Guidelines for Research Evaluation
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I. AIMS AND SPECIFICITY OF THE GUIDELINES

In many countries and for some time now, strategies, procedures and instruments aimed at evaluating research are surrounded by much public interest, and their application has currently become customary. In Italy, however, this philosophy is hardly ever accepted, with praiseworthy exceptions.

Fatally, this translated into a series of gaps in the system, and adjustments are necessary, such as:

- to improve the institutional link among evaluation results, plan selection and resource allocation;
- to start systematic comparison procedures between Italian and international research Structures;
- to favor spreading and circulation of research results;
- to address adequate human and financial resources to research.

The present Guidelines are aimed at suggesting reference rules and procedures for evaluating the Italian Research System. These Guidelines are not only addressed to the scientific community, but also to other important audiences like political decision makers (who are responsible for identifying and assigning adequate resources\(^1\) to research), and public opinion.

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\(^1\) In research, the particular attention that has been given to the development of new cost-result models during the last decade derives, for the most part, from the growing gap between financial support by the Public Administration (decreasing) and research costs (increasing). These factors together with the demand for research activities dictated by the social-economic necessities, impose a growing attention toward the correct utilization of resources.
II. EVALUATION

A. Definition and background
Research evaluation is a process based on the critical analysis of data and information, which leads to a judgment of merit. The objectivity of the process assumes:
- previously defined criteria and methodologies;
- evaluators, who are outside the Structures that are being evaluated and who are not involved with the product to be evaluated².

B. Typologies

a. Prospective evaluation
It is carried out in the ex ante phase and while the product is being developed so to identify and correct possible critical elements. It must analyze the following aspects.

1. Applications
   Must report:
   - a thorough description of the research plan;
   - self-evaluation elements concerning the importance of the product, including the potential results on the specific scientific field;
   - objective information on the research team and on the technological apparatus.

2. Aims
   These must be clear and coherent with the global scientific aims of the research plan, and must be compatible with the financial availability.
   The research plans will be evaluated in relation to:
   - quality;
   - importance;
   - originality and innovation;
   - feasibility.

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² Instead, during self-evaluation, the exercise requests are flexible, the evaluators are either internal ones, or they are indicated by the Structure to be evaluated.
Right from the beginning, the applicants should identify indicators aimed at verifying, *in itinere*, the level of approximation toward the aims.

3. Productivity

This is described in terms of assumed added value of the product, in relation to a range of expected products. The expected products must be coherent with the aims, activities, duration and planned investments. The evaluation process must also include possible alternative solutions, analyzing, for each of them, the advantages and disadvantages with respect to the expected results and their properties.

4. Quality

Judgment of merit is based (*peer review*) on the following main elements:

- precision and clarity of the research plan;
- originality and innovation with respect to the state of the art in the field (with Italian and international references);
- documented skills of the applicant;
- clarity of the aims and their coherence with the expected results and with the financial plan;
- adequacy and methodology soundness;
- duration of the research plan;
- balanced assignment of the tasks and of responsibilities among the team components, and respect for individual skills.

5. Importance

Essentially, the judgment is based on how the product is able to contribute to the development of the specific scientific field. Other elements are:

- capability of the product to trigger Italian and international networks in the field;
- possibility to involve new subjects in research activities (especially small and medium enterprises).

6. Financial and social impact

During the *ex ante* phase, the methodologies adopted are mainly estimation techniques (models, simulations, technological exercises), which render evaluation of the impact very complex and dependent on the different types of research.

The analysis must consider:

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3 This type of analysis is necessary for highly expensive plans.
4 In fundamental research the possible practical applications are generally deferred in time and unpredictable.
• collaborations (current, to consolidate or to start);
• new Structures cooperating with the productive and social world;
• education and high education;
• personnel mobility from and toward the productive world;
• spreading, popularization and transferring of the results.

7. Resource management
   The judgment is formulated on two essential elements:
   • relevance and reliability of the application;
   • relevance (also financial) with other research plans (previously carried out or current).

b. Summing or retrospective evaluation
   It is done after completion of the research plan to measure the technical-scientific and social-financial results.5
   Moreover, it must verify if and how the recommendations formulated during the previous evaluation exercise were met.

1. Reached aims vs. expected aims
   The reached aims should coincide with the ones expected at the time of the formulation of the research plan, and possible divergences should be justified.

2. Productivity
   The entire range of scientific and technological output of the research plan must be analyzed (publications, prototypes, patents, spin offs, absolute and incremental innovations, services, know-how, etc.).

3. Quality and importance
   Evaluation of scientific quality and importance of the results is based on peer review and on the application of objective indicators, such as: bibliometric indices and particularly, impact factor and citation analysis.7

5 Knowledge of the following input indicators is necessary:
   - budget (total and for each participant);
   - financial resources (for funding sources and costs);
   - personnel (total and researchers for age, sex, education, status, skill, permanent or non-permanent);
   - instruments owned (value and relative management costs);
   - location of research activities.
4. Outcome

The outcome of a research plan includes the whole range of results that create the added value of the activity. It is made up of all the elements already considered for evaluation of productivity, and of all the other effects produced by the research work, like:

- incomes, intellectual property rights, joint ventures and cooperation between public and private sector;
- mobility, scholars’ exchanges, visits and collaborations;
- education, popularization of science and technology transfer.

5. Financial and social impact

Many methodologies exist that are capable of verifying the results yielded by scientific research, with their own specificity, like:

- econometric models and cost-benefit analyses;
- opinions by groups of Experts;
- study cases and field studies;
- benchmarking.

The stakeholder’s attention (political decision makers, enterprises, citizens) is toward a number of aspects among which:

- practical solutions for crucial social themes (e.g. environment, health, administration services, transportation);
- employment and productive capacity of the working force;
- skill of population (e.g. computer and foreign language knowledge);
- education, high education and science popularization;
- capacity of small and medium enterprises to absorb research results, which are more rarely involved with scientific research;
- capacity of the big industry to develop innovative research.

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6 The judgment must include also references to originality, innovation and internationalization.
8 See note n. 4
9 The following are among the many indicators adopted to evaluate the impact of industrial research:
- employment effects of the research plan;
- strategy changes in utilization of graduates;
- newly realized products and processes, and their relative added value;
- economic effects (direct and indirect) of research activities;
- competitiveness and ranking in the reference market, and entrance into new markets;
- competitive capacity of Italy in the global market.

6. Resource management
   Some important aspects are reported hereafter:

   • for scientific management:
     - periodic planning and decision processes;
     - self-evaluation;
     - involvement of Experts with known qualification;
     - mean time for decision processes.

   • for administration management:
     - quantity and quality of the utilized procedures;
     - cash flow and financial management;
     - instruments for management control;
     - degree of computerization and procedure flexibility;
     - mean time for performance;
     - efficiency (utilized personnel with respect to the managed budget);
     - additional services offered (management of patents, contracts, job search, etc.).

7. Added value with respect to possible alternatives
   Also in the \textit{ex post} phase the results must be evaluated in light of possible alternative solutions.
   The final judgment must consider at least the following aspects:
   • opportunity to continue or interrupt the research plan;
   • possible changes;
   • success and failure factors and relative causes;
   • useful indications for future projections.

C. Aims
   Research evaluation must not be perceived as a bureaucratic and censorial mechanism, but instead as a precious opportunity to highlight neuralgic aspects of the performance of research Structures, like:

   - interactions, synergies and partnerships between public and private subjects;
   - further investments for research activities.
- quality and importance of the scientific production;
- originality and innovation;
- internationalization;
- capacity to manage resources (human, technological, financial).

The process is organized into disciplinary Areas and it aims at verifying their scientific soundness. This allows, for each Area, the identification of Structures, sectors and disciplines to which (on objective bases and with maximum transparency) financial resources can be assigned, which are relevant with the acquired judgment of merit.

For Italy the potential results are:
- identification of the Structures, Areas and sectors of research that are capable of facing and adequately answering to the crucial social themes, like employment, health and environment;
- identification of the strength and weakness points of the Italian Research System;
- indications concerning adjustments to be undertaken;
- indications on the strategic planning of the support to research.

These are strong motivating elements, besides representing useful instruments for planning, upgrading and comparison (Italian and international).

Finally, continuous large scale spreading of data and information on evaluation results as well as process transparency represent a necessary opportunity for a democratic watch-over on the management of the financial resources in Italy.

D. Methodologies

No unique evaluation method exists, but only different qualitative and quantitative approaches that can be potentially applied to the various contexts.

The choice of a methodology exerts a strong impact on the credibility of the results. For example, excessively difficult methodologies requiring a long time before reaching final conclusions are hard to use for decisions of scientific policy. Quantitative methods are based on the concept of measuring the scientific task and the produced results, trying to correlate input and output indicators, and identifying possible statistical validity.

Instead, qualitative methods are prevalently based on the judgment of merit (peer review).

Both methods are not free from defects: in the first case, adherence to a deterministic system is involved, which is not capable of catching unexpected and
chanceful effects generated by the research results (which make up the essence of many scientific discoveries); in the second case, the risk of “personalistic” evaluation is run, with the perverted effects of closure to novelties by dominant schools of thought.

**a. Judgment of merit**
In a research evaluation process, the judgment of merit is expressed by external evaluators who operate in the Area or in Areas that have affinity with the one that is being evaluated.
The process is commonly defined as: peer review, so to underline the concept of equal scientific authority between evaluators and authors.

**b. Criteria and indicators**
Research evaluation is an analytical process based on the application of specific reference criteria.
Each criterion includes a series of indicators that measure it according to different perspectives.
The temporal dynamics of the indicators provides information on the development of the research and on the possible adjustments to adopt.
The CIVR proposes a flexible model of criteria and indicators that can be applied to the different types of scientific research.

**c. Self-evaluation**
It is aimed at a critical examination of the Structure organization and performance in relation to the planned objectives and in consideration of the strategic and operational plans.
The process leads to a self-evaluation report by those who are in charge of the Structures.
The elements that constitute, as a whole, the managerial responsibility and that must be specifically included in the self-evaluation report are:
1. strategic planning;
2. operational plan;
3. resource management.
It is useful to remind that the managerial responsibility plays a primary role at different strategic/organization levels of the Structures, like:
• definition of the mission;
• planning of objectives that are coherent with the mission;
• allocation of the resources that are adequate for reaching the pre-set aims;
• periodic evaluation of the obtained results and of the effectiveness and efficiency of the processes developed for their attainment;
• identification and adoption of the necessary corrective measures in relation to a continuous critical revision of the processes.

Prospective evaluation and retrospective evaluation constitute an integral part of the self-evaluation report\textsuperscript{10}.

d. \textit{Benchmarking}

It is a comparison between the activities and processes of a given Structure with the best practice in the field, so to define the ranking and the possible improvement strategies for the Structure itself.

\textit{In primis}, the process must involve the various research Structures (competitive benchmarking), so to outline a ranking list.

Subsequently, with a wider view, the comparison is expanded to the whole Country, to other Structures that have achieved excellent results in the same scientific Area.

The real cognitive importance of benchmarking derives also from site visits, during which successful experiences can be more easily assimilated, and later spread. Full availability to host delegations from other bodies interested in learning and reproducing the successful conditions is expected from the Structures located on top of the ranking list.

\textsuperscript{10} See Chapter II, for the specific evaluation typologies.
III. EVALUATION SYSTEM

Usually, the exercise is held on a three-year basis and is aimed at evaluating the scientific performance of Structures and special projects funded by the MIUR in the previous three-years. The Minister orders, through a decree, the general organization (Fig. 1), the temporal articulation of the evaluation process and the assignment of adequate resources and facilities.

Figure 1. General organization of the evaluation process.

11 The creation/implementation of the computerized system of the procedures is entrusted to the CINECA.
A. Evaluation bodies

a. Committee for the Evaluation of Research (CIVR)

The CIVR is made up of seven Experts nominated by the Government and it is located at the MIUR. The members of the CIVR elect their own President. The CIVR is run by a technical staff; it has its own budget, and it can use also external Experts, even foreigners.

The CIVR has the following tasks:
• to promote education on research evaluation;
• to propose guidelines;
• to organize the entire evaluation process;
• to plan and perform evaluation of the Structures and of the projects of the State Administrations, after agreement with the Administrations themselves;
• to define the criteria for the constitution of Internal Evaluation Committees (CIV) by the Structures;
• to define the criteria for setting of Area and project Panels, and to choose the Panelists;
• to evaluate the data provided by the Structures;
• to evaluate the reports by the Evaluation Committees/Nuclei of the Structures;
• to promote meetings, on a regular basis, with Panelists;
• to evaluate the reports by the Panels;
• to hold auditions;
• to produce a Final report for each Structure and special project;
• to propose ways of linking evaluation results with resource allocation;
• to propose documents that guide research evaluation;
• to evaluate the effectiveness of public support to industrial research;
• to produce evaluation reports on the Italian Research System (at least every three years).

b. Area and project Panels

Usually, Panels include five to nine members who represent the scientific community and are located at the MIUR. For those Areas and special projects characterized by a particular heterogeneity and/or in cases of a large number of products and projects that are to be evaluated, the CIVR can constitute sub-Panels
with specific expertise, and after request by the Panelists. When necessary, the same procedures can be adopted for evaluating inter-disciplinary research. The criteria and guidelines for the constitution of Panels and possible sub-panels are established by the CIVR together with members of the scientific community (CRUI, CUN, research institutions, industrial research system, etc.).

The process is articulated into three phases:\(^\text{12}\):
- identification of the profiles of the Panelists;
- request for including potential Panelists;
- analysis of the curricula and nomination of the Panelists.

The Panelists elect their own President.

Panels can use Experts, even foreigners. They are assisted by a staff and have their own budget.

The Experts have the duty to express a judgment of merit:
- on the products selected by the Structures (retrospective evaluation);
- on the special projects (prospective and retrospective evaluation).

The Panels integrated with the sub-Panels have the duty to write the Final report, with the corresponding ranking list:
- Area ranking list written by Area Panels (Tab. I);
- project ranking list written by project Panels.

The evaluation Areas correspond to the 14 scientific-disciplinary Areas indicated by the Italian University Committee (CUN), integrated with 6 special Areas indicated by the CIVR at the beginning of each three-year exercise.

The special Areas are chosen considering the added value for Italy, and their coherence with the aims of the Italian Research Plan (PNR) and with the research and development plans of the European Union.

The special research projects are represented only by the ones included and funded by the Italian Research Plan. The activities of the research Structures with agency characteristics are also considered as being special projects.

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**Tab. I. Evaluation Areas**

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c. **Evaluation Committees/Nuclei**

The members of the evaluation Committees/Nuclei are nominated by the Structures autonomously, in agreement with their statute and in respect of the existing Italian law.

The tasks of the evaluation Committees/Nuclei are validation of the data and writing of a three-year report on the Structure, including an executive summary.

### B. Data

#### a. **Data (descriptors) and information**

The Structures deliver to the CIVR the following data and information validated by the evaluation Committee/Nucleus:

<table>
<thead>
<tr>
<th>Scientific-disciplinary Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>01  Mathematics and computer sciences</td>
</tr>
<tr>
<td>02  Physics</td>
</tr>
<tr>
<td>03  Chemistry</td>
</tr>
<tr>
<td>04  Earth sciences</td>
</tr>
<tr>
<td>05  Biology</td>
</tr>
<tr>
<td>06  Medical sciences</td>
</tr>
<tr>
<td>07  Agronomy and veterinary sciences</td>
</tr>
<tr>
<td>08  Civil engineering and architecture</td>
</tr>
<tr>
<td>09  Industrial engineering and informatics</td>
</tr>
<tr>
<td>10  Philological-literary and historical-artistic sciences</td>
</tr>
<tr>
<td>11  Historical, philosophical, pedagogic, and psychological sciences</td>
</tr>
<tr>
<td>12  Law sciences</td>
</tr>
<tr>
<td>13  Economics and statistics</td>
</tr>
<tr>
<td>14  Political and social sciences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Multidisciplinary special Areas of the CIVR</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 a  Sciences and technologies for an information and communication society</td>
</tr>
<tr>
<td>15 b  Sciences and technologies for food quality and safety</td>
</tr>
<tr>
<td>15 c  Sciences and technologies of nano/microsystems</td>
</tr>
<tr>
<td>15 d  Aero-space sciences and technologies</td>
</tr>
<tr>
<td>15 e  Sciences and technologies for the sustainable development and governance: financial, social, energetic and environmental aspects</td>
</tr>
<tr>
<td>15 f  Sciences and technologies for evaluating and valorization of cultural</td>
</tr>
</tbody>
</table>
• a synoptic picture of the global human resources, with the three-year mean of researchers\textsuperscript{13}, who are in the institution and in each single Area\textsuperscript{14}, expressed in full time equivalents (ETP\textsuperscript{15}) (Tab. IIa);
• data on financial and management resources (Tab. IIb);
• files on patents, spin offs and partnerships\textsuperscript{16}, allowing to reveal resources used and impact on employment\textsuperscript{17} (Tab. IIc).

Tab. IIa. Descriptors of human resources

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Researchers (ETP)*</td>
<td>Area</td>
</tr>
<tr>
<td>2 Researchers (ETP) on mobility in foreign countries*</td>
<td>Area</td>
</tr>
<tr>
<td>3 Foreign researchers (ETP) as non-permanent staff*</td>
<td>Area</td>
</tr>
<tr>
<td>4 Total technical-administration personnel*</td>
<td>Structure</td>
</tr>
<tr>
<td>5 PhD and scholarship personnel*</td>
<td>Area</td>
</tr>
<tr>
<td>6 All authors of the selected products</td>
<td>Area</td>
</tr>
<tr>
<td>7 Authors of the selected products belonging to the structure</td>
<td>Area</td>
</tr>
</tbody>
</table>

* For each year, in the 3 years;

Tab. IIb. Descriptors of financial resources

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Total income\textsuperscript{*a}</td>
<td>Structure</td>
</tr>
<tr>
<td>2 Ordinary State transfer*</td>
<td>Structure</td>
</tr>
<tr>
<td>3 Funding and co-funding of research projects\textsuperscript{*b}</td>
<td>Structure</td>
</tr>
</tbody>
</table>

* For each year, in the 3 years;
\textsuperscript{a} Except for clearing transactions, taxes and contributions to students, construction income.
\textsuperscript{b} As destination of own financial resources.

\textsuperscript{13} The term “researchers” identifies the personnel (as permanent and non-permanent staff) who have publication of research products as main output of their own activity, so excluding technical and administration personnel, and PhD, scholarship, post-doc personnel.

\textsuperscript{14} The assignment of researchers to the various Areas is defined by the Structures, considering researchers’ main scientific production and/or their disciplinary collocation. Assignment to more than one Area is allowed, provided that the sum of mean equivalent researchers in the various Areas corresponds to the total in the Structure.


\textsuperscript{16} Only the partnerships that translate into a direct investment of at least 500.000 Euro will be considered.

\textsuperscript{17} For each initiative, the document is maximum 5.000 characters.
### Tab. IIc. Descriptors of patents

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposited patents*§</td>
<td>Structure</td>
</tr>
<tr>
<td>Active patents*§</td>
<td>Structure</td>
</tr>
<tr>
<td>Income from patents*</td>
<td>Structure</td>
</tr>
<tr>
<td>Patent management costs*</td>
<td>Structure</td>
</tr>
</tbody>
</table>

* For each year, in the 3 years;
§ For reference market.

Data and information are related to the identification of specific indicators that are coherent with the chosen evaluation criteria (Tab. III).

### Tab. III. Criteria and Indicators

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Indicators</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUALITY</td>
<td>Judgment of merit by the Panels on the selected products</td>
<td>Area</td>
</tr>
<tr>
<td>IMPORTANCE</td>
<td>Degree of ownership of the selected products = Authors of the selected products in the Structure / All authors of the selected products</td>
<td>Area</td>
</tr>
<tr>
<td>ORIGINALITY/INNOVATION</td>
<td>(Researchers on mobility in foreign countries + Non-permanent foreign researchers) / Total researchers</td>
<td>Area</td>
</tr>
<tr>
<td>INTERNATIONAL</td>
<td>Judgment of merit by the CIVR on patents</td>
<td>Structure</td>
</tr>
<tr>
<td>INTERNATIONALIZATION</td>
<td>Judgment of merit by the CIVR on spin offs and partnerships</td>
<td>Structure</td>
</tr>
<tr>
<td>MOBILITY</td>
<td>Inclination to high education = PhD and scholarships / Total researchers</td>
<td>Area</td>
</tr>
<tr>
<td>SOCIAL-ECONOMIC</td>
<td>(Total income – Ordinary State transfer) / Total income</td>
<td>Structure</td>
</tr>
<tr>
<td>IMPACT</td>
<td>Researchers / Total personnel</td>
<td>Structure</td>
</tr>
<tr>
<td>RESOURCE ATTRACTION</td>
<td>Inclination to invest in research = Funding and co-funding of research projects /Total researchers</td>
<td>Structure</td>
</tr>
</tbody>
</table>

Note: Researchers expressed as ETP.
b. Research selected products

For each Area, the Structures autonomously select and deliver to the Area Panels a list of the products concerning the three years that are being evaluated. The list should be validated by the evaluation Committee/Nucleus. The total number of products selected by the Structure corresponds to 50% of the mean number of researchers (ETP) working in the Structure itself, for the three years examined. The definition of “research product” includes:

- books and their chapters;
- journal articles;
- patents;
- projects, compositions, drawings and design;
- performance, shows and expositions;
- manufactures and art operas.

It does not include purely editorial activities; textbooks or software for only teaching purposes; congress abstracts; trials and routine analyses; internal technical reports. It is not necessary for the Structure to submit products for all the Areas (the Areas lacking selected products are judged as being scientifically inactive).

The specific Area depends on the ranking of the product and not on that of the authors.

Each selected product must be accompanied by an illustration chart reporting: reference Area and discipline, an abstract, and whatever information could be useful for defining the international ranking, the possible inter-disciplinary character, notoriety of the product, as well as authority of the journal/editor/happening/etc. in which the product was publicized, including, if applicable, bibliometric indices (in particular impact factor and citation analysis). Concerning patents, the financial and employment effects (even potential) must also be reported.

The evaluation bodies have access to the selected product.

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18 Standard approximations are applied to fractional values.
19 Assignment of ISI journals (Institute for Scientific Information, Philadelphia) to the various Areas is done after the criteria by the CRUI (Scientific Research in Italian Universities, CRUI, 2002).
20 Access of Structures to ISI data banks must be warranted.
21 The form contains 6,000 characters.
c. Special projects
The special projects are transmitted to the project Panels, which identify specific criteria and indicators to evaluate the following aspects:

- For prospective evaluation:
  - proposals;
  - aims;
  - productivity;
  - quality;
  - importance;
  - social-financial impact;
  - resource management.
- For retrospective evaluation:
  - reached objectives vs. expected objectives;
  - productivity;
  - quality and importance;
  - outcome;
  - social-financial impact;
  - resource management;
  - added value with respect to possible alternatives.

C. Evaluation Committee/Nucleus report
Besides the annual duties included in the reference Italian laws, the Evaluation Committee/Nucleus elaborates a three-year report (to be delivered to the CIVR), which must include the following aspects:

- validation of data and information;
- Panel validation of the products selected for evaluation;
- evaluation of scientific performance with retrospective analysis;
- social-financial impact;
- managerial responsibility with specific references to strategic planning and operational plans;

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22 See Section II for specific evaluation typologies.
• adequacy and skills of human resources (even in terms of education and updating);
• international mobility;
• adequacy of instruments and services (with specific notes on high tech);
• capacity to attract and manage resources;
• acceptance of previous recommendations by the Evaluation Committee/Nucleus;
• main strength and weakness points;
• link between evaluation and internal decision processes;
• recommendations and conclusions.

The report must be accompanied by an executive summary of no more than 15,000 characters.

D. Judgment of merit by Experts

The Experts express a judgment of merit:
• on products that were submitted by the Structures (retrospective evaluation):
  - each product is evaluated by three Experts, in terms of quality, importance, originality/innovation and internationalization, and/or international competitive potential\(^23\);
  - for each of the 4 criteria, the Experts express a descriptive judgment;
  - rating of each product is individual and total, so assigning it to one of the following 4 merit degrees (excellent, good, acceptable, limited);

• on special projects (prospective and retrospective evaluation):
  - each special project is evaluated by at least 3 Experts, based on the specific criteria and indicators identified by the Panels;
  - for each criterion the Experts express a descriptive judgment;
  - rating of each project is individual and total, so assigning it to one of the merit degrees that were previously defined by the Panels.

\(^{23}\) Concerning patents included in the subjected products, the judgment by the Experts must include notes on financial and employment effects, also potential.
E. Panel Report

The report by the Panels (to be delivered to the CIVR) includes 3 distinct parts:

a. Consensus Report
   It is based on the critical re-examination of the judgment of merit expressed by the Experts, also in light of bibliometric indices (particularly, impact factor and citation analysis) used in the different Areas. The single judgment formulated on each product must be included into one of the following 4 degrees:
   - excellent;
   - good;
   - acceptable;
   - limited.
   Also for the special projects, the single judgment formulated by the Experts on each project must be synthesized according to the previously set indications.

b. Ranking list
   - Area ranking list is a list of the Structures based on the merit degrees previously defined by the CIVR;
   - special project ranking list, with a formal ranking list.

c. Final report
   Panel activities must end with a Final report aimed at identifying the strength and weakness points of the Area (also in terms of productive sectors and structures) or of the special projects, suggesting, where possible, specific adjustments. Analysis of the patents must be reported in a specific section.

F. Final report by the CIVR

The CIVR Final report for each single Structure is based on the reports by the Area Panels and on the critical analysis of the data delivered directly to the CIVR by the involved parts. The integration of the acquired information translates into a judgment of merit.

24 The document is maximum 20,000 characters.
The CIVR Final report for each single special project is based on the reports by the project Panels. Furthermore, the CIVR writes:

- proposals and experimental and innovative methodologies for research evaluation;
- reports on evaluation of the Italian Research System (at least every three years).
IV. ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>CIV</td>
<td>Internal Evaluation Committee.</td>
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<tr>
<td>CIVR</td>
<td>Committee for Evaluation of Research.</td>
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<tr>
<td>CRUI</td>
<td>Conference of Rectors of Italian Universities.</td>
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<td>CUN</td>
<td>National University Committee.</td>
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<tr>
<td>ETP</td>
<td>Full Time Equivalent.</td>
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<tr>
<td>ISI</td>
<td>Institute for Scientific Information (Philadelphia).</td>
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<tr>
<td>MIUR</td>
<td>Ministry of Education, University and Research.</td>
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<tr>
<td>PNR</td>
<td>National Research Plan.</td>
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<tr>
<td>SNR</td>
<td>National Research System.</td>
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