NATIONAL PRIORITIES RESEARCH PROGRAM – CLUSTER TRACK
(NPRP-C)

12th Cycle

Request for Proposals

Last update August 2019
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## Section 1. Acronym List

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<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>IRP</td>
<td>Initial Research Proposal</td>
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<tr>
<td>LPI</td>
<td>Lead Principal Investigator</td>
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<tr>
<td>MRFA</td>
<td>Master Research Funding Agreement</td>
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<td>NPRP</td>
<td>National Priorities Research Program</td>
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<tr>
<td>NPRP-C</td>
<td>National Priorities Research Program-Clusters</td>
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<tr>
<td>NPRP-S</td>
<td>National Priorities Research Program-Standard</td>
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<tr>
<td>PD</td>
<td>Project Director</td>
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<tr>
<td>PI</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>PR</td>
<td>Peer Reviewer</td>
</tr>
<tr>
<td>QNRF</td>
<td>Qatar National Research Fund</td>
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<td>QNRS</td>
<td>Qatar National Research Strategy</td>
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<tr>
<td>R&amp;D</td>
<td>Research &amp; Development</td>
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<tr>
<td>RFP</td>
<td>Request for Proposals</td>
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<tr>
<td>RIG</td>
<td>Research Integrity Guide</td>
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<tr>
<td>RO</td>
<td>Research Office</td>
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<tr>
<td>TRL</td>
<td>Technology Readiness level</td>
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<tr>
<td>QBB</td>
<td>Qatar Biobank</td>
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<td>QGP</td>
<td>Qatar Genome Program</td>
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# Section 2. Call Snapshot

<table>
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<tr>
<th><strong>SCOPE</strong></th>
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<tbody>
<tr>
<td><strong>Competition opens</strong></td>
<td>IRPs submission opens on <strong>30 April 2019</strong>, at 12 pm (noon), Doha time.</td>
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<tr>
<td><strong>IRPs Submission and RO vetting deadline</strong></td>
<td>IRPs submission and RO vetting close on <strong>19 September 2019</strong>, at 12 pm (noon), Doha time.</td>
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<tr>
<td><strong>Anticipated project start date</strong></td>
<td>Project activities can begin only after the Master Research Funding Agreement (MRFA) has been signed. This process can take up to 60 days from the time of the award announcement which should be taken into consideration when preparing the application implementation timeline.</td>
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</table>

- **NPRP-C Objective**: The main objective of the National Priorities Research Program - Cluster (NPRP-C) is to address pressing and strategic challenges for Qatar and produce tangible societal and economic impact.

- **Clusters Thematic Areas**
  - Carbon Mitigation and Utilisation
  - Towards Clinical Implementation of Precision Medicine
  - Cyber Security of Qatar’s Critical Infrastructure
  - Addressing Qatar National Educational Challenges

- **Co-funding**: QNRF encourages cash or in-kind co-funding of projects. **No fund match will be provided by QNRF for such co-funding.**

- **PD & LPI eligibility**
  - Each cluster proposal will be submitted to QNRF as a single unified grant application by a Project Director (PD) while each sub-project of the cluster will have a Lead Principal Investigator (LPI).
  - The Project Director must be a full-time affiliate of a QNRF-approved submitting institution inside Qatar.
  - The LPI must be full-time affiliate of an institution inside or outside Qatar.
  - PD/LPI from academic/research institutions must hold one of the approved terminal degrees as defined under the approved list of terminal degrees available at [link](#).
  - The PD/LPI should have at least five single- or co-authored peer-reviewed publications.
  - The PD/LPI from a research end-user (non-academic entity) may not hold a terminal degree, however he/she must have a track record in managing research or development projects, and a minimum of five peer reviewed publications or patents; applied or granted.

- **Award parameters**: The program offers awards of up to US$ 5M for a period of up to five years. The budget of each sub-project should not exceed US$ 1M. Budget lines include personnel, capital equipment, materials, consumables and supplies, travel, miscellaneous, and applicable indirect costs.

- **How to apply**: Register and submit an Initial Research Proposal (IRP) through the online submission system website: [https://oss.qgrants.org](https://oss.qgrants.org); The Grant Application Guide is available for download at this [link](#). The site will be active on **30 April 2019**, 12pm (noon), Doha time.

- **QNRF program contact**: For support and queries, please use QNRF support system at: [https://support.qnrf.org/conversation/new](https://support.qnrf.org/conversation/new).

- **Reference Documents**
  - QNRF Co-Funding Policy ([link](#))
  - Research Ethics Guide ([link](#))
  - Research Ethics and Regulatory Requirements ([link](#))
  - Travel Policy ([link](#))
  - Intellectual Property (IP) Policy ([link](#))
  - Data Management Plan Policy ([link](#))
  - Other relevant documents ([link](#))
Section 3. Program Objectives

The mission of the Qatar National Research Fund (QNRF) is to advance knowledge & education by supporting original, competitively selected research in all fields of sciences. QNRF aims to invest in the four pillars of the Qatar National Research Strategy and provide opportunities for researchers across all disciplines and at all levels, from students to professionals, in the private, public, and academic sectors.

The main objective of the National Priorities Research Program - Clusters (NPRP-C) is to address pressing and strategic challenges for Qatar and produce tangible societal and economic impact. This program aims at supporting multi-institutional and inter/multi-disciplinary research to solve significant and complex problems in a holistic way that are resistant to conventional approaches.

Section 4. Description

A Cluster must:

- Adopt a holistic and multi-faceted approach. A cluster proposal, therefore, should be inter/multi-disciplinary, multi-institutional, and multi-sectoral.
- Involve the relevant stakeholders/end-users and include a broad scope of participants, institutions, sectors, and expertise to effectively tackle the themes proposed and fulfill the objectives of the program.
- Have a significant, well-defined, achievable, and measurable outcome that justifies the investment in fund, talent, and time.
- Comprise several sub-projects, each tackling one or more aspects of the research problem, but work together in a complementary and seamless manner.

A Project Director (PD) leads and manages all the activities of the cluster and ensures a smooth and well-coordinated operation of all its constituent sub-projects, which are in turn led by Lead Principal Investigators (LPIs).

All terms and conditions of the NPRP-Standard 12th cycle, as described in the NPRP-S RFP; (http://www.qnrf.org/en-us/Funding/Research-Programs/National-Priorities-Research-Program-NPRP) are applicable for the NPRP-C, unless otherwise amended in this RFP. For the points not mentioned in this RFP about Project Director, please refer to LPI in NPRP-S.

Section 5. Thematic Areas

NPRP-C applications are required to be aligned to one of the three thematic areas listed below:

5.1 Carbon Mitigation and Utilization:

**Significance:**

The QNV2030 and the National Development Strategies highlight the need to achieve national prosperity, while maintaining environmental sustainability. To this end, new patterns in consumption and production, development and application of environmentally sound technology are at the center of efforts to advance sustainable development and combat the emission of Greenhouse Gases (GHGs). As such, this cluster theme aims to address this
issue through research and represents an opportunity for researchers to translate the challenge to economic, environmental, and technological benefits to Qatar in addition to meeting its commitment for combating climate change at the global scale.

This cluster is designed to combine scientific and technological expertise, process industries, business models, and link public-private-global trade partnerships to deliver tangible outcomes to markets and customers.

**Objectives:**
This cluster has the following objectives:

- Reduce, through innovative technological means, the emission of GHGs, mainly CO2, at the source. LNG and GTL are good candidates in this respect.
- Capture carbon from various sources and utilize/convert it into useful products. QNRF looks for original solutions that are technically feasible.
- Develop technological solutions that are commercially viable.
- Address regulatory aspects in terms of generating relevant models, strategies, policies, and roadmaps on transportation & trading routes, market accessibility & viability, economic, and financial modeling.

5.2 Towards Clinical Implementation of Precision Medicine

**Significance:**
Qatar has, in the past few years, made excellent progress in the research area of precision medicine, which has put the country well ahead of the region in this field. In this regard, institutions and programs were established, talented researchers and clinicians were assembled, and sizeable bases of samples and data were, and are being collected. To build on this success, it is now time to explore ways of clinically implementing precision medicine for the benefit of patients, and the health system at large, where targeted precision medicine would reduce healthcare costs by providing more efficient and cost-effective services.

**Research primarily will focus** on developing systems and solutions that can be clinically implemented for patients with fewer side effects and higher efficacies to improve the condition of patients already affected by these diseases. It will also focus on identifying and understanding the early molecular changes in cells and organs that precede the development of clinical symptoms of diseases.

**The general mission** is to establish a hub to translate the outcomes of precision medicine research projects through setting the necessary programs, protocols, policies, and procedures that facilitate the generation and utilization of clinical data to aid in diagnosis and therapy of patients in customized approach and linking health services with existing research projects. In addition to strengthening and supporting the new and existing relevant infrastructure including QBB and QGB; promotion of the new approach will lead to creation of synergy among researchers, clinicians, patients, and the public at large.

The ultimate long-term goal is to establish a dedicated/precision medicine center to link patients with the relevant research and clinical entities for precision medicine research, diagnosis, and treatment.

**Objectives:**
This cluster has the following objectives:
1. Lay the foundation for a hub in precision medicine translational research projects to be utilized in a systematic way for clinical decision-making; and set a sustainable dynamic system that Qatar’s health sectors, researchers, and patients can benefit from.

2. Establish cross-board collaboration between research institutions, health service providers, and private sectors to utilize the methods, technologies, and results from precision medicine research projects in the diagnosis, drug selection, and treatment of patients.

3. Use the information/data collected from patients to understand the mechanisms of diseases by identifying changes in omics and benefit disease cohorts in further enhancing diagnosis, cohort reanalysis, and treatment.

4. Design and development of targeted preventive treatments to correct the health course early and to improve diagnosis and treatment of patients in customized and patient-focused approach.

5. Develop new bioinformatics solutions and tools, genomic data integration into e-records, and use of artificial intelligence and machine learning in clinical decision making.

5.3 Cybersecurity of Qatar’s Critical Infrastructure

Significance:
Cybersecurity is a topic of global critical concern, even more importantly in Qatar, where high-level attacks coupled with a sensitive regional situation have made the issue even more pressing. As such, and in line with Qatar’s National Cyber Security Strategy (NCSS), QNRF is launching this cluster aiming at contributing to:

- Safeguarding the nation’s critical information infrastructure;
- Pre-empting cyber-threats, responding to, and recovering from cyber-attacks by developing and using advanced technologies and solution;
- Establishing supporting frameworks (policy, legal, ethical, etc.) and regulations to ensure a safe and secure cyberspace;
- Fostering a culture of cyber security that promotes safe and appropriate use of cyberspace;
- Enhancing the national cyber security capabilities;
- Promoting data sharing, while ensuring privacy and confidentiality of personal and sensitive data; and
- Stimulating local and international collaboration and partnerships to address the local challenges.

The cluster supports the development of both evolutionary and transformative R&D solutions that enhance the security and resilience of Qatar’s critical infrastructure, promote innovation, and contribute in developing the required capacity and skills. It focuses on the national critical infrastructure that includes: Energy, Electricity and Water, Finance, Government, Healthcare, Information and Communications Technology, Transportation, Sports etc.

Objectives:
1. **Critical infrastructure systems and systems dynamics**
   Adaptive framework to Qatar’s critical infrastructure based on an integrated understanding of infrastructure systems—technological, physical, and natural—that includes interdependencies and cascading effects to support enhanced security, resilience, and continuity of operations, considering structural/dynamic attributes, effects of human factors, and linkages to natural systems.
2. **Integrated and scalable qualitative and quantitative risk assessment and management**
   Integrated risk assessment methodologies across Qatar’s critical infrastructures through identifying and characterizing cyber and physical, cross-domain, economic, behavioral, societal, and environmental factors (and related data sets) and developing the technical basis and analytical tools to incorporate dependencies and interdependencies needed for fully integrated risk assessment, management, and strategic decision-making.

3. **Predictive and proactive methods for secure and resilient infrastructure**
   Modeling, analysis and visualization, integrating cross-sector dynamics, to provide unified and integrated situational awareness of Qatar’s critical infrastructure. Predictive, proactive, and regenerative capabilities to forecast and address threats and hazards through adopting methods and techniques such as IoT (IT/OT), sensor networks, big data analytics, machine learning, AI, and statistical models/techniques that ensure real-time security orchestration, automation and response among different platforms and systems. Enterprise security strategy and execution plan to enable GDPR, GRC, continuity, and resiliency that enhance data sharing while protecting privacy and confidentiality of personal and sensitive data. Policies, governance structures, and regulations that support and enable timely responsive actions.

4. **ICT technologies for secure critical infrastructure**
   New technologies such as national cloud computing infrastructure and data storage capabilities for secure digital infrastructure systems; secure digital identity program for homeland-digitized activities and connected citizen; integrated smart and secure solutions for crowd management and road safety; IoT for OT to complement both distributed control system (DCS) and SCADA to widen existing capabilities through real-time data capturing, anomaly/machine breakdown alerts, real-time control, data logging, data analysis, and visualization.

5.4. **Addressing Qatar National Educational Challenges**

**Significance:**
Qatar National Vision 2030 (QNV2030) emphasizes managing natural resources conservatively, boosting industrial productivity, and enhancing education, health and cultural institutions. The Vision has four Pillars namely: Economic Development, Social Development, Human Development and Environmental Development. Education is a major cornerstone of the Vision and a driver for transforming the country’s economy into one that is knowledge-based. Qatar leadership has invested significantly in education, and the country has made progress over the last two decades. However, Qatar continues to face a number of educational challenges. Qatar Second National Development Strategy (2018-2022), and The Ministry of Education and Higher Education Strategy (2017-2022) have provided a detailed picture on the educational challenges the country is facing and set targets for overcoming them. Researching educational challenges with the aim of providing evidence-based solutions is the focus of this Cluster.

**Objectives**
The cluster has the following areas

1. **To provide solutions to early children and inclusive education challenges**
   Early childhood enrolment in Qatar is relatively lower than that of other countries in the region. For instance, the latest report on early childhood enrolment indicates that 40% of children in Qatar do not attend an early childhood provision (UNESCO). Therefore, improving the quality and access of early childhood education provision is part of QNDS focus. For this, the QNDS (2018-2022) set clear targets with regards to early childhood education:
**Target:** Increase the enrollment rate of children aged 3 years in formal nurseries and children aged 4 and 5 in formal early children education programmes by 10% to become 72.5% in 2022 (2 per annum).

**Target:** Increase the proportion of early childhood female teachers (Qatari and non-Qatari) with formal early education qualification in public kindergartens by 12% to become 20% in 2020 (3% per annum).

2. **To tackle the challenges in STEM subjects**
   
   Students in Qatar continue to underperform in the international comparative tests in STEM. In PISA 2009, Qatar was ranked between sixty-seven and sixty-nine in mathematics, reading, and science literacy (OECD, 2010). For example, in PISA 2012 results 15-year-olds in Qatar averaged 388 points for reading, 376 points for mathematics and 384 points for science literacy, which was an improvement but still below the international average for OECD countries (OCED, 2016). In the latest PISA study, Qatar’s ranking improved and students scored higher than in previous tests in key areas. In science literacy they scored 418, in mathematics, 402 and in reading 402 (OECD, 2016). This showed modest improvement but was still much lower than OECD average scores in these subjects.

   The QNDS (2018-2022) prioritizes this matter and sets the following targets:

   **Target:** by 2022, increase the performance rate of students who achieve 70% or higher in the basic subjects of math, science, Arabic and English by 3% in grades 3 and 6 and 6% in grades 9 and 12.

   **Target:** increase the average score of students from Qatar in international tests that include PIRLS, TIMSS and PISA.

3. **To address teacher development issues**

   While there are sufficient numbers of teachers in schools now, the number of Qatari teachers is low which makes students miss important role models. In addition to delivering teaching and learning materials to students, teachers are also role models to their pupils and often have lasting influence particularly in students’ long-term career choices. Lack of presence of Qatari nationals in classrooms sends an indirect yet powerful message to Qatari pupils that the teaching profession is not a career option for them.

   The issue of recruiting and retaining Qatari workforce is not the only challenge facing the sector in regards to teacher development. Indeed, QNDS (2018-2022) identifies a list of other challenges and puts targets for addressing these teacher-related issues. For instance, the QNDS (2018-2022) sets out the following targets:

   **Target:** increase the proportion of early childhood teachers (Qatari and non-Qatari) with formal early education qualification in public kindergartens by 12% to become 20% in 2022 (3% per annum).

   **Target:** Increase the percentage of teachers with appropriate ad recognized qualifications (diploma or bachelor of education) in public schools by 10% (2% per annum).

   **Target:** Increase the number of teachers with professional license in public schools by 30% (6% per annum).

4. **To address curriculum reform issues**

   Curriculum reform is an important aspect of any education system. It is a way of ensuring that education responds, positively, to the needs of an ever changing society while fostering national identity. A curriculum reform must be carried periodically and systematically.

   In the early 2000s, Qatar embarked on its most ambitious education reforms to date. The reform was by no means the first in the country, but was the only one to focus on the quality of K-12
and changed the education landscape beyond recognition (Brewer, et al., 2007; Nasser, 2017). Through this reform, the curriculum was decentralized and a new charter school system was introduced, among other things. It also put the curriculum—and education in the general—at the heart of the national debate. However, more than fifteen years later, most of the reforms have now been scaled back and all of the initial reform policies have been reversed, (Al Khater 2016; Nolan, 2012).

Qatar’s K-12 education has moved away from having ‘curriculum standards’ to a centralized national curriculum that reflects the needs of the nation. The importance of a national curriculum, for public schools, has been clearly articulated in the MEHE strategy for 2018-2022. For instance, the document states the following:

‘Develop modern curricula which would enable all students to fulfil their potentials and gain knowledge and skills which allow them a successful move to higher education and to the labour market...’

Training teachers in public schools in teaching the modern educational curricula through specialized training programmes with high quality.

Update the evaluation strategies, mechanisms and assessment tools which are in line with the new curriculum and with international best practice.’

The purpose of this theme is to address curriculum-related challenges in Qatar with an eye on historical reforms which the country had experienced. Further, the theme is on identifying international best practices for curriculum reforms and aims to answer the curriculum questions facing the country.

5. To provide solutions to Technical Vocational Training challenges/needs

The importance of technical vocation training for countries’ development is well documented. For this, in the past decade, the United Nations Educational, Scientific and Cultural Organization (UNESCO) have promoted the International Project on Technical and Vocation Education (UNEVOC) to further discussion of appropriate goals and initiatives. UNESCO defines TVET as “a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences; the acquisition of practical skills, attitudes, understanding, and knowledge relating to occupations in various sectors of economic and social life”.

In Qatar, the national development strategy has highlighted the importance of this for the country. For example, QNDS (2018-2022) identifies a list of other challenges and puts targets for addressing these teacher-related issues. For instance, the QND (2018-2022) sets out the following targets:

**Target:** Provide a training tailored to the State’s needs and career development goals for public sector employees - ongoing target (end of term).

**Section 6. Eligibility**

6.1 The Project Director must be a full-time affiliate of a QNRF-approved submitting institution inside Qatar. The Project Director’s institution will be considered the submitting institution of the cluster and will be responsible of the vetting process. The PD may collaborate with researchers from other research organizations located inside or outside Qatar.

6.2 Each sub-project must be led by an LPI. The LPI must be full time affiliate of an institution inside or outside Qatar.
6.3 PD/LPI from academic/research institutions must hold one of the approved terminal degrees as defined under the approved list of terminal degrees available at link.

6.4 The PD/LPI should have at least five single- or co-authored peer-reviewed publications uploaded in their profile in the QNRF online submission system. Types of publications accepted by QNRF include journal papers, full paper conference proceedings, books, book chapters or patents, or peer-reviewed technical reports. In addition, QNRF accepts peer-reviewed creative works that cover the following research areas: performing arts, visual arts, creative writing, design works, and communication media. These creative works are only accepted when the PD/LPI provides an “attestation letter” from the PD/LPI’s affiliated institution, indicating that these particular creative works are acceptable research outcomes.

6.5 The PD/LPI from a research end-user (non-academic entity) may not hold a terminal degree, however they must have a track record in managing research or development projects, and a minimum of five peer reviewed publications or patents; applied or granted.

6.6 Each Project Director can have only one cluster; active or submitted.

6.7 A Postdoctoral scholar is not eligible to act as a PD/LPI/PI (see definition at link).

6.8 Principal Investigator (PI) must be affiliated with a submitting institution in Qatar or a collaborating institution inside or outside Qatar.

6.9 An eligible PI must hold at least a university post-graduate degree and should have a suitable research experience relevant to the area of the proposal and the tasks assigned to them.

Section 7. Submission Process

7.1 Proposal Submission Flowchart

7.1.1 The NPRP-C submission is open from 30 April 2019, 12pm (noon), until 19 September 2019, 12pm (noon), Doha time.

7.1.2 The flowchart below illustrates the steps of proposal submission:

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<tr>
<th>Proposal Submission and Timeline</th>
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<tr>
<td>4 months</td>
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<td>4 weeks</td>
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<tr>
<td>3.2 weeks</td>
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<td>3 weeks</td>
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<tr>
<td>6 weeks</td>
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<tr>
<td>3.2 weeks</td>
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<tr>
<td>2 weeks</td>
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<tr>
<td>On Fast Track Basis</td>
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</tbody>
</table>

- IRP Submission
- Program Director (PD) will give presentation to NPRP-C Panel
- Proposal Submission upon QNRF Invitation
- QNRF Proposal screening and RO/PD Notification
- Proposal Evaluation by up to 5 PRs
- Panel evaluation review for funding recommendation
- PD rebuttal to the PRs comments (if requested by Panel)
- Funding Decision
- Award Notification (RO/PD)
- Receiving Complementary documents for funded projects
- MRFA signing & disbursement of fund
7.2 Gating Process for the IRPs

7.2.1 Once the IRP is submitted and vetted, PD and LPIs will be invited to give a 25-minute presentation to a panel of experts to evaluate the applications in a “gating process.” IRPs will be evaluated against the programmatic goals.

7.2.2 The presentation should cover the following:
1. Project Overview & Objectives (Introductory overview of the research proposal and its originality, significance, objectives, methodology, and how the proposal addresses the cluster theme)
2. Cluster Design & Sub-Projects:
   a. Provide a graphical illustration showing the cluster structure and the interaction between its sub-projects
   b. Explain and justify how the proposal satisfies the cluster format
   c. Elaborate on how each sub-project fits within the cluster objectives and effort and explain the synergy and complementarity among the sub-projects and participants
   d. Cluster timeline
   e. Budget, resources, & feasibility: (this will include all the necessary and allocated resources; personnel, budget, co-funding, physical resources, strategic collaborations, …etc.)
   f. Cluster management & coordination (outline the management structure of the cluster)
3. Expected Impact and Sustainability (this should also include any future opportunities)
4. Risks and Challenges

7.2.3 PDs of successful IRPs will be formally invited by QNRF to submit full proposals.

Section 8. Budget

8.1 QNRF Grant
The maximum budget per a Cluster proposal is up to US$ 5M for a duration of up to five years. The budget of each sub-project should not exceed US$ 1M.

8.2 Co-Funding
QNRF encourages co-funded projects in NPRP-C. In such cases, applicants are requested to comply with QNRF’s Co-Funding policy (link).

8.3 Grant and Effort Allocation
At least 65% of the proposed funded research efforts must be conducted inside Qatar by the research team and at least 80% of the QNRF total grant of the cluster must be expended inside Qatar. Please refer to the Budget Components document available at link.

Section 9. Online Submission Procedure

9.1 Submission Requirements
9.1.1 The online application, submitted by the PD, must be vetted by the Research Office (RO) of the submitting institution in order to be considered as an official submission to QNRF. RO vetting must be completed in accordance with the relevant timeline, and the RO responsibilities at link.
9.1.2 PD and LPIs, must register with QNRF at https://oss.qgrants.org/ for the IRP submission.

9.1.3 Each PD/LPI is required to upload a minimum of five peer-reviewed publications. Research end-users (non-academic entities) PDs/LPIs may include patent applications.

9.1.4 Applicants from a research end-user (non-academic entity) who do not hold a terminal degree should request an approval from QNRF to act as PD or LPI through the online system.

9.1.5 For online registration requirement, please refer to the Grant Application Guide (GAG) at link.

9.2 Initial Research Proposal

9.2.1 Initial Research Proposals (IRPs) must be submitted through QNRF’s Q-grants by Project Directors and vetted by their ROs.

9.2.2 IRP should conform to the template, available in the NPRP Download Center at link, and may not exceed 10 A4 pages.

9.2.3 The IRP should address the following:
- Objectives of the cluster and its sub-projects
- Novelty, feasibility, and methodology
- Justification of the cluster
- Synergy and complementarity among the sub-projects and participants
- Research team and research end-users’ engagement
- Expected outcome and impact / potential applications and sustainability
- Risk assessment and mitigation
- Estimated budget and timeline
- Co-funding

9.3 Full Proposal Preparation

The Full proposal submission will basically follow the model of NPRP-S. Successful IRPs that pass the gating process will be provided with any additional information related to proposal submission and deadlines.

Section 10. Proposal Evaluation

10.1. IRP Review Process

Vetted IRPs that pass their screening will be presented in front of NPRP-C panel by their relevant PD and LPIs following the template provided in section 7.2.2. The review process is to gate IRPs before going to the second stage of submitting the full proposals to:
- Ensure alignment to the cluster theme;
- Assess the overall cluster design, structure, management, coordination, and synergy;
- Assess the capabilities of the PD and research team;
- Highlight any major weakness that the PD needs to address before submitting the full proposal; and
- Provide strategic feedback and conditions for the PD to incorporate in the full proposal, should it pass the gating process.

10.2. Full Proposal Review and Ranking

If the proposals pass the screening process, they will be sent to peer reviewers (PRs) for evaluation. The full proposal review and ranking process comprises several assessment steps that include an initial peer review by international experts followed by a programmatic review.
10.2.1. Peer Review

A minimum of five qualified international peer reviewers (representing an appropriate mix of academic, industry, and public-sector expertise) are solicited by QNRF to evaluate each proposal against the criteria listed below. The reviewers will evaluate the proposals, make recommendations to QNRF as to “Fund” or “Not Fund” and provide feedback to applicants. The evaluation criteria consist of the following:

1. **Intellectual Merit (Excellent; Very Good; Good; Fair; Poor)**
   - Does the project address an important problem or a critical barrier to progress in the field? Is there a strong scientific premise for the project?
   - 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?
   - How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?
   - Does the application challenge and seek to shift current research by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions?
   - Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense?

2. **Expected Impact (Excellent; Very Good; Good; Fair; Poor)**
   - How significant is the envisaged outcome in addressing priority issues, including QNRS, in areas that are critical to Qatar, in terms of:
     - potential for the proposed activity to benefit society or advance desired economical and societal outcomes?
     - expected benefits of the proposed research activity to Qatar?
     - plans to disseminate and exploit the project’s results?
     - extent to which end-users may realistically benefit (including co-funders) from the research.
     - plans to utilize project outcomes in future studies?

3. **Cluster Justification (Excellent; Very Good; Good; Fair; Poor)**
   - To what extent does the proposed project lend itself to being tackled in a “cluster” modality, i.e.:
     - Is there sufficient “interdisciplinarity” of topics to justify the cluster approach?
     - Do the various sub-projects fit together in a logical and harmonious manner?
     - Do the various institutions (including, where applicable, co-funders) complement one another and provide purpose and synergy?

4. **Management and Work Plan (Excellent; Very Good; Good; Fair; Poor)**
   - Does the management plan of the cluster ensure effective and seamless execution of the project?
   - Does the project adequately identify and address potential risks, problems, and difficulties?
   - Is the working plan well-reasoned, well organized, and based on a sound rationale?
     - Does the plan incorporate a mechanism to assess success? i.e.:
       - Does the plan include the breakdown into consistent work packages?
       - Is the timeline and time-allocation for work packages adequate?
       - Is the work plan coherent and effective?
5. **Qualifications and Complementarity of the Research Team (Excellent; Very Good; Good; Fair; Poor)**
   - How well qualified is the research team inside and outside Qatar and are their designated roles suitable to conduct the research?
   - Assess the LPI’s capability to coordinate the project and the research teams.

6. **Budget**
   - Appropriateness of the budget regarding the work plan and effort planning.
   - Evaluation of the adequacy of co-funding commitments, if any.
   - Are the proposed outcomes and outputs appropriate for the amount of effort and funding?

7. **Research Compliance**
   - Protections for human subjects
   - Inclusion and protection of children
   - Vertebrate animals
   - Safety and hazards

10.2.2. **Programmatic Review**
    The programmatic review focuses on the programmatic and strategic goals of QNRF and considers the peer reviewers’ comments as well. The programmatic review will evaluate the significance of the problem and solution as well as the interdisciplinary nature of the approach to solving the problem according to the following parameters:
    - The strength of the alignment with the Thematic Areas and NPRP-C objectives
    - The quality of the collaboration and the co-funding commitment
    - The strategic standing of the proposal and the potential impact on Qatar.
    - The past performance of the Project Director and participating Key Investigators
    - The composition of the local research team
    - The adequacy of the budget

At the end of the review and ranking processes, proposals are categorized in terms of their competitiveness. QNRF may request the Project Director to provide a rebuttal to the PRs’ comments and concerns within a period of two weeks of the receipt of such comments. In some instances, where there is, for example, high risks, etc., QNRF may decide to phase the award and commission further evaluations at the end of each phase.