



The New Development Bank

Request for Proposal

(This is not a Purchase Order)

1. Introduction

The New Development Bank (NDB) is issuing a Request for Proposal (RFP) to invite qualified suppliers to provide proposals to NDB's S-IT-2022-00731 iPaaS Camunda BPM REST Component. Please refer to the following information or attached TOR (Service Scope) for detailed requirements.

Those interested and qualified companies please register into NDB's [e-procurement system \(EPS\)](#) to be **NDB's registered suppliers** and participate in the bidding process (**please be noted the contact information provided in registration especially email address must be correct as all communications regarding the bid including RFP distribution and award notice will be sent through it**). NDB will choose the most suitable one(s) from the shortlisted suppliers. NDB at its sole discretion reserves the right to reject all proposals in accordance with its internal policy and guidelines.

2. RFP Schedule

Please be noted the following activities could take place in the RFP process. NDB will inform the specific arrangements in advance and the suppliers are requested to respond timely.

Activity	Date
Distribution of RFP	October 11, 2022
Deadline for Questions	November 04, 2022
Proposal Response Due*	November 08, 2022
Negotiation on contract	TBC
Signing Contract	TBC
Project Kick Off	TBC

*Decision about second round can be done based on the results of first proposals review.

3. Instruction to bidders

3.1 Contact Information

Please use the following contact information for all correspondence with NDB concerning this RFP. **Suppliers who solicit information about this RFP either directly or indirectly from other sources will be disqualified.**

Mr. Ivan Nepeivoda
Address: 26th Floor, NDB Headquarters, 1600 Guozhan Road,
Pudong New District, Shanghai 200126, China
Email: nepeivoda.ivan@ndb.int

3.2 Submission of Proposals

Proposals shall be prepared in English. Both hard copy and electronic version is acceptable. Hard copy (6copies at least) is **optional** and shall be sent in sealed covers. Electronic version is **obligatory** and shall be submitted online via Electronic Procurement System.

For submission of proposal, the qualified suppliers should register to NDB's e-procurement system to be **NDB registered suppliers** (subject to NDB's internal approval) in advance. Then registered suppliers need to **ENROLL** in the procurement notice (for open competitive bidding) or **ACCEPT** the invitation (for limited competitive bidding) before submitting proposal online according to the timeline. (<https://www.ndb.int/data-and-documents/corporate-procurements/>)

The mentioning of deadline, due time, closing date, etc. herein means Beijing time; and NDB's business time is from 9:00AM to 5:15PM in working days.

3.3 Questions

Please submit questions in writing by e-mail. Vendors should refer to the specific RFP paragraph number and page and should quote the questioned passage. NDB will be prompt in responding to questions. All questions will be responded to as a group and sent to all vendors.

3.4 Ownership of Materials

All materials submitted in response to this RFP become the property of NDB. Proposals and supporting materials will not be returned to vendors.

3.5 Proposal Costs

NDB is not responsible for any costs incurred by the vendor in the preparation of the proposal or the site visit.

3.6 Proposal Format (if applicable)

NDB recommends that the proposal should contain two parts as follows. **The vendor may choose other format if you desire so.**

Volume 1 – Main Proposal

Section 1 Executive Summary

Section 2 Functional Section

Section 3	Technical Section
Section 4	Project Management Section
Section 5	Support Section

The above format is only a recommendation. Suppliers could use other formats if you desire so.

Volume 2 – Price Proposal – Should be separate but integral part of the proposal. The currency is USD; if quoting in other currencies, the exchange rate should be clearly defined. **The price shall be inclusive of applicable taxes (if not, please specify);** and other charges shall also be clearly defined. Note: The payment will be done by international wire transfer, then NDB recommends that the tax fee must be included in the proposal, with respective details. Payment terms applicable - **not less than 30 days.**

3.7 Validity Period

The proposal including pricing quotation shall be valid at least for 120 days.

3.8 RFP Amendments

New Development Bank reserves the right to amend this RFP any time prior to the closing date. Amendments will be issued only to vendors who are going to complete a proposal.

3.9 Sub-contractor

NDB expects to negotiate and sign contract with one winning vendor. NDB will accept only complete solutions from a primary vendor, and will not accept any proposals that are on only one item or a combination of items from the RFP. The prime vendor will be responsible for the management of all subcontractors. NDB will not accept any invoices from subcontractors or become part of any negotiations between a prime vendor and a subcontractor.

3.10 Award Notification

NDB could negotiate with all shortlisted suppliers before deciding the winning vendor. And NDB reserves the right to negotiate further with the winning supplier before and in the contracting process. The remaining vendors will be notified in writing of their selection status.

4. Evaluation Criteria

The proposals will be reviewed and evaluated by NDB’s team in accordance with the related policy and guidelines, especially the six principles (Economy, Efficiency, Competition, Transparency, Value for Money, Fit for Purpose) contained in NDB’s corporate procurement policy. NDB is interested in obtaining a complete solution to the requirements contained in this RFP. Proposals that meet the proposal instructions and requirements will be given a thorough and objective review. Proposals that are late, or do not comply with proposal instructions, or take exceptions to mandatory requirements will be eliminated without further consideration. The following are the key factors that would be taken into consideration for evaluating the proposals.

i. Technical Approach and Methodology or Software Solution

Primary consideration will be given to meet the mandatory requirements as listed in this RFP.

The following are factors in the evaluation.

1. Meeting the requirements as stated in this RFP;
2. Understanding of the work to be performed;
3. Technical approach and methodology to accomplish the work;
4. Completeness and competence in addressing the scope of work.

ii. Project Management

NDB also believes that effective project management is essential for a successful implementation. Vendors will be evaluated on the completeness and responsiveness of their project management plans and the project team assigned.

As part of the project management plan, vendors must demonstrate adequate experience in developing and implementing the requested project. NDB's confidence in the vendors' ability to meet deadlines and successfully manage similar projects will be a primary consideration.

Special consideration is given to vendors who propose a detailed project plan with sufficient breakdown of tasks and steps to demonstrate a complete understanding of the project.

iii. Pricing

NDB will consider pricing as part of the evaluation criteria. **Lowest price is not essential to win**; however, large pricing differentials between vendors will be carefully examined. Price will be used as a final indicator for determining the vendor finalists when all other criteria have been normalized.

iv. Presentation and Demonstration

The results of Presentation and Demo will be evaluation factors.

v. Support and Maintenance

NDB believes the ability to perform timely support is also an important factor for the success of this project. Therefore, vendors should provide adequate information to demonstrate their capabilities to fulfill this task.

5. Contract

The participant shall review the service agreement template provided by NDB in advance. The use of NDB's version of the agreement is preferable. Template agreement and general terms and conditions can be found on the NDB's official web-site <https://www.ndb.int/data-and-documents/corporate-procurements/>

Attachment 1:

Service Scope

Project Name: iPaaS Camunda BPM REST Component

Project Background:

The idea of this project is to introduce iPaaS Camunda BPM component that will communicate with Camunda Engine using REST protocol.

Camunda Platform provides different interfaces to communicate with the BMP Engine including vendor-provided iPaaS Camunda BPM component using Camunda Engine Core API. In order to work iPaaS Camunda BPM requires direct access to a Camunda database.

While Camunda Engine Core API provides a well-designed and easy-accessible programming interface for Java, the usage of the REST interface requires additional development.

Project Scope:

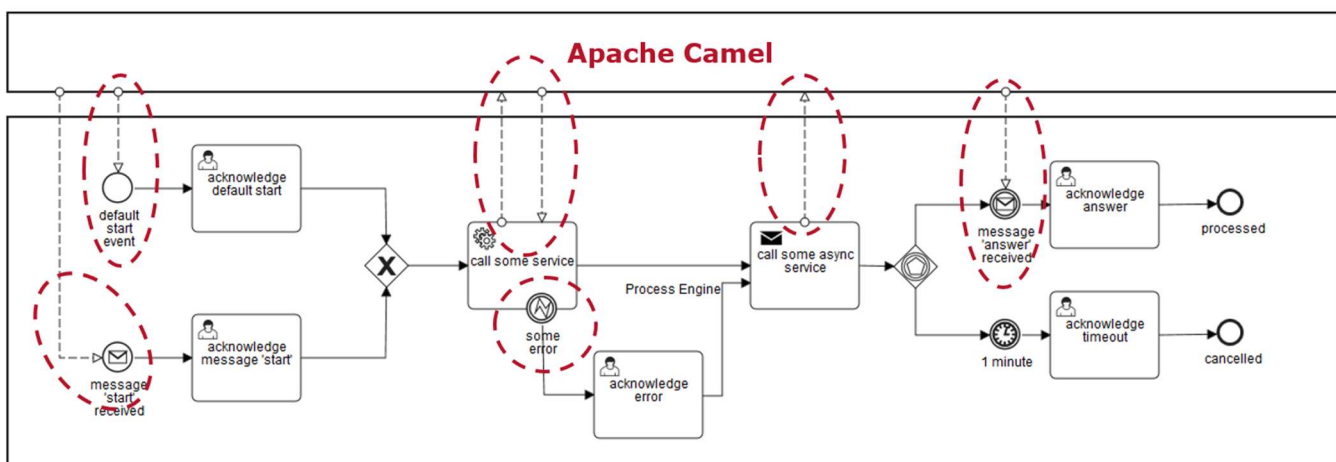
Introduce iPaaS Camunda BPM component that will communicate with Camunda Engine using REST protocol. Migrate existing iPaaS services that are using Camunda to the new component.

Demand Request:

iPaaS Camunda BPM REST Component.

Specification:

- 1 Required components
 - Java Camunda Rest Client – Java client for integration with Camunda using REST API (SDK).
 - iPaaS Camunda BPM REST Component - Camel component to talk to Camunda BPM from Camel using Java Camunda Rest Client.
- 2 Architecture Design
 - 2.1 Logical View



2.2 Software Architecture

Camunda is a Business Process Model and Notation (BPMN) standard compliant workflow engine and a Decision Model and Notation (DMN) standard compliant decision engine platform deployed in the NDB private cloud.

iPaaS is an integration platform as a service built around Docker containers orchestrated and managed by Kubernetes on a foundation of Red Hat Enterprise Linux deployed in the NDB private cloud in Alicloud.

2.2.1 Used languages and technologies:

- Camunda – [7.17,) Enterprise Edition
- Java - [1.8,)
- Red Hat Fuse (Apache Camel) – [2.21,)

2.3 Security Architecture

TLS/SSL encrypted communication for interactions between components.

- SSL between Camunda and iPaaS

Authorization and authentication

- BASIC authentication in Camunda

Messages integrity

- Camunda API input and output validation in Java Camunda Rest Client

2.4 Communication Architecture

Interaction between components will be carried out using standard protocols: REST and HTTP multipart files transfer

- REST/ HTTP multipart protocol between Camunda and iPaaS

2.5 Performance

iPaaS Camunda API calls must take no more than 1 sec

2.6 Availability

Not applicable.

3. System Design

3.1 Data Conversions

Transformation of Camel Exchange to Camunda API.

Transformation of Camunda API to Camel Exchange.

3.2 External Interfaces

Camunda API

<https://docs.camunda.org/manual/7.17/reference/rest/openapi/>

4 Detailed Design

4.1 Security Detailed Design

Camunda API methods must be authorized using BASIC authentication

Camel service configuration should be externalized from the source code

Camel service source code must not contain credentials

Camel service logs must not contain sensitive data

Camel service exceptions must be logged

Camel service should handle all exceptions according to Best Practices

4.2 Interface Detailed Design

Camel - Camunda interface should be implemented as REST with JSON as a message protocol.

All REST interfaces must conform to the Camunda OpenAPI specification.

For file transfer should be used HTTP Multipart.

5 Test plan

5.1 Test objectives

There will be two key test phases to this project: System Test, System Integration Test.

The purpose of the testing is first to demonstrate that functionality works correctly as specified and agreed with the Business, secondly to demonstrate that all requirements are met, and thirdly to ensure that the functionality as agreed and developed meets the needs of the Business.

5.2 Test approach

Testing will comprise the following activities in varying degrees of local and combined environments:

- System Testing
- System integration test (SIT)

Each of these phases will be controlled and conducted by the testing team who will be required to maintain a traceability spreadsheet to track testing activity and progress against the identified risks.

5.3 Test completion criteria

For the project as a whole the testing will be considered successful if the following criteria are met:

- All functions behave as specified in the functional documentation with no adverse impact on existing functionality
- All planned tests and procedures covering high & medium risk local functionality and end-to-end interfaces have been executed
- End to End performance is acceptable
- There are no unresolved defects that are deemed critical by IT or the Business to the successful implementation of the new/changed functionality
- For any non-critical defects, an agreed way forward must be agreed prior to test sign-off.

5.4 Scope

5.4.1 Test Activities and Test Types

5.4.1.1 System Testing

This activity of testing will ensure that all functionality developed works as specified and that the individual system components work together correctly.

5.4.1.2 System Integration Testing (SIT)

This activity will be undertaken to verify end-to-end software design, both functional and non-functional, demonstrate that the system(s) operate as specified for changed code, including network impact and demonstrate that input and output interfaces operate as specified by the actual processing of exchanged data through the receiving system(s).

5.5 Test requirements

The following requirements are necessary to support the testing of the iPaaS Camunda BPM REST Component project.

5.5.1 Test Environments

5.5.1.1 System Test

System testing will take place in the existing system test environments. This will be the responsibility of the Development teams.

iPaaS – DEV environment

5.5.1.2 System Integration Test (SIT)

System Integration testing will be undertaken utilizing existing system integration test environments. This will be the responsibility of the System Integration teams.

iPaaS – Continuous integration environment

5.5.2 Test data

5.5.2.1 System Test

Dummy data is allowed for this type of test. Where additional data is required to undertake specific tests, the IT Development teams requiring that data will create it.

5.5.2.2 System Integration Test (SIT)

Dummy data is allowed for this type of test. Where additional data is required to undertake specific tests, the IT Development teams requiring that data will create it.

5.5.3 Test tools

Test cases for System Test and System Integration Test (SIT) should be prepared and automated using JUnit library and Continuous Integration tools. This type of testing will be performed automatically after each change of the source code. If during the execution of the automatic testing any test fails, the code assembly will stop and a notification message will be generated for the development team describing the fallen test. Responsibility of the developer to understand the reason of the broken test and make the appropriate changes to correct the functionality. After passing all tests, a test report is automatically generated.

5.5.4 Test deliverables

The following overall project deliverables will result from the successful completion of all of the testing phases:

- Java Camunda Rest Client must contain automatic tests for all Camunda APIs.
- iPaaS Camunda BPM REST Component must contain automatic tests for all functionalities.
- Local Camunda test instance should be started automatically during the test phase of the build.
- All tests must be run by maven and not depend on the developer's local environment.
- All tests must be run by maven in a CI environment without additional environment setup.
- A fully tested version of code for Java Camunda Rest Client.
- A fully tested version of code for iPaaS Camunda BPM REST Component.
- Set of testing documentation including Test cases, Test Input and Output Data and Test completion report.
- Formal Sign off of each test activity to certify completion and suitability to progress to the next test activity.

6 Additional requirements

Service Delivery in 1 month

Camunda API server stubs for Java Camunda Rest Client must be generated from a Camunda OpenAPI Spec during the build:

<https://docs.camunda.org/manual/7.17/reference/rest/openapi/>

iPaaS Camunda BPM REST Component logic can be implemented similarly to the Camunda extension:

<https://github.com/camunda-community-hub/camunda-platform-7-camel>

Camunda external tasks processing in the iPaaS Camunda BPM REST Component can be implemented using the Camunda External Task Client:

<https://docs.camunda.org/manual/7.17/user-guide/ext-client/spring-boot-starter/>

6.1 Requirements for the qualifications of the Contractor's specialists

Work experience:

- 3+ years in Java development
- 2+ years in Camel/Fuse development

Certifications required:

- Oracle Certified Professional (OCP) Java Programmer
- The Red Hat Certified Specialist in Camel Development is a plus
- Technical skills

Core Platform:

- RedHat Fuse on Spring Boot in Openshift
- Frameworks:
- Apache Camel
- Spring Boot
- Camunda BPM

CI / CD:

- Git flow
- Jenkins Pipeline
- Maven
- Additional requirements:
- Spoken English
- Knowledge of corporate integration patterns
- Experience in writing unit and integration tests using Camel

7 The procedure for admitting the Contractor's specialists to the provision of Services

The procedure for the admission of the Contractor's specialists to the provision of the Services is determined by the methodology for assessing the qualifications and admission of specialists of contracting organizations for the provision of Technical Development and Maintenance Services, which is valid in NDB