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Royaume du Maroc



جامعة محمد الخامس بالرباط
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Designing and Assessing Degree Research in Higher Education: Standards and Guidelines

Arabic | French | English

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2021

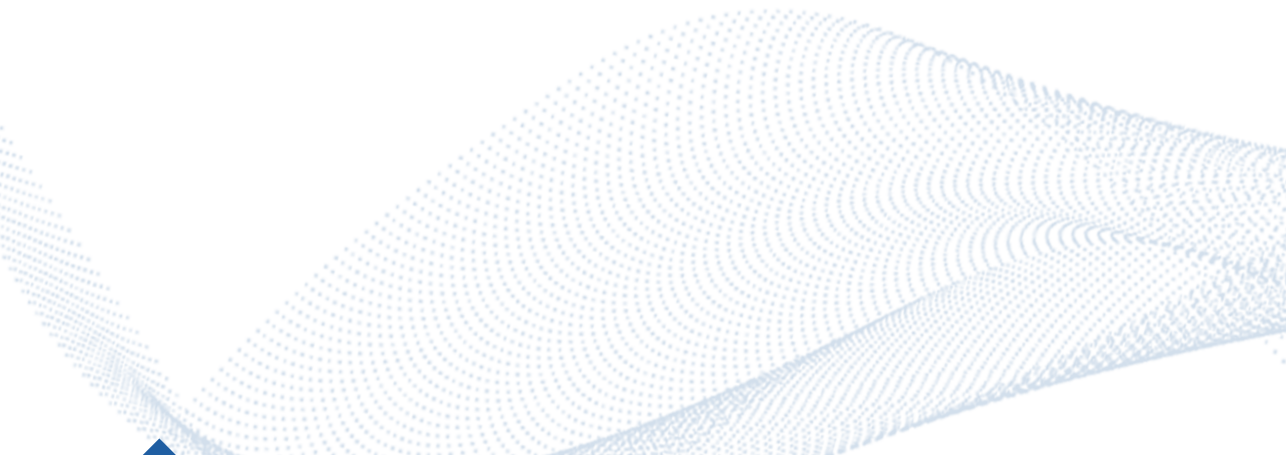


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FORWARD

Since the advent of the present millennium, Morocco has embarked on a global reform of its educational and research systems. Although achievements have been attained subsequent to the restructuring of university programmes in line with the recommendations of the National Charter for Education and Training published in 2000, scientific research in general and degree research, in particular, still face daunting challenges. These challenges relate in particular to the quality of their methodology and scientific rigor on the one hand, and their capacity to meet the country's needs in terms of knowledge building and contribution to development on the other.

In this vein, one of the main issues of concern for supervisors of graduate research is the identification of a logical framework, either through the production or the adoption of one or more guides for the design and development of this type of research. Equally, this issue is one of the major concerns for higher education institutions in charge of scientific research, including degree research.

This concern has been strongly revived in Morocco in 2015, after the adoption of a Strategic Vision aiming at building an educational system based on equity, equal opportunity, quality for all, promotion of the individual, and contribution to social progress. More particularly, after the transformation of this vision into a binding law in 2019, this reform has thus become a social contract between all stakeholders, and

as such, a driving force behind the reform of the educational and research systems, which everyone must commit to and engage in.

It should be noted that, at the international level, this problem has started to emerge acutely in the context of successive reforms of educational systems in general, and of scientific research in particular. It has thus generated a new energy in efforts to define criteria for the design, development, and organization of this type of research, as well as in the standardization of its components and foundations, in form, method and content.

Interest in this issue has also correlated with the fast-growing expansion of diversity and plurality of knowledge on a global scale, resulting from various reforms in higher educational systems and research; which in turn have led to the profusion and expansion of different academic disciplines within the system, in addition to an emerging ramification and interaction within their various areas of concern.

Thus, this plurality and multiple branching have generated several outcomes, the most important of which are:

- The creation, addition, and integration of new academic disciplines, courses and trainings in higher education and scientific research institutions.
- The revision of the certification system in higher education institutions, the setting up of national certification frameworks, and the development of educational and pedagogical specifications,

including systematic and normative standards to guarantee quality degree research;

In this regard, the present project of standards and guidelines aim to contribute to encouraging public policies in the field of scientific research, including degree research, to draw relevant insights from this framework in order to develop and enrich their guidelines regarding research standards and specifications.

- The emergence of clear disparities in outcomes as a result of the absence of a scientific basis in the design and evaluation of degree research. Furthermore, there is a growing need for more cooperation, interaction and convergence between different academic disciplines;
- The growing need for guidelines to serve as a framework for the design and evaluation of degree research.

The diversity and increase in academic disciplines and research have often not been matched with the required quality according to internationally recognised academic standards. This is clearly reflected in the quality of the research outcome and its impact. It is also illustrated in the lower levels this research occupies in international rankings, which fall short of the ambition of many universities and scientific research institutions worldwide.

Thus, given the multiplicity of disciplines, the differences in their research methodologies, the diversity of their themes and methods for developing scientific knowledge within their specialized areas of interest, several guides and frameworks are suggested. However, their

impact was, and still remains embryonic in the process of orientation and supervision of research work. At most, they are relatively able to meet the needs of a discipline or a cluster of disciplines.

In general, these guides have been developed either by researchers whose scientific competence and academic status are well established, or by higher education institutions or scientific research centres and groups, recognized by scientific bodies.

Notwithstanding, what mainly characterizes these guides is their specialized nature in the context of degree research, in contrast with many other scientific fields which are different in terms of their objects, methods, and the nature of knowledge produced. The goal is essentially the discovery or re-exploration of scientific reality, which remains relatively open to variations and developments occurring worldwide in the context of an emerging knowledge society.

These guides, which mainly focus on the modalities and processes of preparation and research design, rarely integrate into their conception the issue of the complementary nature of overlap between fields which ultimately lead to the necessity of building special poles. Likewise, they do not directly provide precise and targeted guidelines and criteria for the assessment of degree research.

This reality, characterized by interference between different types of knowledge, methodological interaction, overlap and ambiguity in assessment procedures, is caught up by the growth of a rapidly expanding and open specialization. Therefore the attempt to develop a synthetic and comprehensive framework for various disciplines will

ultimately be confronted with the issue of identifying criteria for the conception and classification of science. Among these, we can essentially distinguish between three types:

- A Theme-based classification: mathematics, physics and biology, human and social sciences;
- A method-based classification: argumentative sciences, experimental sciences, matter sciences, dialectical, structural, functional, behavioural methods, sciences based on interpretation, investigation, attribution and comparison ...;
- A classification based on scientific value: objective, precise, true, solid, as opposed to subjective, unreliable sciences ...

In the light of this epistemological categorisation, the present guidelines give precedence to the distinction between research disciplines on the basis of their subject matter, thus targeting exclusively degree research, and in no way the type of research and other scientific studies carried out by specialized and experienced researchers according to specific approaches and academic paths.

In addition, the suggested framework is based on the principle that each scientific discipline has its own characteristics and scientific standards, thus, referring to specialists in the field becomes necessary.

Indeed, the current framework mainly targets research carried out as part of a higher educational programme, in the form of a thesis, a dissertation or a monograph; all being recognized as research work that results in the granting of a degree or a diploma.

It is true that this type of research, like any other type of scientific research, is characterized by natural differences and divergence existing between disciplines or poles; especially in terms of methods and instruments. However, the potential benefit of this framework stems essentially from the assumption that this difference does not exclude the possibility of establishing a common necessary minimum methodological threshold for the design and evaluation of degree research. This methodological threshold must have components, foundations, shared criteria, as well as recognized and conventional indicators, likely to be adopted in the evaluation of this type of research, regardless of its area of specialisation. Needless to reiterate the inevitable need to take into account the natural differences between specialisations, fields, and themes of degree research.

In the field of scientific research, including degree research, many types of methodologies are adopted, resulting in different kinds of research among which:

- Fundamental or basic research, the aim of which is to advance science, notwithstanding the consideration of any practical implication;
- Argumentative and inferential research based on quantification and logical construction;
- Conceptual and theoretical research which concerns the study of various theories in order to define, clarify a concept, propose new ones or confirm those prevailing in current theories, on the basis of similar data used for their development.

- Applied research, the aim of which is to produce applied work based on existing scientific knowledge;
- Empirical research, based on the collection of data and new facts in order to answer a specific research question;
- Quantitative research based on an approach using quantification instruments and processes for the analysis of obtained data through statistical models.
- Qualitative research addresses facts and topics systematically, but not quantitatively. It uses specific techniques to obtain and process data; such as: interview, case study, participatory observation, etc.
- Descriptive research: its goal is to systematically record and describe a particular type of object and to develop matrices of data, principles or laws, in order to provide a precise description of the facts as they arise.
- Field research is generally carried out in an ordinary and natural social environment, within an institution or an existing geographical space, which allows the establishment of relationships between variables, causes and effects arising from the field ;
- Experimental research is carried out in a laboratory or an artificial space, which allows researchers to control a certain number of variables
- Documentary research is based on the collection of a large amount of information which remains confronted with the difficulty of controlling the quantity of documents;

- Comparative research: In the form of comparative studies between theories or facts in order to identify differences and similarities often aiming to identify best practices.
- Exploratory research aims to discover the structures underlying the facts studied in order to deduce theories or models.
- Intervention research (intervention or action research): is a type of applied research whose goal is to explain the facts and to intervene in the field by proposing solutions through concrete and transformative actions,

It is clear that this multiplicity of research types has an impact on the hypothesis regarding the feasibility of producing a generic framework for all disciplines. In this respect, it is suggested that the confirmation of the said hypothesis requires providing an answer to the following question: to what extent is it possible to ensure the existence of components and foundations that would constitute a common and necessary basis for the design and assessment of degree research, regardless of its area of specialisation?

In this context, the proposals set out in these guidelines constitute the first challenge to achieve the ambition behind them.

The second challenge lies in the initiative of these guidelines to present a grid of indicators for assessing degree research, while ensuring as much as possible, objectivity, particularly that such an undertaking is almost non-existent in many assessment practices of this type of research. Added to this, the concern to observe fairness and equity in evaluation, based on merit, integrity and fair competition,

especially in a field where the best values for building scientific knowledge are those valuable research ethics and what they imply in terms of sustained effort and continuous targeting in order to achieve the ambition of innovation, distinction, and excellence.

The third challenge lies in the fact that, as much as this proposed framework attempts to provide a set of components, foundations and criteria to be considered as a necessary minimum threshold for the design and evaluation of degree-granting research, it sets out to enhance and pursue a dynamic culture of production and dissemination, with the aim of adopting guidelines or specialized guides that meet the requirements of degree research, in line with its purpose and scientific field in which it is developed and produced.

The transformation of this culture, which remains an essential epistemological necessity, into an academic tradition in various research disciplines, will undoubtedly contribute to the training of elite young researchers who are able to conduct quality research, demonstrate excellence and secure international recognition. Thus, these young researchers will be able to publish in the languages most used worldwide, in indexed peer-reviewed journals and be part of the established community of researchers.

Ultimately, this work remains indebted:

- To Professor Mohammed Ghachi, President of Mohammed V University - Rabat, for kindly accepting to adopt this project, giving it a special attention through his continuous encouragement and constant promotion;

- to Professor Abdellatif Kidai, Dean of the Faculty of Education, Mohammed V-University- Rabat, for his kind support and contribution, and for ensuring good working and organizational conditions.
- To all the members of the team who have made valuable, effective, studious and unconditional contributions to the accomplishment of this project: Mr. Abdellatif Mouddni, Professor of sociology and education, supervisor and coordinator of these guidelines, and colleagues, team members: Mr. M. Mohammed Melouk, Professor of Applied Linguistics; Abdellatif Kidai, Professor of sociology; Mustapha Ousrar, Professor of Educational Sciences; Hamza Chinbou, Professor of Psychology; Malika Yassine, Professor of Psychology and Driss Laghzaoui, Doctor in Educational Sciences.
- To the following professors who have been kind enough to offer their valuable contributions through consultation, constructive exchange of ideas and fruitful suggestions: MM. Jilali Mikram, M, Mustapha seghir, Mathematics Teachers, and MM. Adnane El Jazouli and Jamal Fezza, Professors of sociology;
- To all those who have made contributions trough their respective disciplines and their contribution in the field, in particular:
 - Colleagues who have prepared descriptive cards relating to the design of degree granting research in their field of specialty;
 - Respondents who instructed the questionnaires and answered the questions seriously and carefully.

- Colleagues who were kind enough to ensure the translation of this document: Mr. El Houssaïn El Moujahid, Professor of French Linguistics, for the French translation, Mr. Amine Amzil, Professor of Applied Linguistics, for the English translation, and Professor Mohammed Melouk for his contributions in both versions.

The choice to present this project in three languages stems from a concern to ensure access to a wider audience through most used languages worldwide; thus aspiring to achieve an added value in scientific research.

At the end of this forward, it should be emphasized that the preparation of these guidelines has been a timely opportunity to conduct a collective exercise for the purpose of developing a conceptual proposal for the design and assessment of degree research. To achieve this, a rigorous approach was adopted that sought to draw on existing documentation, references, results and methodical conclusions founded on the interaction of multiple opinions. The preparation has also taken into account the conjunction between diagnosis and prospection, between disparity and standardization, and between facts of imbalance and insufficiency in attaining the ambition of quality. Hence, the overall targeted aim is to contribute to the training of new generations of researchers who embody sound values, including in particular respect of research ethics while aspiring to excellence and innovation. The other aim is also to stimulate new quantitative and qualitative efforts, to make degree research an essential lever of productive research that

contributes to sustainable development, in a society called upon to deploy all its efforts to achieve its ambitions for progress. All this, by building knowledge that would benefit its producers, the country, and the entire global knowledge community.

Abdellatif El Moudni

INTRODUCTION

The present Standards and Guidelines are designed to serve as a practical guide for professors in their supervision activities. Likewise, for student researchers, it is a tool to assist in the development and preparation of their research projects.

The main objective is therefore to provide an instrument for the design, preparation and evaluation of graduate research in different fields of study in higher education institutions. This includes the preparation of a bachelor's monograph, a master's dissertation, a doctoral thesis, or diplomas awarded by other higher education institutions.

By "graduate research", we mean research prepared by a student, at the end of a post-secondary study programme as part of his/her training to obtain a Bachelor, a Master's or a doctorate, or a Diploma from other higher education institutions.

This research must meet scientifically and internationally recognized criteria with respect to structure, methodology, content and presentation. In the context of the present guidelines, these components and fundamentals are considered as the skeleton of 'graduate research design' which must be strictly followed by the student researcher in the organization and development of his/her research during the entire process under the supervision, follow-up and guidance of the supervisor.

On the other hand, once completed, all degree research is generally discussed and evaluated by a jury. This assessment should go beyond mere observations, corrections and suggestions, which are often not grounded on well-defined criteria. At most, evaluation generally consists of a standardized process focused on estimating the scientific value of the research outcome and the degree of its adequacy with the requirements of graduate research with respect to all its components. Indeed, this evaluation should break with subjective and impressionistic comments and value judgments, and be founded on, as much as possible, objectivity. To this end, it must be based on a grid of indicators involving the various components and constituents required in degree research.

The preparation of graduate research is certainly progressive in nature; it starts with a Bachelor, continues with a master Dissertation, and eventually ends in a Doctoral thesis. In this regard, it should be emphasized that the design and evaluation of graduate research generally remain among the fundamentals of the last two-degree levels; although they are substantially different in terms of quantity, content, depth, as well as in scientific, institutional and legal value.

It should also be noted, as mentioned earlier in the forward, that these guidelines do not cover research carried out by researchers who have their own specific backgrounds and approaches. Hence, they are not intended for the design and evaluation of research undertaken by professors for the purpose of publication and contribution to scientific knowledge. However, the possibility of drawing inspiration and

insights from the contents of these guidelines for the realization of such work is not excluded.

The development of these guidelines, which target a series of objectives, takes its foundations on the following elements:

- Several theoretical and practical considerations which provide a sound basis for its scientific standards and criteria;
- Scientific and academic references, local and international repositories, recognized worldwide by research institutions and the research community;
- Diagnostic elements of the reality of degree research in the vast majority of higher education disciplines, primarily based on:
 - Evaluative studies and specialized guides on the topic (Appendix n ° 1);
 - A critical reading of the relevant academic standards published by the Department of Higher Education and Scientific Research.
 - Consultation with professors supervising graduate research at different levels and in several disciplines;
 - Exploitation of the results of the questionnaire completed in 2020 by 221 professors from various disciplines.

1.TARGETED OBJECTIVES:

- Respond to the urgent need for guidelines to assist in the design, preparation and evaluation of graduate research at the Bachelor, Master, Doctoral and graduate levels in different disciplines. In this

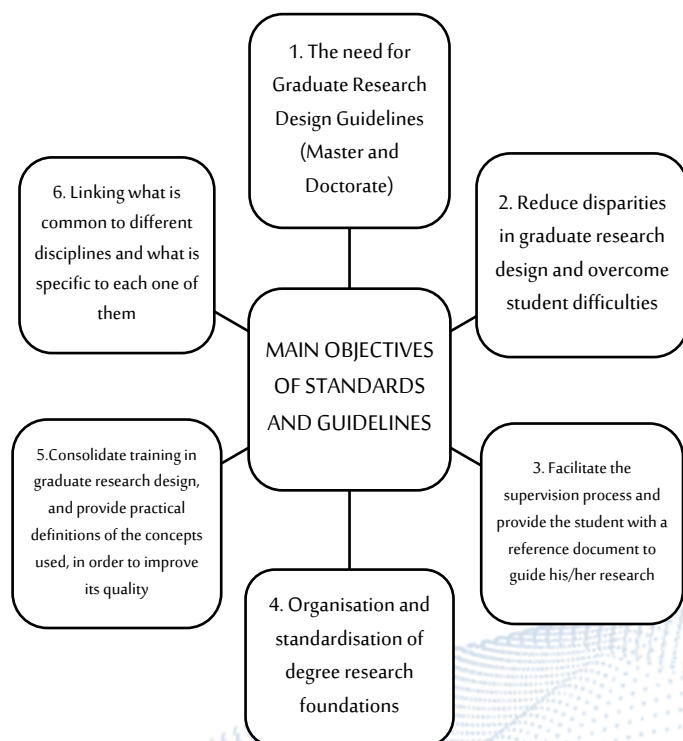
context, the suggested framework attempts to respond to the need for a systematic and formative approach, deemed crucial in efforts to support the adoption of academic fundamentals necessary for the design and evaluation of graduate research.

- The establishment of a culture of academic research, based on internationally recognized scientific principles and standards, which ensures the quality of graduate research and hence contributes to consolidating the production of scientific knowledge, recognized by credible research institutions and communities;
- Enhancing engagement in the dynamics of reforming the research system, aimed at promoting its quality as well as its interaction with the knowledge economy and society, and therefore making contributions by constantly providing credible answers to the country's development issues and concerns;
- Providing higher education institutions with a synthetic framework, to help organize and streamline their activities at the various levels of graduate research;
- Contributing to the facilitation of the mission of higher education professors in the supervision and evaluation of graduate research and continuous improvement of the quality of their work.
- Providing students with a reference document, to guide them in their research in accordance with scientifically established rules and standards prevailing in many higher education systems around the world. Graduate research, based on quality and efficiency, will be a crucial step in the student's research experience. It also allows the

training of new generations of researchers equipped with the skills and fundamentals of scientific research, and more specifically of graduate research;

- Providing research students, from various disciplines, with a training tool in methodology and graduate research design, including those in disciplines that do not offer training modules in this area;
- Organizing and standardizing the components required by graduate research in order:
 - First: to reduce, as much as possible, the existing discrepancies which do not have a scientific basis in the context of graduate research.
 - Second: overcome the difficulties and shortcomings identified mainly among student researchers;
 - Third: provide a tool to strengthen training in designing graduate research, by developing methodological, intellectual and cognitive skills among students, thus enabling them to undertake their research.
 - Fourth: generate initiatives to stimulate the production of guidelines and specialized guides intended for converging scientific disciplines, in order to offer standards and norms for designing graduate research, and to provide indicators for assessing its quality and added value;

The present guidelines aim to highlight the common points required in all graduate research and at the same time emphasize the need to adopt a scientific vigilance able to ensure full respect of research characteristics in each area of specialisation.



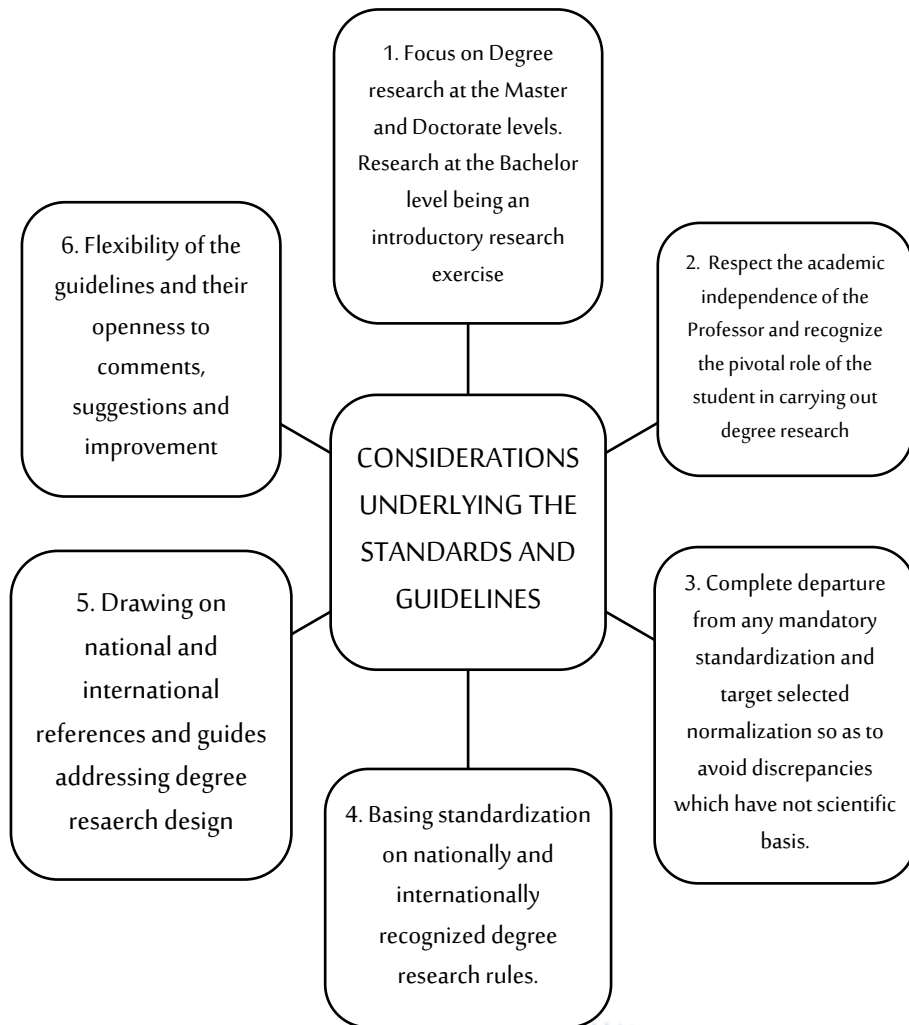
2. PRACTICAL CONSIDERATIONS AND FUTURE PERSPECTIVES:

- Ensuring the validity and adequacy of these guidelines for graduate research at the Bachelor, Master and Doctorate levels, while admitting that research at the Bachelor's level remains a preparatory exercise on the rules, procedures and components of scientific

research. This level should therefore be treated with flexibility, but with no digression from the basic requirements of graduate research;

- In this respect, it should be noted that these guidelines do not present a specific research methodology, because each discipline has its own, though the overlap in methodology between different disciplinary fields may be exploited through these guidelines.
- Considering the student researcher, the focal point of graduate research, expected to combine adherence to academic standards governing scientific research with the expression of his/her creative potential, initiative and innovation skills. This will ultimately offer the student researcher every chance of demonstrating distinction, excellence and success.
- Taking into account the professor's academic integrity and autonomy which guarantee him/her complete freedom to manage the supervision of graduate research, in an orderly, rational, and flexible way;
- Considering this framework, intended for the various stakeholders involved, as a contribution towards achieving compliance with internationally recognized standards and norms of graduate research.
- Basing standardization on nationally and internationally recognized graduate research rules.
- Drawing on national and international references and guides specialized in graduate research design.

- It should be emphasised that the standardization outlined in the present guidelines, does not imply in any way the adoption of stereotypical approaches, a practice we recommend breaking with. The suggested standardization however, advocates an approach that promotes accepting legitimate and scientifically based difference, and that takes into account the specificities of each disciplinary field.
- In this context, it should be noted that many types of degree research are qualitative in nature; which makes it difficult to comply with certain components of research design described in the present guidelines. This is the case of research based on investigation or argumentation and logical reasoning, as well as research of a theoretical or empirical nature;
- The need for scientifically sound, globally recognized standards and indicators to evaluate graduate research.
- Emphasizing, once again, that this framework will remain flexible and open to observations, modifications and recommendations, as part of a participatory approach and in the light of monitoring local and international changes and developments.



3. THE PROCESS OF ELABORATING STANDARDS AND GUIDELINES: REFERENCES AND METHODOLOGY

- Diagnostic elements of the state of graduate research, mainly in the current disciplines in higher education institutions, based on an analysis of a sample of research at the Licence, Master, and

Doctorate levels. This evaluative survey is supported by diagnostic analyses of the grids on the methodology of graduate research, prepared by professors supervising various disciplines (Appendix 3). It also includes the results of an online questionnaire submitted to a number of professors supervising degree research in several disciplines at the national level (Appendix 2). Additionally, it comprises the results of consultations with a group of professors from various disciplines.

- Successful graduate research experiences, both nationally and internationally;
- A specialized bibliographical list, relevant to these Guidelines (Appendix n°1)
- Specialized guides, particularly those from leading institutions, international organizations and universities, as well as those produced by a group of researchers in various scientific disciplines (Appendix 1);
- It is important to reiterate that these guidelines are open to the views and suggestions of research supervisors within the spirit of sharing, continuous improvement, and adoption by the research community. They aim to become a useful reference for both supervisors and students, for the sole purpose of serving scientific research in order to enhance the quality and scientific value of degrees and diplomas at the national and international level.

In addition to the introduction and the conclusion, these guidelines are organized as follows:

- Diagnostic elements of the state of graduate research;
- Components and fundamental elements of graduate research;
- Grid of indicators to assess graduate research.

PART ONE: DIAGNOSTIC ELEMENTS OF THE STATE OF DEGREE RESEARCH

The documents, studies and reports used in the preparation of these guidelines, in particular those related to the assessment of the state of scientific research; largely confirm the existence of many problems affecting degree research. These are briefly summarized in the following:

- The absence, in many cases, of clear standards for degree research, its design and the operational definition of its components and fundamentals;
- The need for a grid of indicators to assess this type of research; because in many instances, this evaluation is limited to observations and suggestions, made by individual professors and examiners, according to their conception of research, personal considerations, references and own estimates;
- Available pedagogical standards and norms are limited to organizational and technical aspects, and do not take into consideration the methodological and scientific rules of degree research (Appendix 4)
- Very limited coordination between research supervisors within the same department, or between departments and across disciplines, while the current context calls for a paradigm shift towards interdisciplinary research, cooperation and interaction between disciplines, and synergy between teaching methods and programs;

- Training in research methodology is often theoretical and draws on disparate references, often without a sound scientific foundation. In addition, some disciplines do not offer any training in research methodology;
- Limited and irregular supervision work.
- The growing decline in respect of research ethics, including intellectual honesty, plagiarism and copyright infringement;
- The ambiguity of the fate reserved to the observations made during these defences. Indeed, the student researcher is rarely offered a follow up after the defence, to ensure that the observations and recommendations of the jury are taken into account before the final submission of his or her work.
- The shortage in publications can be seen at four levels:
 - The lack of nationally indexed, peer-reviewed journals that would allow students to publish scientific articles before and after their defence.
 - The low number of doctoral graduates who manage to publish their theses as books after the recommendation for publication by the jury;
 - Very limited publications in the most widely used languages in the world;
 - The low rate of publications in digital and electronic media.

These observations are supported by the results of the questionnaire (See attached questionnaire in the appendix) administered to professors on the state of degree research at different

levels and in different disciplines as shown in the table below. It will be followed by a brief presentation and discussion of the results obtained.

Distribution of teachers who participated in the survey by field

Field/Discipline	
Theatre studies and performing arts	6
Education Sciences	23
Computer Science	5
Physics	8
Linguistics	14
English Language	16
Political Science	9
Exegesis and Qur'anic Sciences	8
Sociology	14
English Literature	11
The teaching of Arabic	8
Arabic Language and Literature	9
Chemistry	7
Islamic Studies	11
Law Studies	10
Applied Mathematics	11
Management	8
Agricultural and Veterinary Sciences	9
Medicine	11
Amazigh Culture	4
Psychology	19
Total	221

This table shows that there is a fairly significant representativeness of higher education institutions (universities and other similar institutions) and those have participated in the survey represent various distinct disciplines.

1. DIAGNOSTIC ELEMENTS

The opinions of the respondents differ as to the diagnostic elements suggested in the questionnaire. The majority agrees with this diagnosis, a significant proportion of them relatively agree, while a very small proportion has expressed disagreement.

When analyzing the answers, the percentages of opinions in favour or against the following elements vary:

- 56.86% consider that the adopted national standards and norms of degree research (master, doctorate, diploma...) are limited to organizational aspects, and are characterized by their lack of academic characteristics of scientific research, quality and assessment;
- 41.2% admit the existence of successful experiences and practices among some research supervisors; and 54.9% relatively agree with the proposed diagnosis.

Regarding the absence of national guidelines for the design and evaluation of graduate research, 80.4% agree while 71.4% stress the heterogeneity of design and evaluation of research in the same discipline and across several disciplines, with no scientific justification. In addition, 73.5% point out the lack of coordination within the same discipline and across disciplines; while 62.7% agreed that there is no training in research methodology in certain disciplines.

The analysis of the replies concerning the importance of methodological standards required in degree research shows that most

respondents consider that these standards are necessary. Thus, notwithstanding the difference in percentages for each of the standards, all the items recorded scores ranging from 70.58% for the importance of critical use of bibliographic references and summaries of theoretical/field/practical/laboratory work in the various research components according to disciplines, and 98.3% for weak compliance with the ethics and values of scientific research, including plagiarism.

Additionally, the exception in certain disciplines relates to the standard on the gender approach in reflection, analysis and expression, the necessity of which is expressed by 39.21%, compared to 47.05% who consider it relatively necessary. Regarding the consistency in adopting the same uses of concepts and their operational definitions throughout the research, 65.3% of teachers consider it necessary; while 87.25% consider that it is necessary to adopt a single language and the same specialized academic style, avoiding repetition, redundancy and value judgments in addition to ensuring a proper use of punctuation rules. Finally, 100% of the respondents are in favour of the need to comply with the standards related to highlighting aspects of innovation, creativity, coherence of the research structure, and synergic interdependence between its different components.

2. OPINIONS ON THE SUGGESTED GUIDELINES FOR DESIGNING AND EVALUATING DEGREE RESEARCH

The majority of respondents believe that the proposed standards and components for the design and evaluation of degree research in all disciplines are necessary, as substantiated below:

• **The Abstract**

The summary or abstract is defined in the questionnaire as follows:

- limited to 300 words;
- Translation into one or more languages.
- Clarity of the main research objective or objectives;
- Presentation and description of the methodology and tools adopted;
- Presentation of the main results of the research;
- Definition of key concepts.

Based on the answers obtained, most respondents agree on the need to respect these aspects of the abstract; with the exception of the length of 300 words that most of them deem to be of a relative necessity.

• **The introduction**

The questionnaire proposes the following elements as necessary constituents in an introduction:

- Definition of the subject/topic;

- highlighting its relevance and context;
- Definition of its main objectives;
- Identification of the problem(s) relating to the subject;
- Formulation of a research hypothesis or hypotheses;
- Definition of the methodology and research tools;
- Operational definition of key concepts
- Delimitation of the research framework and scope (temporal, spatial, methodological...).

The data collected on the components of the introduction largely confirm, at a rate of 79.64% of the responses, the need to ensure that most of these elements are present in the introduction; and only a small number of respondents hold a different opinion.

• **The structure and organization of the thesis or dissertation: parts, themes, chapters, sections,...**

Most respondents agree on the need to structure degree research, taking into account parts, themes, chapters, sections, etc. with varying proportions for each one of these elements. Thus, 87.92% of them stressed that the analysis of theories and knowledge relevant to research is carried out through exhaustive and critical reading. 69.59% of opinions suggest that the presentation and reading of quantitative and/or qualitative data should be carried in the light of the research hypothesis or hypotheses.

As for the verification, interpretation and discussion of the hypothesis or hypotheses, they are deemed necessary by 82.3% of

respondents; while 79.6% stressed the need to articulate the discussion of research results in terms of theories, concepts and knowledge related to their field. Regarding the last item related to the need to ensure a quantitative and qualitative balance between different parts of the research by adopting concentrated paragraphs, 69.8% of respondents hold a balanced view.

- **The conclusion**

Concerning the elements that constitute the conclusion of degree research, the respondents' responses are divergent. Thus, 98.3% agreed on the need to include summaries of results and analyses representing the different components of the research; 68.62% supported the addition of suggestions on the subject and prospects for future research and 62.74% suggest adding the limitations of the research at the theoretical, practical, and methodological levels.

- **Bibliography, references and table of contents**

Most respondents, 94.11%, confirm that the bibliography and list of references are necessary; while others see them as relatively necessary. As far as the table of contents is concerned, 86% consider it necessary for graduate research, while 14% think it is marginally important.

- **Appendix/appendices**

60.78% of the respondents agreed that one or more appendices are necessary for degree research, and the remainder 14%, consider them to be relatively necessary.

3. RESPONDENTS' SUGGESTIONS AND RECOMMENDATIONS

The majority of respondents issued several recommendations. They are listed below, as submitted in the questionnaire:

- Encourage collective research, especially at the Bachelor and Master levels.
- Focus on applied and field research, which provide new data and opportunities for knowledge building and analysis of reality.
- Strengthen coordination between different scientific institutions, using digital techniques and generalizing their use among individuals and institutions;
- Focus on innovation and avoid tedious redundancies
- Focus on key aspects of the Arab scientific heritage;
- Publication of an annual report on degree research, to be discussed and submitted to the institution concerned;
- Creating a degree research ethics body to review this type of research and verify compliance with the terms of ethics;
- Adopt an assessment process that respects the anonymity of the researcher, and in accordance with the criteria of objectivity and impartiality;

- Design guidelines for the preparation of each degree research (Bachelor, Master and Doctorate) by discipline, and make their application by student researchers mandatory. In the event of failure to apply the said guidelines, the student will be required to redo his/her research.
- The need for all research supervisors to systematically organize workshops for their students in order to train them in research methodology, and to guide them in the preparation and completion of their research.
- Implement regulations related to plagiarism and fraud control, and imposing repressive sanctions against any student guilty of violating research ethics;
- Conduct an annual assessment of research supervision activities and record them in a centralized database
- Provide students with a technical assistance throughout the research process;
- Strengthen and promote language proficiency and introduction to scientific writing and universally established methods;
- Provide incentives to motivate outstanding researchers and invest their skills in workshops and training.
- Increase the opportunity for student mobility abroad for internships, to connect with student researchers and their supervisors;
- Include a two hours per week session in the professors' schedule, to supervise graduate research;

- Identification and selection, by highly specialized scientific groups, of research topics that address unique issues and questions

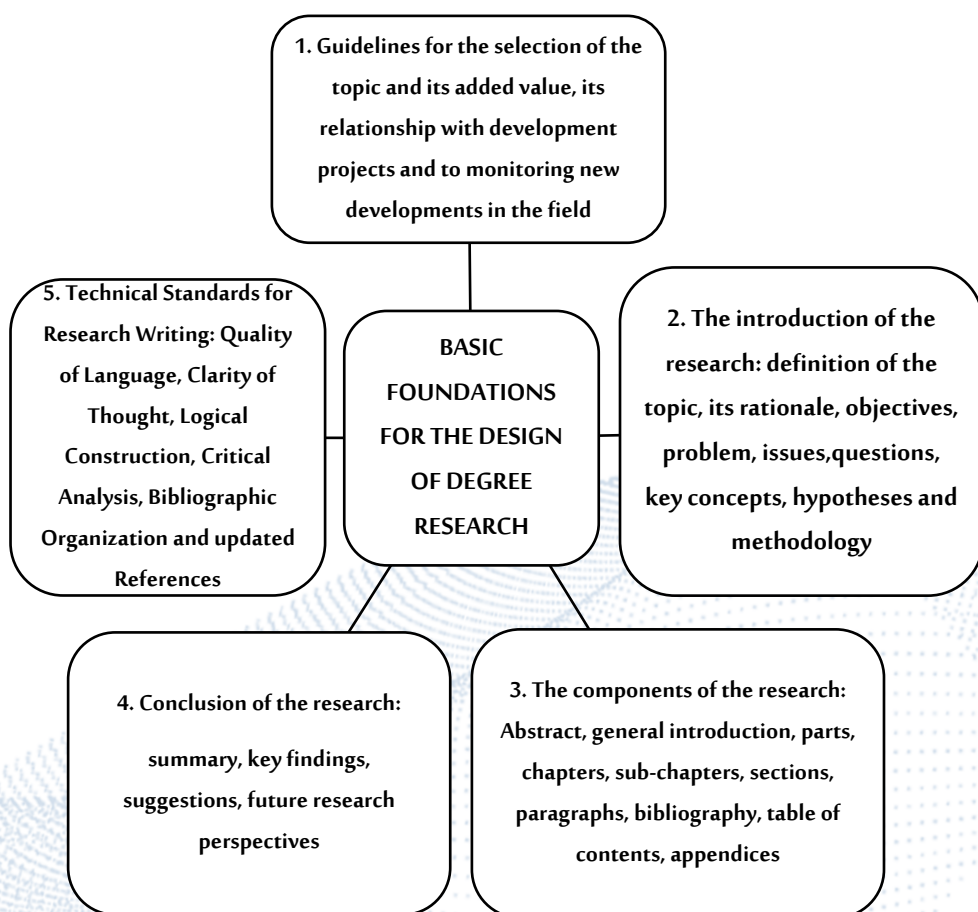
4. CHARACTERISTICS OF SOME DISCIPLINES:

- In the field of Arts, ensure that the student masters more than one language, and has a direct contact with the reality of theatre and entertainment and with related studies at the international level;
- In the field of linguistic research, the need to mention foreign equivalents of terms and concepts of specialization in Linguistics and Literary Criticism
- In Psychology, there is a need to take into account the particular characteristics of clinical psychology;
- Take into consideration the specificities of certain types of research and studies in the sciences of Shari'a, such as the critical presentation of a manuscript, the exegesis of the Holy Quran, the science of criticism and praise (al-Jarḥ wa t-Taedīl) in the hadīth of the Prophet or terminological studies.
- Integrate the necessary technical indexes (index of Qur'anic and hadith verses, etc.);
- In the field of sociology, addition of a methodological chapter after the theoretical chapter, before the analysis and discussion of results.
- Encourage and emphasize the use of English in Mathematics.

- In summary, the analysis of the respondents' answers makes it possible to highlight some diagnostic elements and trends shared by all those supervising graduate research. The main elements are as follows:
- Confirmation that the reality of degree research suffers from many imbalances in design, development, methodology, content and results presentation;
- The need to pay particular attention to this type of research in order to promote it, as a cornerstone to give a new impetus to scientific research that will benefit its authors and meet the needs of society.
- The shared conviction that there is an urgent need for Guidelines and specialized guides for the design and evaluation of degree research to ensure scientific quality and an academic added value.

PART TWO: FOUNDATIONS AND BASIC BUILDING BLOCKS FOR THE DESIGN OF DEGREE RESEARCH

As a founding step towards the development of scientific research in different academic disciplines, degree research must be based on components which are scientifically recognized and adopted worldwide in order to guarantee its scientific value, and ensure an impact within the scientific community.



To this end, degree research, especially at higher levels, requires the adoption of a logical framework. This framework is underpinned by foundations and standards currently adopted in research by the scientific community. Thus, the research design framework is outlined as follows:

Component 1: Choice of the Research Topic and Student supervision

The choice of the topic is based on a number of standards, which the student is required to observe when choosing and delimiting his or her research topic, under the guidance of the his/her supervisor. Among the most important are:

1. GUIDELINES FOR CHOOSING THE TOPIC

- Ensure that the research topic is adapted to the areas of specialization of the research team, laboratory or research center, and in line with the nature of the academic disciplines offered in the institution that the student is affiliated with.
- Explore the research topic, seek originality, and ensure accuracy. It is recommended to avoid too broad topics and not to repeat topics already dealt with.
- Ensure the clarity and functional coherence of the content and research outcomes with its basic foundations;
- Frame the research topic according to the needs and objectives of the research, in order to facilitate its approach;

- Ensure that the research topic is the vector for a stimulating issue that raises questions and a need for continuous research in order to produce academic knowledge in its relevant field;
- Ensure that current issues are given priority, including issues of immediate concern to the local and global community. Thus, such research topics will be as much productive as they will be useful, and can inspire inquiry, innovation and creativity in various fields and disciplines;
- Ensure that the references and the infrastructure (e.g. laboratories) necessary to carry out the research are available;
- Frame the scope of the topic in its context and timeline.

Ultimately, all topics are researchable as long as they are relevant to their field of study. It is also possible to involve other related disciplines, to ensure complementarity and coverage of different aspects of the topic under study. However, emphasis should be placed on what gives research originality and distinction.

2. THE ADDED VALUE OF THE TOPIC

- Highlight the scientific usefulness of the topic and its importance in promoting the richness of humanity's intangible heritage, and its capacity to provide answers and open up perspectives for reflection and production. All these paths will be supported by efforts of creativity and innovation, in a world where the renewal of knowledge is limitless;

- Adopt a reliable methodology, according to the field of specialization, and in line with the research topic and its relevant discipline. This methodology must be supported by diagnosis, explanation, analysis, functional use of concepts, demonstration, deductive and argumentative construction, critical thinking and a prospective approach. It must ultimately be driven by the desire to open up a promising horizon in the treatment of the topic;
- Adopt functional and multi-dimensional approaches, adapted to the characteristics of the methodologies recommended in each scientific discipline.

3. THE RESEARCH TOPIC SHOULD CONTRIBUTE TO THE COUNTRY'S DEVELOPMENT PROJECTS

- Work towards the integration of the research topic into one or more dimensions of the country's development projects, at national, regional and local levels.
- Contribute to a greater involvement of the country in the knowledge economy, culture, knowledge, study programmes and universal human values;
- Seek to direct the content and results of research, in relevant disciplines, towards improving the skills and competences of human capital, the enhancement of the country's authentic heritage and the development of material and intangible wealth.

4. THE RESEARCH TOPIC SHOULD BE IN LINE WITH UNIVERSAL CURRENT ISSUES

- Seek to anchor research in current issues at national and global levels, such as the challenges the world is or would be facing, particularly in areas related to nature, climate, demography, health, education, politics, psychology, society, economics, culture and values;
- Potential contribution of the research to strategies for managing and addressing risks in health, environment, values and policy;
- Openness of the topic to effective methods, successful practices and universal values;
- Monitor the evolution of research and invest in scientific, cultural, artistic and technological knowledge at the national and global levels. It should be emphasized that by being aware of universal current issues, the topic of research will contribute to further discovery or rediscovery of truth, and hence produce novel knowledge and promote creativity and innovation.

Component 2: General Introduction

The introduction which generally frames the research topic is a decisive component in defining its frame of reference, giving orientation to its perspectives and shaping its process. The introduction is not always subject to shared and conventional rules. However, in most cases, it is expected to include the following:

1. DEFINING THE TOPIC AND HIGHLIGHTING ITS IMPORTANCE:

- Define and explain the research topic and its various dimensions and provide a concise title;
- Contextualize the topic in its relevant time and space, especially when it requires referring to history and monitoring evolution;
- Highlight the importance of the topic, the context in which it is being addressed, and the expected usefulness of its results.

2. IDENTIFICATION OF KEY OBJECTIVES:

- Deduce the objectives from the expected results; highlight the added value of the research in relation to the topic in its different dimensions;
- Ensure the clarity and accuracy of the objectives and their congruence with the research problem, content and expected results.

3. THE RESEARCH PROBLEM

3.1. Proposal of an operational definition of the concept of a research problem.

It consists of:

- A scientific articulation and explanation of the chosen topic. Thus, the problem is a construct built around a central question and subsidiary questions, which allow a scientific approach to the topic;
- A concise summary of the student's understanding of his/her topic. Indeed, a precise scientific formulation of the research problem reflects the student's mastery of the research topic and demonstrates his or her own thought processes;
- The adoption by the student of his/her own style in approaching the researched problem;
- A full delimitation of the research topic in its different dimensions and perspectives, as well as its research questions and expected relevant answers;
- A clear articulation of the founding essence of the topic and the fundamental idea behind it. The aim is to make this foundation amenable to an inquiry, permeating the various components which the student will address and respect throughout his or her research, and will strive to provide answers through different elements, contents and results.

3.2. Gradual development of the research problem

- Formulate the main research question that directly links to the initial research idea
- Undertake an extensive literature review, which takes into account previous work and references related to the topic, and conduct exploratory consultations with a sample of specialists and stakeholders. This approach will allow the student researcher to broaden and deepen his or her understanding of the topic and enrich his/her knowledge base;
- Carry out a critical analysis of the relevant bibliography, with the aim of progressively framing the research problem in such a way as to enable the student researcher to confirm, modify or reconsider the initial question, and thus achieve an original and innovative approach.

3.3. Articulation of the problem

- Highlight the paradox underlying the research problem in its different dimensions, to anticipate multiple logical solutions it might suggest, and this through the formulation of precise and functional ideas;
- Formulate the research problem as a clear central question organically related to the topic, avoiding value judgments and preconceived representations. This requires both objectivity and credibility.

- Deduce secondary questions from the research problem, and express them in a rational and structured manner. Each question will systemically address one of the facets of the problem, aiming at a comprehensive response to the central question of the research. These questions would lay the ground for the identification and formulation of hypotheses.

4. OPERATIONAL DEFINITION OF KEY CONCEPTS

Each degree research makes use of multiple concepts, including key concepts which hold a central position in the research topic. In this respect, a section should be devoted in the introduction to a presentation of the operational and functional definition of these concepts for the purpose of helping achieve a more precise understanding of the content and results of the research in the light of the scope and procedures adopted by the student researcher. To this end, he/she can draw on relevant readings, and not impressions which lack scientific foundations.

5. RESEARCH HYPOTHESES:

A hypothesis is a temporary answer to the question(s) the student researcher places at the centre of his/her research idea and approach. In a sense, it is a sum of tentative and concise responses that will guide the collection and analysis of data, theories and ideas. However, each hypothesis will have to be thoroughly examined, refined and verified

by the student researcher during the different stages of the research process.

Furthermore, a hypothesis is a temporary and an anticipated proposal of a possible relationship between variables, concepts or facts. It can also be a conjecture that calls verification and must not be fictitious, irrelevant, or contrary to a sound counter argument. It must therefore lead the researcher to seek data and information before the final formulation of the hypothesis/hypotheses.

A hypothesis is built on criteria involving the following:

- It has to have an organic connection with the research problem. It is thus a common thread linking its various intellectual and analytical paths and, consequently all its components and dimensions;
- It has to be consistent and in harmony with other hypotheses in case there is more than one;
- It has to be testable and verifiable within the limits of available capacity;
- It has to be clearly stated and logically constructed.

6. RESEARCH METHODOLOGY AND TOOLS

6.1. Defining the methodology and the factors influencing methodological choices

The research methodology is a modality or set of interdependent modalities, adopted to study the chosen research problem and to verify

its hypotheses, through a structured construction of ideas and methods of analysis in order to obtain results of a scientific value.

Addressing the research topic requires:

- Selecting one or more approaches in methodology, depending on the specificities of each discipline;
- Using one or more functional tools relevant to the research topic, according to the nature and the requirements of different fields (theoretical, argumentative, field, technical, etc.), provided that there is coherence between methodological choices and the nature of the topic;
- Adopting one or more samples which are of a theoretical, practical, (or combined), or a technical nature;
- Using data and statistical analyses in disciplines that require them.
- The definition of the research methodology is intimately related to the nature of the problem being investigated, the hypothesis or hypotheses, the research tool or tools, and the nature and size of the sample. However, robust degree research often relies on mixed methods and tools to enrich research results, particularly in certain disciplines.

7. RESEARCH DIFFICULTIES AND LIMITATIONS:

- Identifying research difficulties that may arise from subjective reasons attributable to the student himself/herself or from

objective factors beyond the student's control which would limit the aspirations and perspectives of his or her research;

- Highlighting the limitations of the research results which may be caused by the challenges experienced by the student, or his/her inability to effectively address some aspects of research design, methodology or bibliography.

8. CONCLUDING THE INTRODUCTION BY A BRIEF PRESENTATION OF THE RESEARCH STRUCTURE.

Close the introduction with a brief presentation of the main themes and components around which the research is organized.

Component 3: Key Elements of degree Research

- A concise summary of the research (abstract);
- An introduction, outlining the elements identified above;
- Structure and organisation: parts, chapters, themes, sections and sub-sections. It is worth noting that some disciplines, e.g. law studies use other designations, such as [المبحث المطلوب الفرع], which refer to themes and parts organizing the content of the research. It is important to combine a rigorous and integrated structuring with a progressive and systematic organization;

The parts and chapters shall include at least the following:

- Analysis of theories and knowledge relevant to the topic through in-depth critical reading;

- Presentation and reading of quantitative and/or qualitative data according to the hypothesis or hypotheses;
- Verification, interpretation, explanation and discussion of the hypothesis/hypotheses:
- Discussion of the research results in relation to theories, concepts and knowledge relevant to the research topic;
- Conclusion of the research including reference to results and findings; this will be illustrated below.
- Adopted bibliography;
- Table of contents;
- Appendices, if applicable.

Component 4: Conclusion

The general conclusion of the research consists, at least, of the following:

- Concise summaries drawn from the various research components;
- The main results obtained in the light of the analysis of the problem and the verification of hypotheses;
- The limitations pertaining to the theoretical framework, field work, application and the adopted methodology;
- Suggestions and perspectives for further research on the topic.

Component 5: Technical Standards for Writing

1. LANGUAGE, WRITING AND REPORTING:

- Adopt a unified language and an academic and specialized style, avoiding redundancies, pleonasm and value judgments. Punctuation rules must also be respected;
- Adopt the same semantic meanings of the concepts used, as defined in the introduction, and this throughout the research dissertation or thesis;
- Have a good command of the language and modes of expression in order to properly report both quantitative aspects, such as mathematical symbols, and qualitative ones using appropriate words and expressions;
- Ensure clarity of ideas expressed, and support them with knowledge based on argumentation, conviction and persuasiveness;
- Be concise and precise in the expression of ideas, avoid hasty deductions, and provide a solid foundation (data, statistics, credible quotation, evidence, inference...) for the research;
- Write concise paragraphs, easy to read and understand, and free of redundancies. These paragraphs should have a scientific style required in reporting the content of research;
- Maintain a logical cohesion between the paragraphs of the research, its themes, parts and results;

- Adopt gender approach in reflection, analysis and expression, while respecting the principle of parity, which has become one of the scientific indicators of current research;
- Make use of digital technologies to functionally integrate degree research in innovative ways, and adopt the languages most used internationally which are essential tools for a wide dissemination of scientific research.

2. INTELLECTUAL CLARITY, OBJECTIVE CONSTRUCTION, ARGUMENTATION AND CRITICAL ANALYSIS

- Research should be based on arguments and evidence, not on unfounded arbitrary judgments;
- Avoid value judgments, pre-established positions, and opinions derived from common knowledge, without a logical or scientific basis. The goal is to build sound scientific knowledge, and break with concepts and ideas that are not verifiable. This should be carried out in accordance with established scientific methods relevant to different disciplines;
- Logically construct the research ideas and results; Support the results obtained by demonstration and argumentative inference;
- Adopt the principle of relativity in judgements and in the presentation of results, and favour experimentation which is an

effective tool for verification and control, in order to ensure credibility and reliability.

3. BIBLIOGRAPHY AND REFERENCES

3.1. The importance of documentation and references

The development of the research topic and its various components requires documentation and bibliographic references, and a thorough reading of the relevant literature. These elements contribute to consolidating knowledge on the topic and refining its conceptual and methodological aspects. Thus, the research would gain in clarity and good construction both at the level of the research problem and the hypotheses. It will then be open to new research perspectives, a fact which can give it an added or even an innovative value.

3.2. Examples of bibliographic documents and references:

- There is a multitude of sources and bibliographic references, such as books, theses, dissertations, reports, studies, monographs, manuscripts, official documents, conference proceedings, periodicals, articles, scientific papers ...
- These documents come in various forms: paper, electronic, audio, visual, or audiovisual, etc.

The use of a reference or a citation is contingent on its scientific value, its publication (paper or online), and has to be reported according to the nature of the source/reference.

4. THE USE AND ORGANIZATION OF BIBLIOGRAPHIC SOURCES

The bibliography is of vital importance in the research. It therefore serves:

- To identify the current mode of thinking, the existing literature and ideas available on the topic or those that are either directly or indirectly related to it;
- To assist the student researcher in further clarifying and deepening his/her understanding of the topic;
- To be exploited in content analysis, quotation, argumentative construction, demonstration, and also in assertion, criticism, or refutation of an idea or result.

Aspects that add value to the bibliography include:

Using innovative sources which are rich in knowledge, logical argumentation, conception, method, doctrine, philosophy or creative work...;

Reference to the work of recognized thinkers and researchers whose contributions are distinguished by their scientific value;

Reference to innovative research on the topic, updated references with high scientific value, recent publications, and originality of approach. These qualities consolidate the added value of degree research;

A critical exploitation of readings in the various components of the research, making syntheses of theories, field, applied or laboratory research according to disciplines,;

4.1. Standards for citations and referencing

Notwithstanding the differences in citation styles and modes of bibliographic referencing, two modalities are generally adopted by the scientific community:

a. References at the bottom of the page or as a footnote:

A footnote must adhere to a set of scientific standards, including:

- Insertion of notes at the end of the page;
- Mention of all editorial information concerning a book that is mentioned for the first time;
- Use of the abbreviation *op.cit* for a second quotation from a previously cited work.
- Use of the abbreviation *ibid* (*ibid*: in the same place) followed by the page number, when quoting a book in two consecutive notes;
- Use of the abbreviation *id* (*idem*) for a consecutive reference to the same author, followed by the page number;

When a reference is repeated, and if other references follow it, the author's surname, followed by the short title of the work (without the subtitle), and the page number are mentioned.

When the name of the publisher or date of publication is unknown, the abbreviations "w. p" (without publisher) in the first case, and "w. d." (Without date), in the second case are added.

b. In-text references

Reference to a single author:

The author's name, reference title, place of publication, publisher, date of publication, page number.

Reference to two authors:

First author name, second author name, reference title, place of publication, publisher, date of publication, page number.

Reference to more than three authors:

If the reference includes more than two authors, all the names must be cited in the first reference. For the following ones, enter the name of the first author followed by "et al.", the date, the edition or volume number, the publisher, the place of publication, the year of publication and finally, the page number.

Report or study by an official institution, international organization or any other body:

Report name of the institution, title of report or study, place of publication, publisher, date of publication, page number.

Translated book:

Author's name, title, translator's name, place of publication, publisher, date of publication, page number.

Article in a scientific collection:

Name of the author, title of the work, title and number of the collection or series, place of publication, publisher, date of publication, page number.

Electronic sources:

Author's name, article title, place of publication, publisher, date of publication, page number, link (URL or DOI identifiers).

Articles in a journal:

The name of the author, title of the article (in lower case letters and in quotation marks), name of the journal (in italics), number, year, publisher, place of publication, date of publication, page numbers;

Research available in higher education institutions:

Author's name, thesis or degree category (master's dissertation, doctoral thesis, diploma), name of higher education institution, academic year, (or date of publication), page number (if the dissertation or thesis is published on the Internet, indicate the link at the end of the reference).

Official and legal documents:

The name of the country, the title of the law or legal document, its number, the series, the name of the publisher and the date of publication.

Electronic Sources (on the Web)

Author's name, article or report title, website name, date edited or updated, date consulted, link (URL).

In-text citations with APA style:

- "The literal quotation is placed between two quotation marks."
- In the case of a nonliteral quote or reformulation, no quotation marks needed.

- Bibliographic information follows the citation directly in the text and includes the author's name, year of publication and page number.
- For citations, the following standards must be met:
- Full book quote: name, year, no mention of page.
- Specific page citation: name, year, page.
- Quoting more than one reference.
- No mention of the author's name if it is mentioned in the text; insert in brackets the name and year.
- An electronic item is cited without page numbers (name, year, serial number, paragraph)
- Reference should be made to the original sources. In the case of a secondary reference, the title of the original, the title of the secondary reference and the year of the secondary reference are mentioned.
- If the source is from two authors, they are mentioned together each time they appear in the text.
- If the source is from more than two authors, they are all cited the first time they appear in the text, after that, only the first is retained followed by the abbreviation "et al."
- If the reference has six authors, only the first author's name is mentioned, followed by the word "et al." throughout the text.

Reference classification order in the bibliographic list:

- Book: author's family name, first name, (year of publication), title, (edition), place of edition, publisher.
- Translated work: author's family name, first name, (year of publication), title (translation: translator's name), place of publication, publisher.
- Book chapter: Family name of the author of the chapter, first name, (year of publication), "Title of the chapter", [in] book title, (edition), p. (pages), place of edition, publisher.
- Journal article (or periodical): Family name of the author, first name, "Article title", name of the journal, (year of publication, day if applicable and month if applicable), volume number, if applicable, number of the first page, number of the last page of the article.
- Article published in a journal downloaded from a specific database: Family name of the author, first name, "Title of the article", Name of the journal, year of edition, (day if applicable and month if applicable), volume number if applicable, first page number – item number of last page. Extracted from: Database link.
- Content published on the Internet: Author. (year of edition, day and month). "Title". Date of insertion (month, year day, <http://www....>).
- Dissertation, thesis, diploma: author's family name, first name, (year of viva), title (category), institution of affiliation, location.

- The classification of references in the list of bibliography must comply with the following recommendations:
- References must be organized in alphabetical order;
- If more than one reference is used from the same author, they must be ordered chronologically from the oldest to the most recent.
- If more than one reference is listed for the same author and on the same date, they are classified by title.
- In Arabic references, the prefix “al, abû, umm” is not taken into account in the alphabetical classification.

5. ABSTRACT

The abstract is placed at the beginning of the dissertation or thesis; it precedes the introduction. Some most important characteristics:

Form:

- A maximum of 250 words;
- It must be translated into one or more languages other than that of the research.

Content:

The abstract should include the following:

- The objective or objectives of the research;
- The methodology adopted, including reference to the tools and instruments;
- the most salient results, or simply the overall results;

- The key words.

6. TABLE OF CONTENTS

Table of Contents must be inserted at the beginning or end of the research. It must contain, in order, the above-mentioned components of the search with page numbers (first and last).

7. THEMATIC INDEXING

Thematic indexing is a method which aims to describe a document or a research, based on the information drawn from the body of the document or the research. The information relates to the basic concepts, proper names, institutions and geographical locations used in the research. This involves setting up lists, usually in alphabetical order, of these elements, indicating the pages of their occurrence in the research.

The indexing of keywords and concepts in degree research, including doctoral theses, consists in identifying the main elements and keywords: concepts, sub-concepts, proper names, institutions and geographical locations. These entries help to capture the content of the document and make it easier to consult.

Indexing lists are not uniform across all disciplines; therefore, they are to be developed according to the requirements of each discipline or domain.

To include the index in a degree research, students, particularly those doing doctoral research, should proceed to the elaboration of the

aforementioned lists of entries in an electronic version, with appropriate computer software to detect keyword occurrences and their pagination in the text. Thus, the index compiled must be inserted directly after the general conclusion.

The scientific benefits of thematic indexing in degree research include:

- A rational organization and structuring of the use of concepts and bibliography;
- An identification of the categories of the main concepts and proper names used and their frequencies of occurrence, their meaning and the meaning of their recurrences. They are also indicators of the nature of the research, its theoretical, conceptual, and field framework;
- Facilitating the search for information about concepts and proper names used in the search;
- Providing a database that allows easy access to the content of the research;
- The opportunity to assess the consistency of the concepts and key words used, and their relevance.

8. APPENDICES:

The appendix or appendices are data, information, documents, or tools, placed directly after all other components of the thesis and are not a part of its body. They are used to support the research with additional information that has no place in the body of the text. They add more

clarity to the research, and complement the argument with elements that may support its rationale and relevance.

The appendices are inserted with a separate pagination from that of the thesis or the dissertation. If a research has more than one appendix, they are inserted in the order of their occurrence in the body of the thesis (see appendix...)

9. PUBLICATION OF SCIENTIFIC PAPERS

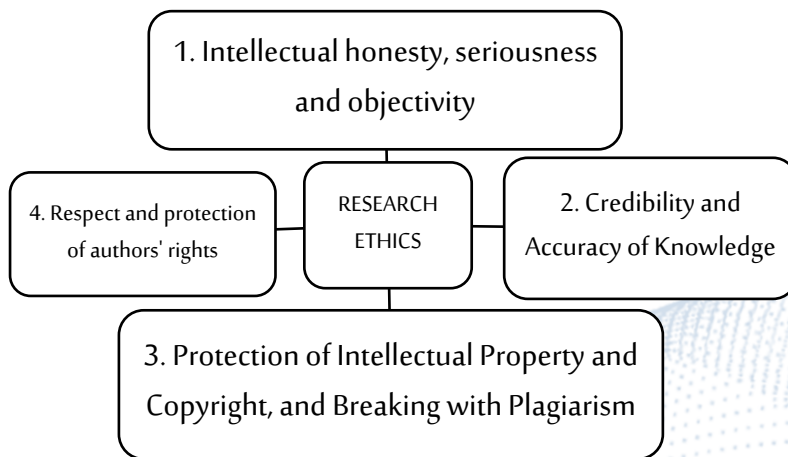
At the international level, degree research institutions have an academic tradition that requires the student researcher (particularly doctoral level students) to publish two or more scientific papers, in indexed and peer-reviewed journals before they are allowed to submit and defend their thesis.

These scientific papers must be prepared in accordance with the standards and specifications of each discipline. They are a necessary exercise and an initial test to master research techniques and methods. In this respect, the present guidelines suggest the generalisation of this institutional provision, and its extension to indexed and peer-reviewed scientific materials to help with publication in national and international journals. In addition, the guidelines encourage publication in the most widely used international languages.

10. RESEARCH ETHICS:

Scientific research requires compliance with certain ethical rules, including:

- Demonstrating intellectual honesty, avoiding plagiarism or full copy without mention of the author. Constantly observe the principles of integrity, seriousness, perseverance and quest for objectivity, and breaking with any form of subjectivity;
- Ensuring the credibility of information and the accuracy of scientific knowledge;
- Protecting intellectual property and respecting the rights of authors;
- Guaranteeing and protecting the rights of contributors to research.



PART THREE: ASSESSING DEGREE RESEARCH

As previously stressed, the evaluation of degree research is one of the major problems encountered in higher education institutions. Indeed, the evaluation which takes place during the defense of the dissertation or thesis which has been accepted for discussion does not often conform to the standards and conventions adopted by supervisors.

In order to help level this shortcoming, the present guidelines suggest a grid of evaluation criteria for degree research.

The suggested grid was developed on the basis of existing references on the topic and in the light of common practice in the field. In fact, its structure is largely inspired by a model adopted by the College of Education, Cardiff Metropolitan University, UK. It is adapted here to incorporate the foundations, components and standards outlined in the present guidelines, as well as other relevant aspects drawn from the diagnosis. While the first parts of the guidelines describe the standards required in designing and conducting degree research, this part set out criteria for assessing the quality and content of the research product. The grid aims to help supervisors and examiners to systematically assess graduate research using clear indicators, either before or during discussions and final deliberations. Specifications of formal requirements (summary in two languages, structure in parts, bibliography, appendices, layout, etc.), detailed in the guidelines, are assumed to have been addressed under the guidance of the supervisor before submitting submission. Their impact on the quality of the research content is assessed holistically. However, it is

preferable that each university or higher education institution has its own specific set of guidelines which clearly detail formal and organizational specifications of degree research.

The suggested grid is divided into four tables: the first table covers the overall structure of the dissertation or thesis, and is composed of four main elements, each with a description of the general criteria. Each of the four elements is assigned a separate table with a precise description of the degree of achievement in each component.

The first table is used to determine the weight of each element (to be determined according to disciplines) in the overall evaluation of the research. The other tables are used for a detailed assessment of each element separately, using a rating. In order to facilitate assessment, the proposed grid provides a precise description of the qualitative criteria with a digressive quality rating of each criterion associated with the element. If necessary, any key element can be adapted or other elements can be added to the grid. It is also possible to define the estimate of the value of each of the four elements, according to the disciplines.

Although these detailed tables are generally used for Master dissertations, they can also be useful in assessing doctoral theses. In order to monitor and use the standards accurately to check their achievement, a reference list of the main specifications for each element is added. It should be noted that some of the components related primarily to the form and organization of research defined in the guidelines can also be included in this list.

It is deemed that resorting to standards and indicators will ultimately help carry out an objective assessment of degree research. In addition, this initiative is an attempt to lay the foundations for a sound assessment of the scientific value of this type of research through transparent measures, and according to the criteria established and commonly recognized within the research community. It also intends to be a scientific contract between the supervisor and examiner in charge of evaluating degree research, and the students who are responsible for completing their research.

General Grid

Indicators to measure overall achievement in each element

Key elements	Percentage %
<p>5. Elaborating the research plan Clear identification of the research problem(s); articulation of questions and hypotheses, presentation of context; clarification of purpose and objectives of the research.</p>	
<p>6. Study and analysis of previous research - Selection of knowledge and information from various sources; analysis and critical assessment of relevant literature. - Synthesis and development of arguments.</p>	
<p>7. Presentation of the research Selection of appropriate methodology and modalities for obtaining, presenting, analyzing and discussing data to address research questions hypotheses and issues</p>	
<p>8. Conclusions and recommendations</p>	

Summary of key points and brief presentation of results with critical analysis of data, evidence and arguments.	
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1. ELABORATING THE RESEARCH PLAN.

Criteria achievement scale	Score
<ul style="list-style-type: none"> ▪ Valid knowledge base and a very good understanding of the field of research; 	10
<ul style="list-style-type: none"> ▪ Clear definition of topic and identification of appropriate objectives; 	9
<ul style="list-style-type: none"> ▪ Evidence of a clear understanding of key research issues and evidence base; 	8
<ul style="list-style-type: none"> ▪ Identification of some salient features of the topic and appropriate choices of objectives. 	7
<ul style="list-style-type: none"> ▪ Lack of evidence of understanding key research issues. 	6
<ul style="list-style-type: none"> ▪ Insufficient evidence of a clear understanding of the purpose of the research and inadequacy of research objectives. 	5
<ul style="list-style-type: none"> ▪ No answer 	4
<ul style="list-style-type: none"> ▪ 	3
<ul style="list-style-type: none"> ▪ 	2
<ul style="list-style-type: none"> ▪ 	1
<ul style="list-style-type: none"> ▪ 	0

List of indicators to measure achievement of the component and its quality:

- The title must be clear and adequate;
- The introduction must be clear and must also state the context, research problems, and expected results;
- It must include the purpose (why, who, what, where and when?) and its objectives;
- The research problem(s) and hypotheses must be well defined, measurable, achievable and realistic;

- A logical justification of the research and information about its context;
- Relevant information on research ethics. Adoption of a uniform language and a specialized academic style (in all research components).

2. STUDY AND ANALYSIS OF PREVIOUS RESEARCH

Criteria achievement scale	Score
<ul style="list-style-type: none"> ▪ Very good understanding of the complexity of the research problem being investigated. 	10
<ul style="list-style-type: none"> ▪ Content organization is not limited to course or program notes only. 	9
<ul style="list-style-type: none"> ▪ Evidence of critical thinking and reading beyond the main topic. 	8
<ul style="list-style-type: none"> ▪ Evidence of information assessment and knowledge synthesis. 	7
<ul style="list-style-type: none"> ▪ Selection of appropriate materials and tools. 	6
<ul style="list-style-type: none"> ▪ Evidence of critical thinking and assessment of a set of relevant references. 	5
<ul style="list-style-type: none"> ▪ Evidence of the ability to gather information and make generalizations, with little or no evidence of criticism, elaboration or evaluation. 	4
<ul style="list-style-type: none"> ▪ Evidence of limited research involving limited evaluation of sources/references. 	3
<ul style="list-style-type: none"> ▪ No Answer 	2
	1
	0

List of indicators to measure achievement of the component and its quality:

- Justification of the choice of references;
- Relevance of references;
- Use of recent sources (unless essential or significant);
- Adequate coverage of the research area and a satisfactory presentation;
- Critical thinking, analysis, evaluation and synthesis;
- Links to theory, field or professional context;
- Quantitative and qualitative balance between chapters.

3. PRESENTATION OF THE RESEARCH

Criteria achievement scale	Score
<ul style="list-style-type: none"> ▪ Comprehensive, detailed, accurate and systematic account of important aspects of research ▪ Demonstration of innovation and critical approach; ▪ Collection and thorough analysis of appropriate and relevant data; ▪ Presentation of results in a clear and appropriate style; ▪ Drawing information from various sources and presentation of a logical and coherent synthesis. 	10 9 8 7
<ul style="list-style-type: none"> ▪ Demonstration of logical structure and clear arguments. ▪ Appropriate collection and analysis of relevant data. ▪ Clear presentation of results, with a relative ability to gather information from different sources and present it in an orderly and appropriate manner for the purpose of the study. 	6 5 4
<ul style="list-style-type: none"> ▪ Clear poor presentation ▪ Results limited to the general aspects of the research problem; ▪ Limited data et insufficient analysis ▪ Inappropriate presentation of results. 	3 2 1
<ul style="list-style-type: none"> ▪ No Answer 	0

List of indicators to measure achievement of the component and its quality

- Presentation and justification of the conceptual approach adopted (practical research, case study, etc.);
- Presentation and justification of the research methodology (questionnaire, interview, observation, etc.);
- Explanation of measures to ensure validity and reliability;
- Sampling and data analysis;
- Clarity of data presentation;

- Analysis and reflection;
- Links to references.

4. CONCLUSION AND RECOMMENDATIONS

Criteria achievement scale	Score
<ul style="list-style-type: none"> ▪ Concise summary, demonstrating a perfect understanding of the research. 	10
<ul style="list-style-type: none"> ▪ Results and conclusions are based on valid and credible evidence and judgments. 	9
<ul style="list-style-type: none"> ▪ Results and conclusions are presented clearly 	8
<ul style="list-style-type: none"> ▪ Evidence of the ability to provide a synthesis of results demonstrating an understanding of key results; 	7
<ul style="list-style-type: none"> ▪ Conclusions and inferences are linked in a way that is relevant to the research questions, and based on evidence and good judgment. 	6
<ul style="list-style-type: none"> ▪ Lack of evidence of understanding the main results; 	5
<ul style="list-style-type: none"> ▪ Results and conclusions are not always relevant, and there is no meaningful link to evidence or good judgment. 	4
<ul style="list-style-type: none"> ▪ No answer 	3
	2
	1
	0

List of indicators to measure achievement of the component and its quality

- The importance of the conclusion to the stated research objectives
- Adequacy of the relationship between the conclusion, the data and the analyses;
- Relevance of the link to the references related to the research topic.
- Formulation of recommendations and suggestions for future research.

1	Elaborating the research plan	
2	Study and analysis of previous research	
3	Presentation of the research	
4	Conclusion and recommendations	
	Total	

CONCLUSION AND RECOMMENDATIONS

The present Standards and Guidelines aim at providing a framework for the design and evaluation of degree research in higher education. Given their practical, functional and operational nature, their adoption and implementation will ultimately depend on the provision of opportunities for broad discussions and scientific debate within the academic community for the purpose of ownership, common consensus and continued improvement. Equally, these standards and guidelines will be useful tools for policy-makers in their efforts to standardize and assess degree research as these two aspects are essential pillars in contributing to a promising and dynamic scientific research in general.

To this end, it has been deemed appropriate to conclude these guidelines with a set of recommendations, the main objective of which is to stimulate the exchange of views between professors and decision-makers on the future of degree research. Hence, the aim is to consider ways of taking inspiration from the suggested guidelines, to promote this type of research, to improve its quality, and to make it a decisive step in the development of scientific research in general. The main recommendations are as follows:

- Organization of training workshops on the criteria and indicators necessary to assess degree research;
- Urgent action to generate a broad dynamic movement for the production of specialized guides, drawing some of their foundations from this framework;

- Give utmost importance to the development of tools and opportunities for the publication of scientific papers, produced by student researchers and/or professors, in accordance with the standards of assessment and indexing widely recognized by the scientific community;
- Provision of specialised training courses for the mastery of national languages and the most used languages worldwide;
- Encourage online publications of degree research and related scientific papers;
- Development of scientific databases in various higher education institutions related to their areas of specialization.
- Development of digital libraries covering various research disciplines, including degree research;
- Encourage and stimulate degree research, based on standards of quality, excellence and innovation, and make it a first step towards access to the world of scientific research in general;
- Setting up mechanisms for monitoring and compliance by all researchers with ethical rules of research, and particularly fighting against plagiarism, usurpation and infringement of copyright;
- Establishment of regular assessments of the state of scientific research, including degree research, its standards and outputs, in accordance with scientifically and universally recognized standards and indicators.

