Early Career Researcher Award (ECRA)

Request for Proposals (RFP)
Second Cycle

Revised January 2020
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# 1. Acronym List

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<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Award Administration</td>
</tr>
<tr>
<td>AMG</td>
<td>Award Management Guide</td>
</tr>
<tr>
<td>AROR</td>
<td>Authorized Research Office Representative</td>
</tr>
<tr>
<td>CFA</td>
<td>Call for Application</td>
</tr>
<tr>
<td>Co-RM</td>
<td>Co-Research Mentor</td>
</tr>
<tr>
<td>ECR</td>
<td>Early Career Researcher</td>
</tr>
<tr>
<td>GAG-E</td>
<td>Grant Application Guide for ECRA</td>
</tr>
<tr>
<td>IACUC</td>
<td>Institutional Animal Care and Use Committee</td>
</tr>
<tr>
<td>IBC</td>
<td>Institutional Biosafety Committee</td>
</tr>
<tr>
<td>IP</td>
<td>Intellectual Property</td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
</tr>
<tr>
<td>KI</td>
<td>Key Investigator</td>
</tr>
<tr>
<td>LPI</td>
<td>Lead Principal Investigator</td>
</tr>
<tr>
<td>MRFA</td>
<td>Master Research Funding Agreement</td>
</tr>
<tr>
<td>NPRP</td>
<td>National Priorities Research Program</td>
</tr>
<tr>
<td>NPRP-EP</td>
<td>National Priorities Research Program- Exception Proposal</td>
</tr>
<tr>
<td>PI</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>PR</td>
<td>Peer Reviewer</td>
</tr>
<tr>
<td>PRM</td>
<td>Primary Research Mentor</td>
</tr>
<tr>
<td>QNRF</td>
<td>Qatar National Research Fund</td>
</tr>
<tr>
<td>QNRS</td>
<td>Qatar National Research Strategy</td>
</tr>
<tr>
<td>QRLP</td>
<td>Qatar Research Leadership Program</td>
</tr>
<tr>
<td>REG</td>
<td>Research Ethics Guide</td>
</tr>
<tr>
<td>RIG</td>
<td>Research Integrity Guide</td>
</tr>
<tr>
<td>RO</td>
<td>Research Office</td>
</tr>
<tr>
<td>ROC</td>
<td>Research Outcomes Center</td>
</tr>
<tr>
<td>SI</td>
<td>Submitting Institution</td>
</tr>
<tr>
<td>UREP</td>
<td>Undergraduate Research Experience Program</td>
</tr>
</tbody>
</table>
2. Competition Snapshot

<table>
<thead>
<tr>
<th>SCOPE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligibility</td>
<td>This award is for early career researchers who are Qatari nationals or Qatar-born residents for 10 years or more, Qatar residents for more than 12 years, or QRLP graduates. Applicant must hold a terminal degree with 2-7 years of research experience and be already appointed in a permanent position or promised to be appointed in one of an approved submitting institution. This award provides support for an intensive career development in research and research leadership. As such, awardees become eligible in the future to apply for independent research grants such as the NPRP. Examples of eligible early career researchers include, but are not limited to, medical doctors pursuing a research career, fully-appointed postdoctoral fellows and postdoctoral-like positions.</td>
</tr>
<tr>
<td>Submission begins</td>
<td>30 January 2020</td>
</tr>
</tbody>
</table>
| Submission deadline | Proposal final submission: 29 June 2020  
RO final vetting: 6 July 2020 (noon, Doha time)                                                   |
| Announcement of results | End of October 2020                                                                               |
| Anticipated project start date | Project activities cannot begin until a Master Research Funding Agreement (MRFA) has been signed with Qatar National Research Fund (QNRF). This process can take around 60 days from the time of the award announcement which should be taken into consideration when preparing the application implementation timeline. Awarded ECRA projects are expected to start no later than nine months after the date of announcing the awards. |
| Research areas | Should be in areas representing national research priorities for Qatar |
| Awards parameters | **Award period:** Up to two years  
**Award Amount:** total of USD 350,000 for the whole duration  
Breakdown as follows:  
- Up to USD 100,000/year covers personnel salaries paid upfront on annual basis  
- Minimum of USD 150,000 paid upfront for the whole duration of the project  
- Salary/support for mentors is not allowed. |
| How to apply | Register and submit full application through the online submission system website: [https://oss.qgrants.org/](https://oss.qgrants.org/); ECRA Grant Application Guide “GAG-E” is available for download on [www.qnrf.org](http://www.qnrf.org), download centre of ECRA; The site will be active on 30 January 2020 (Noon Doha Time). |
| QNRF program contact | QNRF support system [https://support.qnrf.org/](https://support.qnrf.org/) |
3. **Program Objectives**

The Early Career Researcher Award (ECRA) Program is QNRF's intensive research and research leadership development award to support permanently appointed early career researchers or faculty members who must be **Qatari nationals or Qatar-born residents or Qatar residents for more than 10 years, residents for more than 12 years, or QRLP graduates**. Applicants must be fresh faculty members, researchers, or scientists (holding terminal degrees with 2 to 7 years of experience) and determined to build their career in research. ECRA will bring candidates to the point where they are able to conduct and lead research independently and are competitive for major grant support.

The award aims to provide the applicants with time and support to enable them to have an intensive career development focus in research, leading to their research independence and ability to apply for research grants to establish research programs in their areas to address the R&D mission of Qatar.

Researchers, faculty members and clinicians in early stages of their professional research careers are expected to work closely with one active and senior mentor in the areas of the proposed research to become independent researchers and build new and/or enhance existing research skills in Qatar. Awardees are encouraged to apply for NPRP during the second year of their award.

4. **Eligibility Criteria**

4.1. **Eligibility of Submitting Institution**

4.1.1. Only Academic and Public Institutions inside Qatar with approved Research Offices (ROs) are eligible to submit applications.

4.1.2. Only ROs located inside Qatar are eligible to register at any time with QNRF at [https://oss.qgrants.org/](https://oss.qgrants.org/).

4.1.3. Submissions should be within the research area(s) of the submitting institutions as declared by the approved ROs.

4.1.4. Submitting Institution/Research Office assures that the candidate will be allowed to devote a minimum of 60% of their professional time to the ECRA project, and that the institution will provide all the necessary support for the candidate.

4.1.5. Submitting Institution/Research Office assures that they will support the applicant salary during the whole duration of the project.

4.1.6. Submitting Institution/Research Office assures that the applicant is or will be a permanent employee prior to the award starting date.
4.2. Eligibility of Applicants

4.2.1. Authorized Research Office Representatives (ARORs) and other members of the RO are not eligible to participate in awarded ECRA projects.

4.2.2. Only applicants who are in the starting stage of their research career with at least two peer reviewed publications are eligible to apply.

4.2.3. Applicants who have between 2 to 7 years of experience prior to the starting date of the project are eligible to apply.

4.2.4. Only the number of years of experience occurred post date of the applicant’s highest degree will be counted.

4.2.5. PDRA fellows are eligible to apply to ECRA during the last year of their award.

4.2.6. Must be Qatari national or Qatar-born of not less than 10 years of residence, residents for 12 years or more or a QRLP graduate.

4.2.7. Must be affiliated with an approved institution inside Qatar or anticipated to start the job upon being awarded.

4.2.8. Must hold a terminal degree in their particular field of study as defined under the approved list of terminal degrees (see section 18). Medical doctors with at least two published peer reviewed articles are also eligible to apply.

4.2.9. Awarded Lead-PIs in NPRP are not eligible to apply for ECRA.

4.3. Eligibility of PRM

4.3.1. Mentor should be an active and accomplished researcher in the area of the proposed research and committed to both the applicant’s career development and the direct mentorship of the applicant’s research. The mentor should have sufficient independent research support to cover the costs of the proposed research. The role of the mentor should be clearly described in the mentoring plan.

4.3.2. The PRM may be from the same submitting Institution as the ECR or from a different institution only if the Co-RM is from the same SI with at least five peer-reviewed publications.

5. Award Restrictions

5.1. ECR can only submit one ECRA application per cycle.

5.2. ECR can only receive one ECRA grant during the lifetime of their career.

5.3. ECRA awardees cannot apply for NPRP until the last year of the award and, if awarded, cannot start their grants before completing their ECRA award.

5.4. ECRA awardees cannot apply to NPRP while applying for the ECRA grant.

5.5. ECRA grant is not transferrable to another candidate.
5.6. ECRA awardees can still apply as Primary Research Mentors (PRMs) in UREP projects throughout the ECRA duration, as long as the conditions related to the UREP program apply to them, and it is within the research topic of their ECRA award, and they will not receive any financial benefit.

5.7. The maximum number of mentors per award is two, including one Primary Research Mentor (PRM) and one Co-Research Mentor.

5.8. Only one ECRA PRM role is allowed per cycle not exceeding a total of two active ECRA awards overall.

6. **Budget**

Funds will be awarded to, disbursed and managed by the submitting institution. The expenditure will be monitored by the submitting institution and QNRF according to the Master Research Funding Agreement (MRFA).

The duration of Award support will be up to two years. Awarded institutions may request up to one year extension with no additional financial support.

Awards under ECRA will include the following, paid to and administered by the submitting institution in Qatar:

6.1. **ECRA Grants are up to USD 350,000 per application for the full duration, for up to two years. While only a maximum of USD 200,000 of the total amount can be used to support the personnel salaries the remaining USD 150,000 is considered as start-up research fund to support the applicant research (equipment, consumables, travel to scientific meetings, and miscellaneous costs).**

The Breakdown as follows:

6.1.1. Up to USD 100,000/year covers personnel salaries paid upfront on annual basis

6.1.2. A minimum of USD 150,000/year paid upfront for the whole duration where the following items are covered as follows

6.1.2.1. Minimum 80% research expenses

6.1.2.2. Maximum 10% travel expenses

6.1.2.3. Maximum 5% miscellaneous expenses

6.1.2.4. Maximum 5% indirect cost

7. **Co-Funding**

7.1. The Institution that has employed the ECR may contribute to the project through cash co-funding or in-kind co-funding.
7.2. Co-funding applies to the life of the award, and QNRF should monitor the co-funder’s financial reports to ensure that it is making progress toward meeting the project goal.

7.3. Co-funding expenses must be properly tracked and reported according to QNRF reporting rules for co-funding.

7.4. All contributions shall be accepted only when such contributions meet all the following criteria:

   7.4.1. Are verifiable from the recipient’s records;

   7.4.2. Are provided for in the approved budget.

7.5. Co-funding shall be accepted only if it is endorsed by the authorized party of the co-funder at the time of submission.

7.6. Co-funding must be justified according to QNRF budget categories.

7.7. Co-funding will not cover any indirect cost (IDC).

7.8. The amount of QNRF funds awarded combined with the co-funding cash contribution will constitute the total approved budget for a research project as shown under the budget breakdown, in the Master Research Funding Agreement.

7.9. QNRF reserves the right to suspend or terminate the project if the co-funding is not executed as in the submitted proposal.

7.10. QNRF can reduce the budget at the pre-funding stage. Co-funding institution will be given the right to adjust its commitment accordingly.

7.11. Co-funding from third Parties can be contracted with submitting institution (awardee) or the collaborative institution; and a copy of the contract has to be provided to QNRF.

8. Submission Process

8.1. Program Design

The awards are made to QNRF approved submitting institutions. The process of applying to ECRA starts with the submitting institutions in Qatar, applying for their nominated Early Career Researchers for Award support.

Each prospective Early Career Researcher will work with a prospective Research Mentor within a submitting institution in Qatar. The submitting institution considers the application of the potential Early Career Researcher following its own processes of review; then, the ECR submits a proposal for QNRF ECRA with all the requirements. Once awarded, the submitting institution will take the responsibilities of following its own institutional processes towards the employment of the Early Career Researcher and administering the fund according to terms and conditions of the Master Research Funding Agreement (MRFA).
8.2. Application submission Flowchart and Timeline

8.2.1. Flow Chart

8.2.2. The following flowchart illustrates the steps necessary for application submission by the Applicant and the RO.

![Flowchart of application submission process]

8.2.3. Timeline ECRA 2nd Cycle

The following table shows important dates for ECRA 2nd cycle.

<table>
<thead>
<tr>
<th>Description</th>
<th>Deadline for ECRA 2nd cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicant Online Registration</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Open Applicant proposal submission</td>
<td>Noon, 30 Jan 2020</td>
</tr>
<tr>
<td>Close Applicant proposal submission</td>
<td>Noon, 29 June 2020</td>
</tr>
<tr>
<td>Close RO vetted proposal submission</td>
<td>Noon, 6 July 2020</td>
</tr>
<tr>
<td>Ineligible proposals notification</td>
<td>Mid July 2020</td>
</tr>
<tr>
<td>Successful proposals notification, awards announced</td>
<td>End October 2020</td>
</tr>
</tbody>
</table>

*RO vetting can only start once the application is submitted

9. Proposal Preparation
Proposal preparation starts with the Early Career Researcher followed by assignment of the respective Primary Research Mentor. Complete proposal requirements would require coordination between the Primary Research Mentor and the nominated Early Career Researcher. The application will include the following elements which will be required as part of the institution’s proposal for award support.

9.1. Application submission

The ECR and the assigned PRM and/or Co-RM must register at QNRF online submission system and enter their profile information and upload their professional CVs.

9.1.1. Mentor’s role

The PRM will be nominated by the Early Career Researcher and should provide the following supporting documents:

9.1.1.1. Mentor/s CVs should include a cover letter to describe the mentor’s experiences, roles and commitment.

9.1.1.2. Mentoring and supervisory plan
The plan should include the Role of the Primary Research Mentor in overseeing and supporting the candidate’s progress.

9.1.2. Early Career Researcher’s Role

9.1.2.1. Personal Statement letter (not to exceed 5 pages)

9.1.2.1.1. Describe the candidate’s previous experiences and how it links to the research plan.

9.1.2.1.2. Describe how award will further advance their career development.

9.1.3. Applicant’s supporting documents

9.1.3.1. Submit all required Eligibility Documents including the following:

9.1.3.1.1. Early Career Researchers Curriculum Vitae

9.1.3.1.2. Qatari ID

9.1.3.1.3. Proof of residence for non-Qatari applicants

9.1.3.1.4. Supporting letter from previous or current employer reflecting years of experience

9.1.3.1.5. Proof of applicant’s peer reviewed papers and publications

9.1.3.2. Submit two signed reference letters from academic/non-academic members.
Each reference letter is limited to two pages, and should describe the relationship to the nominee, the nominee’s scholarly potential and their prior research experiences and accomplishments, in addition to any other information that would help the reviewers

9.1.3.3. Institution support letters: Upload a commitment letter signed and stamped from the Submitting Institution/Research Office assuring that:

9.1.3.3.1. The candidate will be allowed to devote a minimum of 60% of professional time to the ECRA project, and that the institution will provide all the necessary support for the candidate.

9.1.3.3.2. They will support the applicant’s salary during the whole duration of the project.

9.1.3.3.3. The applicant will be a permanent employee prior to the award starting date.

9.1.4. Miscellaneous Documents
This section may contain any supporting documents such as tables, appendices, etc. However, documents uploaded wrongly under this section, such as a research plan, will not be considered. Only relevant documents related to the project should be uploaded because QNRF’s online system automatically limits the number of uploaded documents. All the information required for the evaluation process should be in the research plan.

9.1.5. Research Project Plan (not to exceed 20 pages)

9.1.5.1. Introduction
Outline the background of the proposed research, knowledge, or information that has led to the current project proposal, assessing existing data or qualitative analysis, and discuss how the proposed research will address gaps in current knowledge in the relevant field. Provide a brief description outlining the major aspect(s) of the proposed activity highlighting the intellectual merit and the potential impact of the project.

9.1.5.2. Objectives/Significance
Describe the project’s goal and how it will advance knowledge and understanding within its discipline(s) and the impact of new state-of-the-art ideas. This section should be consistent with the objectives entered in the “Timeline/Milestones” section below.

9.1.5.3. Methodology
Describe and explain, in detail, the specific research techniques the researchers intend to use and what makes these techniques appropriate for solving the research problem(s) that is being
investigated and their advantages over other techniques. Elaborate on the specific procedures that will be utilized to collect the research data. Indicate any methodologies, procedures, situations, or materials that may be hazardous to personnel and describe the precautions to be exercised and any ethical or safety approvals that will be obtained accordingly (e.g. IBC, IRB). Describe how data will be analyzed and evaluated.

**9.1.5.4. Anticipated benefit to the ECR**

Clearly state the expected benefits of the research project to the ECR, how it will advance their career and how will they benefit the institution. Describe how the ECR will mature their skills in some scientific areas while conducting research activities.

**9.1.5.5. Timeline/Milestones**

The PRM should submit a timeline listing the objectives identified above and all tasks associated with these objectives, along with their expected duration and resources needed to complete tasks.

**9.1.5.6. Rebuttal to peer reviewers’ comments (for resubmitted proposals)**

For resubmitted proposals, the ECR will be required to offer a response to comments made by previous Peer Reviewers on their original proposal. Response to Peer Reviewers’ Comments should be clarified in the research plan using underline, italics, bold, highlights, or other features. Response to clarification questions by the peer reviewers can be made in a separate document than the research plan and submitted as a supporting document in the Miscellaneous Document tab. QNRF will endeavor to send resubmitted proposals to all, or as many as possible, of the previous Peer Reviewers.

**9.1.5.7. References (not to exceed two pages)**

The References section is not to exceed two pages. This is not counted in the number of pages of the research plan. Each reference must include the title, names of all authors, books or journals, volume numbers, page numbers and year of publication. It is important to be succinct and select only those references in the current literature that are pertinent to the proposed research and for the peer reviewers. The reference number should appear in the text of the research plan. Proposals should comply with QNRF’s Referencing Guidelines and Plagiarism Policy (please see the Research Ethics Guide (REG) at http://www.qnrf.org/en-us/REG, and Research Integrity Guide (RIG) at http://www.qnrf.org/en-us/RIG.

**9.1.6. Budget**
Grants are up to a maximum of **USD 350,000** per application for the full duration, for up to two years. While only a maximum of USD 200,000 of the total amount can be used to support personnel salaries, the remaining US$150,000 is considered as start-up research fund to support the applicant’s research (equipment, consumables, travel to scientific meetings and miscellaneous costs).

The breakdown is as follows:

- Up to USD 100,000/year covers personnel salaries paid upfront on annual basis
- Minimum of USD 150,000/year paid upfront for the whole duration where the following items are covered as follows:
  - Minimum 80% research expenses
  - Maximum 10% travel expenses
  - Maximum 5% miscellaneous expenses
  - Maximum 5% indirect cost

**9.1.6.1.** The Early Career Researcher must indicate all resources currently available at the performance sites, as well as resources that are planned to be obtained in order to carry out the proposed research project, for the following types of resources:

- **Laboratory Space:** describe the working space available, e.g. the Mentor’s lab space, equipment and lab facilities available.
- **Facilities:** describe the availability and technical specialty of the core facilities required to perform specific experiments of the project.
- **Office and Computer Facilities:** describe the availability of office space and computer facilities, together with any software deemed crucial to the research project.
- **Major Equipment:** list the major equipment available in all performance sites that is considered as crucial to the success of the research project.

**9.1.6.2.** QNRF requires that applicants provide justification for each budget item.

**9.1.6.3.** Cost sharing is strongly encouraged to cover the cost required for conducting the research.

**9.1.6.4.** Funds will be made available to the successful applicant’s submitting institution.

**9.1.6.5.** Submitting Institution will support the applicant’s salary during the entire duration of the project.

**9.1.6.6.** There will be no bond or conditions upon completion of contract.

**9.1.6.7.** The funding is subject to the ECR maintaining satisfactory progress as per the policies of the submitting institution.
9.1.6.8. Miscellaneous Costs include publications, communications, translation, repairs/maintenance of equipment and other costs.

9.1.6.9. Miscellaneous Costs may be entered as a one figure in the Online Submission System

9.1.6.10. QNRF provides a list of non-allowable costs [here](#).

9.1.6.11. Payment Schedule

9.1.6.11.1. Personnel salaries will be made upfront on an annual basis.

9.1.6.11.2. Research expenses will be paid upfront for the whole duration of the project.

9.1.6.11.3. QNRF will disburse the next release of funds annually following submission of satisfactory annual progress and financial reports.

9.1.7. Risks and risk mitigation

This section should identify the potential risks related to the project and the way to mitigate them. Address the following types of risks as they relate to the proposed project: (i) Methodological/Technological risk – uncertainties involved in technology development; (ii) Resource Risk – potential impact of delays in getting access to support staff, equipment, data, facilities, etc.; (iii) Schedule risk – effect of not meeting timelines – potential impacts of delay in starting project; and (iv) Impact/Business Risks – uncertainties involved in adoptions of proposed solution, alternatives available, etc.

9.1.8. Research Ethics & compliance

For research involving human subject(s), stem cells in human subject(s), research with laboratory animals, DNA research and biohazards materials, the PRM, ECR, and mentor are required to comply with the laws and regulations set out by the Qatar Supreme Council of Health (SCH) for the protection of the human subjects and laboratory animal (See section 11).

9.1.9. Potential IP

In this section, there are six questions that need to be addressed by the ECR. More information about the IP policy can be found at [http://www.qnrf.org/en-us/Funding/IP-Policy](http://www.qnrf.org/en-us/Funding/IP-Policy).

9.1.10. Declarations

PRM should declare electronically that the proposal is the work of ECR, except where appropriately referenced, and the proposal is not and will not be submitted in whole or part for funding twice within the same cycle, or to other funding programs within QNRF, or other funding agencies. The plan will be evaluated based on scientific merit, impact in advancing knowledge and understanding within the field of the proposed research area or across other disciplines, access to resources, and benefit to Qatar.
10. The Selection Processes and Evaluation Criteria

After the proposal submission deadline, QNRF will conduct an initial administrative screening for eligibility and completeness of proposals. Proposals are also checked for compliance with QNRF’s Referencing Guidelines and Plagiarism policies (Section V in REG; at http://www.qnrf.org/en-us/Funding/Research-Ethics-Guide). QNRF requires essential components for all proposals to be complete and compliant before the application can be considered for technical review. For incomplete or non-compliant proposals QNRF will either deem the proposal ineligible or in case of very minor infractions, it will pass along the proposal for technical review.


10.1.1. Peer Review

All eligible proposals will be subject to QNRF’s peer review process to determine the scientific merit of the proposal. QNRF relies on international reviewers who are prominent scholars in the relevant research fields to perform the scientific merit review and also provide their input on funding recommendations.

10.1.1.1. Evaluation Criteria

a. Intellectual Merit (Excellent; Very Good; Good; Fair; Poor)

- Are the objectives for the project clear, measurable, realistic, and achievable?
- What is the potential for the proposed activity to advance knowledge and understanding within its own field or across different fields?
- To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
- Is the plan for carrying out the proposed activities well-reasoned, well organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
- Are there adequate resources available to the LPI (either at the submitting institution or through collaborations) to carry out the proposed activities?

b. Impact (Excellent; Very Good; Good; Fair; Poor)

- How significant is the envisaged outcome in addressing priority issues, including QNRS 13 & 14 (see section 21), in areas that are critical to Qatar, in terms of:
  - The potential for the proposed activity to benefit society or advance desired societal outcomes?
  - The expected benefits of the proposed research activity to Qatar?
  - Plans to disseminate and exploit the project’s results?
  - Plans to utilize project outcomes in future studies?
c. Methodology and Project Structure (Excellent; Very Good; Good; Fair; Poor)
   - How well conceived and organized is the overall proposed project in terms of:
     o Timeline and specific work packages?
     o Coherence and effectiveness of the project organization, including appropriateness of the allocation of tasks and resources?
     o The scientific plan and the breakdown into work packages?
     o The organizational aspects of the project and the methods of coordination?
   - Are there alternative methods/approaches to achieve the same objective?

d. Qualifications of the Research Team (Excellent; Very Good; Good; Fair; Poor)
   - How well qualified is the research team inside/outside Qatar and are their designated roles suitable to conduct the research?
   - Evaluate in terms of outcomes (if applicable) the achievements of the Lead PI from prior QNRF funded research or research funded by other organizations.
   - Assess the LPI’s capability to coordinate the project and the research teams.

e. Benefit to the Early Career Researcher (Excellent; Very Good; Good; Fair; Poor)
   - Based on the statement letter, how will this award advance the career of the candidate?

10.1.2. Programmatic Merit criteria
All eligible proposals will undergo a panel review process to determine programmatic merit compared to other proposals in the competition. The reviewers and expert panelists’ are appointed by QNRF. The panel review will be conducted after peer reviews are completed and will include two stages. Panellists will 1) individually review assigned proposals including peer reviewers’ comments and provide written evaluations, 2) convene at a panel discussion to engage with other panellists to jointly assess each proposal in comparison to one another and then collectively rank the proposals, in order of merit, based on the scientific and program merit criteria. The panellists will discuss the proposals in order to assign a grade and numerical ranking that justifies a funding recommendation by the panel. The panel will discuss each proposal one by one in relation to the evaluation criteria. The panel will provide to QNRF a list of funding recommendations and options. Panellists are selected either from Qatar or regional institutions and will include senior researchers and leadership of institutions in Qatar Foundation.

10.1.2.1. Evaluation Criteria
a. Candidate’s qualification and experience: This includes academic degrees, grades, publications, awards, prizes, achievements, personal statement, and reference letters.
b. Research project plan.
c. Research topic, relevance to Qatar (National Research Priority Areas), research applicability and IP potential.
d. Mentor supervisory plan, qualification, and experience
e. Adequacy of budget.

At the end of the review and ranking processes, proposals are categorized in terms of their competitiveness. The final funding decision will group proposals as shown in the table below:

<table>
<thead>
<tr>
<th>Group</th>
<th>Evaluation Outcome</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortlisted – Programmatic Review</td>
<td>A</td>
<td>Highly Competitive The proposal was evaluated to be an excellent research project during the peer-review process (with minor to negligible weaknesses) and is, therefore, considered “Highly Competitive” for funding (Funding decisions are based on the available budget).</td>
</tr>
<tr>
<td>Shortlisted – Programmatic Review</td>
<td>B</td>
<td>Competitive The proposal was evaluated to be a very good research project during the peer-review process (with moderate to minor weaknesses) and is, therefore, considered “Competitive” for funding. (Funding decisions are based on the available budget).</td>
</tr>
<tr>
<td>Shortlisted – Programmatic Review</td>
<td>C</td>
<td>Not Competitive The proposal was considered “Not competitive” for funding, due to moderate to significant weaknesses identified by the review process.</td>
</tr>
<tr>
<td>Not Shortlisted</td>
<td>D</td>
<td>Not shortlisted This proposal was not shortlisted and is considered “Not Competitive” for funding due to significant weaknesses identified by the peer-review process.</td>
</tr>
</tbody>
</table>

10.2. Anonymous Reviews

Following the announcement of results, QNRF provides each applicant with comments of the external and panel reviews for their proposal. All technical reviews are anonymous. QNRF does not provide end-ranking, grades, or numerical evaluation ratings to applicants, since applicants are unable to put these scores into context with the overall group of proposal ratings. The anonymous reviews are meant to provide critical feedback to the applicants. QNRF will sanitize reviews to eliminate harsh or inappropriate comments and references identifying a reviewer or another applicant.

10.3. Resubmission

A resubmission is a proposal that was screened and reviewed but not awarded.

10.3.1. A resubmission can only be made one time only and in the subsequent cycle. In this case, the applicant must select “Resubmission”. Failure to do so will result in disqualifying the proposal.
11. Post Award Policies and Procedures

In addition to QNRF MRFA, the following post-award policies and procedures are specific to ECRA Awards.

11.1. Pre-Funding

11.1.1. Awarded proposals will go through a pre-funding stage, which starts after the award announcement, and continues for 4 weeks.

11.1.2. Awarded Mentors and Early Career Researchers, through their ROs, are required to submit electronically (online) the missing information, and also to submit all required IRB, IACUC, IBC certifications.

11.1.2.1. IRB Certification for Human Subjects: Upon announcement of the funding results, a successful ECR and mentor must submit to QNRF the approval(s) for the research protocol(s) from the relevant Institutional Review Board (IRB) (Section V in REG) during the pre-funding stage.

11.1.2.2. IACUC (Institutional Animal Care and Use Committee) Certification: Upon announcement of the funding results, a successful ECR and mentor must submit to QNRF the approval(s) for the research protocol(s) from the relevant Animal Care Committee (Section V in REG) during the pre-funding stage.

11.1.2.3. Institutional Biosafety Committee (IBC) Certification, if applicable.

11.2. Award Withdrawal

Awarded Early Career Researchers are expected to start their research employment no later than nine months from the date of announcing the awards. Failure to do so will result in the withdrawal of the award.

11.3. Change of Status Request

The following requests are applied through a Change of Status Request Form (CSRF) that the submitting institution must submit online whenever needed during the lifetime of the award. All requests must be justified by the Primary Research Mentor and approved by the institutional RO. The RO is responsible for informing QNRF of any change in the status of the ECR and their contact information during the award period.

11.3.1. Request to terminate the award.

11.3.2. Request to extend the duration of the award of up to one year with no financial support.

11.3.3. Request to change the Primary Research Mentor.
11.3.4. Request to suspend the Award for a period of approved leave. Such suspension may be granted only in full alignment with the policies of the submitting institution.

11.3.5. Request to change aims/tasks of the research plan.

11.3.6. Request to attend a conference.

11.3.7. Request to withdraw the award

11.3.8. Changes to project timeline are allowed any time during the awarded project lifetime, if not specified as described in the matrix. The changes include:

11.3.8.1. Modification of Project timeline:

   - Project Start Date.
     Such requests are allowed only one time within the first 6 months of an awarded project lifetime.
     The new start date shall not be more than nine months from the original start date
   - Project End Date.
     Such requests are allowed only one time within the last 6 months of an awarded project lifetime for any of the following reasons:
     o If the ECR plans to publish papers or Intellectual Property Rights during the requested
       The maximum allowed extension for a No-cost time request may not exceed 12 months

11.4. Early Career Researchers and other QNRF grants

Awarded Early Career Researchers are encouraged to Participate as Primary Research Mentors (PRMs) in UREP projects throughout the ECRA duration, as long as the conditions related to the UREP program apply to them, and it is within the research topic of their ECRA award. However, the ECR will not be eligible to any financial benefit.

ECRA awardees are encouraged to apply for an NPRP in the last year of the award and, if awarded, cannot start their grants until after their ECRA award is completed. ECRA awardees cannot submit or participate in any NPRP role while applying for the ECRA grant.

11.5. Early Career Researcher Permanent Position

Awarded Early Career Researchers must be employed permanently by the submitting institution for the duration of the award and shall devote a minimum of 60% of professional time to the ECRA project, and that the institution will provide all the necessary support to the candidate. Any leave of absence should be in accordance with the submitting institution’s own policies. However, QNRF will not permit more than 90 days unpaid leave during the term of the award.
11.6. Termination of Award

QNRF has the right to terminate any Award for any of the following circumstances:

11.6.1. When the submitting institution does not submit a satisfactory annual report within the allowed period.

11.6.2. When the submitting institution terminates the Early Career Researcher’s employment.

11.6.3. When the Early Career Researcher has been found guilty of academic or scientific misconduct in following due process as provided by the submitting institution’s policies and rules, e.g., plagiarism, falsification of results.

12. Deliverables and Research Outcomes

The following deliverables are required by QNRF and should be submitted on QNRF online system by the institution through the RO.

12.1. Annual Progress and Financial Reports

Progress and financial reports are to be submitted annually. The Early Career Researcher is expected to report research activities conducted and include an expenditure report detailing the costs incurred per budget category during the reporting period.

12.2. Research Outcomes

12.2.1. Publications and Acknowledgement

All types of publications and other outcomes resulting from an award must include an acknowledgment of QNRF support and a disclaimer stating the following:

“This [publication, report, etc.] was made possible by an Early Career Researcher Award [ECRANN-NNN-N-NNN] from the Qatar National Research Fund (a member of The Qatar Foundation). The contents herein are solely the responsibility of the author[s].”

12.2.2. Research Data

Data generated by the research of the Early Carer Scientist must be available upon request by QNRF in an accessible form, allowing reasonable time to publish and/or protect the intellectual property.

12.2.3. Public Report

At the time of completion of the project, the Primary Research Mentor and the Early Career Researcher should also submit a Final Public Report on the description of the project, results and analysis in the Research Outcomes Center (ROC). It should be ensured that the report does not contain any confidential, proprietary information; unpublished data that might compromise
publishing results in the research literature; or invention disclosures that might affect IP rights. This report will include the following disclaimer: “This Public Report is published verbatim as submitted by the Early Career Researcher and the Primary Research Mentor of this award. The content of this Report is the authors’ responsibility and does not necessarily reflect the views of QNRF.”

13. Research Ethics and Compliance

With respect to the protection of rights and welfare of human subjects and laboratory animals involved in research, the institution(s) involved in research should commit to follow the regulations, policies and guidelines of Ministry of Public Health (https://research.moph.gov.qa/en/Pages/Regulations.aspx?csrt=302797880648281703); internationally recognized best practices and standards; the institution’s own policies and procedures; Qatari applicable laws; and the QNRF’s Research Ethics Guide (REG) http://www.qnrf.org/en-us/Funding/Research-Ethics-Guide. QNRF’s REG consists of the following:

13.1. QNRF’s Code of Practice; for further information on QNRF’s Code of Practice as applied to its research grants, please see Section III of the REG.

13.2. Plagiarism and Referencing Policy; for more information on the policy please refer to Section IV in REG.


QNRF will follow the Qatar Foundation (QF) IP policy. Please consult the QNRF website for details on the applicable intellectual property policy http://www.qnrf.org/en-us/Funding/IP-Policy.

15. Planned Annual Award Schedule

There will be one cycle per academic year. The following are the estimated timelines for the 18/19 cycle:

<table>
<thead>
<tr>
<th>Proposal Submission</th>
<th>Awards Announcement</th>
<th>Annual Reports Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2020</td>
<td>End of October 2020</td>
<td>Annually beginning one year after employment</td>
</tr>
</tbody>
</table>

16. Inquiries
For any inquiry about this RFP and the electronic proposal submission process that is not already answered in the Q&A section of QNRF website, please use the QNRF “Support” link on the website. Applicants can choose the appropriate department and specify the topic of their query for further information. QNRF’s response may be made publicly available in the Q&A section of the QNRF website.

17. Definitions

**Applicant Channel:** An online channel within the QNRF OSS through which the awarded Early Career Researcher and PRM may track the status of their awarded projects and submit reports.

**Awardee:** A “Submitting Institution” awarded grant(s) from QNRF and is a party to the Master Research Funding Agreement.

**Award Year:** 24 months period starting from the Project Start Date.

**Clinical Trials:** A Clinical Trial is a prospective biomedical or behavioural research study of human subjects that is designed to answer specific questions about biomedical or behavioural interventions such as: drugs, treatments, devices, or new ways of using known drugs, treatments, or device.

**Co-funding:** Funding in whole or in part, from a third party, other than QNRF or Qatar Foundation, for the same research project.

**Conflict of Interest:** A set of circumstances or situations that creates a risk that professional judgment or actions of the awardee or its employees or agents are motivated by a financial advantage or personal benefit arising from their professional standing, either through outside professional activities or through their research, administrative, or educational actions.

**Direct Cost:** Expenses related directly to the performance of the project research activities. Direct cost includes the “Personnel” cost, the “Equipment” cost, the “Travel” cost and the “Miscellaneous” cost.

**Duplication:** Refers to the implementation of a research project, in whole or in part, concurrently with another QNRF funded project, or one that is supported through any other funding source.

**Eligible Expense:** Expenses incurred by the Awardee while carrying out the research as outlined in the approved proposal that are covered by the funds obligated in the ECRA grant, and in accordance with the Awardee’s policies and procedures.

**Fund Management Agreement:** A signed agreement between the submitting institution and QNRF that details the mechanism which governs the management of the Early Career Researcher Award funds by both the awardee institution and QNRF. Funds will be advanced to the submitting institution upon signature of this agreement by both parties.

**Graduate Student:** A graduate student (GS) is a student enrolled for a graduate degree in a university and engaged in research that is in direct fulfilment of a requirement for that degree.
**Grant:** Term used to describe the funding instrument used by QNRF for the execution of material support for the ECRA.

**Institutional Animal Care and Use Committee (IACUC):** Institutionally mandated committee that is established within the Awardee or the sub-awardee (using animal laboratory for research or instructional purposes), to review and approve all research aspects and other activities of the institution's animal care and program use, and to make sure that it complies with the ethics and guidelines set by the Ministry of Public Health (https://research.moph.gov.qa/en/Pages/AnimalResearch.aspx?csrt=945563518169121532) and the relevant IACUC of the country where the research is conducted.

**Institutional Bio-safety Committee (IBC):** Institutionally mandated committee that is established within the awardee or the sub-awardee to review and approve all research aspects and other activities involving the use of recombinant DNA and bio-hazardous materials.

**Indirect Cost:** Institutional expenses that are not readily identified with a research project implementation, yet necessary for the general support of the project by the institution where it is being performed.

**Intellectual Property (IP):** All intellectual property rights, of any kind or nature throughout the world, whether existing now or in the future, including without limitation rights with respect to (i) inventions (whether or not patentable and whether or not reduced to practice), designs, patents, and patent applications; (ii) trademarks and service marks together with all goodwill associated therewith and worldwide registrations, applications and renewals related thereto; (iii) copyrights, copyrightable works (in whatever form or medium), and all registrations, applications, and renewals for any of the foregoing; (iv) trade secrets, data, database rights, and confidential information; and (v) all claims, causes of action and remedies of any kind related to the foregoing.

**Institutional Review Board (IRB):** Institutionally mandated committee that is established within the awardee or the sub-awardee to review and approve all research aspects and other activities involving human subjects in order to ensure that the rights and the welfare of human subjects are protected and that risk of harm thereto is minimized as described in the Policies, Regulations and Guidelines for Research Involving Human Subjects of the Qatar Supreme Council of Health (https://research.moph.gov.qa/en/Pages/Regulations.aspx?csrt=302797880648281703); and in the relevant regulations or policies of the country where the research is conducted.

**Miscellaneous:** refers to items of various types, forms and characteristics necessary for the implementation of the research project and are not categorized under equipment, travel, or personnel.

**Plagiarism:** Any appropriation, duplication or replication of work, from another author or self, without proper referencing. Plagiarism includes putting one’s name to someone else’s publication or work, putting one’s name on someone else’s phrase, taking someone else’s idea, recycling one’s own material,
amending the content of one’s (or previous) research activity to satisfy the requirements of another activity without proper referencing.

**Project:** refers to individual research activity funded by QNRF in accordance with this Agreement and a Project Agreement.

**Project Agreement:** Agreement between QNRF and the Submitting Institution governing a grant for a named Project specifying the Project title, duration, budget breakdown, PRM, and ECR(s).

**Project Lifetime:** Duration that extends from the Project Start Date until the acceptance of the project’s final report.

**Project Start Date:** Date specified in writing by QNRF after receipt of the first instalment of the awarded grant by the awardee in its bank account. Awardees shall create a separate sub account in their financial system solely dedicated to disperse, identify, and manage QNRF award funds.

**Qatar Innovation Promotion Award (QIPA):** A QNRF funding program that supports innovative ideas with high potential impact/benefits for the economy and society of Qatar. QIPA invests in original competitively selected innovative ideas of individuals from all sectors and sections of Qatar’s economy and society to enable an early demonstration of the potential impact of their innovations in the form of a demonstration/prototype.

**QNRF Online Submission System (OSS):** Web based solution that streamlines the full range of grant management processes from submission of research proposals and pre-award phase to post award phase and project completion.

**Qatar National Research Strategy (QNRS):** A strategy developed by Qatar Foundation Research & Development to address the research priorities of Qatar.

**Referencing:** The practice of acknowledging/citing any other work consulted for original work in the body of the text and providing a final corresponding list. References need to be provided while using another author’s opinions, theories, data, or any other material. Referencing must be done for information used from any books, articles, videos, computers, personal communications, or other sources of information.

**Request for Proposals (RFP):** A document issued by QNRF for each ECRA cycle highlighting the guidelines, eligibilities, and policies for participating in the specific ECRA cycle.

**Research Misconduct:** Research misconduct is the violation of the standard codes and accepted practices as well as the ethical behavior of the scientific community for maintaining the integrity of the research conduct and record. The misconduct must be committed intentionally, or knowingly, or in reckless disregard of accepted practices. Research misconduct includes; but not limited to; fraud, fabrication, falsification, or plagiarism in proposing, performing, or reviewing research or in reporting research results. Research misconduct does not include honest error or honest differences of opinion.
**Research Office (RO):** The department within the submitting institution responsible for vetting submitted research proposals and administering awarded research projects.

**Research Office Channel:** An online channel within the OSS through which the Awardee’s ROs manage, vet and submit all reports, requests and documents related to the awarded projects.

**Research Office (RO) Vetting:** Administrative procedure required from the Awardee’s RO prior to submitting any proposal, reports and requests to QNRF, through which the RO confirms the accuracy of submitted information and its compliance with the awardee’s policies and procedures and those of ECRA.

**Research Outcome:** Any form of recognized and distinguishable outcome generated by the progress and activities of the research project such as peer-reviewed publications, patents, creative works, and others.

**Research Outcome Center:** ROC is a centralized, web-based repository system that collects research outcomes from all QNRF-funded research projects such as public reports on completed projects; journal and conference publications; books and book chapters; poster presentations; patents & invention disclosures; videos; datasets; creative works; etc.

**Research Team:** Individuals involved in the scientific execution of the awarded project, by devoting a specified effort during the project lifetime namely: key investigators, early career researchers, graduate and undergraduate students, research associates, research assistants, and lab technicians.

**Reside inside Qatar:** Refers to the status of an individual who has a contract with an institution (as defined above under “awardee”) and, in addition for expatriates, a work visa in Qatar valid for the entire period of the proposal.

**Submitting Institution:** A research institution registered inside the State of Qatar that has appropriate research resources specialized in area(s) within QNRS and is responsible for submitting research proposals to QNRF. Once awarded, such an entity will be termed as the Awardee.

**Suspension:** Status during which an awarded ECRA project is not permitted to carry out part of or all research effort and expenditure during a time period designated by QNRF. All installments are also put on hold during the suspension period.

**Termination:** Status in which an awarded ECRA project is stopped prior to the original Project End Date.

**Withdrawal:** Status in which an awarded ECRA project is rescinded and is no longer funded.
18. Approved List of Terminal Degrees

**Terminal Academic Research Degree:** in academic fields the typical terminal degree is the Ph.D (or doctorate). Typical list of terminal academic research degrees include:

- Doctor of Arts (DA)
- Doctor of Business Administration (DBA)
- Doctor of Canon Law (JCD)
- Doctor of Design (DDes)
- Doctor of Education (EdD)
- Doctor of Engineering (DEng/Dr. Eng./Engd)
- Doctor of Information Technology (DIT)
- Doctor of Laws (LLD) (In the USA, the LLD is only awarded as an honorary degree.)
- Doctor of Juridical Science (JSD/SJD) (In the USA)
- Doctor of Management (DM)
- Doctor of Medicine (MD, in the USA)
- Doctor of Music (DMus)
- Doctor of Musical Arts (DMA)
- Doctor of Philosophy (Phd or DPhil)
- Doctor of Professional Studies (DPS)
- Doctor of Science (DSc)
- Doctor of Social Science (DSocSci)
- Doctor of Public Health (DrPH, DPH)
- Doctor of Theology (Thd or DTh)

**Other Approved Terminal Degrees:**

- Master of Fine Arts (MFA)
- Master of Library and Information Science (MLIS)
- Master of Library Science (MLS)
- Master of Architecture (MArch)
- Master of Design (MDes)
- Master of Landscape Architecture (MLA)
- Master of Urban Design (MUD)
- Master of Product Design (MPD)
Appendix: Research Focus Areas

1. Energy and Environment
   1.1. Oil & Gas in Qatar (exploration, production and Processing)
      1.1.1. Technologies & processes for safe, economical and environmentally responsible exploration & production of the hydrocarbons
      1.1.2. Technologies related to the processing of oil and gas
      1.1.3. GTL, LNG technologies
      1.1.4. Compression, fractionation, separation, transportation
      1.1.5. Environmental aspect of production and processing of hydrocarbons
   1.2. Solar PV
   1.3. Cooling and Energy Efficiency
      1.3.1. Key driver to reduce costs and CO2 emissions (Cooling has the lion’s share of the energy sector in the GCC 67% of electricity generated is consumed by domestic AC.
      1.3.2. Enhancement of cooling efficiency.
      1.3.3. Process optimization and industrial heat recovery.
      1.3.4. Socio-economic studies
   1.4. Environmental Sustainability
      1.4.1. The Natural Environment: Marine, terrestrial biodiversity, air quality
      1.4.2. The Built Environment: Architecture, Civil engineering, urban planning, mobility, transportation
   1.5. Carbon Capture & Utilization
      1.5.1. CO2 conversion into environmentally friendly useful products
      1.5.2. CO2 Capture & Transportation Technologies
      1.5.3. CO2 Utilization: CO2 as feedstock and CO2 chemical and biological conversion.
   1.6. Water production, storage, re-use and management
      1.6.1. Desalination
      1.6.2. Membrane technologies
      1.6.3. Energy efficiency
      1.6.4. Wastewater treatment reuse, unconventional source of water
      1.6.5. Water quality
   1.7. Advanced Materials for High Added Value Products and Process Industries
1.7.1. Novel catalyst development, additive manufacturing, and high value polymer products.
1.7.2. Novel technologies solving corrosion
1.7.3. High performance materials, e.g. self-healing materials; biologically inspired solutions for energy industry and environment applications.

1.8. Food Security and Local Food Production
1.8.1. Producing and protecting local agricultural products (plants, animal and fisheries resources).
1.8.2. Integration of relevant technologies into agricultural production (Artificial Intelligence and Smart Agriculture).
1.8.3. Integrate efficient water use, energy into agri-technology for efficient local food production.
1.8.4. Food safety and genetic enhancement techniques
1.8.5. Strengthening resilience among people and Agrifood systems: Supply Chain, Community Initiative, Policy and Legislation

2. Biomedical and Health Pillar

2.1. Non-Communicable Diseases (NCDs) including epidemiological studies, treatments, health economics and policies
2.1.1. Diabetes.
2.1.2. Cancer
2.1.3. Cardiovascular diseases, hypertension, Ischemic heart diseases, congenital heart diseases, rheumatic heart disease, and heart failure.
2.1.4. Renal diseases: Glomerulonephritis, Kidney Stones, Nephrotic Syndrome, Polycystic Kidney Disease (PKD) and Chronic renal failure.

2.2. Reproductive, Maternal and Child Health including epidemiological studies, treatments, health economics and policies
2.2.1. National Maternity and Perinatal Research, Neonatal and postneonatal care, High risk pregnancy
2.2.2. Children with cognitive impairment or abnormal neuropsychological development with focus on: Autism, Attention deficit hyperactivity disorder (ADHD), Fragile x- syndrome, Rett syndrome.
2.2.3. Primary and secondary male and female infertility.

2.3. Mental Health Research
2.3.1. Eating Disorders and Substance Abuse.
2.3.2. Anxiety Disorders, Attention Deficit/Hyperactivity Disorder (ADHD/ADD), Bipolar Disorder, Depression.
2.3.3. Neurodegenerative diseases mainly Alzheimer and Dementia.

2.4. Communicable Diseases (infectious diseases)
2.4.1. Human viral diseases and Multi-drug resistance (MDR) bacterial diseases,
2.4.2. Hospital acquired Infection and Control;
2.4.3. Emerging Infectious Diseases and Recent Outbreaks.

2.5. Precision Medicine
2.5.1. Immunogenomics and personalized immunotherapeutic approaches
2.5.2. Clinical implementation of pharmacogenomics
2.5.3. Multi-omics analysis of cardiovascular diseases
2.5.4. Precision medicine E-solutions and applications

3. Computer Science and ICT
3.1. Cybersecurity
3.1.1. Security of Industrial Control Systems
3.1.2. Threat intelligence and proactive security
3.1.3. Cybersecurity framework with state level auditing and compliance requirements

3.2. Smart Grids
3.2.1. Automation architectures and advanced metering infrastructure for active distribution systems
3.2.2. Electrified Transportation Infrastructure in Harsh Environment
3.2.3. Modeling and real-time simulation of power grids and interfacing with ICT platforms.

3.3. Big Data Analytics & Artificial Intelligence
3.3.1. To analyze, predict and provide efficient solutions to emerging issues and challenges to enhance efficiency and performance in different sectors, e.g., Energy, Health, Finance, Industry, Logistics, Sports & Agriculture
3.3.2. Efficient algorithms and systems for decision making and performance optimization

3.4. Healthtech
3.4.1. Digital Preventive Care
3.4.2. Telemedicine
3.5. **Smart Cities**
   - 3.5.1. Internet of Things
   - 3.5.2. Intelligent Transportation Systems

3.6. **Next Generation Networks**
   - 3.6.1. Spectrum management and resource optimization
   - 3.6.2. Self-organizing networks

3.7. **Blockchain and applications**
   - 3.7.1. Blockchain and secured Distributed Ledger Technology (DLT) applied to industry: Energy, Healthcare, Finance, Manufacturing, etc.
   - 3.7.2. Blockchain and data privacy

3.8. **High Performance Cloud Computing**
   - 3.8.1. Secure and reliable cloud computing that ensures confidentiality and privacy of data and information.
   - 3.8.2. High performance computing systems, algorithms and optimized software for:
     - Engineering
     - Life Science
     - Weather, Climatology, Earth Science
     - Material Science, Chemistry, Nanoscience
     - Elementary particle physics, Plasma physics

4. **Social Sciences, Arts and Humanities**

4.1. **Lifestyle and Quality of Life**
   - 4.1.1. Cyber crime
   - 4.1.2. Bullying
   - 4.1.3. Risk youth behavior
   - 4.1.4. Health lifestyle.

4.2. **Cultural Identity and the Development of Human Potential**
   - 4.2.1. Gender equality
   - 4.2.2. Contemporary issues in Islam
   - 4.2.3. Role of media in society
   - 4.2.4. Population growth
   - 4.2.5. Labour and regulation
4.3. Economic Diversification and Sustainability
   4.3.1. Policy and programmes for the realization of diversification goals.
   4.3.2. Diversification in the economic sectors & ensures sustainability.
   4.3.3. Economy diversification.
   4.3.4. SMEs; Entrepreneurship; Financial Technology and Business regulations

4.4. Educational Outcomes
   4.4.1. STEM Education
   4.4.2. Teacher development
   4.4.3. Early childhood education.

4.5. Population growth and sustainability
   4.5.1. Aging
   4.5.2. Migration
   4.5.3. Population dynamics

4.6. Family Studies
   4.6.1. Family cohesion, marriage and divorce:
   4.6.2. Families at risk:
   4.6.3. Parenthood: Social policy research related to families

4.7. Gulf and Regional Studies
   4.7.1. Gulf studies
   4.7.2. International relations of the Gulf.