamental principle of the UdelaR. The Faculty of Humanities, for example, had an extension committee, a research committee, and a teaching committee. Then, the same report was looked at by the extension committee, the teaching committee, and the research committee. Now they are moving towards a single teaching evaluation committee. In any case, it is not easy to generate a system that is transversal to the services" (UdelaR Research Prorector).

The synchronization of evaluations is on the agenda for the consulted referents. "Several services have suggested the possibility of synchronizing the evaluations to renew teaching positions with the DT. We share this initiative as long as the proposed modification does not compromise the specificity of the criteria and procedures related to tenure in the full-time regime. It implies, on the other hand, rather complicated administrative modifications, and we have raised our concerns with the Provost regarding the procedures for implementing this objective. It requires

a thorough study that goes beyond the functions of the central committee. We are being evaluated from all sides; we have four evaluations, sometimes in one year, with different formats and different procedures. And we totally agree with generating a kind of synchronization. However, it is difficult to go from good intentions to reality without gaps or loopholes in the procedures (CCDT member- UdelaR). To collaborate in this direction, the technical aspect of the curriculum platform, the forms and requirements of the reports appear as an indispensable path of analysis. "A single curriculum platform base would be very important, but not for a simultaneous evaluation because the position and the DT evaluate different things. But synchronizing them and simplifying the format, within the possibilities, is an issue that seems to me to be more administrative and computerized, which exceeds our role as evaluators (CCDT-UdelaR member).

In order to improve the evaluation processes in UdelaR, an agreement was made in 2021 with SIGEVA (CONICET, Argentina), which provides an evaluation and management platform that has so far only been used to compete for projects, not to evaluate DT or teaching positions. The main problem is that there are different types of CV formats admitted for the evaluation of the teaching position and the DT that are not necessarily the CVUy that is requested by SNI. In order to move in this direction, the compatibility between CVUy and SIGEVA is being studied so that the efforts of teachers do not have to be duplicated or triplicated. "The application for funding for projects through SIGEVA is made in almost all the current programs of the research prorectorate. What is not totally adjusted, but is part of the plan is to make Sigeva interact with CVUy in an optimal way" (Prorectorado de Investigación, UdelaR). "CVUy is not friendly with an evaluation like the one we do for DT. It does not work for us. I mean, I mean, we can take things out, but CVUy is more oriented to the SNI. We basically see two curricula, the DT curriculum and CVUy. And that makes things more complex because one is more useful for one thing, and the other is more useful for another, so we have not reached the point of having a single curriculum that is useful to see my research activity, human resources training, whether it is taken by PEDECIBA and is useful to it, or by the service and is useful to evaluate the teacher, or by the DT, we have not reached that point yet. This would make it easier because one fills out a single curriculum and, naturally, can keep it up to date" (CCDT member- UdelaR) "The CSIC report is much clearer, much more conclusive, to evaluate comprehensiveness. Even to evaluate the projects, because in the CVUy everything is scattered, hidden, having seven, eight cases, ten each one of us per session" (CCDT member- UdelaR).

## **CHAPTER 3**

### **The Program for the Development of the Basic Sciences (PEDECIBA)**

The Basic Sciences Development Program (PEDECIBA) resulted from an agreement between the Ministry of Education and Culture and the University of the Republic, with the participation of the United Nations Development Program (UNDP), in October 1986. In 1995, the national budget law established PEDECIBA as a permanent program. Its general purpose is "to contribute to the establishment in the country of a stable infrastructure in the basic sciences, necessary for its cultural independence, and technological and social development. It is hoped that, through the consolidation of this infrastructure, the formation of human resources, and groups of excellence, a significant contribution will be made to solving major national problems. It will also seek to

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project the Program at the sub-regional and regional level in order to fulfill national political objectives of integration". To achieve this goal, the Program has the following fundamental missions: (a) to train high-level human resources (Masters and PhD); (b) to stimulate the creative activity of existing researchers and groups and to encourage the creation of new groups, especially in those topics that are relevant, but have little or no development in the country; (c) to encourage interdisciplinary linkages among the working groups associated with the Program; (d) to promote the rooting of those who have returned to the country in recent years; e) to stimulate the integration of young people with postgraduate degrees; f) to seek a greater impact of the results of basic research in the technological sector, through various joint programs with technology-based companies, ministries, state entities; g) to contribute substantially to the improvement of teaching in basic sciences in all areas of education; h) to encourage scientific dissemination and promote regional and international cooperation in areas of common interest to MERCOSUR.

PEDECIBA's missions are related to its origin and the historical context of its creation. "When the dictatorship was ending, and democracy was beginning, it was proposed as a means to reorganize basic research in Uruguay. Then, it arose from the initiative of renowned researchers of that time, especially Caldeyro Barcia, from biology, who was part of the IIBCE. He brought together people from physics, mathematics, biology, and chemistry, people who were in the country, and people who were returning to the country. The program idea was strongly supported by UNDP and had UdelaR as a counterpart. The program operates under the private education regime, which is complicated to understand because PEDECIBA works closely with UdelaR, and most of its teaching positions are from UdelaR. But its administrative and management scheme is governed by the private orbit and is based on the agreement" (PEDECIBA researcher). "PEDECIBA is probably the most transparent and transformative scientific institutional construction in Uruguay. In 1986 there were 16 basic scientists left in the country. There were no postgraduates. It was very successful, basically thanks to the University, because PEDECIBA does not pay salaries. If PEDECIBA had had to pay salaries, it would not have existed. Because the basal was done" (Academic Unit UdelaR -CSIC).

PEDECIBA has two governing bodies, the Honorary Steering Committee and the Honorary Scientific Council by area, and two executive positions that manage its operation, the Director and the Academic Deputy Director. The Steering Committee is in charge of analyzing everything related to the researchers in the different categories of the Program, as well as establishing the criteria for their selection and the evaluation of their performance. It is composed of the Director and Academic Deputy Director; three representatives of UdelaR; three representatives of the Executive Branch (one of them representing the Researchers of the Clemente Estable Biological Research Institute), two area coordinators representing all areas, one representative of the Program's researchers and one representative of the Program's students. "It is a co-government as in the University of the Republic, but not with the same percentages and quotas, but we have a mix where there are delegates from the areas, delegates from researchers, students, delegates from the ministry, delegates from the university" (Academic Director PEDECIBA).

There are three types of researchers: active, associate (not linked to Uruguayan institutions), and emeritus (for researchers who have reached Grade 5 and demonstrate excellent performance). Active researchers who maintain an employment relationship with a public or private research institution in the country must comply with two basic activities: have recent scientific production and participate in the training of researchers. There is a ladder that organizes them into grades according to their performance in these two activities.

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**Grade 3:**

This is a researcher with a PhD in an area related to his/her specialty and with recent peer-reviewed publications. This researcher is in the consolidation stage as an autonomous researcher or actively participates in developing research projects of other researchers in the program.

**Grade 4:**

He is an autonomous researcher with continuity in his work discipline, recent refereed publications, and a background in human resources training at the postgraduate level.

**Grade 5:**

He is an autonomous researcher with a relevant trajectory in his discipline and in the training of researchers. His sustained production over time has earned him national and international recognition.

Joining PEDECIBA does not imply a teaching position but support for a work plan and an aliquot of funds for research. "This fund can be around USD 5500 annually, depending on the area. We have to render it and explain how we spend it, that is, if it is for laboratory supplies, if it is a trip to a congress. It can contribute to financing the hours of a laboratory assistant, which is very important to carry out a project" (PEDECIBA researcher). It is not a salary incentive, nor can it be used personally. "Each area has funding that is distributed among all its members, new recruits, and promotions. When a promotion is given, it is because the person meets the requirements; there is no quota or quota. The quotas are distributed differently depending on the area. In physics, in particular, they make what they call the group aliquot and give the group a certain amount of money; in biological sciences, computer science, chemistry, and mathematics, researchers have a personal aliquot. The amount does not depend on the grade of the researcher; all grades receive the same amount. Among the areas, there are different budgets because the percentages were divided according to the size of the area where the program was created" (Academic Director PEDECIBA). "Sometimes there are calls to buy equipment, which are executed en bloc and solve fundamental problems of the areas and groups" (Researcher PEDECIBA).

PEDECIBA is a program that recruits researchers from different institutions and with different profiles that constitute network-oriented research and postgraduate training. "PEDECIBA researchers can work at UdelaR, IIBCE, the Pasteur Institute, INIA, and there are even some at private universities. In other words, a strength of PEDECIBA is that it is transversal to the different institutions and allows different researchers to come together at the same table or around a project or co-directing a student, regardless of their place of work. There is no PEDECIBA laboratory, so to speak. There is a lot of autonomy; PEDECIBA has always been characterized by autonomy, which has been very good. Also, it is one of the very positive things. Because, in a way, each area was formed according to its needs, right? In physics, for example, it depends on the grade. I cannot say if I do not think so in mathematics, but maybe it does" (PEDECIBA researcher).

On the other hand, the network is very focused on the training of human resources and the development of postgraduate studies. That is why in PEDECIBA, "all researchers have a doctorate degree, and that is not under discussion" (Academic Director PEDECIBA). The Steering Committee is the one that grants admission to the program to those who come recommended by the areas. "If they already come with an evaluation of the area and it was considered that the person is suitable, we look at the summary made by the commission that informs about the doctoral degree, the publications and the admissions with this profile are accepted" (Researcher PEDECIBA).



One of the most important shared principles in PEDECIBA is internationalization. "In PEDECIBA, it is very important to be internationalized. Here, the degree of internationalization is quite high; for example, mathematics and physics have made a good effort to join some programs with what would be the equivalent of the ANII here, but in France, and to have permanent agreements. We from PEDECIBA make a small contribution, and they get a much larger counterpart from there. Well, that results in the exchange and learning of people coming and going from Uruguay to France, and as France has a very active communication program, that has worked well. The same could be said of the Pasteur Institute, where PEDECIBA researchers laid the foundations and made the initial contacts." (Academic Director, PEDECIBA)

### Evaluation criteria and requirements

Academic evaluation in PEDECIBA is governed by the document approved by the Steering Committee at its meeting of June 17, 2004, which establishes the purposes of evaluation from the perspective of the organization and from that of the researcher. Regarding the former, it assumes that the evaluation criteria and procedures determine the organization's prestige, allowing it to position itself as a reference for the entire scientific community. From the perspective of the researcher, the evaluation implies the opportunity to present his/her work, with its limits and strengths, and to receive feedback consisting of specific recommendations for the improvement of the scientific level.

In the Active category, they are evaluated at least once every five years for the purpose of maintaining or modifying their grade in the Program. Such evaluation must be of a qualitative nature, taking as a reference the definitions of the categories defined above and the document "Criteria, tools and general procedures for the evaluation of the academic activity of researchers" approved by the Steering Committee in 2004. For justified reasons (e.g. maternity), and upon express request, an extension of this term may be requested. The general evaluation criteria serve as a guide in defining what the Program considers to be high-level academic activity. Each aspect will be evaluated considering the level of the researcher and the particularities of each area of knowledge.

The criteria are grouped into:

- **Quality vs. quantity of publications.** Emphasizes quality and questions the harmful effects that irrelevant publications or excessive co-authorship practices have on the quest to increase the volume of publications.
- **Autonomy and academic maturity.** According to membership in some fields, the degree or type of participation in a researcher's publication should be evaluated according to the relevance of the contributions (emphasizes the importance of this criterion in areas with a "strong experimental component").
- **Academic trajectory.** In order to evaluate the overall profile of the researchers, a report on the last 3 years must be submitted, including a brief summary of their trajectory.
- **Training of human resources.** It lists the various ways of contributing to training that will be taken into account, both those carried out within the Program and in other academic institutions: courses, seminars, internships in laboratories, and guidance of thesis students. It warns about the caution of sustaining excessive directions that may attempt to undermine the quality of the training due to the lack of sufficient time.

- **Diversity of contributions to the scientific system and society.** It incorporates aspects referring to the activities of "writing books or text chapters or dissemination, the organization of scientific events and participation, with other actors of society, in activities aimed at strengthening science or other aspects of culture" and "the management of scientific activity."
- **Impact of scientific contributions.** Indicators: publication in peer-reviewed journals of international prestige, citations, editors' notes, among others. Another type of impact refers to the creation of a new field of study, the resolution of problems relevant to the scientific community, in whose evaluation the time elapsed in evidencing the effects of these contributions should be considered.
- **Scientific recognition of the researcher.** Refers to awards or invitations to participate in activities that place him/her in a position of prestige.
- **Scientific production in the country vs. production abroad.** Consider the characteristics of producing knowledge in the country. "The comparison is facilitated if, when evaluating quality, we pay more attention to originality, depth, and rigor than to whether sophisticated state-of-the-art methodologies have been used. The quantity of publications and the consideration of the impact indexes of the journals in which they are published are factors that particularly distort this type of comparison."

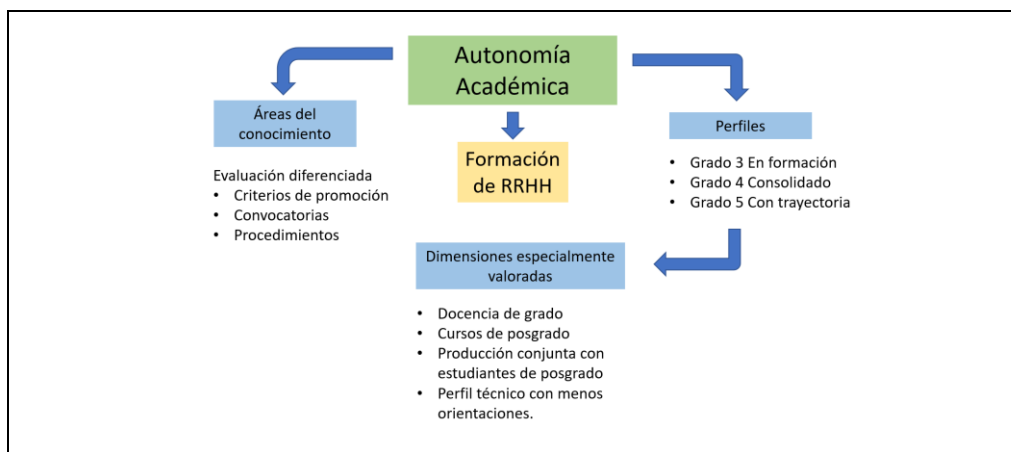
a) a summarized CV, b) a brief summary where the researcher describes the itinerary he/she has followed during the years of his/her scientific career up to the present, c) a brief summary describing his/her plans for the near future and medium and long term goals, including his/her research activities, human resources training, and other teaching activities. d) a list of his publications, indicating the five that, in his opinion, are the most relevant, with a very brief justification for his choice, e) a personal interview in which the researcher can express himself about various aspects of his work, in particular, any difficulties he may have encountered in the development of his activities. For the renewal, the activity report for the period must be included. As a result of the evaluation, a set of recommendations should be drawn up that the researcher should consider when planning his/her future activities.

The regulations expressly state that the conclusions must be conceptual and will not be translated into numbers. The quality of the publications is defined in relation to the prestige of the journals and their place of publication. "Well, it is about seeing that the publications are in reasonable journals, in international journals, that they are not simply national or regional journals, but that they are international journals with referees. And then the training of human resources, that is, for the 5th grades, especially. And, well, that what one does as research really has a certain impact". (PEDECIBA researcher). In relation to the training of human resources, thesis direction and the teaching of postgraduate courses are valued. "As most of us are university professors, we all teach undergraduate courses. I am the director of PEDECIBA, but I also teach in the laboratory. PEDECIBA welcomes the fact that you teach undergraduate courses, but it is not a requirement. We give it value, but we must explain to them that it is not only the quantity but how many students attended and if a researcher was brought from abroad, for example. Because, if we go only by the number of lectures, there comes a time, moreover, that there are so many courses that each course has five students" (Academic Director PEDECIBA). "Productivity, unquestionably, goes. Trajectory is measured in productivity, as in almost all our evaluations, but it must be accompanied in terms of graduate students. I think it would be very difficult for someone to be at level 4 without having students because you have to be a researcher who has a research group, let us say, a consolidated researcher, in some way. I do not know if, in any area, they can accept a promotion to level 4 or 5 without a trained postgraduate resource. However, in any case, there must be productivity both in postgraduate studies and in

papers. I could not tell you a number of papers because it is highly variable according to the specific area of work, but there is always a floor" (Researcher PEDECIBA).

**Diagram 4**

*Evaluation dimensions in PEDECIBA by area and profile of each grade level.*



The use of journal impact indexes is discouraged. However, it establishes that a substitute for evaluating this particular aspect of the impact of scientific production is to consider qualitatively whether the researcher publishes in journals of international prestige. In some areas, this is done by using journal rankings to measure the quality of the journals. "PEDECIBA is very decentralized, so different areas evaluated, and the criteria are not 100% homogeneous. There are certain minimum standards, but, for example, the area of biological sciences is one of the most quantitative and the one that looks at the quartiles where articles are published, etc. While, suddenly, the mathematical area, because there are also fewer, so when there are fewer things are easier, is the one that can make a more qualitative look and see if suddenly, well, this person published less. However, it was very important what he did, what that left in institutional construction, etc." (Academic Director PEDECIBA).

The regulations highlight important aspects of the evaluation procedure referring to the evaluators, who may be nationals or foreigners, and the nationals may belong to the organization itself or be external to it. In the case of foreign evaluators, they shall be informed of the characteristics of the national and regional academic environment if they are not familiar with it, so that they do not carry out evaluations because they do not consider the local reality and are of little use. As a general criterion, it is healthy to have a certain minimum distance in personal knowledge between the evaluator and the evaluatee. There are situations where the opinion of a scientist close to the person being evaluated can contribute valuable elements. A widespread assumption is that the choice of external evaluators, especially foreign ones, ensures a greater distance between the evaluator and the evaluatee. This is not necessarily so since the complex web of international scientific relations means that it is not uncommon for there to be a short academic distance between two scientists located at a great geographical distance.

The evaluation process is expected to last for as short a period as possible, with simultaneous evaluation of all researchers in an area. In cases where this is not done in this way, other renewal periods may be established. "The evaluation process is not the same in all areas, but in general,

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it is like this: the scientific council appoints an evaluation commission; this evaluation commission can be completely external, which means that they are all Argentines and Brazilians because generally, they are the ones who will understand the system. To that commission, the researchers send their *curricula vitae*; the commission looks at it and returns a result that is given to the scientific council. The scientific council reviews it, and when there are, for example, results that a researcher is recommended to be dropped or taken out of the program, it is sent back to the researcher in case he/she has a disclaimer to make if he/she wants to make clarifications, all those things. When this process is finished, the commission sends the result to the board of directors, which is reviewed again. Suppose there are people who have been harmed. In that case, it is the board of directors that finally lowers the hammer and gives them a period of time to make their disclaimers. Only after that does the board of directors say, "Well, then what the scientific council of the area said is approved, and the researchers now have this new or the same order and grade" (Academic Director PEDECIBA).

For promotions or the so-called "Initiative for change of grade," there are two possibilities regarding initiative for change of grade. The first is that it is the researcher who requests it. The second possibility is that, at the time of renewal, one of the results of the evaluation report is the grade in which the researcher should be. The second alternative is recommended, as it should result in a fairer grade assignment. After consultation with the interested party, a transfer from a lower grade to a higher grade will be made. "Grades 5 are always evaluated by researchers external to PEDECIBA; that is, there is a national referent, and two external evaluators are invited. Of course, the national referent will have some influence with respect to the vision because he will be giving something, but within everything, let us say, it is quite a lot or, at least, external to the area. One is necessarily foreign; there is a referent that is from the area, an external referent, that is, it can be someone from biology in the case of physics, chemistry, or whatever, and someone from abroad, and we are looking for a physicist or, if there are two from abroad, it would be better if they are physicists. And then, once grades 5 were reevaluated, grades 5 evaluate grades 4 and 3" (PEDECIBA researcher).

In the evaluation process, "we always look a little bit at the prominence of the researcher among the authors; over the last decades now, the criterion that the last author is the main author or the corresponding author has been consolidated, but this was not the case transversally to all the areas at the beginning. There were areas where people put the names in alphabetical order to mark that everyone had contributed, and some still do. So, what we try to do is to tell people to select three of their publications and explain to us why they consider them important" (Academic Director PEDECIBA). Regarding the prestige of the journals, there are researchers who relativize this because they state that international journals are not always infallible. "Sometimes you say that you saw that this was discovered because an article appeared in a very prestigious journal, *Nature* or *Science*, but I am not a specialist in that subject, and I still think it is fantastic. It is not my area, but since it appeared in that journal I count it as an absolute truth. Five years later, they realize that this was wrong, so if you take this to the field of an evaluation committee, you have to make an act of faith and think that if you have five publications and these publications are in an area published in reasonable journals, the researcher did what he had to do. He acted in the best possible way. But from there to classifying, truly, from a scientific point of view, that this article is really of high impact, I do not know. I think there is a degree of subjectivity that goes into all this, and it is normal; one cannot be stuck searching and digging to put something on a pedestal and something on the floor. After all, *Scopus* is a company. My way of seeing things is that to evaluate in PEDECIBA you have to look for a balance between important production, training of human resources, you see that people work with a good methodology and then ok" (PEDECIBA researcher).

### Promotion in PEDECIBA and the gender asymmetries: an "inclusive" program

The PEDECIBA referents and researchers interviewed agreed to describe PEDECIBA's admission and promotion as **an inclusive** scheme. "PEDECIBA always tries to include and give you an opportunity. If you have a PhD, you can have a postdoc fellowship, you can have a part-time position, have some kind of position in a center that does research, you will find a place in PEDECIBA, you enter as a grade 3 of PEDECIBA, and in two or three years we see how you are performing." (Academic Director PEDECIBA). "There are no quotas. Then the resources have to be divided among all of us, but there are no quotas. Admission is not very restrictive, having a base that is considered minimum. You will enter as a researcher who is beginning his trajectory; it does not enter the already consolidated researcher." (Researcher PEDECIBA). "He is just starting, then, that person is not expected to be already guiding doctoral students; suddenly he is doing a co-orientation with a more senior researcher, and suddenly he is going to have a master's student, but for grade 4, he is expected to have supervised a doctorate." (Academic Director PEDECIBA).

Unlike other evaluation systems, such as the SNI, where autonomy and independence are required of the researcher at Level 1, in PEDECIBA, Grade 3 is for a recent doctoral candidate, and promotion is oriented to teamwork and not only to individual deployment. The criteria of autonomy and maturity, scientific recognition, and the formation of human resources are of greater relevance in the evaluations of Grade 5. This means that we have more researchers than students; in other words, it is impossible to require each researcher to direct a student, isn't it? And that has many effects; it pushes to co-direction in droves, and one appears with three counselors, or someone puts everyone in the laboratory as counselors" (Academic Director PEDECIBA). "Yes, PEDECIBA is more humane; there is a lot of care, at least in recent years, because, in the past, I know that there were problems with international evaluations in grades 5 that had requirements that did not respond to what our research environment is. On the other hand, recently, more attention has been paid to personal dynamics" (PEDECIBA researcher).

The interviews indicate that there is greater upward mobility in PEDECIBA, unlike the SNI. "It happened to me and to other colleagues, who also took a long time to move to level 2. The production indicators we had were very good; however, until the commission changed, we could not move up. The same happens with SNI Level 3. They have quite exceptional profiles, but it costs less to reach level 5 in PEDECIBA" (PEDECIBA researcher). Apparently, this more human facet of PEDECIBA is observed in the admission and renewal but not so much in the promotion due to the human resources training requirement involved in moving up to grades 4 and 5. This appeared clearly when the researchers began to reflect on the existence of a *glass ceiling* in PEDECIBA. "Once one enters PEDECIBA, that is, once one is already evaluated, renewal is not complicated, but promotion is. Sometimes circumstances arise, as in the case of my husband's illness, death, and all those kinds of things. You see that it is a complicated period, and your head will be able to comply with what it is in a half-automated way. But as far as the research team is concerned unless you have a very strong group of people, it is good that, in some way, it continues to work on its own if it doesn't get too complicated, right?"

It is easier to be in grade 3 of PEDECIBA than level 1 of the SNI. We have researchers who have not been able to access the SNI, it is easier to be 4 of PEDECIBA than 2 of the SNI, and it is easier to be 5 of PEDECIBA than 3 of the SNI". (PEDECIBA researcher). "In fact, I am grade 5 of

PEDECIBA, grade 5 of the UdelaR, but level 2 of the SNI. In fact, I have not applied for SNI renewal because I am doing little research, and it seems to me that it does not correspond to me" (Academic Director PEDECIBA). "It seems to me that in SNI, it is common to be censored to apply because in ANII if you are rejected twice in a row, the following period, you cannot apply directly; there is a rule like that. On the other hand, in PEDECIBA or the DT, I believe that everybody applies because there is no worse management than that which is not done. PEDECIBA is a little more human evaluation than ANII, where it is pure and simple productivity, without any consideration, and thesis direction to move to Level 2. And in that intermediate zone, in the limits for passing grades, it seems to me that it is more careful in PEDECIBA. But also, I can tell you that the number of hours that I know and that I know are invested in the PEDECIBA evaluations is a lot. In the DT, also, hours doing reports." (PEDECIBA researcher).

The weight of gender asymmetries is generally perceived as having a concrete effect on promotion to higher levels but also on project funding. There is a difficulty linked to power relations in the institutes and to the obstacles women face in directing groups, institutes, laboratories, and large-scale projects. "One's role is becoming increasingly important over the years, isn't it? If you had asked me when I was 40 years old if there was a gender problem, I would have been one of those who absolutely denied it. At 50, I started to notice it, and then I said I was stupid for everything I did, but the chips were falling on us much later. For example, my promotion to full professor compared to all these generations was practically 7 to 10 years later. With the promotion, with the projects. Because you say, well, this time I didn't get it, but the fact that you are denied some things over time and other people always have funding, and how did this happen? That is what shows your limits little by little. In other words, my career is built not only by what I achieved but also by what I didn't get that didn't happen. Today, what I am observing is that, with the headline of supporting gender, the women who are being supported belong to the group leaders who need to make all that appear. It continues to support the same people, who are the ones who promote and decide to whom the support goes" (PEDECIBA researcher).

Generational inequalities exist in PEDECIBA, as in the rest of the system. In the admission, the consulted referents raise the same difficulties registered in UdelaR for the admission of young researchers: the shortage of teaching positions and the growing increase of PhDs. "When we have an admission competition, I, for example, entered the university with level 3, the university also has levels 1 to 5. I came back from the United States, I did a postdoc for a short time, and I got a grade 3 position; a few years later, I got a full-time position. Now, we are opening a level 2 position, grade 2, and seven or eight young people who have been postdocs for some time are applying - recently, there was a girl who came from Germany to take the tests, lost, and went back to Germany to finish her postdoc" (Academic Director PEDECIBA). These inequalities young people face are also manifested in the access to open-access publications that increasingly charge more APC. "More and more young researchers are using their aliquot to pay Article processing charges because not all researchers have projects funded by CSIC or ANII. The truth is that it is very unfair. I think it is very good that everybody can read the journals, but I do not think it is very good that they are being paid with our money when there are super rich academies." (Academic Director PEDECIBA)

The problem of over-evaluation also affects the program's researchers. "Even due to the excessive amount of evaluations to which they are subjected by the university to maintain their degree, by the university to maintain total dedication, by the SNI to maintain their level, people complain that they are writing curricula all the time, and this is true. So, I came to the point that we can eliminate the PEDECIBA degrees because they are not so important, and people already have their degrees elsewhere. However, colleagues value the PEDECIBA degree program,

especially because of the rigidity that exists in the SNI. So what I did propose was that the main objective of PEDECIBA should be the training of human resources, so the focus of our evaluation should be on the training of human resources much more than on scientific productivity measured in papers." (Academic Director PEDECIBA). This has repercussions for researchers who had caregiving tasks related to children, partners, or sick family members, as well as their own illnesses. They refer to the fact that the stoppage of activity for a period of time was not as difficult to recover in terms of publications as in relation to the formation of the team and direction of thesis students, which they do feel as a detriment difficult to pay off and little visible in the evaluations.

### **Profiles of the PEDECIBA teacher-researchers**

The researchers consulted told us that in PEDECIBA, the academic profile is dominant, and this has hindered the development of profiles associated with industry or other sectors of society outside the University. "The great challenge we have is that we have been very successful as trainers of researchers and PhDs, but we have not been nearly as successful in inserting those graduates outside the academic spheres. We are doing our best to turn that around. However, a while back, there was a survey among students, and 80 or 90% of them expected to work in academia. Everybody wants to be like their boss, who has 3 or 4 graduate students and a research group, but the numbers already tell us it cannot be like that. What happens is that PEDECIBA was created in '86, and the University of the Republic did not have a postgraduate program; in its organic law, the word postgraduate does not appear, in fact, and, as of today, it has graduated about three thousand students. It has been an exponential growth like all things, but now we have a tremendous growth crisis. So, we did a postdoc program this year to try to convince a company why hire a physics PhD and not an engineer. We do things to help them suddenly start their own venture, to know a little bit more about patents, about personnel management, about how to manage a project, and kind of things like that. Because if we do not give them those tools, we will have a lot of frustrated people or a lot of people who emigrate abroad." (Academic Director PEDECIBA).

A differentiated profile that is valued and developed in PEDECIBA is the one we could call technical-academic. "I mean a researcher who is an expert in something, so everyone collaborates with him and all that, but sometimes he does not necessarily have his own research group or anything like that; he is accessory personnel in the projects, but, nevertheless, his role is very important. So, we realized that there were a lot of people who had that profile. We could not require that person to follow that typical traditional chain of grade 3 who directs PhD students and publishes first but can receive students who come to his lab and do an internship to learn that technique in which he is so expert. But it is still like having a 3 a and a 3 b, then 4 and 5." (Academic Director PEDECIBA)

The CVUy Platform makes it difficult to make these diverse profiles visible also in PEDECIBA. That is why other formats are accepted. "They have improved it a lot, and the team that is in charge puts all its energy into it. But it has that sin of birth that it is an evolution of the LATTES CV, so it has cost them a lot to come out. But things like, co-authored papers, I enter them in my CV, it should appear in yours automatically, but no, it does not. So, I entered it, and it was wrong. So, I entered it, and I innocently made a mistake, and I put myself as the first author, and the first author was you. Then, I enter it again and correct it, with you as the first author, and then the system gets confused; there are two different authors, and the evaluator does not know who the first author is; that is one of its defects. PEDECIBA is a curriculum made well for the academic

style in the hyper-inclusive sense, where everyone can put everything, and it has a place to put everything because somewhere, it will count as merit. But... unfortunately, it is an eighty-page tome that when it gets to the reviewers, all they do is look at the abstract at the end. They do just what we do not want people to do, count how many papers, count how many these, count that, and it ends badly. So, sometimes, another option is to look at the ORCID, and there, more or less, what it says is there is enough for me; it is not necessary to do much more". (Academic Director PEDECIBA)

## **CHAPTER 4**

### **Other academic evaluation systems coexisting in the Uruguayan STI system**

The overexposure to various academic evaluation processes mentioned in the available studies and the concern expressed by the researchers and references consulted are not only nourished by the larger systems discussed in chapters 2, 3, and 4. There are also others that can be added to the above in the trajectory of some researchers who participate in several institutions, as would be the case of the Clemente Estable Institute or UTEC, or two processes for SNI researchers who are evaluated, in turn, by their universities, in the case of private institutions.

#### **The Clemente Estable Institute for Biological Research**

With a long trajectory initiated in 1927 by biologist Clemente Estable, the IIBCE is a non-profit public institution dedicated to creating original scientific knowledge in different fields of biological sciences. According to institutional information, the IIBCE's objectives are: to generate original knowledge in all branches of science; to contribute to the training of researchers in science, technology, and innovation; to disseminate scientific knowledge; to consolidate the creation of research and development nuclei with first level laboratories and platforms; to contribute to the strengthening of national scientific and cultural development, participating in the planning of the country's scientific policy. According to Decree 1415 of 2009, the IIBCE is governed by a Board of Directors composed of two Chief Professional Researchers, elected by the budgeted, contracted, and associated researchers, the Coordinators of the Divisions, and a representative of the Ministry of Education and Culture. The Minister of Education and Culture elects its President and Vice-President from among the first two. It also has an Advisory Council. It functions as an executing unit of the Ministry of Education and Culture and is organized into three main divisions: Neurosciences, Genetics and Molecular Biology, and Microbiological Sciences. There is a fourth in formation, Environmental Sciences. The divisions, in turn, are organized into working groups that bring together researchers according to specific topics.

The regulations for the filling of research and technical-preparatory positions establish that all scientific and technical positions are filled by means of an open merit and competitive examination. In the case of the Chief Researcher or Research Professor, these regulations foresee 7 dimensions for the evaluation, weighted with the following scores:



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1. Career: academic training, overall scientific work, positions obtained through competitive and merit-based examinations and positions actually held, awards, scholarships, and recognitions. Maximum 7 points.
2. The quality of the researcher's scientific activity is sustained and demonstrated through works published in peer-reviewed journals, with emphasis on the five (5) years prior to the closing date of registration. The impact of the publications in the discipline will be valued, as well as their prominence in the authorship. Maximum 20 points.
3. Demonstrated track record in research training, especially orientation and/or co-orientation of Postgraduate Thesis (PhD, Master's) (12 points).
4. Postgraduate teaching activity (3 points). Maximum 15 points.
5. Ability to lead a research group, judged through the development of one or more lines of original and independent research demonstrated by publications with leading roles. Maximum 8 points.
6. Track record in obtaining resources and/or extra-budgetary funds through scientific research projects or other related initiatives and associated publications. Maximum 5 points.
7. Background in academic management, institution building, and scientific dissemination activities. Maximum 5 points.

In addition to the Chief Researcher or Full Research Professor, the IIBCE's staffing structure includes other positions for researchers, professors, specialists, and technicians: Assistant Researcher or Associate Research Professor; Assistant Researcher or Assistant Research Professor; and Specialist II Trainer and Technician III Trainer. The staff is evaluated every five years through an internal call to approve new Laboratories or renew the existing ones, and their performance is evaluated within the framework of the Laboratory evaluation regulations, approved on December 13, 2019. Through open competition of merit and opposition, it is possible to access teaching contracts for research activities Level I, Level II, Level III, and Postdoctoral Fellowships. "These different contracts arose due to the budgetary restrictions to carry out the calls for competitive examinations and merit-based examinations for effective budgeted positions. The research profiles required for these levels, although they are not the same, their names refer to those of the University of the Republic" (Presidency of the IIBCE Board of Directors). According to the current regulations, the profile of Level I is that of an advanced undergraduate student or recent graduate, and Level II is that of a master's or doctoral student. Level III corresponds to a researcher in the initial stages of his/her academic independence, generally with a PhD degree. The following aspects are weighted in the evaluation of the merit of the teaching hours competitions:

- Academic background: academic training, degrees, undergraduate and graduate schooling (if applicable), positions obtained through competitive examinations and merits, awards, scholarships, and other recognitions. Maximum 14 (fourteen) points.
- The quality of the researcher's scientific activity is demonstrated by works published in peer-reviewed journals. The impact of the publications in the discipline will be valued, as well as their prominence in the authorship. Maximum 16 (sixteen) points.
- Participation and/or direction of scientific research lines or projects or other related initiatives. Training of human resources. Postgraduate teaching activity. Maximum 8 (eight) points.
- Academic management activities, institutional building in science, and other merits. Maximum 2 (two) points.
- In the case of postdoctoral fellowships, the criteria to be evaluated are as follows:
- Academic background of the applicant, prioritizing the quality of his/her scientific activity demonstrated by works published in peer-reviewed journals. The impact of the publications in the discipline will be valued, as well as their prominence in the authorship. Maximum 50 (fifty) points.
- Academic quality and feasibility of the research proposal. Maximum 35 (thirty-five) points.
- Articulation and impact of the proposal in the development of the activities of the research group sponsoring the postdoc. Maximum 10 (ten) points

- Sources of funding available for the research proposal in the working group by itself or in coordination with other groups. Maximum 5 (five) points.

### **The National Institute for Agricultural Research**

Created in 1989, INIA is a public entity under private law whose main mission is to generate and adapt knowledge and technologies to contribute to the sustainable development of the agricultural sector and the country, considering government policies, social inclusion, and the demands of markets and consumers. INIA coordinates with the Executive Branch through the Ministry of Livestock, Agriculture, and Fisheries and coordinates actions with agricultural associations and institutions, producers, and national and international public and private entities. INIA has experimental stations in the departments of Canelones, Colonia, Tacuarembó, Treinta y Tres, and Salto. Regarding research, it is worth mentioning that it manages and develops different lines of research: rainfed crops; pastures and forage; citrus production; rice production; meat and wool production; milk production; family production; forestry production; fruit production; horticultural production; production and environmental sustainability.

In accordance with its law of creation, the Institute's governing bodies are the Board of Directors, the National Directorate, the Regional Directorates, and the Regional Advisory Councils. The Board of Directors comprises representatives of the Executive Branch proposed by the Ministry of Livestock, Agriculture and Fisheries, from which the President is elected. The Board is made up of two representatives of the producers, one of them proposed by the Rural Association of Uruguay and the Rural Federation, and the other one proposed by the Federated Agricultural Cooperatives, the National Commission for Rural Development, and the Uruguayan Federation of Regional Agricultural Experimentation Centers. It also foresees a strong institutional articulation through the Agricultural Technology Coordinating Council, integrated by the Minister of Livestock, Agriculture and Fishing; the Minister of Education and Culture; the Minister of Industry and Energy; the Dean of the Faculty of Agronomy; the Dean of the Faculty of Veterinary Medicine and a representative of the university group. In other words, "We have our clients sitting on the Board. The institute's agenda is defined by gathering demand not only from the public and academic sectors but also from producers through the preparation of a strategic plan with a five-year frequency" (Human Capital Development Management, INIA).

Four researcher profiles are developed within INIA: assistant, assistant, principal, and principal referent. A balance is sought between the academic profile and the applied research profile, close to the producers. By means of performance evaluations, researchers can have a change of level in the remuneration matrix or promotions that imply a change in their grade. "We have an academic career where there are basically two instances of progress. One instance is the possibility for each researcher to apply to an immediately higher position if he/she considers that he/she meets the requirements. There is an evaluation commission (composed of two external and two internal members) that evaluates different aspects: the role of the researchers in the projects, the independence and autonomy of the researchers, the technical series they have written, scientific articles published, promotion and training of human resources, dissemination activities with producers and other actors, agreements reached, refereeing of articles and integration of a postgraduate thesis tribunal. The second instance is within the same position and implies access to a change, an improvement in the salary matrix, based on the results of their performance evaluation. The performance evaluation, which we call a

development plan, is triannual and arises from an agreement between the Supervisor and the researcher where goals, objectives, and expected products/results are set. If those evaluated reach the percentage stipulated in the different items, they may have a shift in the horizontal of the matrix, improving their remuneration within the same position" (Human Capital Development Manager, INIA).

### **ORT University**

With a history dating back to the middle of the last century, ORT was recognized as a university in 1996. With more than 13,000 students distributed in its four faculties and one institute, it is the largest private university in *Uruguay*. According to its institutional information, it has 1,600 teachers and researchers, one-third of whom are highly dedicated to the university, which allows them to develop research tasks. "The high dedication group has a minimum of 20 hours per week dedicated to research. In general, they also have a teaching load, but they should have 20 hours, more or less, clean to work on research" (Vice Rector, ORT). Research activities are mainly carried out through groups formed in the faculties:

- Applied Mathematics for Telecommunications and Energy Group.
- Theoretical Computing Group.
- Center for Research and Innovation in Software Engineering.
- Protein Technology Group.
- Quantum Computing and Quantum Informatics Group.
- Explainable Artificial Intelligence Group.
- Management Accounting Research Group.

Along with the twenty-hour workload, the profile that the university's current regulations determine for highly dedicated researchers, the 1042 Program, refers to independent researchers with a track record of publications and projects, preferably with a doctorate degree or equivalent training. To enter the Program, they are required to apply to the National System of Researchers (SNI), both for joining and for their periodic recategorization.

Each researcher must submit before March 1 of each year an Annual Report detailing the production of the previous three calendar years, including the following products and activities:

- articles published in peer-reviewed journals.
- articles submitted to peer-reviewed journals not yet published and their status at the time of reporting.
- other research items produced: articles presented at refereed conferences or congresses, books and chapters in academic books, and research papers.
- articles in preparation, which are expected to be submitted for review to peer-reviewed journals before the next annual report.
- projects submitted for funding or other instruments and their status at the reporting time.
- status of the researcher in the SNI at the time of submitting the report: category, year of admission to the category, and year in which the researcher must be recategorized.
- distinctions and awards received related to academic activity.

Once the annual production report is completed, the program's regulations provide for two annual evaluations of the reported scientific production. "The first (April) consists of a technical bibliometric report prepared by library staff that analyzes the production carried out, especially

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the refereed articles published in ranked publications; the external funding obtained for projects; and the production in progress. A second evaluation (October), where the head of research of each faculty re-examines the production of the researchers in their faculty's program and reports his or her conclusions to each researcher and to the Research Committee. In this evaluation, we look at whether the researcher met the goals, as well as the type of production he/she had" (Vice Rector, ORT).

In order to meet the production goals required by the program, only peer-reviewed publications ranked in SJR (based on Scopus) or JCR are considered. With the approval of the research committee, articles in congresses or conferences indexed in Scopus may also be accepted when the following conditions are met:

- the congress or conference is global in scope (not only regional).
- the article is indexed in Scopus.
- these are full papers, i.e., they are not considered posters or abstracts.
- the article is refereed.

ORT University contemplates different incentive mechanisms for research, apart from the hiring of its research staff. These include support funds for conference publications (travel, registration, etc.), translations of articles, and APC payments. A second line of salary award for those who have published in first-level journals, whether or not they are in the 1042 program (the award can be around USD 2000), and a third line, which is the payment of an annual complement, depending on the category, to those researchers who are part of the SNI.

### Catholic University of Uruguay

The Catholic University of Uruguay "Dámaso Antonio Larrañaga" (UCU) is the first private religious university in the country. With a history dating back to 1876, it was formally constituted as a university in 1985. The institutional information shows that it employs 64 highly dedicated research professors categorized in the SNI and has 36 doctoral students (distributed in its doctoral programs in Psychology, Engineering, and Communication), 5 indexed journals, and 8 laboratories. According to the *Strategic Guidelines and rules for the operation of the matrix model*, research is mainly carried out by highly dedicated research professors (PiAD). The PiAD are those professors who, within the group of highly dedicated professors (PAD), add research and scientific production to the objectives of teaching, management, and liaison with the environment. The PiAD and PAD depend on the Vice Rector's Office for Research and Innovation: "In 2017 there is a restructuring in the management of the University, accompanied by a new Strategic Plan. The departments, and the high dedication professors and high dedication research professors that were part of these, cease to depend on the faculties and start to depend on the Vice Rector's Office for Research and Innovation. The objectives were to strengthen the development of research and to generate a centralized academic career, which was not contingent on the development of enrollment in the faculties" (Vice Rector's Office for Research and Innovation).

Regarding the performance required of PiADs, the UCU takes as a minimum level that, in the course of three years, each PiAD publishes the equivalent of two points (see Table 6) in the scale for allocating incentives to academic production. The two minimum points must include at least

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one publication valued at 0.8 points or higher. In addition, although it is an indicative and non-binding criterion, all PiADs are expected to be categorized in the SNI.

**Table 6**

*Weighting factors for the allocation of incentives to academic production*

Type of Publication	FACTOR
Articles in ISI-indexed peer-reviewed journals	1.0
Books in academic publishers indexed in Scopus or ISI	1.0
Award-winning artwork in a very high-quality international exhibition	1.0
Articles in peer-reviewed journals indexed in Scopus	0.8
Artistic work awarded in an international or regional exhibition of high quality.	0.5
Articles in peer-reviewed scientific conferences indexed in Scopus or ISI	0.4
Book chapters in Scopus or ISI-indexed academic journals	0.4
Articles in peer-reviewed journals indexed in Scielo	0.2

The aforementioned institutional document establishes different requirements and aspects to be evaluated for the condition of PiAD Titular, Associate, and Adjunct. In the case of PiAD Titular, it is necessary:

- To have developed a sustained academic research activity with wide recognition in his/her area of knowledge.
- Have actively participated in the training of academics and have led teaching and research teams.
- Have served at least three years as an associate professor or in the equivalent category in other universities or university institutes.
- To have obtained the academic degree of doctor.
- In the case of PiAD Titular, the aspects to be evaluated are related to teaching, research, management, linkage with the environment, and the expected participation in the department.
- Teaching: performs outstanding teaching activity as established for its category and time dedication. He trains students through tutorials at the relevant training levels to develop his disciplinary area. He/she teaches at universities abroad. Participates in training instances for the improvement of teaching.
- Research: has sustained, consolidated scientific production of quality and in accordance with international standards, which is recognized as relevant in its disciplinary area. Develops activities to train researchers on a regular basis. Leads research teams. Has international networks.
- Management: performs key management tasks.
- Liaison with the environment: conducts outreach activities with the environment. Represents the UCU in areas relevant to the country's development.
- Service to the department and academic programs: actively participates.
- In reference to the institutional support provided by the UCU to researchers, it is worth mentioning that they can have access to:
  - Research sabbaticals.
  - Incentives for academic production according to publication performance.
  - Support for academic mobility and conferences.

## **University of Montevideo**

The University of Montevideo (UM) is a Christian university that began its activities in 1986 with the creation of the Institute of Business Studies of Montevideo (IEEM) and, a year later, the Postgraduate Program in Business Law. It was formally recognized as a university in 1997. Its two thousand (2000) undergraduate students and almost one thousand (1000) graduate students are distributed among five (5) faculties: Faculty of Business Sciences and Economics; Faculty of Communication; Faculty of Law; Faculty of Humanities and Education and Faculty of Engineering. The undergraduate offer is complemented by postgraduate programs in Biomedical Sciences, Engineering, Law, Communication, Humanities, Education, Accounting, Economics, and Finance. With respect to research, although no specific research incentive programs and mechanisms are reported, the activity of the academic units reports the presence of different research groups.

<p><b>School of Law:</b> Integration Law; LegalTec; Public Law; Business Law. <b>Faculty of Business and Economics:</b> Applied Economics Research Center, with research lines in Micro and Macroeconomic Theory; International Economics; Monetary; Environmental; Health; Education, Politics and Finance. <b>Faculty of Humanities and Education:</b> research on contemporaneity, regional phenomena and universal issues of today. <b>Faculty of Engineering:</b> industrial organization; ICTs; construction methods; clean production; digital TV; concrete and structures. <b>Faculty of Communication:</b> communication for sustainable development; crisis communication and health communication; narrative journalism, storytelling and post-truth.</p>
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Within the UM, in order to advance in the different categories of professor (initial, adjunct, tenured), "there are periodic evaluations to verify the adequacy to the requirements of the Department, including publication in journals of a certain level (first quartile are the most valued)" (UM Researcher).

## **Institut Pasteur de Montevideo**

By Law 17.792 of July 20, 2004, the Senate and the House of Representatives authorized the Uruguayan Executive Power and the University of Uruguay to establish a foundation with the Institut Pasteur of Paris. Launched in 2007, the IP Montevideo is one of the most recent institutes of the International Network of Pasteur Institutes (RIIP), which associates thirty-three (33) independent centers located on five continents. It is managed by a Board of Directors comprised of representatives of the Executive Power, the University of the Republic, and the Institut Pasteur of Paris. It also provides for an International Scientific Committee relevant to the evaluation of programs and calls for researcher positions.

IP Montevideo is dedicated to scientific research in the area of biological medicine, with high-tech scientific platforms in areas such as genomics, proteomics, bioinformatics, molecular and cellular biology; laboratories open to research projects of young scientists; an international teaching center and start-ups for the development of biotechnological applications. According to institutional information, its seventeen (17) Laboratories, Technological Units and Programs,

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constitute 18% of the national scientific production in biomedicine; 10% of the PhDs in life sciences and have developed more than twenty (20) R&D and/or technology transfer projects with companies and/or public institutions. "We have designed a new scientific/technical ladder together with the description of the requirements of each position, a tool that allows us to homogenize criteria in an institution that initially grew based on groups that had relative independence in managing human resources. Therefore, this new scale and guidelines for each position not only serves to assist the commissions in charge of evaluating the access and/or promotion of people but also allows maintaining criteria regardless of whether the calls are institutional or particular to any group" (Academic Director Institut Pasteur). Within its organizational structure, the PI has foreseen different degrees of researcher:

### Scientific Scale

- Research Assistant / Senior Assistant
- Assistant Researcher / Senior Research Associate
- Principal Investigator not responsible
- Principal Investigator / Responsible G4
- Senior Researcher

### Technical Scale

- Technical Assistant
- Technical Assistant
- Assistant Technician in charge
- Junior Technician Responsible
- Senior technician

"In recent years, we have created a performance management system in which the person in charge of each group, together with the management and their collaborators, sets goals that are periodically checked to verify their fulfillment. Although it is at least partly an evaluation, the main objective of the tool is to improve the development of the groups. Where the evaluation is most visible is in the calls for positions. Although the different groups make calls based on their projects, needs, and funding tools, institutionally, we have managed to make annual calls for the admission of postdoctoral researchers and, more recently, for the promotion to Senior Adjunct Researchers" (Academic Director Institut Pasteur). In order to homogenize criteria and assist the evaluation commissions, the PI Montevideo has established a set of criteria for access and/or promotion to the highest hierarchy of the scientific ladder, Senior Researcher, which can be seen in the following table.

**Table 7**

*Criteria for promotion to Principal Investigator*

<b>PROMOTION CRITERIA</b>	<b>PRINCIPAL INVESTIGATOR</b>
Publications	YES (as author of correspondence) Member of editorial committees in refereed journals.
Autonomy	Conception and writing of projects, as well as original and review articles. Participation in conferences (as speaker and/or organizer). Quality and originality of own scientific project.
Mastery of a technology or experimental method.	Must demonstrate the ability to integrate two or more experimental approaches.

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Scientific evaluation activity	Research evaluation (refereeing of articles, project evaluation) Member of commissions (Institute, national and international S&T bodies).
HR Training	The number of doctoral students, postdoctoral students, and supervised researchers and their subsequent careers.
Continuing education or training	Postgraduate courses and specialization activities for researchers.
National and/or international recognition	Participation as guest speaker at international congresses.
Responsible for a sub-group or a team with thematic independence	Demonstrated ability to train a school. Network coordination.
Obtaining funding for projects related to the main lines of its work.	As responsible.
Titles	PhD Postdoctoral training or equivalent.

### Technological University

Created by Law 19,043 on November 28, 2012, UTEC is a state-run university with a clear technological profile oriented towards research and innovation. It has a broad territorial offer through the Regional Technological Institutes (RTIs), and its educational offer is linked to the needs of the people surveyed in the different regions of the country. "When the university was created, the proposal was that two things were taken into account when designing the degree programs: on the one hand, not to overlap with other existing offerings available in other institutions and, on the other hand, to try to match the proposed offerings with the productive sector in the region where the UTEC campus was to be located" (Research and Development Directorate, UTEC).

Recently, its founding regulations have been reformed, establishing as governing bodies with national competence the Central Board of Directors, the Rector, and the General Academic Council and, with competence in the regional institutes, the Directors of Regional Technological Institutes and the Regional Advisory Councils. The Central Directive Council is the highest hierarchical body. It is composed of the Rector, who must have recognized solvency and is appointed by the President of the Republic in agreement with the Council of Ministers, with the previous approval of the Chamber of Senators by a number of votes equivalent to three-fifths of its components. It is also composed of two (2) members appointed in the same manner as the Rector and one (1) Director of the Regional Technological Institute elected by his peers. The General Academic Council has a heterogeneous composition; it is the advisory body of the Central Board of Trustees in academic matters, and its consultation in such matters is mandatory and non-binding.

UTEC's R&D Department, created in 2022, manages various proposals to support research, including calls for the purchase of scientific equipment and grants for research initiation, postgraduate scholarships, and postdoctoral fellowships, prioritizing the topics defined as strategic by the university. The evaluations of the applications are in charge of the Evaluation and Follow-up Committee, composed of a representative of the R&D Department and three external representatives of research institutions. Among the aspects to be evaluated in the applications to the different categories of scholarships, it is worth mentioning:

✓ Applicant's background: schooling, career advancement, participation in university teaching, and the relation of his/her education to the subject of work.



- ✓ Background of the tutor/s and receiving group: professional and research experience in the proposed topic, experience in directing or co-directing students in research projects, and ability to act as a receiving group.
- ✓ Work Plan: detail and clarity of the proposal, feasibility of implementation, fit with the institutional strategy);
- ✓ Schedule of activities: adequacy of the schedule and feasibility of the expected results in each activity, adequacy of the Procurement Plan to the work proposal.
- ✓ Contribution of the Work Plan to the applicant's development: acquisition of experience in research activities considering the duration of the proposal and activities involved; linkage with the STI system; candidate's potential to apply the knowledge acquired in the future.
- ✓ Contribution to the recipient group: development of new lines of research or technological services, incorporation of new capabilities at the level of the institution, and linkage with the CTI system.

Regarding Research and Development, UTEC has two (2) strategic research groups, six (6) technological units distributed throughout the territory, and fifty-four (54) technological services offered. The strategic research groups are cross-cutting, interdisciplinary, and focused on production chains. They are made up of researchers from different areas and careers at UTEC, with the main lines of research being sustainable management of water, soil, and agri-food production. According to its institutional information, UTEC has fifty-four (54) researchers in different thematic areas. "This year, we made our first register of UTEC researchers, surveying the training and research activities that UTEC teachers were enhancing or would have done. Based on this, we made an internal characterization taking as a reference point what is required by the SNI, and we categorized the teachers into those who were researchers and those who could be considered candidates for researchers" (Research and Development Directorate, UTEC).

There are five (5) categories of professors, those whose function is essentially oriented to teaching: admission-level and tenure-track professors. And then, there are the highly dedicated teachers distributed into adjunct, associate, and senior teachers. "The teachers we call highly dedicated (adjunct, associate and senior) are teachers who must perform all substantive functions, i.e., teaching, research, and liaison with the environment" (Directorate of Research and Development, UTEC).

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Ley orgánica la UdelaR

Estatuto del Personal Docente UdelaR

## SECTION 3

### SNI researchers' knowledge production and circulation profiles<sup>3</sup>

In the second part, documents, experiences, and testimonies of evaluators were analyzed, which shows the marked academic profile observed in some of the evaluation systems that coexist in the country. Starting with the SNI, where admission and promotion are ensured through regular scientific production, published in high-impact journals, together with the training of PhDs and international recognition measured by participation in editorial committees, academic councils, or invitations to congresses abroad. Recent efforts have been made to incorporate evaluation indicators aimed at the valorization of technological production. However, they do not yet have an impact on promotion but rather on initiation or renewal. In the case of UdelaR's Total Dedication Regime, the integral nature of the teaching function is valued, including teaching and extension, thus moderating somewhat the incentive to a purely productivist profile. But, due to its characteristics, the RDT demands an exclusive dedication to the university, which also profiles a university researcher who is hardly inserted in the productive or social sphere. "Being a RDT limits your activity in the industry, and as time goes by, you become disconnected. I was the technical director of a laboratory, and I could continue to be so. But I chose total dedication. Now, 20 years later, returning to the industry would be complex. Losing the TD, especially the more advanced you are in your career, is worse because it represents 60% of your salary. For the values of the UdelaR, which are not very competitive, the DT salary is really key. In the industry, I would earn more, undoubtedly, but it is a decent salary, let us say" (Researcher PEDECIBA-UdelaR).

Evaluative cultures and salary incentives are instruments that influence par excellence, the orientation of knowledge production, and circulation practices. In countries where the entire body of researchers is subject to the same rewards (and punishments) in a national scale system, such as the SNI, the profiles of scientists tend to be increasingly homogeneous. As we discussed in the second part, the existence of several academic evaluation systems at the institutional level (IIBCE, INIA, RDT- UdelaR, ORT, Institut Pasteur de Montevideo) produces an over-evaluation that directly affects the scientific community. However, it has the virtuous effect of offering diverse paths to a successful academic career. For this reason, there is an important group of researchers who are not part of the SNI and who can nevertheless be defined as researchers. As stated in the CITINDE study (see Figure 1), the universe of researchers in Uruguay thus totals 3,842 people,

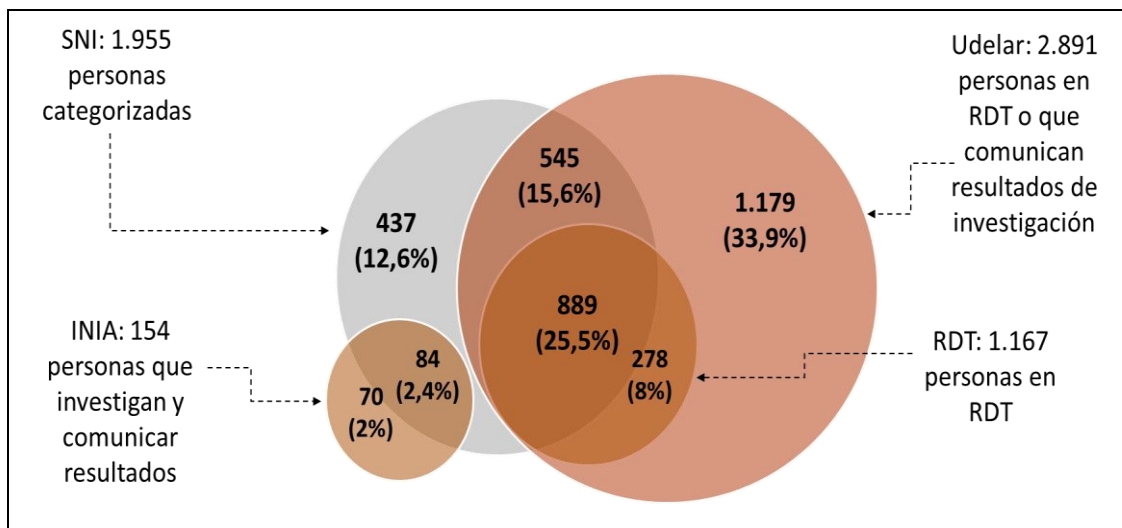
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<sup>3</sup> I am especially grateful for the collaboration of Exequiel Fontans and Natalia Aguirre both for harvesting the data that made this study possible and for the fruitful dialogue we had. I also thank Manuel Bruccoleri Ochoa for his help with the construction of the trajectory database.

which, by 2022, is quite close to the figure reported in international studies on personnel dedicated exclusively to research.

**Graph 1**

*CiTINDe Consulta Investigan. Survey (August 2022)*



Knowing the diverse profiles that emerge from this complex scientific community requires an in-depth study, not only of the totality of the production reported in CVUy but also of other aspects of the trajectory that characterizes the researchers, exploring disciplinary differences and research agendas. It is also possible to explore whether there are defined institutional profiles outside the UdelaR constituting a system by itself. But this type of study exceeds the objectives of this advisory; therefore, we propose here to explore, exclusively, what profiles of production and circulation of knowledge are observed in the universe of SNI researchers in order to offer inputs that contribute to supporting the recommendations of this report.

**The "career most-relevant productions" and their demonstration effect of the evaluative culture**

It is relatively common to find academic evaluation systems that promote the selection of relevant productions that each researcher proposes to his/her evaluators to show different aspects of his/her work or the extent of its circulation. The *Centre National de la Recherche Scientifique* (CNRS) in France has recently implemented a change towards evaluating relevant productions and not of the complete list, together with a new open access policy aimed at

favoring publication in non-commercial circuits<sup>4</sup>. In Argentina, the National Council for Scientific and Technical Research (CONICET) used to request, until 2016, the 5 most relevant productions of the career, both to applicants for admission to the career and to those applying for promotion. After several years of having eliminated them from the call for applications, in 2021, they were reinstalled in the agency's management and evaluation system (SIGEVA), and the evaluation grids were adapted to this new input, with the aim of promoting a more qualitative than quantitative evaluation.

The individual selection of the 5 relevant papers has the advantage that it shows the orientation of the evaluative culture that people seek to satisfy to achieve a successful presentation. Therefore, they choose those productions that they believe the system will reward. This may change as evaluative practices, evaluation criteria, or regulations change, but they constitute a good snapshot of the publication styles, the formats of knowledge production, and circulation that reign at a given moment. For example, in the study we made of the 5 relevant productions of CONICET researchers for 2014, we noticed that researchers mostly selected articles (a few books) written outside of Argentina and in English (Beigel, 2017). On the other hand, in the study of the production of these researchers based on the complete CV declared in SIGEVA for 2020, we observed that the portion of publications in Argentina and Spanish increased significantly, as well as other formats, such as conference proceedings and dissemination (Beigel & Gallardo, 2021).

In the case of Uruguay, the CVUy platform has a particularity that should be highlighted: it does not speak of relevant productions but of "relevant work," which can be selected in the Production section and also in Human Resources, selecting tutorials, orientations, and/or supervisions. The Production module has a narrative space where you can synthesize "the significance of your work in the context of the main problems raised in your area." This opens the possibility of including publications and other types of activities or products in different media. The types of formats are divided into Bibliographic (Articles in scientific journals, books, publications of work in events, texts in newspapers or magazines, and working papers) and Technical (Technological products, processes or techniques, technical works, charts or maps, short courses, development of didactic material, editing or revision, models, TV or Radio programs, research reports, organization of events, maintenance of works).

A relevant detail concerning the advance of open access to scientific information is that the application for admission to the SNI implies the applicant's consent for his or her curriculum vitae to be published. This also makes it possible to carry out this study under the observance of national regulations on the use of personal data. The situation is different for the curricula of other evaluation systems that do not use CVUy or that do not contain this express consent, such as RDT- UdelaR or PEDECIBA, for which other confidentiality procedures and different efforts are required in the harvesting of data from non-standardized and/or non-digitized curriculum vitae formats.

According to the SNI regulations, it is the responsibility of researchers categorized in the SNI to update the curriculum vitae information system every six months. We chose to carry out this study during a recent consultation, taking advantage of the closing of the SNI call for applications on December 21. The information was extracted in collaboration with two researchers from UdelaR, Exequiel Fontans and Natalia Aguirre, who had the authorization to carry out the

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<sup>4</sup> <https://www.cnrs.fr/en/nos-recherches/evaluation>

necessary queries in CVUy and completed the data harvesting by January 5, 2024. Performing this consultation after the end of the annual SNI call for applications had the added value that the people who applied to the system had to revise their curricula vitae for this opportunity. In fact, of the total of 2,117 SNI researchers, 1,691 updated their CVs in the months leading up to the 2023 Call for Applications. Hence, the database we will analyze below contains a high percentage of updated curricula vitae.

With respect to the observed universe, information was only extracted for SNI researchers at the 4 levels, i.e., not for first-time Initiation applicants who have not yet been evaluated and are not yet part of the system. The trajectory information and bibliometric data collected are described in the following section. It is only appropriate here to clarify the information that was not provided by the system and that has value for a prosopographic analysis but can be deepened in the future. We refer to the information on children and the date of admission to SNI.

### The SNI-CVUy database and the methodology used to build the researcher profiles

1. From the file "2024 01 10-Descargas.xlsx", the data of "id", "fecha\_nacimiento", "sexo", "nombres", "apellidos" are taken. This table will be referred to as "tb\_descargas".

2. They are dumped through Excel in the file "2023 12 26 - Base de datos Investigadores SNI Uruguay con producciones relevantes- revisada - copia.xlsx", in the columns previously decided by the CONICET team in "DNI-Pasaporte", "Apellidos", "Nombres", "Fecha de nacimiento", "Sexo". From now on, this new table will be called "tb\_base".

a. "tb\_base" – "DNI-Pasaporte" taken from "id".

b. "tb\_base" – "Apellidos" taken from "apellidos".

c. "tb\_base" – "Nombres" taken from "nombres".

d. "tb\_base" – "Fecha de nacimiento" taken from "fecha\_nacimiento".

e. "tb\_base" – "Sexo" taken from "sexo".

3. With the first data dumped into the "tb\_base" table, the preparation, processing, and joining in R of the "tb\_base" with the "tb\_cabecera", taken from the file "2024 01 10 - cabecera-202401101835.csv", begins.

a. "tb\_base" – "Área" taken from "area".

b. "tb\_base" – "Sub-área" taken from "subarea".

c. "tb\_base" – "categoria SNI actual (activo-asociado-emérito)" taken from "categorizacion\_sni\_actual".

d. "tb\_base" – "Nivel SNI (Iniciación, I, II o III)" taken from "categorizacion\_sni\_actual".

4. After the data dump of the "tb\_cabecera" on the "tb\_base", we continue with the data dump of the "tb\_institución", taken from the file "2024 01 10 - institucion-principal-202401101836.csv", in R.

a. "tb\_base" – "Institución principal de Trabajo" taken from "institucion\_nivel\_i".

b. "tb\_base" – "Provincia de la institución principal" taken from "pais".

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- c. "tb\_base" – "Departamento o Facultad cargo 1" taken from "institucion\_nivel\_ii".
5. We continue with the "tb\_vinculos", taken from the file 2024 01 10 - vinculo-institucion-202401101837.csv. With it we dump on the "tb\_base", in R.
- a. "tb\_base" – "Cargo 1 docente principal actual" taken from "detalle". The criterion used was to filter first those who are mentioned in detail as docents or professors. Within this group, we filtered out those positions that are still active (no end date for the position). Then, we ordered the positions of each person by class load and, if necessary, by multiple positions. We prioritized the one with the highest Grade or level. This leaves only one teaching position per researcher.
- b. "tb\_base" – "Tipo cargo 1" taken from "descripcion". We put the type of position held by those who claim to be docents or professors in the column "detalle."
- c. We construct the "Grado o Nivel )" from the column "Cargo 1 docente principal actual".
6. We continued constructing the data of UdelaR and its grade, PEDECIBA and its grade, and INIA and its cargo from the column "Institución principal de Trabajo", already constructed in the "tb\_base" previously. For this, we used filters and string detectors in R.
- a. "tb\_base" – "Es DT UDELAR?" data taken from the column Institución principal de trabajo (ver 4.a.). Results dichotomous variable: "Sí" or "No".
- b. "tb\_base" – "Es PEDECIBA?" data taken from the column Institución principal de trabajo (ver 4.a.). Results dichotomous variable: "Sí" or "No".
- c. "tb\_base" – "ES INIA?" data taken from the column Institución principal de trabajo (ver 4.a.). Results dichotomous variable: "Sí" or "No".
- d. "tb\_base" – "CATEGORÍA ACTUAL" In positive cases (when the researcher is INIA), the column category is replicated "Grado o Nivel )".
7. We continue constructing the data of Título Doctor and Título Maestría. Both datos are incorporated into the "tb\_base" coming from the "tb\_formación", taken from the file "2024 01 10 - formacion-202401101835.csv". For each person, we conserve the data of the doctorate (this gives us the notion of "Edad Académica"). The same criterion is used for master's degrees.
- a. "tb\_base" – "Tiene titulo Dr?" taken from the columna "nivel". If more than one doctoral degree is registered, we conserve the data with greater seniority. Results variable dicotómica: "Sí" or "No".
- b. "tb\_base" – "Año...32" taken from the column "anio\_obtencion\_del\_titulo"
- c. "tb\_base" – "Denominación...33" taken from the column "plan\_de\_estudios"
- d. "tb\_base" – "Institución...34" taken from the column "institucion\_nivel\_i"
- e. "tb\_base" – "País...35" taken from the column "país"
- f. "tb\_base" – "Tiene Maestria?" taken from "nivel". If more than one master's degree is registered, we conserve the data with greater seniority. Results dichotomous variable: "Sí" or "No".

The data is exported up to here, in a first final version of the data, called "tb\_base\_con\_cabecera\_institucion\_y\_titulo.xlsx".

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We continue to construct the **SNI admission\_year** data to analyze the trajectories of researchers and their promotion in the system between 2008 and 2022. This information was based on a complementary data table, "2023 02 27 - Trayectorias SNI", provided by the SNI based on a request in the public platform for information requests that the SNI has for this purpose. <https://anii.org.uy/institucional/solicitud-de-informacion/> Request made under ticket number: C179846, on Date: 2024-01-30 20:50:35. The same was answered with valuable data that we include in this part. On this occasion, we proceeded to filter the data INGRESO of the column "id\_sni\_modalidad\_postulacion" to extract the information of the year corresponding to the call for which the admission was made from the column "convocatoria\_anio". In those cases (n=339) where the same person submitted more than one record, the oldest year was selected. From crossing this information with the data in the column "nivel" (current), 50 records with admission data from 2008 to 2016 and the current category "Iniciación" were eliminated because they were duplications of people leaving the system and re-entering, given that the regulations do not allow permanence of more than 6 years at that level.

The construction of the database of relevant works is taken from the file "2024 01 10 - produccion\_202401101508.csv". It has been worked exclusively in Excel, filtering these data according to the number of productions mentioned by each researcher. In this way, in order to build profiles (typologies) of researchers, only those researchers who registered between 4 and 9 relevant productions (1,975 cases) were filtered and retained, excluding those who fell outside this range (322 cases). The first thing that was done was to group the types of productions, which totaled 30 types of productions, based on a classification into 8 categories:

**Table 1**

### *Classification of relevant work*

Type of relevant work (30)	Classification (8)
Refereed journal article - Complete	Refereed journal article
Refereed journal article - Abstract	Refereed journal article
Accepted refereed journal article - Complete	Refereed journal article
Refereed journal article - Review	Refereed journal article
Accepted refereed journal article - Abstract	Refereed journal article
Non-refereed journal article - Complete	Non-refereed journal article
Non-refereed journal article - Abstract	Non-refereed journal article
Article accepted in non-refereed journal - Complete	Non-refereed journal article
Texts in Newspapers	Disclosure
Organization of events	Disclosure
Texts in Magazine	Disclosure
TV or Radio Programs	Disclosure
Book - PARTICIPATION	Books
Book - COMPLETE	Books
Book - COMPILED	Books
Development of didactic material	Didactic material
Short-term courses	Didactic material
Technology products	Technological production
Publication of papers at events - Summary	Publication of papers in scientific events (congresses)
Publication of works in events - Complete	Publication of papers in scientific events (congresses)



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Publication of papers at events - Expanded Abstract	<b>Publication of papers in scientific events (congresses)</b>
Working Papers - Complete	<b>Technician</b>
Technical work	<b>Technician</b>
Processes or techniques	<b>Technician</b>
Editing or Revision	<b>Technician</b>
Research reports	<b>Technician</b>
Other technical productions	<b>Technician</b>
Works Maintenance	<b>Technician</b>
Charts or Maps	<b>Technician</b>
Models	<b>Technician</b>

With the 8 categories grouped, the second step was to assign scores according to their inclusion, or not, in a typological researcher profile, as follows:

**Table 2**

*SNI researcher profiles, according to relevant work and assigned score*

<b>Relevant work</b>	<b>Academic_profile</b>	<b>Disclosure_profile</b>	<b>Technology_prod_profile</b>
Refereed journal article	1	0	0
Non-refereed journal article	0	1	0
Disclosure	0	1	0
Books	1	0	0
Didactic material	0	1	0
Technological production	0	0	1
Publication of papers in scientific events (congresses)	1	0	0
Technician	0	0	1

The profiles considered were 3: academic profile; dissemination profile; and technological productions profile. Each researcher (according to ID) received a score for each category. This score ranges between 0 and 1 point per category, and the sum of the scores of the three profiles should result in 1. To achieve this, scores are assigned to each researcher category, and these scores are divided by the total scientific productions (remember that the cut-off of selected researchers considers those with between 4 and 9 relevant productions). In this way, each category of the profiles will oscillate between 0 and 1 point and, as the criteria are the sum of points of the profiles excluding each other, the sum of the three categories will always result in 1. Let us see below an example for the "id" 13010725:

<b>Production count</b>	<b>acad_profile_sum_points</b>	<b>average_acad_profile</b>	<b>sum_points_disclosure</b>	<b>average_disclosure</b>	<b>technology_prod_sum</b>	<b>technology_average_prod</b>
4	3	0,75	0	0	1	0,25

The observed profile has 4 relevant productions: 3 "Refereed journal article" and 1 "Technical". Given the productions it has, it will add 3 points for the academic profile (which, divided by its 4 relevant productions, will result in 0.75 average points for the academic profile); 0 points for the

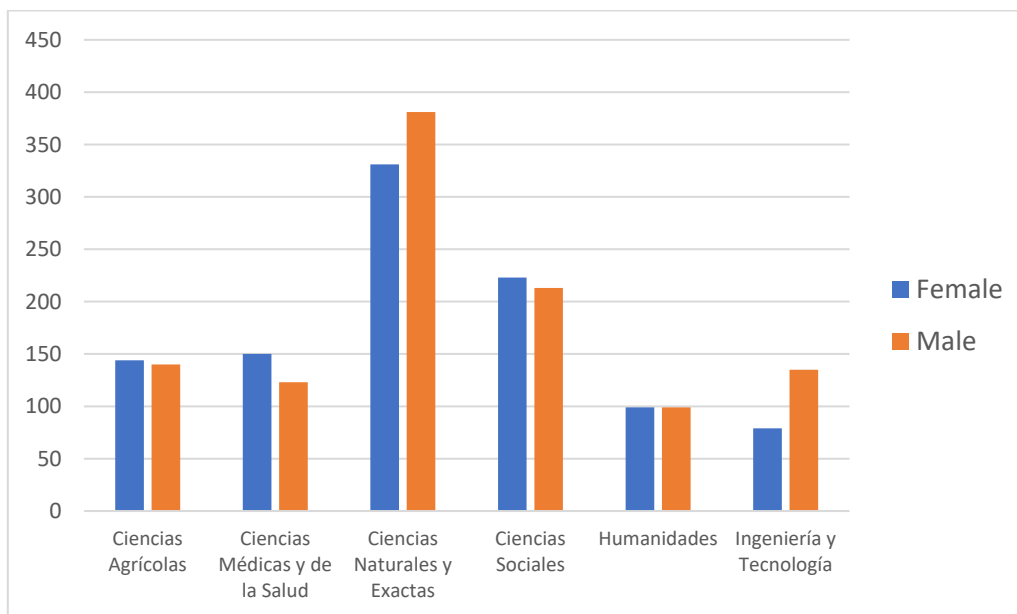
dissemination profile; and 1 point for the technological productions profile (divided by its 4 relevant productions will result in 0.25 average points for the technological productions profile). Thus, we are faced with a mixed profile, with academic-dominant characteristics and, to a lesser extent, some technological productions perceived as relevant.

### The morphology of the universe of SNI researchers

The analysis of SNI researchers in their updated configuration as of the Call closed in December 2023 shows that 48% are women, and 52% are men (without non-binary options). By area of knowledge, we can observe a preponderance of the exact and natural sciences (34% of the total), followed by the social sciences, which group 21% of the researchers. Figure 2 shows the distribution by area and sex. As is common in many countries, men predominate in the exact sciences, engineering, and technology. On the other hand, the composition of certain areas that are more feminized, but to a lesser extent than in other countries, is striking: the medical and health sciences have more female researchers, and the social sciences are slightly above parity.

#### Graph 2

SNI researchers by disciplinary area and sex n=2.117



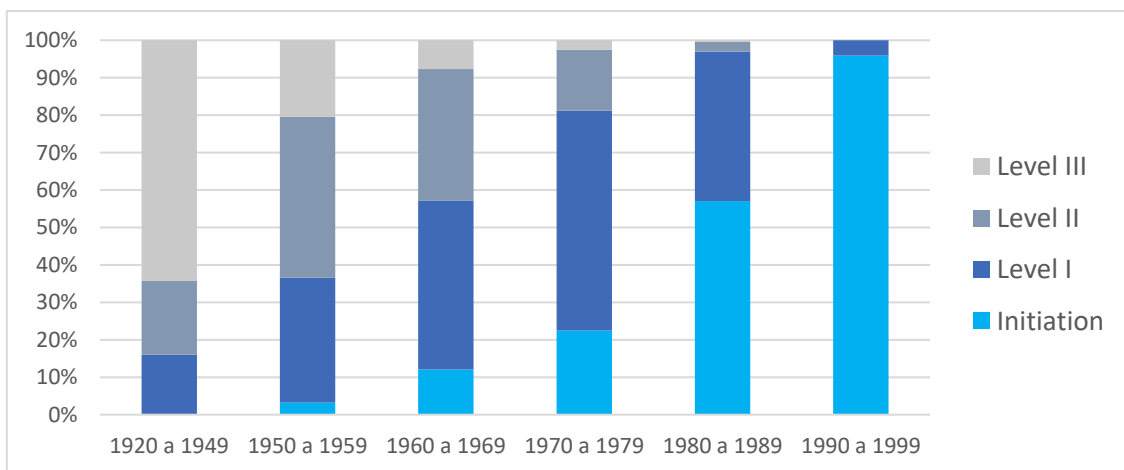
The biological age of the researchers and the level reached in the system are important data for the objectives of this report since their intersection provides information on mobility and allows a more complete map to be drawn up with respect to the qualitative analysis offered in the second part. Currently, of the total of 2,117 researchers analyzed in this report, 33.3% are in the Initiation Level, 43.6% in Level 1, 17.1% in Level 2, and 6% in Level 3. At first glance, it seems like a young population pyramid, with a third of new researchers and a very relevant portion in the first level of the system. However, in biological age, it is an aging pyramid.

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Analyzed by date of birth, we find that, at the Initiation level, the vast majority are between 35 and 44 years old (413/705), and only 94 people are younger than 35 years old. These data indicate long careers with a rather late doctorate, which may be due to the requirement first to obtain a master's degree or to the extension of undergraduate careers. What is certain is that in Level 1, there is a notable presence of many people who are at an advanced stage of their careers, who are between 45 and 65 years of age (560/924), and make up 60% of the people in this level. Thus, we see that in the generations born up to 1949, 50% were in Level 3 or emeritus, but an important part were in Level 2 or even Level 1. If we observe in Figure 3 the intermediate generations, especially those born between 1960 and 1979, we can see that there is a stagnation of an important part in Level 1. The SNI Monitoring report (2018) already marked the tendency to concentrate on Level I, with mobility to the two higher levels presented as relatively exceptional. In the second part, we deeply analyze the causes of this phenomenon, especially the rigid requirement of having thesis directions to be promoted to Level 2.

### Graph 3

*SNI researchers by decade of birth and level n=2.117*

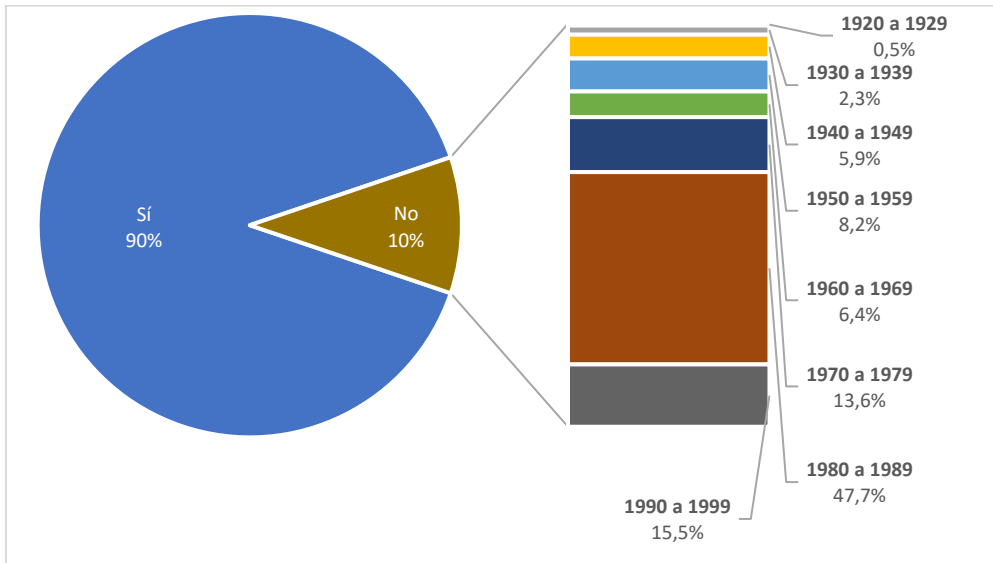


In general, the referents and evaluators interviewed consider that the postgraduate development process has been slow and late in the country, which explains to a large extent the fact that it is not yet mandatory to have a doctorate at the Admission Level. However, doctoral degrees among the body of SNI researchers are widespread, even with a significant proportion who obtained their doctorate between 1999 and 2015. Many of these individuals, who obtained their doctorate more than 20 years ago, are still anchored in Level 1 of the SNI. Figure 4 shows that only 10% of the total number of SNI researchers do not have a PhD (a total of 220). Of this group, the great majority is at the Initiation Level (172/220).

### Graph 4

*SNI researchers, according to doctoral degree and decade of birth N=2.117*

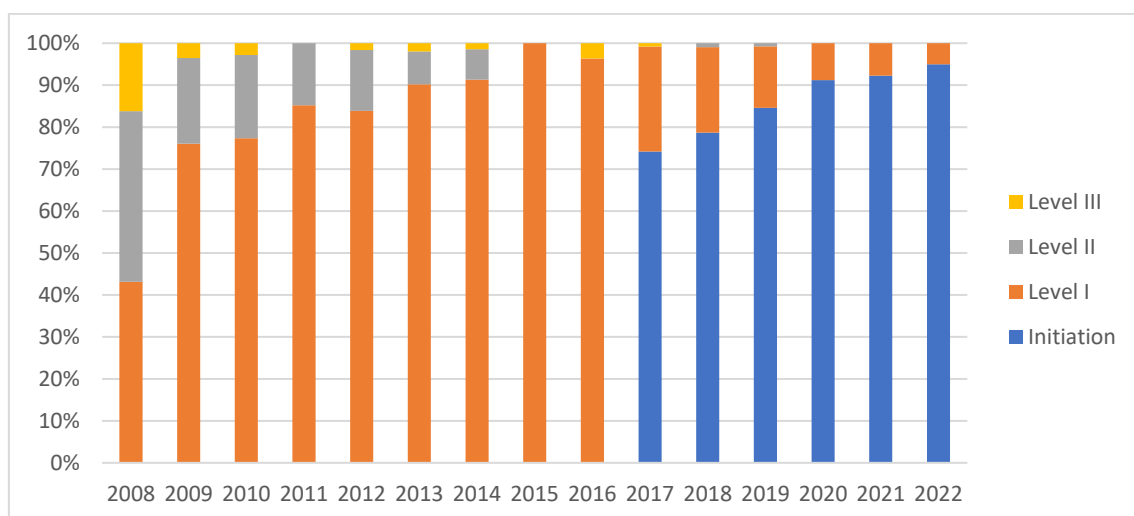
## CONICYT CONSULTANCY – FINAL REPORT



The relevant data are the date of admission and the current category used to analyze the rates of upward promotion between SNI levels. This information was obtained through a formal request to the SNI to relate it to the list of researchers in the table of trajectories constructed from CVUy. Figure 5 shows the current distribution by year of admission, according to their levels. Level 1 predominates among the four levels, accounting for 45% of the total. Of these, 51.7% (491/949) entered between 2008 and 2010, meaning they have been in the same system level for between 12 and 14 years.

**Figure 5**

Active SNI researchers by year of admission (2008-2022 cohorts) and current level, n=2,119



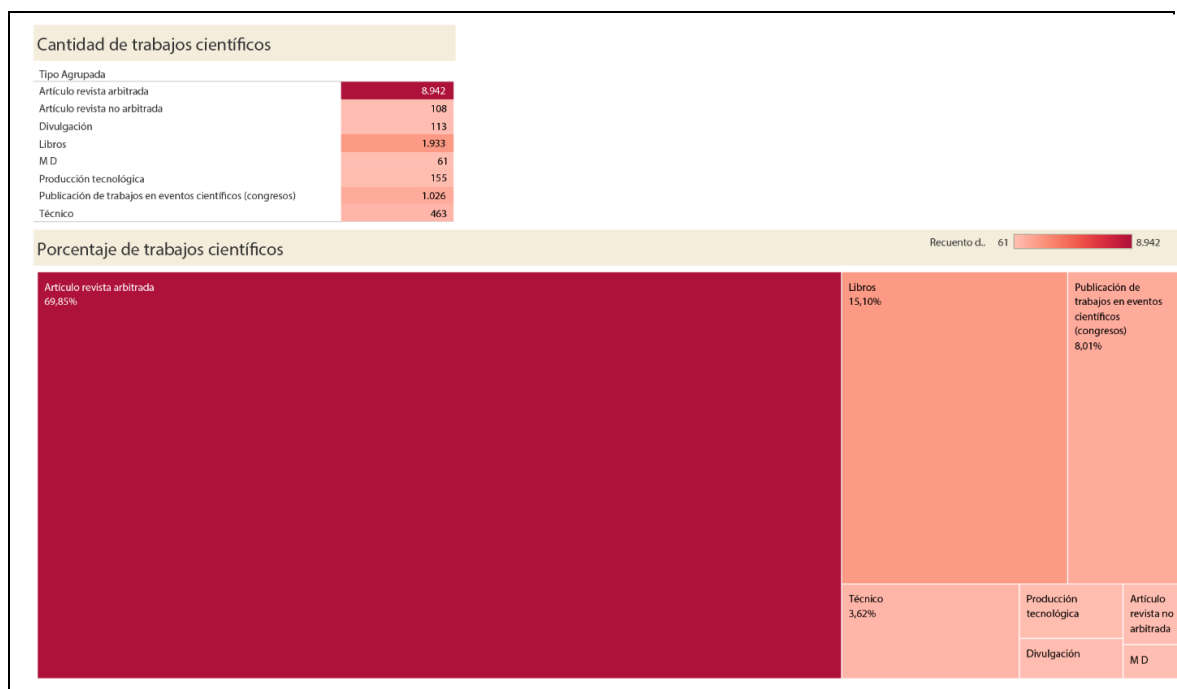
Note: there is a difference of 2 individuals between the information provided by ANII and the consultation made in CVUy, which is probably due to some technical mismatch.

The historical data on admission and current levels allow us to observe that the cohorts from 2009 to 2016 are clearly affected by the stagnation at Level 1. In addition, they serve to complete the picture of gender gaps observed through the interviews that refer to the effects of these inequalities on promotion in the SNI. Of the total number of researchers currently in Level 1, 51% are men, but there are cohorts that show a much higher participation of women. Finally, as is well known and has been studied in the available literature, the glass ceiling is verified as one moves up the levels. At Level 2, 36% of women are female, and this deepens at Level 3, with only 23% reporting female gender.

### The output of the SNI researchers: a relatively homogeneous corpus

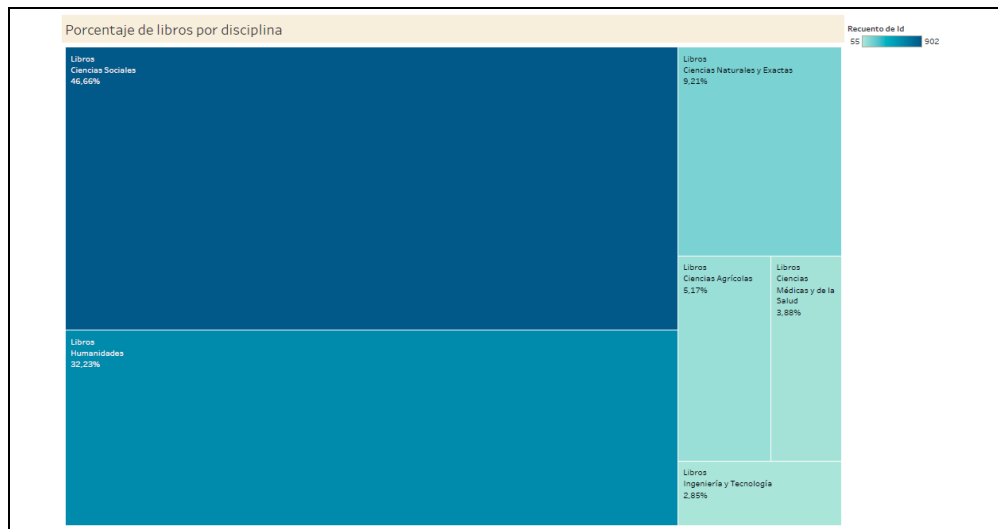
An analysis of the total of relevant productions harvested for the 2,117 researchers shows that we have a total of 12,801 units of "relevant work" selected, the salient characteristic of which is that most of them correspond to publications. Figure 6 shows that they are mostly distributed among articles in scientific journals (69.85%), books (15.10%), and publications in conference proceedings (8.01%), totaling 93% of the total relevant works. In other words, the selection of non-refereed productions, technological production, dissemination of didactic material, or artistic works occupy a truly marginal portion of the total. The main conclusion that emerges from this picture is that the SNI has an evaluative culture centered on traditional academic production, which is why researchers choose articles, books, or scientific conference proceedings because they consider that they will be better rewarded either for permanence or promotion.

**Figure 6**  
Relevant work of SNI researchers, n=12,801



The percentage corresponding to books is very significant. It shows an academic culture that did not completely transition to the paper format, as is quite common in other countries. However, it preserved bibliodiversity to a large extent, valuing the book as a means of scientific communication. This is demonstrated by analyzing these productions and verifying that they are not only books produced by the social and human sciences but also extend to other disciplines, such as the exact and natural sciences (9.21%) or agricultural sciences with 5.17% of the total. Figure 7 shows that this format is less relevant in the medical, health, engineering, and technology sciences.

**Figure 7**  
Relevant works: books, by scientific area (n=1,933)



The following tables show that the trend in books does not show a significant difference between sexes and that it is distributed over a wide range of ages, so it is not a dominant practice only in the older generations.

**Tables 3 and 4**  
Books by date of birth and sex, n= 1,933

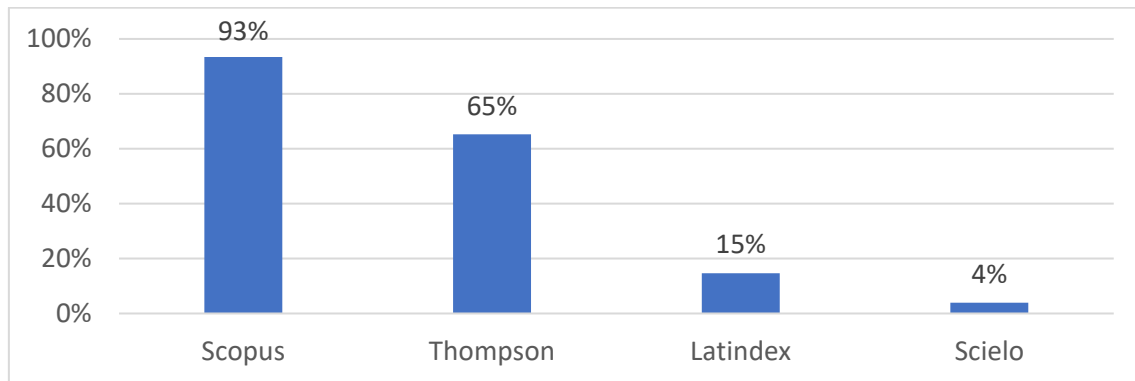
Recuento de libros por sexo			Recuento de libros por década de nacimiento		
Tipo Agrup..	Sexo		Tipo Agrup..	Fecha_de_...	
Libros	Masculino	988	Libros	1930s	17
	Femenino	945		1940s	119
				1950s	262
				1960s	530
				1970s	517
				1980s	458
				1990s	30

The relevance of the articles in the set of relevant works also allows us to know the type of publication that is most valued in the SNI categorization (7,721/12,801). A fundamental aspect for the area technical committees (according to the criteria and experiences expressed in the interviews and analyzed in the second part of this report) is the indexing of the journals in which

the articles are published. This indexing, in turn, makes it possible to observe the weight of the "mainstream" indexing services that measure impact through rankings organized into quartiles (Scopus and Web of Science - today Clarivate). Figure 8 shows that 93% of the articles are indexed in Scopus, followed by WoS, and far behind by Latindex and Scielo, which means that articles belonging to journals that are evaluated for their impact predominate in the choice. The CVUy data do not allow us to establish the quartile to which each article belongs.

**Figure 8**

*Refereed articles selected as relevant work by indexation (n=7.721)*



Note: articles can have more than one indexation, so each column adds up to 100%.

Let us now see how the SNI researchers present themselves based on the profiles of production and circulation of knowledge that can be extracted from the type of relevant work selected and described in the methodological section. Table 5 shows the 3 profiles and their corresponding relevant papers. A statistical challenge that had to be solved stems from the fact that researchers are not only allowed to choose 5 relevant papers, but they can also choose new papers, and the previous ones remain accumulated. In other words, they can choose more than 5 without the CVUy system preventing them from doing so, reaching 16 relevant papers for some individuals. For this reason, we only included individuals who had selected between 4 and 9 relevant jobs in this analysis.

**Table 5**

*Profiles of researchers with 4 to 9 relevant selected papers*

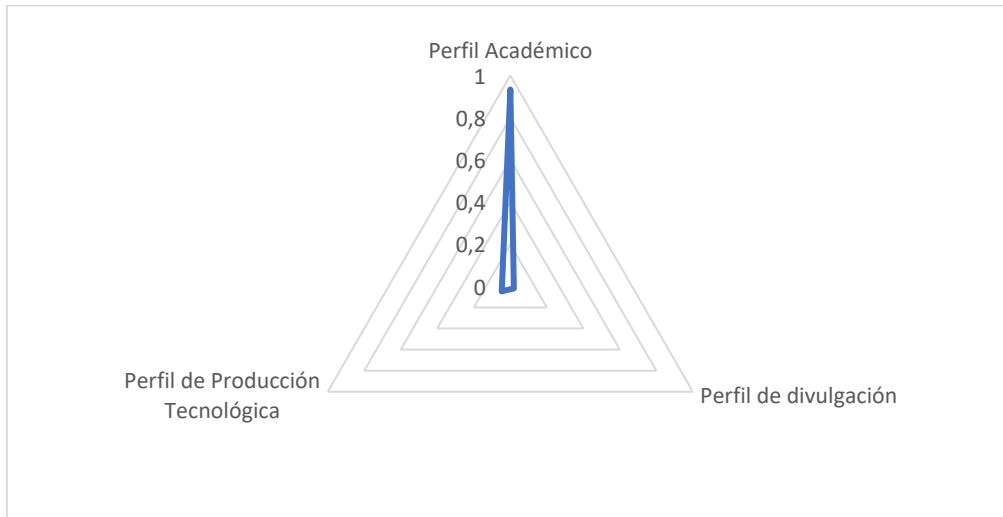
	Academic Profile	Disclosure profile	Technology Production Profile
Researchers	93%	2%	5%

The profiles indicated in the table show the low incidence of both the dissemination and technological profiles, which can be seen in Figure 9 (radar). This emerged in the interviews when CTA evaluators were consulted: "Everything related to social intervention, technical production, scientific dissemination is undervalued, it seems to me. For example, we made an intellectual property registration of an evidence-based intervention on sexual education and pregnancy prevention. However, I did not know where to put it in the CVUy, so I put it as a project. It is not

a patent, it is not a book, it is not a technical report" (CTA-Social member, SNI). It should be clarified that the distribution of the 3 profiles is practically the same for men and women.

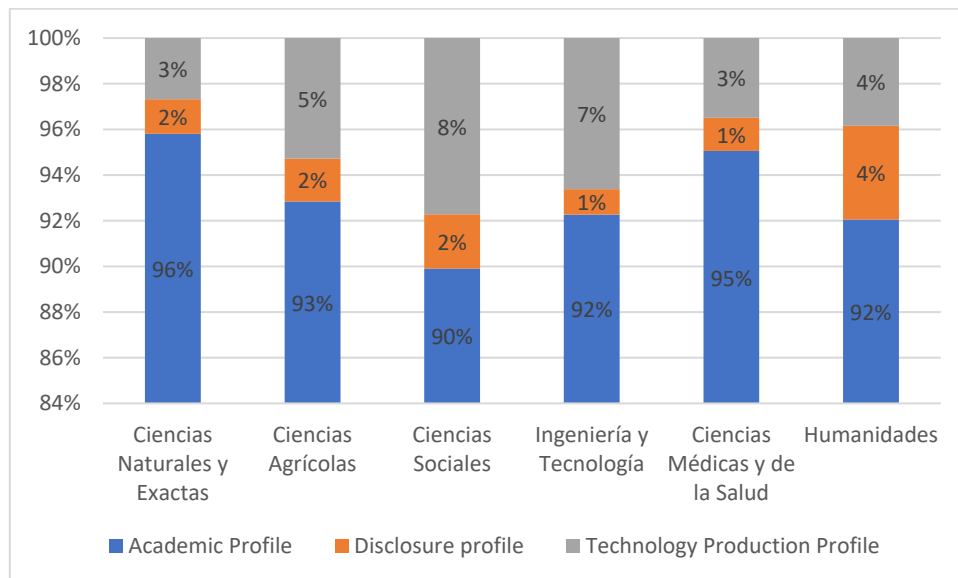
**Figure 9**

Researchers with TR 4 to 9 (n=1,795)



**Figure 10**

Profiles by scientific area (N= 1,795)



It is striking that researchers chose more relevant works in the social sciences to be classified in the profile of technological production, normally linked to research in the "hard" sciences. Table 6 shows that this is the category that CVUy classifies as technical production, and it is mainly composed of "working papers" that can be reports or texts not published in traditional formats such as articles or books.

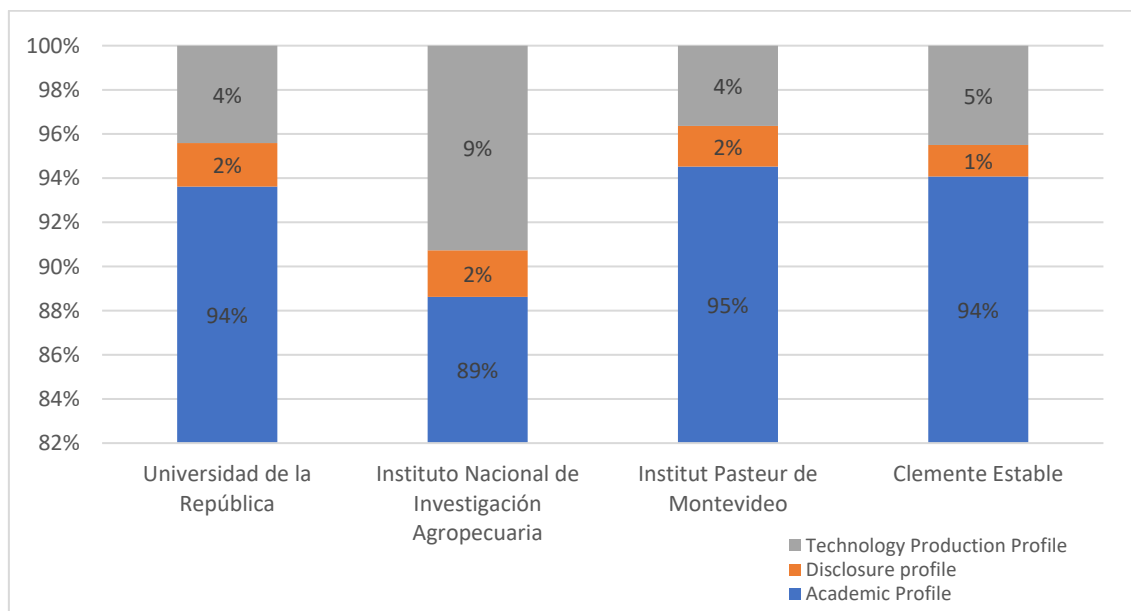


**Table 6**  
*Relevant works of social science researchers that selected technological or technical productions (n=191)*

Type of production	Absolute frequency	Relative frequency
Working Papers - Complete	104	54%
Editing or Revision	8	4%
Research reports	14	7%
Technical work	44	23%
Other technical productions	7	4%
Technology products	11	6%
Processes or techniques	3	2%

It is also convenient to analyze the profiles by the institution to verify whether there is any pattern that would allow us to identify institutions that are more inclined to one profile or another. Figure 11 shows that even with a fairly low incidence, the technological profile has a greater presence in INIA and second place in the Clemente Estable Institute.

**Graph 11**  
*Profile typologies in selected institutions (N= 1,409 researchers)*



Note: the scale ranges from 82% to 100% so that the marginal portions of the technology and disclosure profile can be visualized.

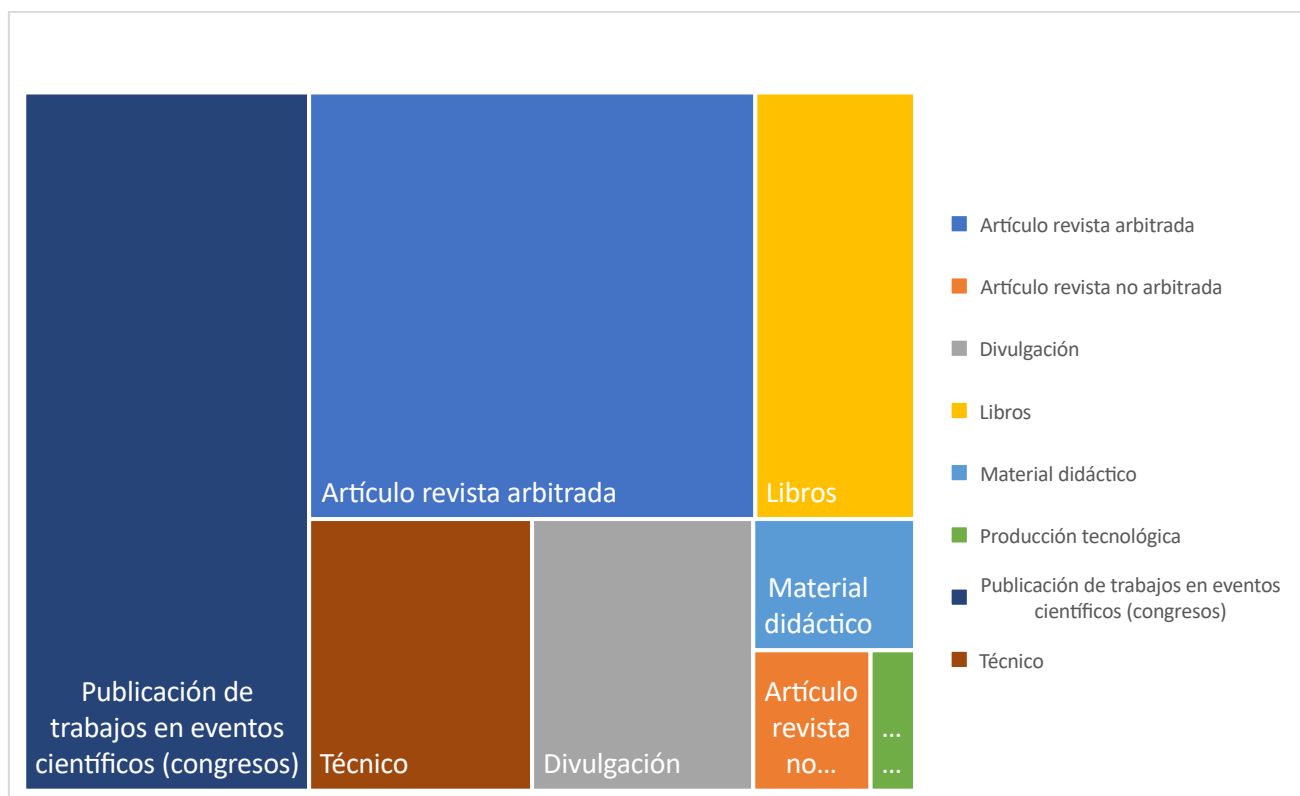
**Conclusions: What researcher profiles exist in Uruguay?**

As we saw in Part 2 through the interviews, the SNI promotes an ideal researcher profile that is predominantly academic, which is confirmed by observing the trends of the relevant works selected by researchers in their CVs and applying to the system. However, these types of selections that people make in the hope of being rewarded in the evaluation process are distinguished from the actual production that they show in their complete CVs. For this reason, it is convenient to compare it with the total production of the 2,117 researchers to verify whether technological production and other types of production other than articles and books are also marginal. The SNI Monitoring report (ANII, 2018) advances us that the average number of publications per researcher is 1.57 journal articles per year, rising to 2.23 for medical sciences and falling to 1.07 for social sciences. In contrast, for technological production, an average of 0.24 technical papers per researcher per year and 0.06 products on average per researcher per year are reported (ANII, 2018: 22).

Analyzing the CVUy production database in its current picture (See Graph 12 and Table 7), we see that journal articles and books or book chapters continue to predominate. However, technical production reaches higher participation than relevant productions (surprisingly, technological production decreases significantly). The category that quadruples its participation is the publication in conference proceedings (32% of the total), whose explanation requires specific analysis by discipline in relation to the multiplier effect generated by collaboration between authors belonging to the SNI.

**Figure 12**

*Total productions for the total number of SNI researchers, by category (n=192.957)*



Note: each production was counted as many times as researchers had declared it, so we have repetitions that may affect the described proportions.

**Table 7**  
*Frequencies of production by category*

Type of production	Absolute frequency	Relative frequency
Refereed journal article	59067	30,6%
Non-refereed journal article	5108	2,6%
Disclosure	18642	9,7%
Books	21131	11,0%
Didactic material	6584	3,4%
Technological production	1932	1,0%
Publication of papers in scientific events (congresses)	61702	32,0%
Technician	18791	9,7%
<b>Total</b>	<b>192957</b>	<b>100,0%</b>

In order to know the rest of the researcher profiles that exist outside the SNI, it is also necessary to conduct a more in-depth study with some of the country's scientific institutions. Of interest are mainly the University of La Rioja and the different CENURs, but the specific profile observed in INIA is also very relevant. Surely a more detailed analysis of the complete production will show greater bibliodiversity edges, allowing us to point out a wider range of production profiles and circulation of knowledge in Uruguay.

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ANII (2018) El Sistema Nacional de Investigadores. Informe de Monitoreo. Unidad de Evaluación y Monitoreo.

## CONCLUSIONS, SYNTHESIS AND RECOMMENDATIONS

### Strengths and weaknesses of the evaluation of researchers in Uruguay: recommendations

In this document, we synthesize the main observations of the study carried out on the evaluation systems in Uruguay, considering the two most important inputs built throughout this consultancy: a) the interviews with referents and evaluators and b) the study of the profiles of production and circulation of knowledge of SNI researchers. While the strengths and weaknesses are centered on the analysis of the scientific field on a national scale (second and third parts), the threats and opportunities are largely related to the first part, that is, to the situation of Uruguay in the global context of discussions on evaluation. Diagram 1 shows the organization of this document, which will relate strengths to weaknesses in the first part and threats to opportunities in the second part.

Diagram 1



In general terms, the previous studies and diagnoses offered by the previous consultancies allowed us to reach a series of consensus regarding the needs currently faced by Science, Technology and Innovation in Uruguay. Among these agreements (developed in the second part), it is worth recalling some transversal weaknesses, such as the lack of articulation between the different actors and institutions in coordinated governance of the National STI System; the need for an increase in investment, and the strengthening of evaluation processes, resolving overlapping and over-evaluations. In this document, we also observed that there is a series of instruments to promote the full dedication of researchers and salary incentives in different institutions. However, the counterpart of this strength is that the competitive funds of ANII are insufficient for the critical mass currently available (See Annex I, project approval rate).

The autonomy of university institutions and the self-managed nature of the different academic evaluation regimes is a great virtue of the Uruguayan scientific field, which gives it a fundamental platform to face the threats and take advantage of the opportunities of the current global scientific context as we will see below. But, at the same time, it multiplies efforts and lacks the necessary articulation to enhance the circulation of knowledge produced in the country. One of the effects of the lack of coordination of the STI system is that it directly affects the mobility of researchers in their academic careers. We refer to the fact that most evaluation systems have focused their criteria on doctoral degrees and human resources training. The SNI played a fundamental role in this sense, stimulating the growth of postgraduate careers in universities. Currently, this goal seems to have been achieved since, as we saw in the third part of this report, 90% of SNI researchers have PhDs, and, in addition, there are now more than 450 graduate programs in the country (See Part Two, p.38)<sup>5</sup>.

However, a weakness of this incentive policy for postgraduate development seems to lie in the absence of evaluation and monitoring instruments. Given its self-managed governance, its implementation was deposited in the SNI, falling mainly on the Honorary Commission and the advisory commissions. It was an incentive that had an effect, but it generated a corset in the evaluation criteria for promotion in the SNI. The corset is materialized in a "hard" requirement to move to Level 2 (human resources training) and a visible stagnation in Level 1. The corset also tightens significantly at Level 3 due to a demand for "international recognition" not every mature researcher can achieve. In our opinion, the rigidity of these promotion requirements stimulated an academicist tendency which, if made more flexible, would allow an opening to new profiles and greater social interaction. Although, as Borlaug S. et al. (2024) argue, the relationship between researchers and their commitment to solving social problems is a complex, multifaceted issue subject to multiple determinants, the role of the SNI is key due to its nature as a national categorization system.

Over-evaluation is presented as a structural weakness of the system and is strongly manifested as one of the main demands of researchers in different workshops and trade associations. It is a phenomenon that is nourished by the very architecture of the Uruguayan scientific field due to its autonomous modality of historical construction and the specific weight of the UdelaR. In addition to the SNI, there is a multiplicity of academic careers with their own evaluation mechanisms (see Table 1), inside and outside UdelaR, which generate several overlaps. If we add the evaluations of teaching positions, many people are subjected to five evaluations, often coinciding with dates, generating a demand of time, pressure, and significant discomfort.

The strength of these independent systems is that there are several incentives for research, and the arrival of the SNI did not annul the existence of the other systems, nor did it superimpose them. In fact, categorization in SNI implies a salary incentive. However, it does not constitute an enabling/disabling category to direct projects or obtain funds, thus preserving the academic autonomy of the universities and allowing the development of scientific production profiles that are outside the SNI. This is a great advantage today compared to the homogenizing role played by the categorization systems in Latin America (see first part), which have been the vehicle for the imposition of dominant global standards over national agendas and local needs. The

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<sup>5</sup> The website of the Academic Commission of Postgraduate Studies of Udelar announces that there are more than 300 postgraduate degrees (including Diplomas, Specializations, Master's Degrees and Doctorates) <https://posgrados.udelar.edu.uy/portada.php>. In addition, there are approximately 150 postgraduate offers in private universities according to our count in the MEC statistical yearbook 2022.

counterpart is that the SNI would not become the backbone to unify these multiple evaluation systems that coexist and put pressure on researchers. However, the international debate is precisely about this dilemma of national or local governance of academic evaluation, and both levels have a relevant role<sup>6</sup>. As we will see in the recommendations, the main room for maneuvering would be in evaluating teaching positions that could be articulated with the evaluation of RDT, PEDECIBA, and others. In this way, individuals would have a national scale evaluation and an institutional scale evaluation.

**Table 1**

*Comparative table of academic careers*

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<sup>6</sup> You may be interested in listening to/reading the interview with Ismael Ràfols at <https://cecic.fcp.uncuyo.edu.ar/2023/11/21/entrevista-a-ismael-rafols-investigador-especialista-en-evaluacion-y-bibliometria/>.

## CONICYT CONSULTANCY – FINAL REPORT

INSTITUCIÓN/ PROGRAMA	PERIODICIDAD	CRITERIOS	REQUISITOS INGRESO	REQUISITOS PROMOCIÓN	INCENTIVO
<b>Sistema Nacional de Investigadores</b>	Anual (Ingresos) y periódica (permanencia)	Producción Científica - Formación de Investigadores - Capacidades de investigación - Formación equivalente	Doctorado reciente o avanzado y publicaciones producto de la tesis	Nivel I: Autonomía. Nueva línea de investigación. Nivel II: Consolidación. Formación de RRHH  Nivel III: Consagración. Reconocimiento internacional	Incentivo económico y categorización
<b>Régimen de Dedicación Total UdelaR</b>	Primera renovación a los 3 años y luego cada 5 años	Plan de trabajo - Producción Científica - Enseñanza de posgrado - Aplicación innovadora de conocimientos - Formación de Investigadores - Orientación en equipos - Financiación de proyectos – Evaluación - Participación en reuniones científicas	Cargo docente efectivo. Grados 2 y 3 formación universitaria con compromiso de formación posgrado. Grados 4 y 5 formación de doctorado	Depende de los concursos a cargos docentes	Plus salarial equivalente al 60% del sueldo por el cargo docente
<b>Programa del Desarrollo de las Ciencias Básicas</b>	De 3 a 5 años según disponga cada área	Producción científica (calidad vs. cantidad; nacional vs. extranjera) - Autonomía académica - Trayectoria académica - Formación de RRHH - Diversidad de aportes al sistema científico y a la sociedad - Impacto de las contribuciones científicas - Reconocimiento científico	Doctorado. Vinculación laboral con una institución púb. o priv. de investigación en el país. Producción científica reciente. Formación de investigadores	A Grado 4: Autonomía. Regularidad en la producción. Formación de RRHH de posgrado.  A Grado 5: Reconocimiento nacional e internacional	Alícuota, el monto se divide por la cantidad de integrantes por áreas
<b>Instituto de Investigaciones Biológicas Clemente Estable</b>	Cada 5 años	Para nivel superior: Formación académica - Producción Científica (impacto y protagonismo) - Cargos, premios, becas, reconocimientos - Formación de investigadores - Docencia de posgrado - Orientación en equipos - Financiación de proyectos - Actividades de gestión académica, construcción institucional y divulgación científica.			Cargo mediante concurso abierto de méritos y oposición
<b>Instituto Nacional de Investigación Agropecuaria</b>	Presentación a mejora salarial cada 3 años	Nivel de participación en el proyecto - Independencia, autonomía - Producción Científica (series técnicas, artículos con referato) - Formación de RRHH – Evaluación - Actividades de difusión con productores - Convenios		Promoción a cargo superior y postulación a mejora salarial en el mismo cargo. Sujeto a cumplimiento de metas en el plan de trabajo de tres.	Cargo
<b>Universidad ORT</b>	Informe Anual evaluado en dos instancias	Producción Científica - Financiación de proyectos (externo)	Docente Alta Dedicación		Cargo. Fondos de apoyo para publicaciones. Premio salarial por publicaciones en revistas de primer nivel. Complemento anual según categoría del SNI.
<b>Universidad Católica del Uruguay</b>	Publicaciones en 3 años	Para nivel superior: Amplio reconocimiento - Formación de académicos - Liderar equipos docentes y de investigación - Docencia como profesor asociado al menos tres años - Grado académico de doctor.	Profesor/a Investigador/a de Alta de Dedicación		Períodos sabáticos para investigación. Incentivos a la producción académica. Apoyo a la movilidad académica y congresos.
<b>Institut Pasteur de Montevideo</b>	Anual para ingreso de nivel posdoc y promoción a Inv. Adjuntos Senior	Para nivel superior: Publicaciones científicas (autoría) - Miembro de comités editoriales – Autonomía - Participación destacada en conferencias - Calidad y originalidad de proyecto científico - Dominio de una tecnología o método experimental - Evaluación científica - Formación de RRHH - Enseñanza o formación continua - Reconocimiento nacional y/o internacional - Responsable de equipo - Financiación de proyectos - Formación postdoctoral	Comité Científico Internacional que evalúa programas y llamados a posiciones de investigador/a		

Another of the cross-cutting observations of this consultancy, whose follow-up and analysis demanded the use of several inputs, is related to the perception experienced by many researchers interviewed that academic evaluation in Uruguay is dominated by quantitativism and productivism. We were first able to differentiate that this generalized impression was especially related to evaluation in the SNI and not to the same extent for the other evaluation systems (such as RDT- UdelaR, INIA, PEDECIBA, IIBCE, etc.). Rather, the latter were seen as more inclusive systems with greater possibilities of upward mobility. On the other hand, it was also possible to distinguish that this experience lived and reported in the interviews was directly related to the frustration resulting from highly praiseworthy evaluations in the ANII competitive funds that, however, do not result in the project's financing. These opinions lead non-beneficiaries to assume that this is because quantitative evaluations take precedence when, in fact, they seem to be due to the scarcity of resources available to the Agency and to reasons of another nature that are not the subject of this assessment.

### **Strengths and weaknesses of national and institutional academic assessment**

A system that was born as a salary incentive to promote research became, over time, a classification system that today determines who is (and who is not) a researcher. It also segments the universe of researchers and grants them a hierarchy. In this consolidation process as a categorization system, the SNI adapted the evaluation process by outlining an "ideal researcher" built on the basis of the shortcomings (or deficiencies) detected in a highly shared diagnosis. The scarce internationalization, the self-image of being part of a small academic community, the lack of PhDs, and the weak professionalization of research appeared systematically in the interviews. Thus, four "hard" indicators became the pillars of promotion within the system to fulfill the imagined researcher project. From lowest to the highest level in the SNI: a) doctoral degree, b) regular scientific production, c) training of thesis students, and d) international recognition.

There is a need to professionalize research-oriented SNI's goals toward promoting the autonomous production of knowledge in all scientific areas. Faced with a critical mass of professors without a doctorate but with an academic trajectory, the profiles of initiation and level 1 could contribute to consolidating middle-aged people who already had an independent line of research. This installed the demand for the construction of early individual careers, requiring young professors who were beginning their careers in the SNI with a doctoral degree to have a line of research and autonomous production. On the other hand, it affected profiles and lines of research that do not follow the classic individual academic career, for example, technical laboratory profiles, without which many basic science experiments have little chance of advancing. In the second and third parts, we have dealt with the evolution of the SNI evaluation process in line with the progress of postgraduate studies in the country, which shows the need to review the levels of autonomy required for admission into the system, according to the academic age of the individuals. On the other hand, the interviews show that this rigid requirement discourages teamwork and may contribute to the fragmentation of teams without sufficient maturity that, instead of opening strong lines of research, tends to atomize.

The broad social valuation of the SNI categorization at the national level and the general conformity observed among the members of the evaluation commissions show the virtuous effects of a self-managed system in which peer evaluation and the look at trajectories are the priority. Belonging to the SNI is important for the researchers interviewed, and the technical commissions tend to stimulate permanence without losing sight of the demands it poses in terms of production and training of human resources. However, the interviews analyzed in the second part reveal conflicts related to the structuring of the levels of the system. The "yellow cards", the self-exclusions and defections that occur when someone feels that he/she is not up to the



demands. These are leaks that are invisible but manifest some cracks that can be explained in the rigidity produced by the responsibility attributed to the SNI to ensure the training of researchers or in the need to open an additional level in the structure of the SNI, as we propose below.

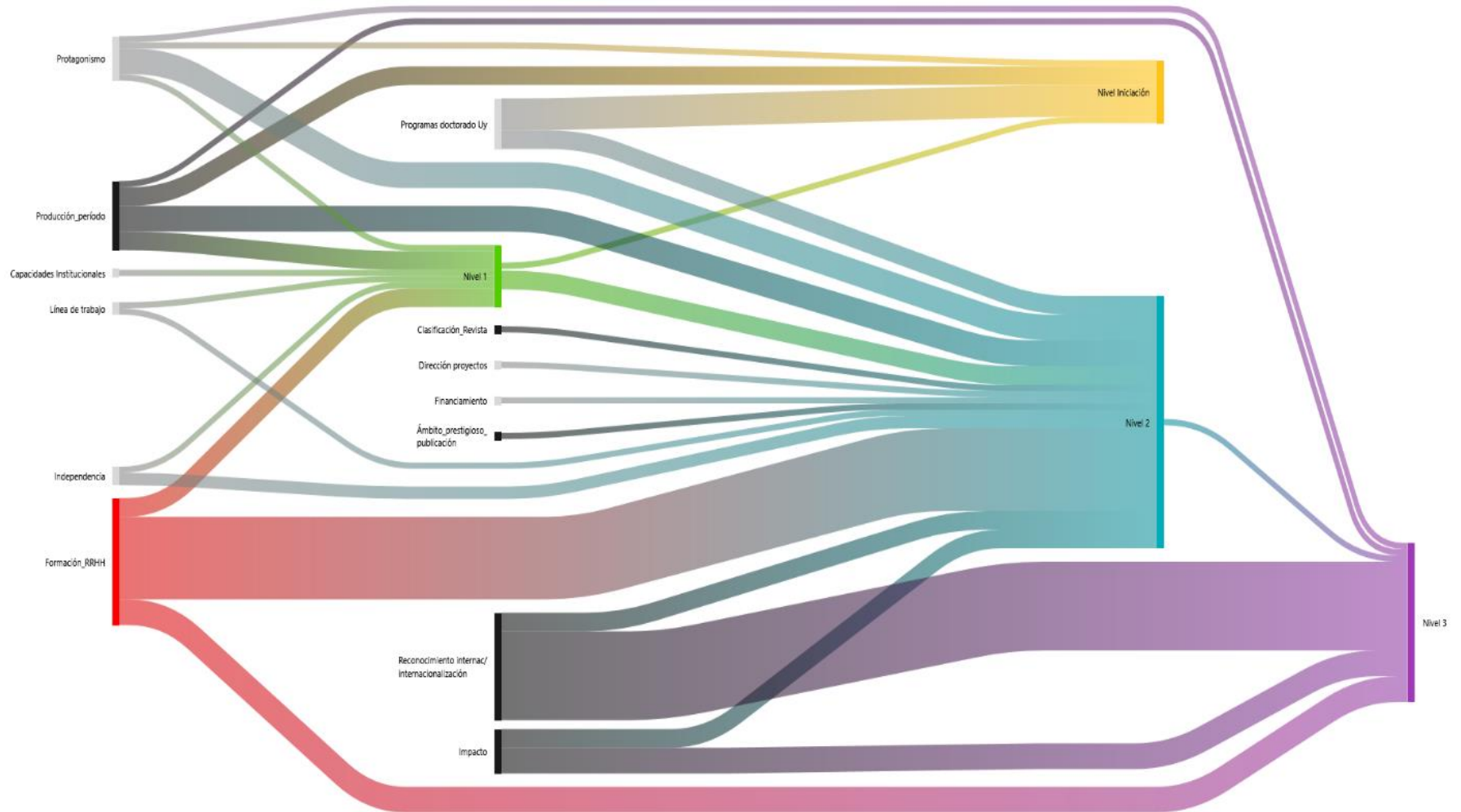
Among the strengths of the SNI, it should be noted that all the evaluation bodies show a vocation for qualitative evaluation and a favorable tendency to care for people. Important consensus has been reached among the areas of knowledge, and there is a remarkable respect for disciplinary diversity. Applying criteria in an equitable and fair manner is a premise of the work of the commissions, and the dialogue with the Honorary Commission is open and fruitful. Efforts are made to capitalize on the lessons learned from each call for proposals, and an enormous amount of time is devoted to the analysis of each case, a task that, at times, is extremely crafty. Thus, all the evaluators of the different instances emphasized that the evaluation is primarily qualitative and that all quantitative references are avoided in the "judgments".

Given that regularity of production is a basic criterion in the evaluation of the SNI to grant the salary incentive, it is important to broaden the margins of the evaluation of traditional academic production (publications) to include technical or social intervention profiles, thus providing incentives for problem-solving or interaction with the productive environment. From the interviews, it appears that citation indicators (H Index) are not used to evaluate the trajectories. However, it is worth reviewing the widespread use of the Scimago ranking or the quartiles of the JCR of Web of Science (Clarivate) to assess the quality of the journals. This is not only to broaden the sources and combat the biases that these databases have but also to prevent predatory publications that have recently entered these indexing services.

Among the weaknesses, we return to the rigidity of the SNI evaluation criteria, which stems from its role as an instrument of scientific policy and has a direct effect on upward mobility. As we saw in the third part of this report, there is a generalized stagnation in Level 1 that has accumulated for at least a decade and is experienced with frustration by the first generation of researchers who entered the SNI with a doctorate. Some people consider that this is the result of the use of merely quantitative indicators in the evaluations, and others identify that the main problem lies in the obligation to have trained human resources to move up to Level 2. In this sense, academic management, institution building, and evaluation tasks, which are activities to which the scientific community devotes a lot of time in Uruguay, could be relevant components for upward mobility in the SNI. Already in 2012, institution building was incorporated as a dimension within the evaluation criteria, which is understood as actions that contribute to academic institutional development and the promotion of new instances of inter-institutional and interdisciplinary collaboration. However, it plays a complementary role and is not sufficient merit to accompany the regularity of production and produce a promotion to Level 2. In Diagram 2, which emerges as a synthesis of the analysis of the interviews in the second part, it can be seen how the training of human resources is added to other difficulties of upward mobility between levels.

Diagram 2

Upward Mobility between SNI Levels (conceptual synthesis produced in Atlas.ti)



Evaluation criteria (from top to bottom left margin): Protagonism- Uy doctoral programs- Period production- Institutional capacities- Line of work- Journal classification- Project management- Funding- Prestigious publication scope- Independence- Human resources training- International recognition/internationalization- Impact.

The inflexibility of the human resources training requirement for promotion presents an additional obstacle for women. The stage of motherhood implies choosing among an overwhelming set of tasks in a limited time, which is why most of the female researchers interviewed conveyed that they choose to write and publish but have no time left to direct theses. Being away from research centers during periods of caregiving puts women at a disadvantage in fulfilling this promotion requirement. However, over and above these limitations, a deeper structure exists, which results from power relations that historically benefited men in the direction of institutes, projects, and teams. This unequal distribution has repercussions on the accumulation of contacts, material resources, networks, travel, and other forms of social capital at stake in the thesis direction. As shown below, maternity leave does not solve these gender gaps. It should be noted, on the other hand, that the mechanism for promotion in the SNI does not contemplate the open application of the applicant but is "calibrated" by the evaluation commissions, and this can dilute the possibilities of promotion within a competition that is fundamentally designed for permanence.

The rigidity of the SNI promotion system affects different generations: the younger ones, as we have seen, but also consolidated researchers and those who do not respond to the academic profile. The difficulties of promotion have an impact on those who aspire to Level 3 because the requirement to reach it is to achieve international recognition measurable in invitations as keynote speaker, participation in editorial committees of prestigious journals, and other elements that generally constitute an end-of-career profile. The notion of international prestige as the ultimate goal to be achieved privileges scientific production published outside Uruguay and discourages national scientific communication of quality, resulting in underdeveloped academic journals. This also discourages the practice of scientific dissemination and university extension, which, on the other hand, are highly developed in Uruguay and could be the kick-start to improve the interaction of science with society. Suppose we add to this the above regarding the requirements for promotion to Level 2. In that case, we can conclude that the ideal model of researcher is an academicist profile because it clearly predominates in the analysis of "relevant work" that we made with CVUy data (See part 3). It is very positive that the SNI has recently added indicators to value technological production. However, it would be convenient to open a special presentation window with a special commission formed for this purpose to attract this type of profile.

The presence of academic evaluation regimes that are developed at an institutional level and coexist with the SNI has advantages, as mentioned above, to enhance the diversity of profiles that national categorization systems tend to homogenize. The principle of "flexible convergence", developed at the UdelaR as a pillar of the evaluation of the Total Dedication regime, is shared by all interviewees and referents. It has a virtuous effect because it is a good practice that has been developed for many years and has been extended to all instances of the NIS. It constitutes a precursor principle and is compatible with what is currently called "responsible evaluation of research", which drains into other evaluation systems that coexist in the country. A very positive effect of this principle is that publications are understood with a sense of bibliodiversity. This has notoriously stimulated the publication of books if we compare it with other academic fields where the production of articles is widely dominant (See part 3).

In RDT, as well as in PEDECIBA, IIBCE, INIA, and Institut Pasteur de Montevideo, the interviews show a reflexible effort, with self-evaluation, by the commissions that record and analyze the lessons learned in each call. A good way to strengthen these good practices is to discuss the use of commercial indexing services for the evaluation of journal quality. The autonomous and self-managed nature of the evaluation systems by the scientific community itself makes it possible to carry out exercises to determine which prestigious journals are in a disciplinary or thematic field. Systematizing the classification that the commissions make each year, for example, is a way

of aiming in the medium term at a national classification system, in the style of Qualis, although with the purpose of reducing the harmful effect of the Impact Factor and the commercialization of the publishing industry -something that has penetrated transversally in Qualis.

These evaluation systems at the institutional scale that exist in Uruguay have been characterized as "inclusive" by the people interviewed (See part 2), and RDT- UdelaR and PEDECIBA stand out, especially for constituting regimes that compensate for the difficulties of promotion of the SNI. Therefore, it is advisable to maintain the national and institutional scales without seeking a unification of both. The transparency and publicity of the criteria is an objective of the decision-making bodies of all these systems, but it is relevant to mention that the regulations for use are outdated (RDT 2012; PEDECIBA 2004; SNI 2014). The adaptation made by the SNI Honorary Commission, the PEDECIBA Steering Committee, or the RDT Central Commission at UdelaR is not enough to have instruments adapted to the evolution of time and the academic professionalization achieved in the country available to applicants.

The interviews with female researchers and ECI referents show that there is a generalized awareness of the need to implement gender equality policies throughout the system. There are concrete actions that point in this direction, and the diversity of evaluation systems contributes to opening up more diverse possibilities for the upward mobility of women. But most point out their limitations since they are basically reduced to leaves of absence that do not counteract the consequences of caregiving tasks that limit careers for a much longer period than breastfeeding, such as the time dedicated to the training of thesis students and the creation of international groups and networks.

Academic evaluation is simplified when there are integrated information systems and dynamic and user-friendly curricular platforms for this task. The CVUy was highly valued in most of the interviews for being an adapted and dynamic system for evaluating the SNI. However, it was less valued by referents of other evaluation systems in the country where different curriculum formats still coexist and where they maintain that the CVUy is not functional for these evaluations. For example, it is pointed out that research projects do not appear clearly as independent and visible modules but are subject to the institutions of action, making it difficult to highlight international or inter-institutional projects.

Among the recent improvements of the CVUy in the interviews is that it is developed by a flexible team, open to the demands of users, and has introduced interoperability elements, as well as new modules over time. It offers open summaries for each researcher to complete with his/her background or justify his/her request, highlighting important aspects of his/her career. It includes the selection of relevant productions, which is an instrument frequently used in research agencies that are shifting their evaluations towards the weighting of quality by reversing the weight of quantitative production indicators. However, "relevant work" accumulates over time in the system, and a requirement for re-selection at each call would be appropriate. There is no indication from the SNI about the role of relevant papers in the evaluation practice that could help to separate the notion of quality from rankings, such as Scimago.

CVUy makes a great effort to gradually interoperate with services such as Crossref and indexers such as Scielo, Scopus, and WoS. The "cucardas" included in the published productions are not used extensively, however. Their systematic use would also not be advisable if it implies prioritizing only these databases whose biases have been proven. In addition, they do not warn about predatory journals, and there does not seem to be a unified criterion in this regard in the evaluation committees.

In relation to open access, it is very positive that people who apply to the SNI consent to the publication of their CVs because it enhances production studies and opens a path to creating a *Current Research Information System* at the national level. However, there are no direct actions

in academic evaluation to encourage publication in open-access repositories nor for the publication of primary research data. It is true that the implementation of data repositories is a recent phenomenon [www.redata.anii.org.uy](http://www.redata.anii.org.uy). However, the production repositories that already have a certain age do not yet establish control mechanisms to advance in systematic processes of curation and deposit. There are some important signs to advance in the obligation to present data management plans in projects submitted to ANII competitive funds. This is the case of the Clemente Estable Fund projects that include an additional 10% economic incentive for submitting a data management plan with a commitment to publish open data.

### **Threats and opportunities in the context of the global debates on academic assessment.**

In the first part of this advisory, we analyzed the main consensuses reached in the global debate on academic evaluation: the promotion of a more transparent and qualitative evaluation to correct the harmful effects of impact indicators and productivism (Mollas-Gallart, 2020; Ràfols, 2019; Sivertsen, 2016). The shortcomings of purely quantitative evaluations are furthermore stated in several international initiatives such as the San Francisco Declaration on Research Assessment (DORA, 2012), the Leiden Manifesto (2015), the Helsinki Initiative on Multilingualism (2019), the Latin American Forum on Scientific Evaluation (FOLEC, 2020), and the most recent Agreement on Reforming Research Assessment (CoARA). The fact that all the Uruguayan evaluation systems analyzed put quality first and do not establish merit orders based on the number of papers is very auspicious for taking advantage of the opportunities provided by this context. We refer to the shift that is being promoted from different corners of the world towards a balance between global and national standards and in favor of multi-scale research agendas that revalue the interaction of universities with the social environment in which they are inserted.

The idea of "responsible evaluation" of research proposes using indicators adapted to each national and institutional situation to identify researcher profiles and diversified knowledge production processes, regardless of the impact factor of the publication. In this sense, a great opportunity in Uruguay is the fact that there are locally agreed principles that cross the academic evaluation of different institutions (flexible convergence, integrality) and that allow the STI system to have a fertile ground to make changes in the evaluation system with the participation of the academic community. The prevalence of academic autonomy in all the system institutions is a great advantage for consolidating an idea of scientific quality based on a proper balance between global and local standards. In a global context where rankings of journals and universities predominate, Uruguay has important pillars for advancing toward a change in scientific culture.

The regularity of production as a criterion for permanence in the system is measured on minimum levels in the SNI, and the circumstances of personal trajectories are considered. However, using journal rankings to determine the quality and internationalization of published research is a latent threat. The so-called "mainstream" databases are under discussion due to the biases they entail, and it is therefore advisable to broaden the sources considered valid for the consecration of a journal. Predatory journals, questionable publication practices, and

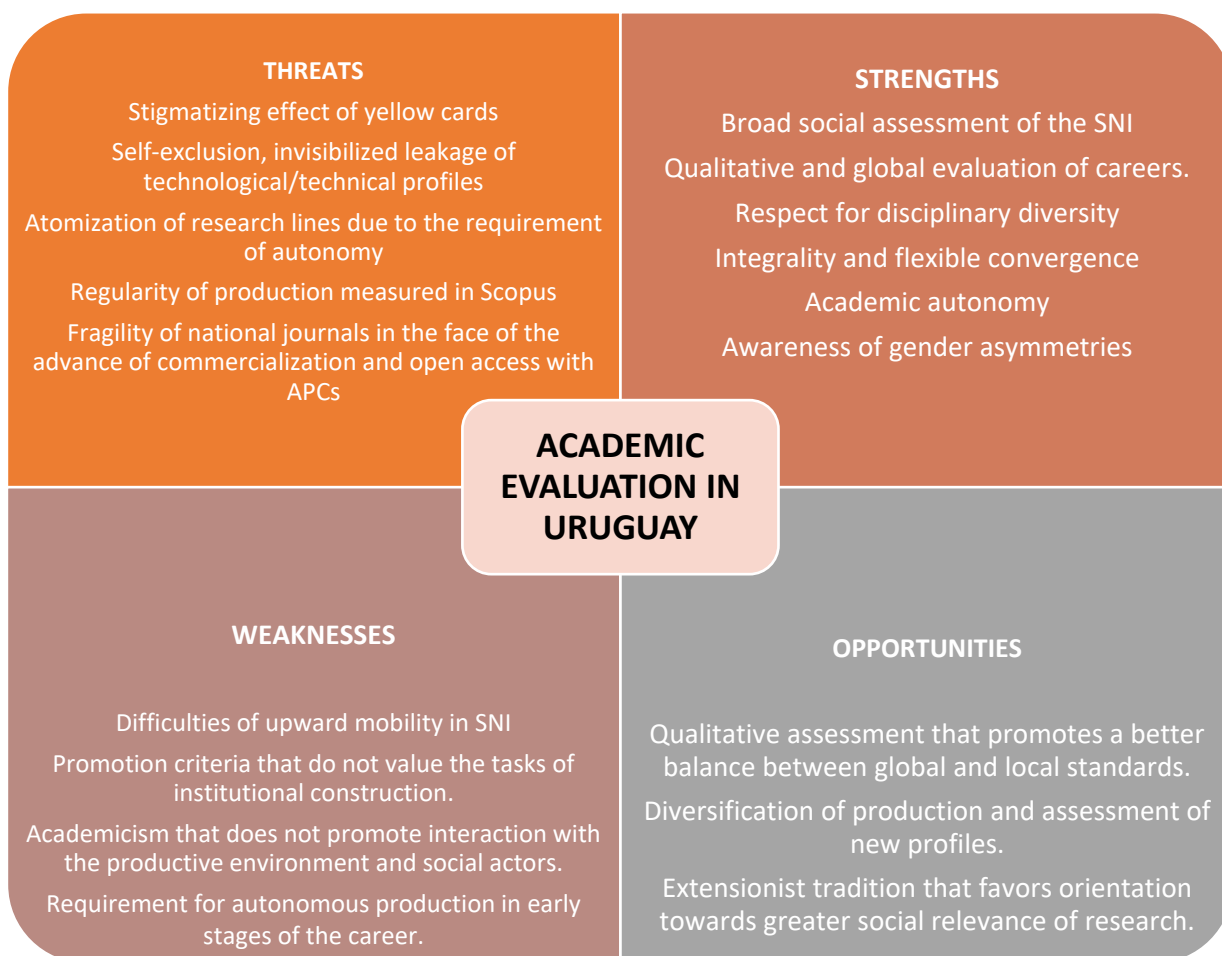
increasing commercialization are colonizing Scopus and Web of Science (Clarivate), interfering with article selection processes and the academic autonomy of the editorial team.

Another opportunity that Uruguay's evaluation systems can take advantage of is the focus on generational inequalities and the trajectory of young people that international declarations state as a priority. A study of profiles of doctoral students and young PhDs would be advisable in order to develop instruments for the promotion of early careers. This consultancy proposes information that could accompany the changes in the system of admission and promotion in the SNI. In the same vein, Uruguay has favorable conditions to deepen actions aimed at combating the gender gap observed in upward mobility within the SNI, as well as in the upper strata of other academic careers at the institutional level.

Among the threats to the current state of academic evaluation in Uruguay is the problem posed by publication costs with the accelerated transition of journals to open access, as analyzed in Paper 2. Available studies show that Article Processing Charges (APC) amplify the generational gaps, disadvantaging young people who do not have the funding to pay these fees or sufficient consecration to receive invitations from subscription journals or waivers. On the other hand, all the actors in the STI system share the diagnosis of the inadequacies of research funding, so an increase in the demand for funds to meet these payments would only produce a setback rather than the expected results of an increase in investment.

**Diagram 3**

*Strengths, weaknesses, opportunities and threats of academic evaluation in Uruguay*



## **FINAL REMARKS AND 20 RECOMMENDATIONS**

Among the global trends in the debate on evaluation, FOLEC recommends transitioning from its definition as a mere control process to its conception as a learning process, both for those who are evaluated (individuals and institutions) and for local and national science policies. This is particularly interesting when the evaluation takes place within the framework of salary increase policies based on stimulus to scientific production, which is a mechanism present across the board in Uruguay's STI system. Evaluating scientific production in the SNI shows an explicit option for a predominantly qualitative approach. However, this often comes into tension with the regularity requirement, which reduces its correct performance to traditional publication. Including other productions, such as technical reports, dissemination, or artistic production, may contribute to reconceptualizing the regularity requirement according to a wider range of profiles.

A very positive aspect of academic evaluation in Uruguay is the high valuation of book production, which we observed empirically due to the weight of this form of circulation in the production of researchers in CVUy. According to the interviews conducted, this is the result of a consensus around the principle of "flexible convergence," which was born in UdelaR and is also used in the advisory committees of the SNI. However, the use of Scimago rankings to establish the quality of journals has a negative influence on bibliodiversity and multilingualism. It is therefore advisable to take advantage of the experience of the advisory committees of the different evaluation systems in the country and analyze the convenience of a national journal ranking system, taking into account non-commercial open-access and observing the impact of the audiences and the quality of peer review.

There is widespread concern in Uruguay about the need to modify the traditional academic evaluation scheme, both to resolve the impact of over-evaluation and to diversify researcher profiles. Above all, there are difficulties with technical, social intervention, and artistic production profiles. Uruguay's extensionist tradition, on the other hand, offers an exceptional advantage for the development of citizen science, which is a profile that could enhance the long accumulation of interactions that UdelaR has with the productive environment, social actors, and organizations. The "pure" researcher profiles rarely materialize in concrete trajectories, being more common in the combination of research practices and knowledge circulation. However, evaluative cultures often make these multifaceted profiles invisible because they orient rewards towards an "ideal" profile and lead to the concealment of devalued activities or even their elimination from the curriculum. In this sense, it is interesting to propose a multidimensional model of evaluation of academic careers that contemplates the different practices involved in scientific activity and allows the evaluation of interfaces of production, dissemination, and/or linkage transfer of knowledge.

A key issue to make promotion within the SNI more flexible is the valorization of institutional construction and participation in co-governed organizations that take a lot of time from researchers in Uruguay and can perfectly contribute to complement profiles that lack possibilities or vocation for the formation of human resources. On the other hand, the concept of the integrality of teaching, born in the UdelaR and which permeates the imaginary of other institutions in the country, is a substantial advantage for the valorization of profiles that are based on the hinge between extension and research.

In relation to the generational tensions that we have observed in the SNI, it is of particular interest to strike a balance between the vocation to encourage independent trajectories and the need to value teamwork. The collective practices that are usually carried out in research groups,

especially when they are interdisciplinary, should be stimulated because they enhance the virtuous circle of human resources training and the consolidation of research lines.

Finally, open-access publication and the availability of research data do not yet appear as priorities in academic evaluation in Uruguay, largely due to the pace of implementation of a national open science policy. In this scenario, the ANII repository plays a transcendental role, which can incentivize SNI researchers to deposit their production and primary datasets.

The following are twenty recommendations that address the different dimensions of academic evaluation in Uruguay:

### *National System of Researchers*

1. Reformulate the classification in SNI Levels incorporating a new stratum to have a total of 5 levels: Initiation (Researcher in training), Level 1 (Trained Researcher), Level 2 (Consolidated Researcher), Level 3 (Principal Investigator), and Level 4 (Senior Researcher)<sup>7</sup>.
2. Review the evaluation criteria for each level to scale the requirements for autonomy and internationalization, make the requirement for human resources training more flexible, value management or institutional construction, and address obstacles to women's upward mobility.
3. Establish a differentiated call for promotion, which researchers can apply instead of promotions based on tenure evaluation recommendations. Review the rules for applying maternity/sick leave to prevent them from losing their effects in the following period.
4. Delineate SNI researcher profiles in technology and/or social intervention with differentiated admission, permanence, and promotion requirements that are evaluated by a specific commission.
5. Expand the category of "emeritus" so that it can be assigned to outstanding careers at different levels and not just an award for Level 3.
6. Create incentives and rewards for projects led by young researchers, newly formed teams, and inter-institutional projects to encourage the integration of researchers from the interior of the country.

### *On overlapping evaluations*

7. Articulate institutional evaluations of teaching positions with those of dedication to research, adjusting schedules, and weighting schemes so that individuals go through a single process at the institutional level and another at the national level (SNI).

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<sup>7</sup> The designations are only intended to inform about the stage of the trajectory, but should emerge from the consensus of the community, something we hope to discuss at the Workshop planned to expose the results of this consultancy.



8. Unify the use of curriculum models within the framework of the CVU platform and adapt the necessary modules to become a functional instrument for all academic evaluations.

*On production indicators and the multi-scale circulation of knowledge*

9. Broaden the notion of scientific production to include different profiles and value traditional publications and technological production, technical contributions, artistic productions, and social reports with public policy recommendations.
10. To promote publication in quality scientific journals, in open access, published in the country and Latin America, stimulating quality communication circuits and broadening audiences.
11. To value the tasks of academic editing (journal direction, participation in editorial teams) in the permanence and promotion of the country's academic evaluation systems.

*About CVUy, sources, and information management systems*

12. Create a qualitative classification system for national and international journals, taking advantage of the work of the advisory committees of SNI, RDT, PEDECIBA, IIBCE, INIA, etc.
13. Review the diversity of indexing services that determine the "cucardas" and evaluate their extension with Redalyc, Biblat, Open Alex, and other infrastructures. Add information on open access to the object.
14. Articulate scientific information systems at the national level through a Current Research Information System (CRIS) that houses information on individuals, institutions, and projects.

*On transparency and responsible evaluation of research*

15. Update and publish the evaluation criteria over ten years old (RDT- UdelaR, SNI Regulations, PEDECIBA).
16. Unify and enhance the use of the narrative modules of the CVUy to differentiate researcher profiles, reinforce qualitative evaluation, and complement actions in favor of gender equality.

*On open access to production and primary data*

17. Introduce incentives for diamond route publishing to counteract the advance of commercial open access.
18. To value researchers who deposit datasets in ANII's new open primary data repository.

*On citizen science and participatory evaluation*

19. Promote exploratory open evaluation exercises with the participation of communities involved in research and/or extension processes.
20. Incorporate indicators of co-production of knowledge with the community/productive environment in evaluating permanence in the SNI and/or renewal in other institutional systems.

**References**

Borlaug, S. et al. (2024) "Researchers engaging with society: who does what?" in Science and Public Policy <https://academic.oup.com/spp/advance-article/doi/10.1093/scipol/scae006/762368>

ANNEX I  
ANII competitive funds, criteria and approval rate

ANII COMPETITIVE FUNDS	Terms and conditions of the call for applications	Researcher requirements	Evaluation grid/guidelines		Incidence of the researcher's trajectory
<p><b>Applied research: María Viñas Fund</b></p> <p><b>Number of projects financed call 2023: 43 out of 133.</b></p> <p>The María Viñas funds have two modalities that open alternately each year. The main difference lies in the recipients of the project: <b>modality I</b> is aimed at consolidated researchers, while <b>modality II</b> is aimed at researchers in the process of academic consolidation as independent researchers.</p>	<p><b>Applied research in all areas of knowledge.</b></p> <p>In addition, financing for additional projects that contribute to the adaptation and/or mitigation of Climate Change.</p> <p><b>Requirements:</b></p> <ul style="list-style-type: none"> <li>-Endorsement from the proposing institution and participating organizations (if any).</li> <li>-Counterpart institution form (if any).</li> <li>-Responsible and co-responsible Uruguayan or foreigners living in the country.</li> </ul> <p>The person in charge and the scientific co-responsible may present only one project per call. The responsible or co-responsible persons may not apply simultaneously to the Clemente Estable Fund and María Viñas Fund in their 2023 calls under these roles, even if they are different projects.</p> <p>It will be possible to be responsible or scientific co-responsible for up to two research projects with national funding (ANII, CSIC, INIA, etc.) in simultaneous execution.</p> <p>The person in charge and the scientific co-responsible of the project must have a minimum dedication to the project of 10 hours per week.</p>	<p>Teams led by consolidated researchers</p> <p>The definition of consolidated researcher for this call will be similar to that determined in the requirements of the National System of Researchers (SNI) for levels I, II and III, where it is stipulated that the researcher must have an academic level of doctorate or equivalent production. It is not a requirement to belong to the SNI.</p>	<p>Evaluation of applicability 40%</p>	<p>Description and relevance of the problem 30%.</p> <p>Applicability and approach to the solution of the problem posed 40%.</p> <p>Involvement of relevant stakeholders 30%.</p> <p>Originality and contribution to the area of knowledge 25%.</p> <p>Conceptual clarity and feasibility of the proposal 50%.</p> <p>Research Team 25% Research Team 25% Research Team 25% Research Team 25% Research Team</p>	<p>-Training of the scientific manager and the research team;</p> <p>-Participation of women in leadership roles in the research team;</p>

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	<p><b>-Presentation of CVs of all project participants.</b></p> <p>No national member of the research team (responsible, co-responsible, researcher and grantee) may exceed 60 hours per week considering all work activities (including teaching hours or other public or private jobs).</p> <p>Duration: 36 months Financing: Up to UYU 1,900,000.</p>		<p><b>-Applicability of the proposal</b></p> <p><b>-Academic quality</b></p> <p><b>-Contribution to the area of knowledge</b></p> <p><b>-Originality</b></p> <p><b>-Technical and economic feasibility of the proposal.</b></p> <p><b>-Gender perspective as a variable of analysis in the project.</b></p> <p><b>-Training of the scientific manager and the research team.</b></p> <p><b>-Participation of women in leadership roles in the research team.</b></p> <p><b>-HR training within the framework of the project</b></p> <p><b>-Adequacy of the requested budget</b></p> <p><b>-Ethical aspects.</b></p> <p><b>For projects that indicate contribution to mitigation and/or adaptation to Climate Change at this stage will be taken into account:</b></p> <p><b>-Relevance of the specific climate problem to be solved;</b></p> <p><b>-Whether the mitigation/adaptation context is clearly identified;</b></p> <p><b>-Whether the link between the expected results of the project and the contribution to the resolution of the described climate problem is clearly established;</b></p> <p><b>-The project's potential impact on climate change mitigation and/or adaptation;</b></p> <p><b>-Whether impacts can be measured through indicators.</b></p>
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<p><b>Applied Research: María Viñas Fund. Modality II</b></p> <p><b>Number of projects funded call 2022: 34 out of 123.</b></p>	<p><b>Requirements: Same as the María Viñas Fund modality I, with the only difference being that the person responsible and co-responsible for the project must have a minimum dedication to the project of 20 hours per week.</b></p> <p><b>Duration: 24 months</b> <b>Maximum amount: UYU 1.200.000</b></p>	<p><b>Initiated researchers in the process of academic consolidation as independent researchers. The following are eligible to apply for this call:</b></p> <ul style="list-style-type: none"> <li>- researchers categorized in the National System of Researchers (SNI1) at the Initiation level or at level I in their first period under this category.</li> <li>- those researchers who do not belong to the SNI provided that:             <ul style="list-style-type: none"> <li>a. have not completed their doctoral degree by December 31, 2014,</li> <li>b. have not been categorized in the SNI at levels II and III, and</li> <li>c. they have not been categorized for more than one period in level I.</li> </ul> </li> </ul> <p>The categorization in the SNI as of December 31, 2021 will be taken into account.</p> <p>A researcher who has been responsible or co-responsible for a project approved within the framework of the modalities for consolidated researchers of the Clemente Estable Fund or the María Viñas Fund may not present himself/herself as responsible or co-responsible scientist.</p>	<p>Same as the María Viñas Fund 1, with the difference that neither the gender perspective is evaluated as a variable of analysis in the project nor the participation of women in leadership roles.</p>	<p><b>Training of the scientific manager and the research team</b></p>
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<p><b>Basic research: Clemente Estable Fund</b></p> <p><b>Number of projects financed call 2023: 53 out of 208</b></p> <p>The Clemente Estable funds have two modalities that open alternately each year. The main difference lies in the recipients of the project: <b>modality I</b> is aimed at consolidated researchers, while <b>modality II</b> is aimed at researchers in the process of academic consolidation as independent researchers.</p>	<p><b>Basic research in all areas of knowledge. Requirements:</b></p> <p>-Endorsement from the proposing institution and participating organizations (if any) and Counterpart Institution Form (if any).</p> <p>-Responsible and co-responsible Uruguayan or foreigners living in the country.</p> <p>The person in charge and the scientific co-responsible may present only one project per call. The responsible or co-responsible persons may not apply simultaneously to the Clemente Estable Fund and María Viñas Fund in their 2023 calls under these roles, even if they are different projects.</p> <p>It will be possible to be responsible or scientific co-responsible for up to two research projects with national funding (ANII, CSIC, INIA, etc.) in simultaneous execution.</p> <p>The person in charge and the scientific co-responsible of the project must have a minimum dedication to the project of 10 hours per week.</p> <p>-Presentation of CVs of all project participants.</p> <p>No national member of the research team (responsible, co-responsible, researcher and grantee) may exceed 60 hours per week considering all work activities (including teaching hours or other public or private jobs).</p> <p><b>Duration: 36 months</b> <b>Maximum amount: UYU 1,900,000.</b></p>	<p><b>Teams led by consolidated researchers</b></p> <p>The definition of consolidated researcher for this call will be similar to that determined in the requirements of the National System of Researchers (SNI) for levels I, II and III, where it is stipulated that the researcher must have an academic level of doctorate or equivalent production. It is not a requirement to belong to the SNI.</p>	<p>Technical evaluation (percentage not shown)</p>	<p><b>Originality and contribution to the area of knowledge 25%.</b></p>	<p>-Training of the Scientific Manager and the research team. -Participation of women in leadership roles in the research team. Evaluation criteria: -Academic quality -Contribution to the area of knowledge -Originality -Technical and economic feasibility of the proposal. -Gender perspective as a variable of analysis in the project (only if applicable). -Training of the Scientific Manager and the research team. -HR training within the framework of the project -Participation of women in leadership roles in the research team. -Adequacy of the requested budget; -Ethical aspects -Data management plan</p> <p>In the overall judgment of these criteria, two categories are generated: projects of academic excellence and non-excellent projects.</p>
			<p>Technical committee evaluation (percentage not shown)</p>	<p><b>Conceptual clarity and feasibility of the proposal 50%.</b></p> <p>Research Team 25% Research Team 25% Research Team 25% Research Team</p> <p><b>Budget (without percentage)</b></p> <p><b>Contribution to human resource development (without percentage)</b></p> <p><b>Ethical aspects (without percentage)</b></p> <p><b>Data management plan (without percentage)</b></p>	

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<p><b>Basic research: Clemente Estable Fund Modality II</b></p> <p>Number of projects funded call 2022: 56 out of 147</p>	<p><b>Basic research in all areas of knowledge.</b></p> <p><b>Requirements:</b> Same as the Clemente Estable Fund Modality I, with the only difference being that the person in charge and co-responsible for the project must have a minimum dedication to the project of 20 hours per week.</p> <p><b>Duration:</b> 24 months <b>Maximum amount:</b> UYU 1.200.000</p>	<p><b>Initiated researchers in the process of academic consolidation as independent researchers. The following are eligible to apply for this call:</b></p> <ul style="list-style-type: none"> <li>- researchers categorized in the National System of Researchers (SNI1) at the Initiation level or at level I in their first period under this category.</li> <li>- those researchers who do not belong to the SNI provided that: <ul style="list-style-type: none"> <li>a. have not completed their doctoral degree by December 31, 2014,</li> <li>b. have not been categorized in the SNI at levels II and III, and c. have not been categorized for more than one period at level I.</li> </ul> </li> </ul>	<p>Technical evaluation (percentage not shown)</p> <p>Technical committee evaluation (percentage not shown)</p>	<p>Originality and contribution to the area of knowledge 25%.</p> <p>Conceptual clarity and feasibility of the proposal 50%.</p> <p>Research Team 25% Research Team 25% Research Team 25% Research Team</p> <p>Budget (percentage not shown)</p> <p>Contribution to human resources development (percentage not shown)</p> <p>Ethical aspects (percentage not shown)</p>	<p>Training of the scientific manager and the research team.</p> <p><b>Criteria:</b></p> <ul style="list-style-type: none"> <li>-Academic quality</li> <li>-Contribution to the area of knowledge</li> <li>- Originality</li> <li>- Technical and economic feasibility of the proposal</li> <li>- Training of the scientific manager and the research team</li> <li>- Adequacy of the requested budget</li> </ul>
<p><b>Innovagro Sector Fund</b></p> <p>ANII, Instituto Nacional de Investigación Agropecuaria (INIA) and Ministerio de Agricultura, Ganadería y Pesca de Uruguay (MGAP) are convened by ANII.</p> <p><b>Open call</b></p>	<p>Agricultural and agroindustrial area. Development of opportunities for agroindustrial chains, preferably export-oriented.</p> <p>The projects must be framed within one of the <b>priority lines:</b> Natural resources, circular economy, production and environment/ Socioeconomy, information and markets/ Risk management and agricultural insurance/ Information technologies and digital agriculture/ Food safety/ Animal health/ Bioinputs for plant nutrition/ Differentiation and value addition.</p>	<p><b>Modality I:</b> At least one of the groups must be based in Uruguay. Each group must have at least one researcher with relevant scientific production and proven capacity to lead research groups and train human resources.</p> <p><b>Modality II:</b> joint projects of at least one private company</p>	<p>The evaluation will take into account <b>aspects of technical quality and relevance.</b> In order to evaluate the latter, issues such as the importance and timeliness of the problem to be solved, the generation of knowledge or capabilities in areas that are underdeveloped in the country, among others, will be taken into account.</p> <p>Evaluation in 4 stages:</p> <p><b>1) Analysis of</b></p>		<p><b>Requirements:</b></p> <p>It will be possible to be responsible or scientific co-responsible for up to two research projects with national funding (ANII, CSIC, etc.) in simultaneous execution. The person in charge and the scientific co-responsible of the project must have a minimum dedication of 10 hours per week. -CVs of all project participants must be submitted.</p>

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	<p><u>Two modalities:</u></p> <p><b>Modality 1:</b> research groups endorsed by national public or private non-profit institutions, preferably inter-institutional, with a proven track record in R&amp;D&amp;I. 100% of the cost is covered, for a maximum of UYU 4,000,000.</p> <p><b>Modality 2:</b> joint projects of at least one private company and at least one national research institution.</p> <p>Up to 80% of the total cost of the project is supported, for a maximum of UYU 5,000,000. The company contributes the remaining 20%.</p> <p><b>Duration:</b> In both modalities, projects may have a duration of up to 36 months.</p>	<p>and at least one national research institution. <b>Priority will be given to</b> projects submitted by more than one company from the productive sector and more than one academic or research institution.</p>	<p><b>eligibility.</b> Ineligible proposals will be eliminated from the evaluation process.</p> <p>2) <b>Evaluation of relevance and prioritization of project ideas</b> according to the following criteria to the criteria established in these terms and conditions.</p> <p>3) <b>Technical evaluation of projects</b> by the Evaluation and Monitoring Committee (Comité de Evaluación y Seguimiento, CES).</p> <p>4) In charge of the Agenda Committee (AC). This committee will prioritize those proposals that meet the quality requirements analyzed by the ESC and will present its <b>recommendation of the proposals. selected projects to ANII's Board of Directors.</b></p>	<p>-National researchers must submit their CV in CVUy format and updated. -No national member of the research team may exceed 60 hours per week considering all work activities in which he/she is engaged (including teaching hours or other public or private work). -Participating companies (if any) must be up to date with their tax obligations. -Proof of submission to the Ethics Committee must be attached for those projects in which it is required, and the signing of the contract will be conditioned to the final approval of the Committee. -All works resulting from or related to the selected projects must be deposited in the open access digital repository of the project leader's institution of affiliation in Uruguay or, failing that, in ANII's institutional repository. -The results of the research will be compiled in a final technical report to be submitted to ANII.</p>
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<p><b>Education Sector Fund: CFE Investigates</b> Convened by ANII and the Council for Training in Education (CFE)</p> <p><b>Open call</b></p>	<p><b>Requirements:</b> research groups whose responsible or co-responsible scientist is a CFE teacher with a dedication of at least 20 hours. The association with other national, public or private, non-profit institutions dedicated to research will be valued.</p> <p>-The project must be endorsed by the proposing institution and participating organizations (if any). The scientific leader or co-responsible person may present only one project per call and may not participate in any other role in other applications. It is possible to be responsible or scientific co-responsible for up to two research projects with national financing in simultaneous execution, but it is not possible to be responsible or scientific co-responsible for more than one project of the CFE Investiga calls for proposals in simultaneous execution. The person in charge and the scientific co-responsible of the project must have a minimum dedication to the project of 10 hours per week.</p> <p>-All researchers based in national institutions must have an updated CVUy.</p> <p>-No member of the research team based at a national institution may exceed the following 60 hours per week considering all work activities performed (including teaching hours or other public or private jobs).</p> <p>-Priority areas: Didactics - Practice in the Teaching Profession/Education and Lifelong Learning/Education, digital technologies and learning environments/Other teaching and learning environments.</p> <p><b>Duration: 12 months</b> <b>Financing: Up to UYU 800,000.</b></p>	<p>Responsible or co-responsible Scientist is a CFE teacher with a dedication of at least 20 hours. The participation of ETC faculty may not be less than 60% of the research team. It will be valued that the teams are integrated by <b>participants with different levels of training and experience in research.</b></p>	<p>Relevance assessment (no percentage shown)</p> <p>Technical evaluation (percentage not shown)</p> <p>Overall evaluation (percentage not shown)</p>	<p>Technical-scientific content 40% - Technical-scientific content 40% - Technical-scientific content 40% - Technical-scientific content</p> <p><del>-Contributions and impact of the project 30%.</del></p> <p>Resources for <del>project</del> implementation 30% of the project's resources</p>	<p>-Participation of young researchers in the teams. The evaluation process will consist of four stages:</p> <ol style="list-style-type: none"> <li>1) Eligibility analysis</li> <li>2) Evaluation of relevance by the ESC.</li> <li>3) Technical evaluation by the ESC. External evaluators may be used.</li> <li>4) Prioritization. Prioritization will take into account aspects such as the <b>participation of young researchers in the teams, contemplate as much as possible all the defined lines of research, territorial distribution, innovative topics not explored in the national context, and projects that present the greatest impact and scope for the educational community.</b></li> </ol>
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<p><b>ANII-GSK Sector Fund</b></p> <p><b>Number of projects financed call for proposals 2023:</b>  <b>2 out of 8 proposals moved on to the project submission stage, which closes on February 20.</b></p>	<p>ANII and GLAXOSMITHKLINE URUGUAY S.A. (GSK), fund proposals in specific areas of neuroscience and immunological research for target discovery, molecular mechanism of action elucidation or biomarkers in a multidisciplinary transnational research project.</p> <p><b>Requirements:</b></p> <p>The person in charge or scientific co-responsible may present only one project per convocation.</p> <p>It will be possible to be responsible or scientific co-responsible for up to two projects with national financing in simultaneous execution.</p> <p>The person in charge or scientific co-responsible for the project must have a minimum dedication of 10 hours per week.</p> <p>-CVs of all project participants must be submitted.</p> <p>-No member of the research team may work more than 60 hours per week, considering all the work activities in which he/she performs. (including teaching hours or other public or private work).</p> <p>-All works resulting from or related to the selected projects must be deposited in the open access digital repository of the institution of affiliation. in Uruguay of the project manager or, failing that, in ANII's institutional repository.</p> <p><b>Duration: 36 months</b></p> <p><b>Maximum amount: UYU 10,000,000.</b></p>	<p>Preferably multidisciplinary research groups, belonging to national, public or private non-profit institutions, whose activities include research.</p>	<p>Two phases of the evaluation:</p> <p><b>Stage 1:</b> Presentation of project ideas (evaluation of relevance, with 100% weighting).</p> <p><b>Stage 2:</b> Presentation of projects.</p> <p>The Agenda Committee (AC) and the Evaluation and Follow-up Committee (ESC) will be involved in the evaluation process.</p> <p>Evaluation stages:</p> <ol style="list-style-type: none"> <li>1) Eligibility analysis</li> <li>2) Evaluation of relevance and prioritization. Analysis of: <b>adjustments of the proposal to the definition of basic research; alignment of the objectives of the proposal with the objectives proposed by ANII and GSK; relevance of the topic addressed.</b> If deemed necessary, the CA may hold interviews with the applicants. As a result of this stage, those ideas with the highest priority according to the guidelines established by ANII and GSK will be selected and invited to formulate the complete project.</li> <li>3) Technical evaluation, in charge of the CES, which may use external evaluators. The applications will have at least two technical evaluations carried out by peers. The evaluations will be important inputs for the ESC, but in no case will they be binding in nature with the opinions of the evaluation process.</li> </ol> <p>Criteria:</p> <p>-Scientific-technical content.</p>	<p>-Technical capacity of the team: both the track record of the researcher in charge and that of the research groups involved will be taken into account.</p> <p>-Interdisciplinary nature of the research: an adequate multidimensional approach to the proposal will be valued, as well as the training, experience and interdisciplinary nature of the teams involved in the project.</p> <p>-Gender perspective: participation of women in leadership roles in the research team and the inclusion of the gender dimension as a variable of analysis in the project.</p>
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			<ul style="list-style-type: none"> <li>-Novel character of the knowledge to be achieved.</li> <li>-Technical capacity of the equipment</li> <li>-Interdisciplinary nature of the research.</li> <li>-Ethical research.</li> <li>-Gender perspective.</li> <li>-Priority will be given to projects with evaluation of translational samples that include longitudinal data as a component.</li> </ul> <p>4) Last prioritization stage, in charge of the CA. Prioritization will take into account the strategic focus of the project considering the alignment with the objective of the call.</p>	
<p><b>Energy Sector Fund</b></p> <p><b>Call 2023: 16 of 24 project profiles moved on to the full project formulation stage, which closed on February 8, 2024.</b></p>	<p><b>R&amp;D&amp;I projects that enhance or strengthen the capacities of the national energy sector.</b> Finance projects that solve the challenges presented by the partner institutions of the Energy Sector Fund (ESF).</p> <p>Two modalities:</p> <p><u>-Challenges:</u> Study of alternatives for water treatment for uses at La Tijera Refinery/ Obtaining conditioned water with renewable energies/ Strengthening of the extended aeration process at the Refinery/ Battery storage/ Green hydrogen and derivatives/ Energy efficiency/ Electric mobility/ Decarbonization/ Renewable energy use.</p> <p><u>-Technical assistance:</u> study/analysis of projects for the use of low variable cost interruptible electric energy. This call incorporates the Renewable Energy Innovation Fund (REIF).</p> <p><b>Duration of challenges: maximum 12 months. Total or partial financing (amount not shown).</b></p> <p><b>Duration of technical assistance: maximum 120 days. Total or partial financing (amount not shown).</b></p>	<p>The solutions must be submitted by individuals, companies, Technology Centers, Universities and various knowledge-generating institutions, individually or in association, which must be located in the country.</p>	<p><b>Evaluation of project ideas:</b></p> <p>a) <u>Technical evaluation</u></p> <ol style="list-style-type: none"> <li>1- Positive impact of the idea 30%.</li> <li>2- Presentation of the idea 50%.</li> <li>3- Work team 20% of the total</li> </ol> <p>b) <u>Evaluation of the economic proposal:</u> the lowest bid will receive the highest score.</p> <p><b>Project evaluation (current phase)</b></p> <ol style="list-style-type: none"> <li>1- Degree of adjustment to the solution (without percentage)</li> <li>2- Innovative merit 15%.</li> <li>3- Technical feasibility 30% Technical feasibility 30% Technical feasibility</li> <li>4- Impact on efficiency, scope, and quality of service 10%.</li> <li>5- Legal and environmental feasibility 5% Legal and environmental feasibility</li> <li>6- Capacity of the work team 15%.</li> </ol>	<p>Capacity of the work team: the proponent of the solution must demonstrate that it has the capacity to carry it out, i.e. that it has the human resources capable of managing and supervising the activities established in the project.</p>

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			<p>7- Work plan 15% Work plan 15% Work plan</p> <p>8- Economic and financial viability</p> <p>9- Overall judgment</p>	
<p><b>Education Sector Fund: Digital inclusion education in new horizons</b></p> <p><b>Call for proposals 2023: 4 proposals of modality A (out of a total of 6) and 6 of modality B (out of a total of 7) moved on to the full project formulation stage, which closes on February 15, 2024.</b></p>	<p><b>Research projects that contribute original data with respect to existing knowledge in the field of teaching and learning</b>, mediated by digital technologies, which may be linked to social or educational aspects of Ceibal.</p> <p><b>Requirements:</b> Same as above funds, with the addition that:</p> <p>It is the obligation of the proponents of the funded research projects to keep the information regarding their projects updated in the sites or platforms that will be indicated to them in due course. Likewise, in all instances in which the project is presented, its results are disseminated in different formats or any activity related to it is carried out, it must be mentioned that the project is supported by the ANII's Education Sector Fund and the Ceibal Foundation in its Digital Inclusion modality, and the project must be identified by its nomenclature and the guidelines on the use of the ANII and Ceibal Foundation's trademarks must be observed.</p> <p><b>Duration:</b> Projects may have a duration of between 8 and 24 months. Priority will be given to projects that do not exceed 16 months in duration.</p> <p><b>Maximum amount:</b> UYU 2,900,000 (80% of the total project). Minimum counterpart of the beneficiary institutions: 20% of the investment foreseen in the project.</p>	<p>Researchers or research groups based in national or international, public or private institutions. If the applicant is an institution based abroad, it must have a national counterpart and, therefore, the project will have two proposing institutions.</p>	<p>Two phases of proposal submission: phase 1 project idea and phase 2 complete project.</p> <p>Evaluation process stages and criteria:</p> <p><b>1) Eligibility</b></p> <p><b>2) Relevance and prioritization:</b></p> <ul style="list-style-type: none"> <li>-Relevance and relationship of the project with priority issues, and with the general and strategic lines of Ceibal and ANEP.</li> <li>-In the case of modality A, it will also be assessed that: the proposals are oriented to secondary education, include a component related to education/teacher training and propose applied research methodologies.</li> <li>-Initiatives of shorter duration, not exceeding 16 months, will be favored.</li> <li>-The inclusion of the gender perspective and the approach to disability situations will be valued.</li> <li>-Priority will be given to those projects that have a potential impact or tangible effects that result in sustainable actions or initiatives in the country or countries involved, as well as in the educational context.</li> </ul> <p><b>3) Technical and applicability evaluation</b></p> <p><b>Applicability:</b> -Clear identification of the problem to be addressed and its relevance.</p> <ul style="list-style-type: none"> <li>-Generation of new applicable knowledge, translated into proposals or products. The definition of transfer actions to Ceibal and ANEP will be valued.</li> </ul>	<p>-Technical capacity of the team: Track record of both the researcher in charge and the research groups involved.</p> <p>-Interdisciplinary nature of the research: Appropriate multidimensional approach to the proposal; training, experience and interdisciplinary nature of the teams involved in the project.</p> <p>-Interinstitutionality of the research group: Institutional alliances and networking relevant to the defined objectives.</p>

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			<ul style="list-style-type: none"> <li>-Application alternatives suggested in the project.</li> <li>-Tangible effects in the country or countries involved and in the educational context.</li> <li>-Replicability and scalability possibilities</li> <li><b>Technical aspects:</b></li> <li>-Clarity and coherence between general and specific objectives of the proposal, methodology and expected results; research strategy and feasibility.</li> <li>-Novelty of knowledge.</li> <li>-Potential of the project to be scalable and replicable in other educational contexts at the international level.</li> <li>-Technical capacity of the equipment.</li> <li>-Interdisciplinary nature of the research.</li> <li>-Financing: Complementary sources of financing will be an asset.</li> <li>-Interinstitutionality of the group of researchers.</li> <li>-Clarity and relevance of the results.</li> <li>-Sustainability.</li> <li>-The inclusion of the gender perspective in the proposals will be valued.</li> <li>-The inclusive perspective of students with disabilities will be valued.</li> <li>-Ethical issues should be identified and presented in the application form.</li> </ul>	
<p><b>Energy R&amp;D Sector Fund Modality 1</b></p> <p><b>Number of projects funded call 2022: 8 of 21.</b></p>	<p><b>Research and development projects in the energy area.</b></p> <p><b>Requirements:</b> Same as above, adding that: Any work resulting from or related to the selected projects must be deposited in the open access digital repository of the institution of affiliation in Uruguay of the person responsible for</p>	<p>Research groups endorsed by national public or private non-profit institutions, whose activities include research, development or innovation.</p>	<p>Two phases of proposal submission: phase 1 project idea and phase 2 complete project.</p> <p>Stages of project evaluation:</p> <ol style="list-style-type: none"> <li>1) Eligibility</li> <li>2) Relevance and prioritization (taking project ideas and only a few selected to move on to the project phase)</li> </ol>	<p>-Technical capacity of the research team</p> <p>-Gender perspective</p>

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	<p>the project, or failing that in the institutional repository of ANII.</p> <p><b>Duration: 24 months. In some cases, it may be up to 36 months (e.g. when including a doctoral scholarship).</b></p> <p><b>Financing: 100% of the total cost of the project, with no maximum amount.</b></p>		<p>3) Technical evaluation of projects. Criteria: -Academic quality; -Originality; -Technical capacity of the research team; -Contributions and impact -Strategy for dissemination, transfer, ownership and use of results. -Gender perspective -Technical and economic feasibility of the proposal. -Ethical aspects</p> <p>4) Prioritization of projects.</p>	
<p><b>Health Sector Fund: Clinical Research</b></p> <p><b>Number of projects funded call 2022: 5 out of 24.</b></p>	<p>Clinical research projects that contemplate aspects of health care with high technology, efficacy and cost efficiency.</p> <p>Requirements: -The project must be endorsed by the proposing institution and participating organizations (if any). -The person in charge and/or scientific co-responsible must be Uruguayan or foreigners living in the country. The person in charge and/or scientific co-responsible may present only one project per call under these roles. It will be possible to be responsible and/or scientific co-responsible for up to two projects with national funding (ANII, CSIC, INIA, etc.) in simultaneous execution. The person in charge and/or scientific co-responsible for the project must have a minimum dedication of 10 hours per week. -CVs of all participants in the proposal must be submitted. -Companies must be up to date with their tax obligations.</p> <p>Duration: 12 months Maximum amount: UYU 1.800.000</p>	<p>Research groups belonging to national, public or private non-profit institutions, as well as private companies or institutions located in the national territory.</p>	<p>-Stage 1: Eligibility analysis: formal requirements</p> <p>-Stage 2: Relevance assessment. In charge of the ESC. Relevant projects will be those research projects that meet the objective of the call. Projects that are not relevant will not continue in the evaluation process and their responsible researcher will be informed accordingly.</p> <p>-Stage 3: Technical evaluation. This stage will take into account: - Academic quality; - Originality; - Technical capacity of the research team; - Interinstitutionality of the group of researchers: - Interdisciplinary nature of the research; - Gender perspective - Technical and economic feasibility of the proposal - Ethical aspects</p>	<p>- Technical capacity of the research team. - Interdisciplinary nature of the research. - Gender perspective.</p>

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	In the case of projects presented by academic institutions, the subsidy will be up to 100%. For projects submitted by companies or non-academic private institutions, a maximum of 50% financing will be granted.		-Stage 4: Prioritization of projects: Prioritization will take into account the strategic focus of the project considering the alignment with the call objective.	
<b>Circular Economy Research and Innovation Fund</b>  <b>Number of projects funded call 2021: 10 out of 36.</b>	Foster research and innovation capabilities through the implementation of circular economy principles. Themes: a) Development of innovations that enable greater circularity in production processes and/or business models in all productive sectors. b) Support for the development of innovative solutions in the food value chain. 2 types of support: circular vouchers and development and implementation of innovation in circular economy.	Organizations and companies of the private sector, which may be of any size and based in the country. Cooperatives producing goods and services whose production is destined for the market are included.		
	<b>CIRCULAR VOUCHERS</b> Financing: Up to UYU 640,000 (70% of the project budget). Duration: 12 months		Evaluation criteria: a) Relevance: The projects must be directly related to the objectives pursued by the instrument (33%). b) Consistency: Project activities must be fully consistent with the problems or needs that the organization intends to overcome (33%). c) Capacity: The organization presenting the project must have the capacity to carry it out, i.e., it must have the human resources capable of managing and supervising the activities established, and the financial resources of the counterpart. (33%)	The organization presenting the project must have the capacity to carry it out, i.e. it must have the human resources capable of managing and supervising the established activities.
	<b>DEVELOPMENT AND IMPLEMENTATION OF INNOVATION IN CIRCULAR ECONOMY</b> <b>Financing: Up to UYU 2,200,000 (70% of the project budget).</b> <b>Duration: 12 months</b> For projects that the beneficiary organization submits jointly with a national research and development institution, the non-refundable funding will be up to UYU 2,800,000.		Evaluation criteria: Innovative merit (20%) Technical feasibility (20%) 3. Impact of the Circular Economy (15%) 4. Market identification (10%) 5. Impact with resilience (10%) 6. Capacity of the work team (10%) 7. Work plan (10%) 8. Budget (5%) 9. Associativity (N/A) 10. Legal and environmental feasibility (N/A)	The proponent must demonstrate that it has the capacity to carry out the project, i.e., that it has the human resources capable of managing and supervising the activities established in the project.

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<p><b>Meat Sector Fund</b></p> <p><b>Number of projects funded call 2021: 1 of 7.</b></p>	<p>Proposals to meet the challenge of the Meat Industry Electronic Information System (SEIIC), selecting the most appropriate ones to develop projects to be financed.</p> <p>Challenges are relevant problems that affect the efficiency, scope or quality of the institution's products and services, and their solutions must be innovative projects or research and development projects.</p> <p><b>Duration: 6 to 9 months.</b></p> <p><b>Financing: Up to UYU \$ 4,500,000</b> (100% of the total budget).</p>	<p>The beneficiaries of this call may be individuals or legal entities generating knowledge, of national or foreign origin.</p> <p>They may apply individually, or in association with other national or foreign organizations such as companies, technology centers and/or public or private research institutes.</p>	<p>Stages of the contest:</p> <ol style="list-style-type: none"> <li>1) Call for profiles.</li> <li>2) Selection of profiles of those who will go on to formulate the complete project.</li> <li>3) Formulation of selected profile projects.</li> <li>4) Technical evaluation of the solution.</li> <li>5) The Agenda Committee will make the final selection of the projects to be financed.</li> </ol> <p>Evaluation criteria (percentages do not appear):</p> <ol style="list-style-type: none"> <li>1) Innovative merit</li> <li>2) Technical feasibility</li> <li>3) Legal and environmental feasibility</li> <li>4) Capacity of the work team.</li> <li>6) Work plan.</li> <li>7) Cost of the solution</li> <li>8) Impact of the solution presented.</li> </ol>	<p>The proponent of the solution must demonstrate that it has the capabilities to carry it out, i.e. that it has the human resources capable of managing and supervising the activities established in the project.</p>
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<p><b>Citizen Security Sector Fund</b></p> <p><b>Number of projects funded call 2020: 7 out of 13.</b></p>	<p>Research projects framed within the established themes (gender-based violence/illegal markets and criminal groups/justice system), whose execution results in proposals or inputs that can be applied or transferred to the context of citizen security.</p> <p>Requirements: same as above.</p> <p><b>Duration: between 6 and 10 months. Priority will be given to those of shorter duration.</b></p> <p><b>Financing: Up to UYU \$1,100,000.</b></p>	<p>Research groups based in national public or private non-profit institutions. Priority will be given to partnerships with foreign institutions to develop their research.</p>	<p>Stages of project evaluation:</p> <ol style="list-style-type: none"> <li>1) Eligibility</li> <li>2) Relevance (applicability and feasibility, fit with the proposed thematic lines, feasibility of access to data provided by the IF).</li> <li>3) Technical evaluation of projects (scientific-technical content, novelty of the knowledge to be achieved, technical capacity of the team, interinstitutional nature of the research group, ethical research and quality and relevance of the results).</li> <li>4) Selection of projects, prioritizing academic excellence and the relevance of the project, linked to the impact that the outcome of the project may have on public policy.</li> </ol> <p><b>Technical evaluation weightings:</b></p> <ul style="list-style-type: none"> <li>• Technical-scientific content 40%.</li> <li>• Contributions and impact of the project 30%</li> <li>• Resources for project implementation 30% of the project's resources</li> </ul>	<p>Technical capacity of the team: Track record of both the researcher in charge and the research groups involved.</p> <p>Interinstitutionality of the research group: Institutional alliances and networking relevant to the defined objectives.</p>
<p><b>Korea-Uruguay Research Fund: Biotechnology Research</b></p> <p><b>Call 2020: 2 of 2 projects funded.</b></p>	<p>Scientific or technical research in the area of biotechnology, between Uruguayan research groups and Korean research groups from Seoul National University. Areas:</p> <ul style="list-style-type: none"> <li>• Development and characterization of microorganisms for the enrichment of functional components using agricultural products.</li> <li>• Development of drought-resistant soybean cultivars.</li> </ul> <p>Requirements: same as above.</p> <p><b>Duration: 9 months</b></p>	<p>Research groups belonging to national, public or private non-profit institutions, whose activities include research.</p>	<p>Stages for the presentation of proposals:</p> <p><b>-Stage 1: Presentation of project ideas by the national counterpart.</b></p> <p><b>-Stage 2: Presentation of projects in conjunction with the counterpart of the Seoul National University.</b></p> <p>Stages of project evaluation:</p> <ol style="list-style-type: none"> <li>1) Eligibility</li> <li>2) Relevance (alignment with the objectives and relevance of the project)</li> <li>3) Technical evaluation of projects (scientific-technical content, novelty of the knowledge to be achieved and technical capacity of the team).</li> </ol>	<p><b>Both the trajectory of the researcher in charge and that of the research groups involved will be taken into account.</b></p>

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	<b>Financing:</b> maximum amount per project is UYU 4,300,000. The maximum funding for the project carried out in Uruguay is UYU 2,150,000.		4) Selection of projects, taking into account the strategic focus and alignment with the themes and objectives of the call.	
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<p><b>Early Childhood Sector Fund</b></p> <p><b>Call 2020: 8 of 23 proposals were approved for funding.</b></p>	<p><b>Projects that contribute to the resolution of early childhood problems in Uruguay.</b></p> <p>Requirements: same as above.</p> <p>Research projects will be financed in two modalities:</p> <ul style="list-style-type: none"> <li>• <b>Quantitative research:</b> projects that exclusively exploit ENDIS databases.</li> <li>• <b>Quantitative and qualitative research:</b> projects that complement quantitative research (described in point A) with qualitative studies.</li> </ul> <p><b>Quantitative research</b></p> <p>Duration: 12 months Financing: UYU 400,000</p> <p><b>Quantitative and qualitative research</b></p> <p>Duration: 12 months Financing: UYU 600,000.</p>	<p><b>Research groups, within the framework of national, public and/or private non-profit institutions, as well as in civil society organizations that include research in their activities.</b></p> <p>Special recognition will be given to the association of national institutions with groups belonging to institutions in other countries.</p>	<p>Stages of project evaluation:</p> <ol style="list-style-type: none"> <li>1) Eligibility</li> <li>2) Relevance (alignment with the objectives and relevance of the project)</li> <li>3) Technical evaluation of projects (scientific-technical content, novelty of the knowledge to be achieved, technical capacity of the team, and researchers' interinstitutionality).</li> <li>4) <b>Selection of projects, taking into account the strategic focus and alignment with the themes and objectives of the call. Criteria:</b> <ul style="list-style-type: none"> <li>-Applicability and usefulness of the proposal for the improvement of public policy in early childhood.</li> <li>- Comparative analysis of the databases of both cohorts of the ENDIS with other national databases.</li> <li>- Comparative analysis of the databases of both cohorts of the ENDIS with other international databases.</li> <li>- Use of administrative records</li> <li>- Complementation of the information from the ENDIS databases with other qualitative techniques.</li> </ul> </li> </ol> <p><b>Technical evaluation weightings:</b></p> <ul style="list-style-type: none"> <li>• Technical-scientific content 40%.</li> <li>• Project contributions and impact 40%</li> <li>• Resources for project implementation 20% of the project's resources</li> </ul>	<p>Technical capacity of the team: Track record of both the researcher in charge and the research groups involved.</p> <p>Interinstitutionality of the research group: Institutional alliances and networking relevant to the defined objectives.</p>
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<p><b>Animal Health Sector Fund</b></p> <p><b>Number of projects funded call 2020: 10 out of 30.</b></p>	<p>Research projects of excellence to find solutions to the main diseases affecting the health of cattle and sheep, which limit the productivity of the country's livestock and dairy systems.</p> <p>Requirements: same as above, with the addition that:</p> <p><b>All works resulting from or related to the selected projects must be deposited in the open access digital repository of the project leader's institution of affiliation in Uruguay or, failing that, in ANII's institutional repository.</b></p> <p><b>Duration: up to 48 months</b> <b>Financing: 100% of the project, up to UYU 5,400,000.</b></p>	<p>Research groups, preferably inter-institutional, with a proven track record in R&amp;D&amp;I. At least one of the groups must be based in Uruguay.</p> <p>In the case of projects that include master's or doctoral training, up to 2 master's or 1 doctoral scholarship will be funded, which will be governed by the General Regulations of the <b>National Scholarship System</b>.</p>	<p>Stages of project evaluation:</p> <ol style="list-style-type: none"> <li>1) Eligibility. Formal requirements + all proposals must be carried out by institutional groups of researchers.</li> <li>2) Relevance (alignment with the objectives, identification of the target problem in relation to the defined topics of the call and contribution of the proposal to the resolution of the linked problem).</li> <li>3) Technical evaluation of projects (scientific-technical content, novelty of the knowledge to be achieved, technical capacity of the team, and researchers' interinstitutionality).</li> <li>4) Selection of projects, taking into account the strategic focus and alignment with the themes and objectives of the call.</li> </ol> <p><b>Technical evaluation weightings:</b></p> <ul style="list-style-type: none"> <li>• Technical-scientific content 50%.</li> <li>• Project contributions and impact 35%</li> <li>• Resources for project implementation</li> </ul>	<p>Each group must have at least one researcher with relevant scientific production and proven capacity to lead research groups and train human resources.</p> <p><b>Technical capacity of the team: trajectory of both the researcher in charge and the research groups involved.</b></p> <p><b>Inter-institutionality of the group of researchers: institutional alliances and networking relevant to the defined objectives. Depending on the different areas of the proposal, the interaction of inter-institutional efforts and the degree of participation of other national or international research institutions in the project will be assessed.</b></p>
<p><b>Sectoral Research Fund based on data from</b></p> <p><b>Number of projects funded call 2018: 16 out of 29.</b></p>	<p>Research projects aimed at generating applied knowledge from the exploitation of available national data.</p> <p>Requirements: same as above.</p> <p><b>Duration:</b> 12 months. In well-founded cases, it may be extended up to 24 months.</p> <p><b>Financing:</b> two modalities. Projects of up to UYU 1,000,000 and projects of up to UYU 2,000,000.</p>	<p>Researchers endorsed by national public, private or civil society non-profit institutions.</p>	<p><u>Stages for the presentation of proposals:</u></p> <p><b>-Stage 1: Presentation of project ideas.</b></p> <p><b>-Stage 2: Presentation of projects.</b></p> <p><u>Stages of project evaluation:</u></p> <ol style="list-style-type: none"> <li>1) Eligibility. Formal requirements.</li> <li>2) Relevance and prioritization.</li> <li>3) Technical evaluation of projects (scientific-technical content, novelty of the knowledge to be achieved and technical capacity of the team).</li> <li>4) Selection of projects, taking into account the strategic focus and alignment with the themes and objectives of the call.</li> </ol>	<p>Technical capacity of the team: trajectory of both the researcher in charge and the research groups involved.</p>

## **ANNEX II**

### **Evolution of evaluation criteria by levels and areas, SNI Calls 2009-2022**

It is worth mentioning here some relevant aspects of the evolution of the evaluation criteria in the first period analyzed in terms of their coincidences and particularities by areas of knowledge. Two areas set out criteria to be considered in the evaluation as a guide for all levels: Agricultural Sciences and Humanities. The Agricultural Sciences area heads the document with a series of guidelines to be considered in all cases. Firstly, it establishes that the production considered will be that submitted to peer review, whether articles in peer-reviewed journals or technological products. The evaluation of the production must be weighted according to the individual contribution, which until 2012 for the Candidate and Level I (NI) levels consisted of occupying the position of first author, is replaced by "leading contribution". Likewise, the volume, pace and quality of production should be considered according to the moment of the career. Quality at the higher levels is demonstrated by publications in international media of recognized impact; at the initial levels, on the other hand, quality is measured in terms of the originality of the work. From the NI onwards, production must be weighted with project management spaces and from the NII onwards, HR training is added. Finally, it points out that the quantification of the evaluated elements is only indicative, so it is not a rigid indicator and that the evaluation will consider duly justified exceptional situations. In 2012, it introduces the equivalence within the training tasks to those contributions produced jointly with young researchers.

In Humanities, the specific criteria for the evaluation and categorization of researchers are presented in accordance with the SNI Regulations and the General Guidelines defined by the Selection Committee. It is worth making a relevant consideration regarding the evaluation of the original knowledge production of the applicants in this area of knowledge. In the General Evaluation Guidelines, it is indicated that the production of original knowledge constitutes the central element of the entire evaluation process, assigning it 50% of the total weight. In 2010, the allocation of a percentage is eliminated. Likewise, it is indicated that, in order to categorize the production, the contribution of the research to the understanding and solution of problems of the Uruguayan society will be considered, among other items. Although due to epistemological aspects of the disciplines that make up the area, it is clarified that this does not necessarily represent a significant aspect.

#### **Specific criteria for permanence in the SNI**

Between 2010 and 2011, a set of criteria for permanence was added in Agricultural, Medical and Health Sciences and Humanities.

In agricultural sciences, it is specified that at the Candidate level, permanence implies having completed postgraduate training, accrediting production, especially as first author, and obtaining funding or recognition. In NI the requirement is to have a refereed publication and/or technological product/process in which the authorship reflects their contribution to the work and in the relationship between articles and funded projects. In N-II the publications must come from "refereed journals of international impact and/or recognized technological product/processes". In which case the authorship must reflect a line of research. In addition,

they must develop HR training activities. Finally, the section in 2012 is eliminated and replaced by a more general and equal description for all levels, under the title Criteria for renewals synthesized in a consistent profile and "sustained activity and production during the evaluation period."

As a requirement to remain at the level of Candidate in Medical and Health Sciences, the completion of postgraduate studies, a production as first author and recent funding or recognition are required. Specifically, it states that "publication in a peer-reviewed journal of international dissemination guarantees permanence in the System". This last indication is eliminated in 2012. In N-I the requirement is to accredit at least one recent publication/product with a leading contribution, especially as first author. In N-II the focus is on the quality and volume of production with the "consolidation of own lines of research". In addition to participation in academic life, the training of human resources demonstrating a management role. In N-III it incorporates notions of quality under "its work maintains international recognition and impact".

In Humanities for the initiation instance and Level I requires a significantly advanced status in graduate studies; participated or directed projects and good publications. In Levels II and III the requirements are the same for Medical and Health Sciences.

### The case of Social Sciences

As mentioned in the case of Social Sciences, since the 2009 call for proposals, three lines are developed: Production, Training and Institutional Building. The first, Production, in 2009 lists means of communication considered in the evaluation, which includes "books, book chapters, edition or compilation of books, articles in journals, working papers and technical reports and products of professional activity that accredit scientific value." And other forms of communication as long as they are subject to peer review. It is valued that the production is published in a variety of national and international media. After some previous modifications in 2012, it incorporates in the section an assessment on the "accumulation in specific lines of research, evidenced mainly through publications, participation in projects and obtaining competitive funds."

As for **Training** in 2009 it measures productivity compensation in the cases of applicants without a doctoral degree in "three publications or more products in recognized refereed media or having published at least one book of comparable quality." "In terms of human resources training, thesis direction and the direction of the work of young researchers, particularly at the postgraduate level, will be valued. The publication of products co-authored with young researchers will be valued not only as production but also as part of the task of training new researchers."

Finally, in 2009, for the **Institutional Construction** assessment, it states: "The applicant's contribution to the development of new institutions and the development of new instances of inter-institutional and interdisciplinary collaboration will be especially valued. Particularly for levels I and III (in 2011 it replaces NI with NII), the collaboration of the applicant in instances of international cooperation and in the construction of networks that link the local academic environment with academic communities abroad will be valued."

### Elimination of criteria by Fields

In 2012 a section on Criteria common to the six areas was incorporated: grouped in Scientific Production, Research Training, Institutional Construction and Equivalent Training. When in the 2016 call the criteria by areas of knowledge lost characterization the common aspects as stipulated in 2012 were maintained. Below, we describe their evolution based on what was defined for the 2012 call and on the other hand, the recently incorporated sections.

### Scientific production

*"The evaluation of publications will be based on the quality, relevance and impact of the contributions, the prestige of the fields in which they are made and the personal contribution of the applicant, rather than on quantitative aspects. Notwithstanding the above, the volume and continuity of production will also be valued according to each level. Complementarily, the following will be considered: presentations at academic events, working papers and technical reports and other products of the professional activity that accredit scientific value taking into account the place of publication."*

In 2016 eliminates the last sentence and replaces it with "Admission to the SNI requires the applicant to have recent scientific production, although the researcher's trajectory as a whole will also be evaluated." In 2017 adds to the evaluation of publications based on the *originality* of the contributions and eliminates the phrase "rather than quantitative aspects."

### Research Training

*"The direction of original research work by young researchers will be valued, especially but not exclusively the mentoring of research-oriented graduate theses."*

In 2023, the introduction of tutoring in postgraduate theses with published results by students stands out in the assessment.

### Institutional construction

*"The applicant's contribution to academic institutional development and the promotion of new instances of inter-institutional and interdisciplinary collaboration will be especially valued. Particularly for levels II and III, the collaboration of the applicant in instances of international cooperation and in the construction of networks that link the local academic environment both with international academic communities and with public and private organizations in the field of science, technology and innovation will be valued. Likewise, the contribution to the creation of capacities for both research and human resources training will be valued. In the three areas of the evaluated activity -production, training and institution building- international recognition will be valued in a special way for the highest levels of the INS."*

No substantial changes have been made.

### Equivalent training

*"Those who do not have the degrees mentioned in these guidelines, may prove equivalent training. In particular, in the case of applicants who lack a doctorate, a doctorate may be considered equivalent when the applicant's production is unequivocally comparable to a*

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*doctoral thesis or higher. In these cases, it will be understood that it is the applicant's responsibility to provide the necessary elements of judgment so that the Technical Area Committee (CTA) may consider that there is reasonable equivalence. The assessment made by the CTA regarding equivalencies will have no other scope or validity than that of the evaluation process for the SNI call that is being processed."*

As of the 2020 call for applications, the section will be eliminated.

### **Notes**

In 2020, a heading called Notes is also included, which warns to avoid rigid interpretations by promoting a global evaluation of the activity of researchers according to the different degrees of membership and leadership.

### **Other Criteria**

Other Criteria is a title that will be introduced as of 2017, which considers evaluation activities, program monitoring and seminars, participation in collective undertakings related to research, integration of international networks, among others. It adds in 2020 "The linkage and contribution of the scientific production made to society, particularly Uruguayan society, in its various forms, such as contributions to the culture of society, problem solving and generation of economic opportunities, evidenced in actions such as transfer of products or technological processes, productive or social innovations, contributions to public debate and dissemination of recognized impact, will also be valued."



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### Agricultural Sciences

Initiation	Level I	Level II	Level III
<p>To enter the SNI as a candidate it will be necessary to have published 1 recent article (last 3 years) in a peer-reviewed journal as first author.</p> <p>This is clearly demonstrative of research capability, generates a clear standard, and encourages potential researchers to publish. In general, candidates will be Master's or Ph.D. students, or researchers with a recent graduate degree.</p>	<p>To enter level I, approximately 4 peer-reviewed publications and/or documented technological products/processes must be documented throughout the applicant's scientific career. Authorship should reflect their contribution to the work. Documentation in the CVuy of peer-reviewed and funded projects will be valued.</p> <p>The correspondence between publications in peer-reviewed journals and funded projects will be analyzed.</p>	<p>To enter level II, a significant volume of peer-reviewed publications and/or documented technological products or processes throughout the applicant's scientific career must be documented in the CVuy. The training of human resources at the undergraduate and especially at the graduate level (1) must be documented. Documentation in the CVuy of peer-reviewed and funded projects will be valued. The correspondence between publications in peer-reviewed journals and funded projects will be analyzed.</p>	<p>Researchers at level III will be researchers with particularly outstanding and relevant careers in their area. They must document production of sustained international impact over time. Researchers must accredit an important activity in human resources training, preferably doctorates and master's degrees. In addition, they should document the creation of research capacities. Documentation in the CVuy of peer-reviewed and funded projects will be valued. The correspondence between publications in peer-reviewed journals and funded projects will be analyzed.</p>

### Natural and exact sciences

Initiation	Level I	Level II	Level III
<p>D. student, recent Ph.D. student, or equivalent production, with recent publications in peer-reviewed journals of international dissemination who demonstrates that he/she is on the way to becoming a researcher capable of carrying out research work independently.</p>	<p>D. or equivalent production with recent publications in peer-reviewed international journals and/or recognized technological products/processes that demonstrate that he/she is a researcher capable of carrying out research work independently.</p>	<p>D. or equivalent production with recent publications in internationally recognized peer-reviewed journals and/or recognized technological products/processes that demonstrate that he/she is a researcher capable of carrying out research work independently. His/her production as a whole constitutes a relevant contribution. Performs activities aimed at training research skills at the postgraduate level.</p>	<p>Active researcher with recent publications in internationally recognized peer-reviewed journals of high prestige and/or recognized technological products/processes that demonstrate that he/she is a researcher capable of carrying out research work independently. His/her work has an outstanding international recognition. It carries out important work aimed at training researchers and other research capabilities of relevance to the scientific community and the country.</p>

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### Engineering and Technology

Initiation	Level I	Level II	Level III
Advanced postgraduate training, preferably a doctorate in progress or recently completed, with significant participation in research projects and activities supported by recent peer-reviewed publications at international level. Creative activity aimed at obtaining technological products or processes will also be taken into account, taking into account their applicability, degree of adoption and impact.	D. or equivalent production, who has demonstrated the ability to carry out original research independently, through research activities and productive or social innovations supported by their participation in projects and authorship of recent publications evaluated by international peers. Special consideration will be given to creative activity resulting in technological products or processes supported by publications or peer review, with special attention to their applicability, degree of adoption and impact.	Consolidated researcher, with doctoral training or equivalent production, who has developed his/her own line of research with a sustained production of original knowledge, demonstrated through research activities and productive or social innovations supported by his/her participation in project management and research groups, training of human resources, especially at the postgraduate level, and authorship of recent publications evaluated by international peers. Special consideration will be given to creative activity resulting in technological products or processes endorsed by publications or peer review, with special attention to their applicability, degree of adoption and impact.	Researcher with a particularly outstanding and relevant trajectory in his/her area, valuing international recognition, the creation and direction of research groups and activities aimed at the creation of research capacities. The researcher must document production of sustained international impact over time, through the authorship of publications evaluated by international peers and taking into account the creative activity resulting in technological products or processes endorsed by publications or peer review, with special attention to their applicability, degree of adoption and impact. It should also document the training of human resources at the postgraduate level, preferably at the doctoral level, and the creation of research capabilities.

### Health and Medical Sciences

Initiation	Level I	Level II	Level III
D. student, recent Ph.D. student, or equivalent production, with recent publications in peer-reviewed journals of international dissemination who demonstrates that he/she is on the way to becoming a researcher capable of carrying out research work independently.	D. or equivalent production with recent publications in peer-reviewed international journals and/or recognized technological products/processes that demonstrate that he/she is a researcher capable of carrying out research work independently.	D. or equivalent production with recent publications in internationally recognized peer-reviewed journals and/or recognized technological products/processes that demonstrate that he/she is a researcher capable of carrying out research work independently. His/her production as a whole constitutes a relevant contribution. Performs activities aimed at training research skills at the postgraduate level.	Active researcher with recent publications in internationally recognized peer-reviewed journals of high prestige and/or recognized technological products/processes that demonstrate that he/she is a researcher capable of carrying out research work independently. His/her work has an outstanding international recognition. Performs important work aimed at training researchers and other research capabilities of relevance

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			to the scientific community and the country.
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### Humanities

Initiation	Level I	Level II	Level III
<p>For admission to the National System of Researchers as a "Candidate Researcher", applicants must accredit the publication of at least one recent article as first author in a peer-reviewed journal, or several articles or papers in recognized academic circles. Likewise, it will be valued that the applicant has been responsible for a research initiation project and has received funding to develop it. Applicants must be enrolled in a master's or doctoral program.</p>	<p>As for Level I, applicants must accredit approximately two articles in peer-reviewed journals of recognized international impact, and several publications and presentations in recognized academic circles. Likewise, it is required to have integrated a research team with responsibility determination, and participation in academic events with participation determination. Regarding the academic level achieved, they must have a PhD level or have an equivalent production. Finally, an aspect to be considered is the applicant's ability to carry out original research independently.</p>	<p>D. level or a similar production, applicants who reach Level II must demonstrate a solid track record of work and development of their own line of research documented in numerous high level publications. Activities aimed at research capacity building, both institutional and research training, will be valued. What distinguishes Level II from Level III is basically the international recognition of the applicants and their contribution to the training of human resources.</p>	<p>Level III is reserved for applicants with a particularly outstanding trajectory in their area, and with a solid production of original knowledge in the last 5 years. They must also have a PhD or equivalent academic production. Finally, these evaluation criteria will be taken into account to categorize all applicants in the Humanities Area. However, the Area Technical Committee reserves the flexibility to consider the particularities of each applicant.</p>

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### Social Sciences (2011)

Initiation	Level I	Level II	Level III
Graduate students (preferably PhD) with a recent production (article and/or chapter, other).	D. or equivalent with some recent relevant publications.	Sustained level of publications in high-impact international peer-reviewed journals as well as publications in national journals whose quality and originality is recognized by their peers. Formation of level II conditions plus institutional capacity building and international recognition of their activity. researchers. Coordination of research teams is valued. Contributions to institutional capacity building are appreciated.	Level II conditions plus institutional capacity building and international recognition of its activity.

### Evolution of criteria, Calls 2016-2023 by Levels

Year	Initiation	Level I	Level II	Level III
2016	Recent Ph.D. researcher or advanced Ph.D. student. Has recent publications, in a leading role, of a good level of quality according to international standards. An advanced doctoral student is considered to be an applicant who has publications or significant scientific production in topics related to his or her doctorate.	Doctorate with recent publications, in a leading role, of a good level of quality according to international standards and/or technological products or processes and/or productive or social innovations with a clear recognition. His/her individual or team contributions demonstrate that he/she is a researcher capable of carrying out research work independently.	Consolidated researcher with recent publications of a good level of quality according to international standards and/or technological products or processes and/or productive or social innovations with a clear recognition. His/her production as a whole constitutes a relevant contribution in the area of his/her specialty. Proof of having completed the training of researchers, and participates in the formation of research capacities.	Researcher with a particularly outstanding track record. Has recent publications in areas of high prestige according to international standards and/or technological products or processes and/or productive or social innovations that have received a high degree of recognition. His work has a notorious international recognition. It carries out important work aimed at the training of researchers and other capacities for research of importance to the scientific community and the country.
2017	Preferably, applicants should have recently obtained a doctorate or be engaged in advanced training in doctoral programs. Applicants with significant publications or academic production in specific topics will also be considered in this last condition. They must have recent publications, in an outstanding role, of a good level of quality according to international standards.	Doctorate with recent publications, in an outstanding role, of a good level of quality according to international standards and/or technological products or processes and/or productive or social innovations. His/her individual or team contributions should demonstrate that he/she is a researcher capable of carrying out research work independently.	Consolidated researcher with recent publications of a good level of quality according to international standards and/or technological products or processes and/or productive or social innovations. His/her production as a whole constitutes a relevant contribution in the area of his/her specialty. Accredits the training of researchers with the profile indicated in item "Researcher Training."	Researcher with a particularly outstanding track record. Has recent publications in areas of high prestige according to international standards and/or technological products or processes and/or productive or social innovations that have received a high degree of recognition. His/her work has a notorious international prestige. It carries out

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				important work aimed at the training of researchers and other research capabilities of importance to the scientific community and the country.
2022	Applicants must have a doctoral degree or advanced doctoral training. This implies being in the final stage of this training process, which must be duly documented with a significant peer-reviewed production associated with the doctoral thesis or certification of the deposit of the thesis for its defense. In all cases, recent publications, in a prominent role, of a good level of quality according to international standards must be accredited.	idem	idem	idem

ANNEX III

SNI 2023 evaluation criteria  
APPLICATIONS FOR ADMISSION AND PERMANENCE IN THE NATIONAL RESEARCHER SYSTEM

	SCIENTIFIC PRODUCTION	RESEARCH TRAINING	INSTITUTIONAL BUILDING	OTHER CRITERIA	TRAINING / PROFILE	NOTES
<b>GENERAL CRITERIA FOR EVALUATION</b>						
	<p>Based on:</p> <ul style="list-style-type: none"> <li>-the quality, relevance and originality of the contributions,</li> <li>-the prestige of the areas in which they are carried out</li> <li>-the applicant's personal contribution</li> <li>-volume and</li> <li>-The continuity of production according to each level.</li> </ul> <p>Admission to the SNI requires the applicant to have recent scientific production, although the researcher's career as a whole will also be evaluated.</p>	<ul style="list-style-type: none"> <li>-direction of original research work carried out by researchers in training,</li> <li>direct mentoring of research-oriented graduate theses whose results have been published in the scientific literature by students in training.</li> </ul>	<ul style="list-style-type: none"> <li>-contribution to academic institutional development</li> <li>-promotion of new instances of interinstitutional and interdisciplinary cooperation</li> <li>-participation in postgraduate academic designs, research projects or programs</li> <li>-instances that link the local academic environment with international academic communities or with public and private organizations in the field of science, technology and innovation.</li> </ul>	<ul style="list-style-type: none"> <li>-relevant participation in seminars, colloquiums, qualified insertion in national or international networks, participation in collective undertakings related to research, etc.</li> <li>Active collaboration in tasks of evaluation and/or follow-up of scientific or technological programs.</li> <li>-linkage and contribution of scientific production to society, particularly Uruguayan society, in its various forms, such as contributions to the culture of society, problem solving and generation of economic opportunities, evidenced in actions such as transfer of products or technological processes, productive or social innovations, contributions to public debate and dissemination of recognized impact.</li> </ul>		<p>In the specific application of the general criteria, rigid interpretations shall be avoided, in line with the guidelines established in the regulations and with the general orientations that have been guiding the System's trajectory. The evaluation of a researcher's activity will be global, in such a way that all the indicated elements converge to generate a researcher profile with different degrees of belonging and leadership.</p>
<b>GENERAL CRITERIA BY LEVEL FOR ADMISSION</b>						

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<b>INITIATION</b>	-recent publications, -in a prominent role, -quality according to international standards				Doctorate or advanced doctoral training (...) documented with significant peer-reviewed production associated with the thesis or certification of thesis deposit for defense.	
<b>LEVEL I</b>	-recent publications, -in a prominent role, -quality according to international standards and/or technological products or processes and/or productive or social innovations.				PhD	Your individual or team contributions should demonstrate that you are a researcher capable of carrying out research work independently.
<b>LEVEL II</b>	-recent publications -quality according to international standards -and/or technological products or processes and/or productive or social innovations.	Accredits the training of researchers			Consolidated researcher	His production as a whole constitutes a relevant contribution in his area of expertise.
<b>LEVEL III</b>	-recent publications -in highly prestigious environments according to international standards -and/or technological products or processes and/or productive or social innovations that have received a high degree of recognition.	important work aimed at the training of researchers	important work aimed at (...) other important research capabilities for the scientific community and the country.	international recognition (See Annex II)	Researcher with a particularly outstanding trajectory.	

### GENERAL CRITERIA FOR PERMANENCE

- Present a profile consistent with the standards defined in the criteria for admission.
- show sustained activity and production during the evaluation period

### Criteria for technical production evaluation

(...) Likewise, unlike the production of bibliographic knowledge evaluated by peers, in many cases there is less objective and peer-reviewed information publicly available to account for the originality and quality of the research. This difficulty, which not only affects our System, in some cases may hinder the SNI Commissions from adequately evaluating products associated with the dimension of linking research with society, which the Regulations establish must be considered and which is important for the full compliance with the purposes of the SNI.

#### *Information required to evaluate technical production*

- a) What problem is solved, what is the contribution of the proposed solution with respect to other existing ones? Contribution to society in general and in particular to Uruguayan society, and impact (200 words maximum).
- b) Why is it original knowledge creation (200 words maximum).
- c) If these results were not communicated as refereed publications, patents or similar, explain why (100 words maximum).
- d) How is this product linked to the researcher's peer-reviewed and publicly documented knowledge production? What was the researcher's role in generating the product? (200 words maximum).
- e) Publicly accessible sources of information (if available) that allow a technical evaluation of the product (100 words maximum).
- f) Participation of users in the process, adoption, productive or social application, instances of evaluation by users and/or peers, indicating publicly available information documenting it, if any (200 words maximum).

### General technical production evaluation criteria

#### Exclusive conditions

- Originality, at least at the national level in cases oriented to national implementation.
- Production rooted in research, connected to a line of research and previous results of the researcher and/or contribution of the technical production to the research work as a mechanism for contrasting or evaluating it.
- Existence of objective public documentation. This may be in the form of a patent or other form of intellectual property registration or other public information that, at least, accredits the existence and characteristics of the product.

#### Aspects that reinforce the value of technical production

- Objective evidence showing transfer and adoption or positive valuation of the contribution by society (either nationally or internationally).



- Clear evidence or assessment in the opinion of the SNI Commissions regarding the importance and potential positive impact (on society, the country or internationally) of the result.

**International recognition indicators**

-Regional and international awards and recognitions.

Invitation to high-profile conferences at recognized regional or international events.

-Leading role in the organization of international or regional events

-Courses or tutorials by invitation in prestigious institutions abroad.

Editor-in-chief, associate editor, or member of the editorial board of leading journals

-Systematic role in the review of renowned publications or events, and in the evaluation of projects, competitions and calls for proposals at regional or international level.

-Participation in doctoral tribunals in institutions recognized at regional or international level.

-Invitation to co-orient graduate students in institutions with international recognition.

-Outstanding role in regional or international scientific institutions.

-Advisories on topics related to his production as a researcher in international and regional areas

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**ANNEX IV**

**LIST OF INTERVIEWS**

<b>Institution</b>	<b>Name or profile</b>	<b>Description</b>	<b>Date</b>
<b>National Directorate of Innovation, Science and Technology</b>	Alberto Majó	Director	19/10/2023
<b>National Agency for Research and Innovation-ANII</b>	Flavio Caiafa	Chairman	17/11/2023
	Cinthia Alvarez	Research and Training Area Manager	17/11/2023
	Florencia Valla	Executive Research and Training Area	17/11/2023
	John Maldini	Digital Services Manager	15/12/2023
<b>CVUand</b>	Nicolás Caitán	Digital Services Executive	04/12/2023
	Natalia Aguirre and Exequiel Fontans	Research team-bibliometrics	04/12/2023
<b>CONICYT</b>	Mercedes Aramendía Falco	President CONICYT	19/10/2023
	Celia Quijano	SNI Representative in CONICYT	19/10/2023
	Gregory Randall	UdelaR representative in CONICYT	19/10/2023
<b>Clemente Estable Biological Research Institute</b>	Cecilia Scorza	President IIBCE Board of Directors	29/01/2024
<b>Pasteur Institute</b>	José Badano	Academic Director Institut Pasteur de Montevideo	07/02/2024
<b>PEDECIBA</b>	David Gonzalez	Academic Director PEDECIBA, Teacher UDELAR	28/12/2023
	Researcher Grade 4	PEDECIBA	19/12/2023
	Researcher Grade 3	PEDECIBA	26/12/2023
<b>SNI - Honorary Commission</b>	Gustavo Pereira	Honorary Commission, Teaching UDELAR	19/12/2023
	Ana Denicola	Honorary Commission, Teaching UDELAR	19/12/2023
	Fernando Silveira	Honorary Commission, Teaching UDELAR	19/12/2023
	Nora Altier	Honorary Commission, Researcher INIA	27/12/2023

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<b>SNI-Selection Committee</b>	SNI Researcher	Selection Committee (Exactas)	18/12/2023
	SNI Researcher	Selection Committee (Exactas)	26/12/2023
	SNI Researcher	Selection Committee (Medical and Health)	22/12/2023
	SNI Researcher	Selection Committee (Humanities)	29/01/2023
<b>SNI-Review Committee</b>	SNI Researcher	Review Committee (Engineering and Technology)	26/12/2023
<b>SNI - Technical Area Committees</b>	SNI Researcher	CTA Humanities	19/12/2023
	SNI Researcher	Agricultural CTA	20/12/2023
	SNI Researcher	Natural and Exact CTA	20/12/2023
	SNI Researcher	CTA Humanities	18/12/2023
	SNI Researcher	CTA Engineering	20/12/2023
	SNI Researcher	Social CTA	19/12/2023
<b>UdelaR-RECTORATE</b>	Virginia Bertolotti	Research Vice-Chancellor	02/01/2024
<b>UdelaR- Central Commission for Total Dedication</b>	Omar Defeo	CCDT-UDELAR Member	21/12/2023
	Omar Borsani	CCDT-UDELAR Member	21/12/2023
	Susan Rostagnol	CCDT-UDELAR Member	21/12/2023
	Omar Defeo	CCDT-UDELAR Member	28/12/2023
	Omar Borsani	CCDT-UDELAR Member	28/12/2023
	Maria Ines Moraes	CCDT-UDELAR Member	28/12/2023
	Susan Rostagnol	CCDT-UDELAR Member	28/12/2023
<b>CSIC, UdelaR</b>	Judith Sutz	Retired Professor, UdelaR.	19/12/2023
	Natalia Gras	Academic Unit, CSIC/Docente UDELAR	19/12/2023
<b>Catholic University of Uruguay</b>	Cecilia Rossell	Vice Rector's Office for Research and Innovation	29/01/2024
	Matias Miguez	Research Support Unit	29/01/2024
<b>University of Montevideo</b>	SNI Researcher	Faculty of Economics and Business Administration	07/02/2024

**CONICYT ADVISORY – FINAL REPORT**

<b>ORT University</b>	Julio Fernandez	Vice Rector for Research	15/12/2023
<b>Technological University-UTEC</b>	Mariana Boiani	Research and Development Director	20/12/2023
<b>INIA</b>	Nora Altier	Researcher INIA	27/12/2023
	Monica Cantileno	Human Capital Manager	06/02/2024
<b>National Academy of Sciences of Uruguay</b>	Rafael Radi	President. Professor UDELAR	16/02/2024
<b>Research uy</b>	Gonzalo Tancredi	President. Professor UDELAR	05/12/2023
	Anabel Fernandez	Vice-president. IIBCE researcher and professor at UDELAR.	05/12/2023
<b>ADUR- UdelaR Teachers' Association</b>	Hector Cancela	Member of the Executive Committee of ADUR, professor at UDELAR.	19/12/2023
	Sabrina Alvarez	President of ADUR, professor UDELAR	19/12/2023
	Mariangeles Lacava	General Secretary ADUR, teacher UDELAR	19/12/2023

