

Report on
Public Credit Registry - Request for Proposal

(This report has been prepared by both the members of the group by working together on all the questions)

Q.1) Has feasibility study been done already? By whom? Is feasibility work required from the vendor (software developer)?

Yes, feasibility study has been done by **High level Task Force** constituted by RBI.

No, feasibility work is not required from the vendor.

However, in section 1.1, Disclaimers and Disclosures, RBI has mandated that the *'bidders are required to make their own inquiries and will be required to confirm in writing that they have done so and they do not rely only on the information provided by RBI in submitting a proposal'*.

Q.2) Is this a requirements (SRS) document? If yes, match its contents with the IEEE SRS format. If not, what is it lacking?

No, this is not an SRS document. In section 6.4.2, it is mandated by the RBI that, *'The selected bidder must translate all requirements into Functional Requirement Specification (FRS) and Software Requirement Specification (SRS) documents'*.

However, this document largely follows the guidelines of IEEE SRS document template, but lacks the Specific Requirements section of the IEEE SRS document template.

(P.T.O)

Q.3) Summarize the main user/business functions after drawing a function decomposition diagram. Who are the users of the system? Prepare use cases for the two main users of the system.

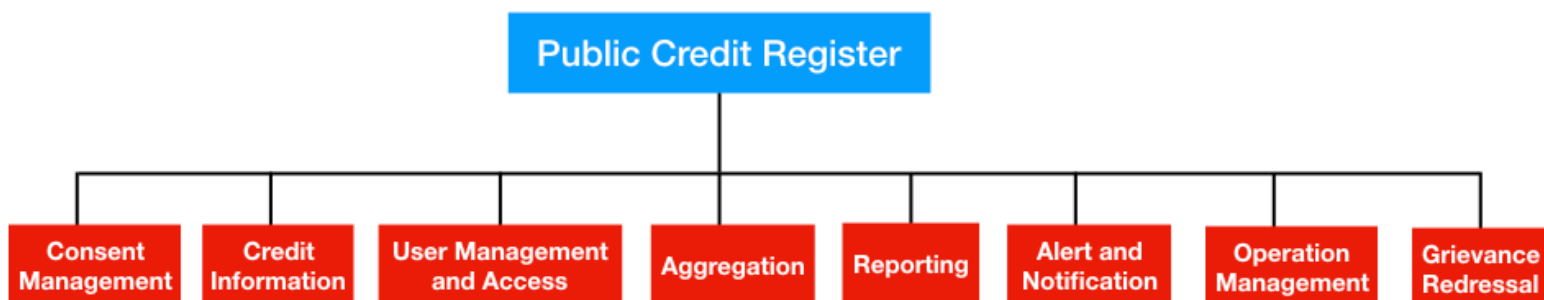
Following are the user/business functions in scope of the PCR project:

1. The PCR project should be a bespoke development and all IPR should belong to RBI
2. Support data submission mechanisms
3. Data Governance
4. Credit information lifecycle management
5. On boarding/registration of various stakeholders for authorized access to relevant PCR features
6. Linking with the ancillary systems
7. PCR consent life cycle management
8. Various queries from the PCR
9. Alert and Notification to lenders on material changes/enquires to borrowers' credit data
10. Security of the entire PCR system
11. Data export to the RBI's data lake platform
12. Reporting for various stakeholders
13. MIS reports: PCR system would receive, store, and process, the credit data related to the borrowers and share it with the lending institute for better decision making support. The PCR will support pre-defined MIS reports.
14. DevSecOps features
15. Infrastructure and BCP/DR deployment model
16. Grievance Redressal System
17. Other operational software and solutions

These functions can be grouped together as the functional tier of the requirements framework as outlined in section 3 of PCR-RFP:

- Consent management
- Credit information
- User management and access
- Aggregation
- Reporting
- Alert and notification
- Operation management
- Grievance redressal

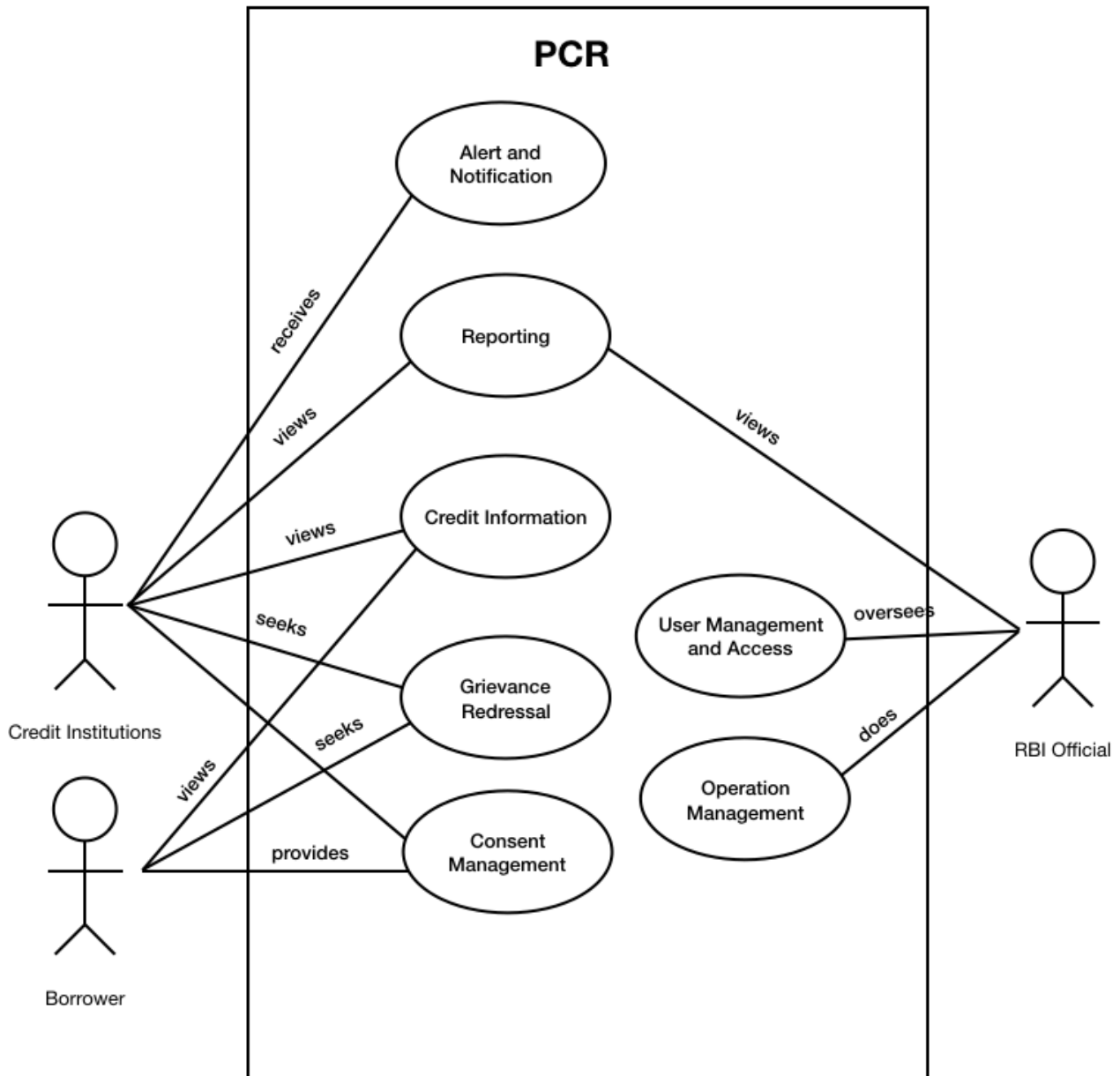
Functional Decomposition Diagram of PCR



Following are the users of PCR system:

RBI officials, borrowers, credit institutions, ancillary system admins, specified users and other regulators & government agency access are the list of users of PCR.

Here we present the use case diagram for users credit institutions, borrowers and RBI officials.



Use Case Diagram of PCR

Q.4) List top five non-functional requirements and indicate if they are also related to Service Level Agreements (given in a separate section).

Following are PCR non-functional requirements (* marked are in top five):

1. Scalability and performance *
2. Size of core credit data
3. Bandwidth consumption
4. Latencies
5. Fault tolerance in data centres *
6. Security *
7. Manageability *
8. Resiliency
9. Usability
10. Benchmark testing for reliability and scalability
11. Quality assurance *

Scalability and performance is a service tier requirement as outlined in section 4.4 SR5.1
Security is a service tier requirement as outlined in section 4.4 SR2.1,2,3.

In section 10.1 of Service Level Agreement, point 10 discusses about Severity 1 problems which have a '*critical business impact characterized by service unavailability, incorrect system behaviour, security incidents, data theft / loss / corruption, severe impact on stakeholder satisfaction or RBI's reputation, etc*'. In view of this class of problems, security is related to SLA intricately.

In section 10.3 points # 20 - 25 of Service Level Agreement, request response times of web portal and API along with concurrency are discussed as SLA parameters. This implies that scalability and performance is related to SLA intricately.
Manageability and Quality Q4

Q.5) What development methodology is required by the client? Once the development is completed, how the acceptance will be carried out?

As per section 4.4 SR6 Service Delivery Model, RBI mandates that 'The service delivery model for the PCR system should be based on Agile/Scrum, Secure SDLC & DevOps capability. Right Artefacts/Deliverables, Metrics and Reports (based on management agreement on format, frequency & communication plan) should be provided to Business owner engaged in this PCR System Development and Operations. Software release tagging, rollback mechanisms must be supported. Software development best practices must be followed. The vendor must ensure that trained personnel are utilized for the service delivery'.

Also, as defined in Annexure XIII, RBI proposes a flow for CI-CD (Continuous Integration - Continuous Development) pipeline and suggests that should follow best practices for DevSecOps to ensure the quality and security of the PCR System.

Acceptance:

The selected bidder shall prepare test cases for user acceptance testing and execute the same in the test environment.

Post success of test cases, the selected bidder shall prepare the test environment for user acceptance testing by RBI.

The selected bidder shall be present at RBI to handhold the users during the user acceptance testing processes.

Post success of user acceptance testing, as approved by RBI, the selected bidder shall facilitate RBI/RBI appointed vendor in conducting vulnerability analysis and penetration testing of the solution in the test environment.

Q.6) Summarize how changes will be handled in the project post implementation and roll-out.

As defined under Change Management in section 1.4, 'Any request by the Bank that results in changes in the structure of the application or a new module is added would be considered as Change Management. Any minor changes required in the application such as addition / deletion / alteration of a row / column / field, additional report, menu items will not be considered as part of Change Management and should be supported by the resident engineer (support engineer)'.

As defined in section 6.14, here is a summary of the important points in Change Management: Any proposal for change must be validated by RBI to be considered a change request. The selected bidder must present in detail the proposed change, dependencies, effort estimation (in person days / hours), time required for development, testing and deployment along with impact assessment to RBI for validation.

The selected bidder shall implement the changes in test environment and subject the changes to unit testing and perform integration testing and system testing.

The selected bidder shall prepare test cases for user acceptance testing of the changes.

The selected bidder shall prepare the test environment for user acceptance testing by RBI.

On acceptance by RBI, the selected bidder shall prepare release document with indicative schedule and rollback mechanism, for approval by RBI.

Once approved, the selected bidder must implement the changes in production / DR environment(s) in a controlled and phased manner in the presence of its personnel on-site

The selected bidder shall document all changes / releases and update all project related documentation to incorporate the changes.

Q.7) Assume that your company is bidding for getting this project. What proof should you furnish to the client that you are eligible for consideration.

As define in section 9.2 of Bid opening and Evaluation Process, 'Initial proposal scrutiny will be held and proposals will be treated as non-responsive and rejected, if proposals are:

1. Not submitted in the format specified in this RFP
2. Received without letter of authorisation
3. Non-compliant with any of the clauses specified in this RFP
4. Have lesser than prescribed validity period
5. Submitted with incomplete information, subjective, conditional offers and partial offers
6. Submitted without the documents required under this RFP'

As defined in section 9.4 and 9.5, 'following criteria shall be used for evaluation of technical proposals:

1. Understanding of requirements (20 marks)
2. Proposed solution (30 marks)
3. Approach and methodology (20 marks)
4. Project management and governance, resource plan and key personnel proposed (20 marks)
5. Technical presentation (10 marks)

Bidders, whose technical proposals are responsive and score at least 80% in technical evaluation, under each criterion and overall, shall be considered technically qualified. All technically qualified bidders will be notified to participate in the commercial proposal opening process.

The commercial proposals of only technically qualified bidders shall be opened on the notified date and time and reviewed to determine whether the commercial proposals are substantially responsive.

If a bidder quotes NIL price / consideration, the bid shall be treated as unresponsive and will not be considered.'

In addition to adhering to the above guidelines, following can also be furnished to the client for being considered for the bidding process:

1. Demonstration of previous projects which are similar in nature as the current one.
 2. Demonstration about the standard software development practices at the company which may include software development models adopted, coding standards, quality management practices, statistics and metrics about the projects undertaken so far.
 3. Confirm in writing that inquiries about information pertaining to the project have been done and that vendor does not rely only on the information provided by RBI in submitting a proposal.
 4. Proof that exhaustive requirement gathering exercise with RBI has been done and reports of detailed assessment for understanding of the requirements.
 5. Furnishing well-written FRS, SRS and SDD documents.
-