

AGRICULTURAL CREDIT COOPERATIVES OF TURKEY

**AGRICULTURAL EMPLOYMENT SUPPORT FOR REFUGEES AND TURKISH CITIZENS THROUGH
ENHANCED MARKET LINKAGES**

(PROJECT No: P171543)

PROCUREMENT OF CONSULTING SERVICES FOR SOFTWARE DEVELOPMENT

(01.2021)

TERMS OF REFERENCE

Project Component:	Component 3: Implementation Support and Institutional Capacity Building
Project Sub-Component:	Sub-Component 3.3: Monitoring, evaluation and information systems
Procurement Plan No:	CS3.3-03
Name of Assignment / Task:	Recruitment of a consulting firm for Software Development, Cyber Security & Warranty, And Maintenance
Objectives of Assignment / Task:	Software development, cybersecurity, and maintenance for software to manage, monitor, evaluate and report project activities.
Duration of Assignment / Task:	36 Months / Thirty-six Months September 15, 2020 – August 15, 2023
Estimated Cost:	300 Month/Man
Type of Procurement/Consultancy:	Consulting
Procurement/Selection Method:	CQS
Ex-ante Review:	No

A. BACKGROUND

One reason for the increased tendency of Syrian refugees to stay in Turkey has been the aggravation of the civil war in their country, keeping them in Turkey for approximately nine years now. However,

the different language, culture and living styles of Syrian refugees make it difficult for them to integrate with Turkey. Ensuring the integration of Syrian refugees requires certain legal arrangements in addition to development social cohesion policies targeting refugees. In this scope, the EU has provided funds, in two tranches, within the framework of the Facility for Refugees in Turkey (FRiT) to help Turkey's response to the refugee crisis.

Based on the Request for Proposal issued by the EU within the framework of FRiT II on March 1, 2019, Agricultural Credit Cooperatives (ACC), in cooperation with the World Bank, submitted a proposal for a project planned to take 4 years, and the project proposal has been accepted. The proposed project aims at;

- (a) improving the employability of Turkish citizens in rural host communities in addition to refugees in selected provinces and facilitating their access to employment opportunities,
- (b) strengthening the value chain for contract farming and boosting employment, and
- (c) providing implementation support and capacity development for ACC.

The project will be implemented in 6 provinces. These provinces are:

- Adana
- Adiyaman
- Bursa
- İzmir
- Gaziantep
- Mersin

Agricultural Credit Cooperatives of Turkey are subject to Agricultural Cooperatives General Law No. 1163 and Law No. 1581. ACC has a holding structure consisting of a Central Union, 17 Regional Unions, 1625 Primary Cooperatives and 13 subsidiaries. The Central Union is responsible for maintaining the necessary relations to support ACC and providing the Cooperatives and Regional Unions with financial resources, goods, instruments, and basic production-consumption materials, in line with the principles of cooperatives. Central Union of ACC is Project is the implementing agency together with the Agricultural Credit Cooperatives in selected provinces and the Regional Unions to which these Cooperatives are members.

The World Bank has an experience of 70 years in providing governments with multi- sector solutions in coping with various socioeconomic challenges. The World Bank is providing funds and technical assistance to help reduce poverty and contribute to the welfare of communities/countries hosting refugees and displaced people. Under the project, the World Bank will be responsible for management of the grant provided under FRiT on behalf of the European Commission and will act as technical assistance provider for the design and implementation of the project.

The objective of this consultancy assignment is to develop new software application to be used in the project. By consultancy, services for software development, cybersecurity, and maintenance will be provided. The software will involve three different modules and it will be developed by considering best practices of cybersecurity. There will be a maintenance period for 24 months. There will be three modules in software development as CF Module, Project Management Module, and Training Module.

B. DEFINITIONS

EU	European Union
CFC	Contract Farming Contract
ACC	Central Union of Agricultural Credit Cooperatives
FRiT	EU Facility for Refugees in Turkey
PIU	Project Implementation Unit
ACC	Agricultural Credit Cooperatives of Turkey
CF	Contract Farming
FRiT	The EU Facility for Refugees in Turkey
PM	Project Management
PIM	Project Implementation Manual
PIU	Project Implementation Unit
SuTP	Syrians under Temporary Protection
TRC	Turkish Red Crescent
WB	World Bank
POM	Project Operational Manuel
M&E	Monitoring and Evaluation

C. OBJECTIVE

The consultancy services to be provided cover software development, cybersecurity, and maintenance for this software to manage, monitor, evaluate and report project activities. The software will involve three different modules and it will be developed by considering best practices of cybersecurity. After development, there will be a maintenance period for 24 months. The maintenance is for sustainability and modification (limited) of the system. Regarding modules for the maintenance are the CF Module, Project Management Module, and Training Module.

In the software application, contract farming activities and registration of workers will be recorded and reported. Thus, the system will be developed according to these needs of the project. Besides, there will be training activities, financial operations, so the system will cover all topics needed by the project. Conceptually, there will be 3 main modules or platforms to describe the project.

Contract Farming (CF) Modules will be used by ACC PIU Staff, ACC CU Staff, Primary ACC Staff, Regional Union, and TRC Staff. The system will support role-based authorization, so the user access throughout the system interfaces and functionalities will be managed by this authorization mechanism. Design and

features will be determined during the development of software. The management of this will be done by PIU and ACC Staff.

Project Management (PM) Module will be used by the ACC PIU and ACC Staff. This module also uses role-based authorization. Design and features will be determined during the development of the software. The management of this will be done by PIU and ACC Staff.

Training Module will be used by ACC PIU, ACC CU, Primary ACC Staff, ACC Regional Union Staff, Farmer, and Agricultural Worker. The management of this will be done by PIU and ACC Staff. Design and features will be determined during the development of software

D. SCOPE OF THE ASSIGNMENT

CF Module will have some subsystems and these will be:

Document System: During Contract farming in the project, all contracts will be monitored and managed with this feature. This will be used by ACC staff in cooperatives to record relevant contracts and enter data of contract to the system. **Mainly, the system will be used to keep scanned copies of formal content and monitor them. The system will not be used to create a contract or other formal document or support any flow of documents.**

Worker Management System: Data related to workers will be registered and monitored using this feature, including Formal or Declared / Observed information such as Workers' experience, Personal information, etc. It will be used mainly by ACC staff and Outreaching staff.

Farmer Management System: Farmers engaged in Contract Farming will be registered by this feature. This will be used mainly by ACC staff in cooperatives to register and monitor Farmers, Farmer related information such as Payments data, related documents, and Farmer activities.

Contract Farming Management System: All audit results of farmers, workers, and contract farming processes will be recorded and entered into the system by using this feature. That will be used by PIU staff, ACC staff, Field Consulting staff. So, all processes after matching farmer and worker or signing contract with the farmer will be monitored and registered by that part.

Interface Design: It will be determined in the process of software development.

CF Database: Farmer and worker data, working time, payments among Farmers, Worker and ACC, etc. will be stored.

Project Management Module will have some subsystems and these will cover;

Reporting System: Reporting system will provide historical, current views of business operations, most often using data that has been gathered into a data warehouse or a data mart and occasionally working from operational data. Therefore, all data stored will be plotted and monitored by using this part. It will be used by PIU staff and developed according to project requirements in the development process. Also, all report mentioned in POM and M&E will be produced under this system.

Worker Profiling System: Profiling of a worker means defining the worker's skills, experience, and other information in a parametric way which is subject to evaluation and filtering mechanisms of the system, for the farmer contract vacancy matching, prioritization, training needs, etc. Profiling of workers and matching with farmers will be made by using this part. Training assessments of workers

and their profiling systems will be developed under that part. Consultancy services of specialists will be part of the development process for this module, to define possible evaluation methods and initial rules, supporting the Software development team. In the end, the whole profiling and matching mechanism will be based on this sub-system. It will be used by PIU staff.

Financial System: In the project, Farmers will pay workers' wages, social security, etc. Thus, ACC will pay back to farmers according to payments made by farmers. These payment activities will be managed and monitored by using that part so it will be used for payment requests and others. Also, all historic financial transactions and financial reports of daily and monthly payments will be generated, secured, and monitored by that sub-system.

GRM System: A feedback ticket system, mainly for collecting, registering, classification, responding, and reporting complaints, feedbacks and suggestions from the beneficiaries, workers and project staff by various channels (such as web page, phone, email, etc.) and closing the ticket with the decided resolution.

Farmer Monitoring System: Current stations based on contracts of farmers will be monitored by using that part. It will be a kind of a reporting tool specifically developed for these contracts between ACC and Farmers. It will be used by PIU staff. The workers working for a Farmer will be plotted and monitored by that part.

Worker Monitoring System: Current stations, idle status, active contract(s), and idle calendars of workers will be monitored by using that part. It will be a kind of a reporting tool specifically developed for the project. This feature will be used by PIU staff.

Training Monitoring System: Planning and Monitoring of training calendars, activities related to training and trainees (workers and farmers), attendance and completion, after training worker skill updates will be managed by using that part. It will be used by PIU Staff, ACC Training Department Staff, Training Staff. Data on who attended which training and other related information will be entered into the system by using that part. For all training activities, this part will be used.

Project Management System: Managing project data and making dynamic queries will be made by this part. It will be used by PIU Staff.

Project Team Tracking System: Monitoring and reporting of daily location data of field consultancy staff will be recorded under this part. So, it will be used by PIU Staff to trace field staff visits.

Interface design: It will be determined in the process of software development.

Project Database: All documents related to projects and other metadata will be stored.

Training Module will have some subsystems and these will cover:

Training Management System: Necessary training material will be managed by that part. It will be used for easy transfer and management of training contents into the system. It will be managed by PIU Staff.

Worker Training System: It will be used for serving workers' training materials. It will be accessible to everyone online.

Farmer Training System: It will be used for serving farmers' training materials. It will be accessible to everyone online.

Interface design: It will be determined in the process of software development.

Training System Database: System will store training materials.

The software system will have some panels and features; these are:

Configuration Panel

1. Defining Rules
2. Work Definitions,
3. Creating Demand Templates,
4. Setting Financial Coefficients
5. Determining Payment Types Definitions
6. Setting System Calculation Methods/Parameters
7. Data filtering

System Management Panel

1. Operational Calendar Settings
2. Flows Management
3. Setting User Role Definitions
4. Setting Access Rights to System Resources

Worker Panel

1. Create/ Edit Worker Account
2. Delete Worker Account
3. Searching Worker Accounts
4. Worker Contracts Management
5. Audits of Workers
6. Worker Training Management
7. Worker Monitoring
8. Worker Contract Monitoring
9. Worker's Training Payments Management

Farmer Panel

1. Add Farmer to Project
2. Delete Farmer Account from Project
3. Searching Farmer Account
4. Farmer Contract Management

5. Farmer's Payment Documents
6. Farmer Training Management
7. Farmer Monitoring
8. Farmer Contract Management

CF Panel

1. New Contract Farming Contract Create
2. Delete the Contract
3. Searching the Contracts
4. Audits of CF

Production Panel

1. ACC Contract Farming Production Capacity
2. ACC Total Production Capacity
3. Contract Farming Capacity in Project

Worker Profiling Panel

1. Add Profiling Rules
2. Delete Profiling Rules
3. Monitoring Scoring Algorithms

Financial Panel

1. Procurement Schedule
2. Procurement Order Create
3. Procurement Order Delete
4. Financial Reporting
5. Payment Order Create
6. Payment Order Delete
7. Payment Reporting
8. Training Payments Management
9. Farmer's Payment Management

GRM Panel

1. Showing Open Tickets
2. Showing Closed Tickets
3. Create a Ticket

4. Delete a Ticket

PM Panel

1. Training Monitoring
2. Worker Monitoring
3. Farmer Monitoring
4. CF Monitoring

User Management

1. New User Account Create
2. Delete User Account
3. Change user Password

Training Panel

1. Import Training Content
2. Delete Training Content
3. Management Training Panel
4. Start Worker Training
5. Certificates
6. Start Farmer Training
7. Certificates

Cybersecurity of the System

This generic description explains the cybersecurity approach that is to be taken as reference for the project:

Cybersecurity is an important aspect to be considered for the above-mentioned panels that constitute the system. Cybersecurity is the application of technologies, processes, and controls to protect systems, networks, programs, devices, and data from cyber-attacks. It aims to reduce the risk of cyber-attacks and protect against the unauthorized exploitation of systems, networks, and technologies. There will be three pillars of cybersecurity; people, processes, and technology.

1. **People:** Every employee needs to be aware of their role in preventing cyber threats. Cybersecurity staff needs to stay up to date with the latest risks, solutions, and qualifications.
2. **Processes:** Documented processes should clearly define roles, responsibilities, and procedures. Cyber threats are constantly evolving, so processes need to be regularly reviewed.
3. **Technology:** From access controls to installing antivirus software, technology can be utilized to reduce cyber risks.

Good cybersecurity is proactive, not reactive, it should focus on possible threats not how to solve already existing problems. The main aim should be assisting the Project to achieve its goals securely. Furthermore, documenting and reporting is an extremely important element of good cybersecurity software to avoid experiencing similar threats repeatedly. Cybersecurity software has to bear some key functions;

- **Risk and Compliance:** An effective risk and compliance or governance function will help the Project to identify what needs to be protected and how best to go about it.
- **Security Administration:** Security administration will cover tasks such as adding and deleting users, managing access, and conducting reviews.
- **Security Architecture and Design:** It identifies what needs to be protected in the scope of the project and how you will be sure it's protected well.
- **Security Operations:** The main objective will be to achieve visibility on networks, servers, and endpoints, and ensure that all tools are working to deliver their intended purpose.

E. RESPONSIBILITIES AND QUALIFICATIONS OF KEY STAFF MEMBERS

Position	Number
E.1 Project Manager	1
E.2 Technical Team Lead	1
E.3 Business Analyst	1
E.4 Senior Frontend Developer(s)	1
E.5 Senior Backend Developer(s)	1
E.6 Test Engineer(s)	1
E.7 Cybersecurity Expert	1
E.8 Intelligence and Reporting Specialist	1

E.1 Project Manager (Coordinator)

Qualifications:

- Bachelor's degree
- Have minimum 7 years IT experience.
- Have min 3 years Project Management experience
- Have completed 1 project which has a Technological Product / Project Experience Certificate is preferable
- Have completed a R&D software project is preferable
- Having experience and knowledge of microservice architecture is preferable

- Having knowledge of Microservice Architectural Pattern, Layered pattern or similar topics

Responsibilities:

- Ensure coordination between ACC and Contractor
- Communicate with internal and external stakeholders
- Regularly exchange information with the PIU Coordinator, PIU IT Coordinator and ACC Head of IT Department about the execution of service
- Ensure that reports are submitted to PIU IT Coordinator in a timely manner
- Ensure that reports meet the requirements in terms of both contents and format, within the framework of the criteria established under the assignment
- Ensure that teams work in harmony

E.2 Technical Team Leader

Qualifications:

- Bachelor's degree in Computer Science/Electric Electronic, or equivalent education
- Have min 5-year experience as a hands-on software developer or architect
- Have minimum 3 years as a technical lead, hands-on team-lead or a chief architect working very close to the technology
- Have completed at least 1 projects
- Have completed project which has Technological Product Experience Certificate is preferable
- Have completed R&D software project is preferable
- Having experience in international project is preferable
- Having experience and knowledge of microservice architecture,
- Having knowledge of software architectures or similar field,
- Having experience in Software Development Management / Team management
- Perform code reviews to drive teams to the highest standards for web applications and web security
- Competency in technologies used in project

Responsibilities

- Lead distributed remote development team, based on the Project Plans and requirements
- Maintain the quality of work depending on the general and project Quality Assurance guidelines and / or decisions.
- Improve the productivity of the Development Team by introducing new tools & automations
- Evaluating technical specification in project
- Analyzing Code and its 'quality

E.3 Business Analyst

Qualifications:

- Bachelor's degree
- Have 2 years experience
- Experience on R&D project is preferable
- Have knowledge of the process management, agile business analysis techniques and analyzing business processes
- Having knowledge of UML and software development processes

Responsibilities

- Meeting the requirements by ensuring the necessary coordination with the relevant stakeholders (development team, business units, ACC etc.)
- Making analysis about requirements of software and determining which functions will be used in business flow
- To ensure under which conditions software in the production server run smoothly
- To ensure that the issues directed by the operation teams for the errors and failures that may occur in a live environment are resolved by the Contractor within the breakdown times,
- To realize the necessary planning and studies in order to reach the targets given within the scope of the project

E.4 Senior Frontend Developer(s)

Qualifications:

- Bachelor's degree
- Excellent design & development skills in web markup, including HTML5, CSS3, with fluid design that look awesome in different form factors
- Basic experience of Javascript is required, along with some exposure to JQuery or other JS frameworks
- Experience in UI development of crafting pixel-perfect apps and websites is preferable

- Excellent understanding of front-end technologies like HTML5, CSS3 is a must
- Knowledge and appreciation of web standards
- Contributions to open-source projects
- Knowledge of SASS/LESS
- Proven experience about REST APIs

Responsibilities:

- Perform development tasks including unit tests considering scalability, maintainability
- Perform code reviews to drive teams to the highest standards for web applications
- Responsible for design and implementation of UI and Client Side development
- Have an experience the below articles;
 - o Agile workflow process
 - o Architectural design
 - o Design specification
 - o Testing

E.5 Senior Backend Developer(s)

Qualifications:

- Bachelor's degree
- Experience and strong knowledge in any language that can be used in project (Java/C#/other)
- Experience and knowledge in developing and designing Web services
- Knowledge about server-side web application logic as well as the integration of the front-end part
- Experience In-depth understanding of web development
- Having experience about micro service technologies
- Proven experience about REST APIs

Responsibilities:

- Responsible for designing and implementing server-side development
- Knowledge in Machine Learning algorithms and tools, Experience in ML Libraries/Frameworks or Cloud services is an asset.
- Developing business layer, Web Services and Data Layer

- Making technical analysis
- Planning and Implementing various integrations
- Have an experience the below articles;
 - o Agile workflow process
 - o Architectural design
 - o Design specification
 - o Testing

E.6 Test Engineer(s)

Qualifications

- Bachelor's degree
- Strong capability of writing & maintaining automated test scripts for web applications
- Having experience and knowledge about Automation Testing, Performance Testing and Security Testing etc.

Having knowledge about service-oriented architectures (SOA) and representational state transfers (REST) architecture

Responsibilities:

- Preparation and verification of test environments
- Take part in preparation of test scenarios and test plans/ strategies
- Perform all kinds of tests (unit, business, load, automated, manual etc.) covering all application parts, partially and as a whole as described in test scenarios and test plans, on planned and prepared test environments
- Analyzing test results and sharing with PIU IT Coordinator and ACC IT Department
- Analyze the test requirements and design the testing
- Developing tests case

E.7 Cybersecurity Expert

Qualifications:

- Bachelor's degree
- Having 5+ year experience about network security, information security
- Having Knowledge about RSA Security etc.
- Proven participation in Cybersecurity project.

Responsibilities:

- Preparing cybersecurity strategies for software development

- Monitoring and controlling execution of plans
- Determines security violations and inefficiencies by conducting periodic audits
- Upgrades system by implementing and maintaining security controls

E.8 Intelligence and Reporting Specialist

Qualifications:

- Bachelor's degree
- Having experience with hands-on data analytics and problem-solving ability
- Strong knowledge of Microsoft Office Programs
- SQL knowledge and basic understanding of databases

Responsibilities:

- Provide analysis over farmer and worker data
- Preparing and developing weekly reports and analysis and share these analyses with relevant internal parties
- Working closely with development team to add, update and verify implementation of analytics tracking on project
- Provide processed and calculated data for the application software services such as Vacancy Matching, Payment etc.

F. DEVELOPMENT PROCESS

The software will be developed by Micro-Services technologies. Main development activities/expectations are mentioned in this document, which is mostly related to the development of farmer panel and worker panel, profiling module, finance module, and the database system. The estimated activities involving Development work are subject to change during the Business Analysis and should, at a minimum, respond to the requirements for data and reports as set out in the M&E plan for the Project, which is currently being designed.

Worker Data is mentioned in the POM document, under Worker Panel and Data Definition Annex. Thus, the UI and the Database Schema of the worker panel has to be designed according to these mentions.

Farmer Data is mentioned in POM, under Farmer Panel and Data Definition Annex. Thus, the UI and the Database Schema of the farmer panel has to be designed according to these mentions.

In the Finance module, there will be a registration of payment-related information such as farmer's worker wage and social security payments and keeping these documents in the system, verification and payment evaluation mechanisms, an anomaly detection feature providing that payment orders are appropriate within the framework of the required documents. The payment evaluation mechanism will depend on worker payment verifications and relevant documents. These will be clarified after business analysis.

Estimated workflow for the development process is below

Activities	Time	Participations
1. The signing of the Contract	0	Contractor, ACC Center Union
2. Initial Report	0-2 week	Contractor
3. Business Analysis for the first version	2-4 week	Contractor
4. PMP A	0-4 week	PIU IT Coordinator
5. Test Stage	4-8 week	Contractor, ACC IT Department, PIU IT Coordinator
6. Acceptance for the first version	8-9 week	Contractor, ACC IT Department, PIU IT Coordinator
7. PMP B	8-12 week	Contractor
8. Business Analysis for the second version	4-8 week	Contractor
9. Business Analysis for the third version	8-12 week	Contractor
10. Bug Fix Report	12 week	PIU IT Coordinator
11. Cybersecurity Strategic Report	12 week	Contractor
12. PMP B update	16 week	Contractor
13. Test Preparation	12-16 week	Contractor, ACC IT Department, PIU IT Coordinator
14. Acceptance for the second version	16-17 week	Contractor, ACC IT Department, PIU IT Coordinator
15. Bug Fix Report	20 week	PIU IT Coordinator
16. Business Analysis for the whole system	12-20 week	Contractor
17. PMP B update	20 week	Contractor
18. PMP C	6th month	Contractor
19. Establishment of Change Management	6 th month	Contractor, ACC IT Department, PIU IT Coordinator
20. Cyber security Strategic Report	6th month	Contractor
21. Test Stage	5th month	Contractor, ACC IT Department, PIU IT Coordinator

22. Acceptance for the third version	6th month	Contractor, ACC IT Department, PIU IT Coordinator
23. Bug Fix Report	7th Months	PIU IT Coordinator
24. Test Stage	7 th Month	Contractor, ACC IT Department, PIU IT Coordinator
25. Acceptance for forth version	8th month	Contractor, ACC IT Department, PIU IT Coordinator
26. Bug Fix Report	9th Month	PIU IT Coordinator
27. Test Stage	9 th month	Contractor, ACC IT Department, PIU IT Coordinator
28. Acceptance for the fifth version	10th month	Contractor, ACC IT Department, PIU IT Coordinator
29. Bug Fix Report	11th Month	PIU IT Coordinator
30. Test Stage	11 th month	Contractor, ACC IT Department, PIU IT Coordinator
31. Cyber Security Audit	12th month	Contractor
32. Acceptance for Final version	12th month	Contractor, ACC IT Department, PIU IT Coordinator
33. Maintenance	12-36 month	Contractor, ACC IT Department, PIU IT Coordinator
34. Cyber Security Audit	24th month	Contractor, ACC IT Department, PIU IT Coordinator

Initial Report

In the first 2 weeks after the signing of the Contract, Business Analysis of the whole system will be performed, in order to define the scope and base rules of the Application and plan the general architecture of the System.

Business Analysis

In the first 4 weeks after the signing of the Contract, the Contractor will complete the business analysis for the first version of the software. After that, business analysis for the second and third version will be completed. Between 12 and 20 weeks, the detailed business analysis will be completed permanently for the whole system.

Business analysis documents (at all phases) have to be approved by the PIU IT Coordinator and then project management plans will be prepared based on the corresponding approved analysis, again by the PIU IT Coordinator.

Project Management Plan (PMP)

- **PMP A**

The project management plan will be prepared in detail, in the software development process by the Contractor. Due to the importance of some calendar dependent output requirements, the scope and the project management plan outline for the first version will be prepared by PIU IT Coordinator. In this plan, features of panels and modules will be mentioned, describing the features and functionalities to take place in the first version. These features and development will be in the first project management plan. After the first plan, plans for the rest of the project phases will be prepared by the Contractor firm and shared with PIU IT Coordinator for approval. The progress of these plans will be monitored and controlled every month.

- **PMP B**

After business analysis for the related scopes, temporary project Management plan updates for the second and third versions of the software will be prepared / reflected to the PMP by the Contractor and these updates will be approved by PIU IT Coordinator. PIU IT Coordinator will monitor and control the implementation of this plan by the Contractor. Project Management Plan will be updated every 4-months until the PMP C update is finalized and approved.

- **PMP C**

PMP C will be the permanent version of the project management plan. After PMP C is prepared by the Contractor and approved by the PIU IT Coordinator, the rest of the development process will be fixed. Any changes after this point will be subject to the Change Management Process.

Change Management

Change Management related activities and decisions will be managed by the Change Management Board, formed of the PIU IT Coordinator, the Head of ACC IT Department and the Project Manager of Contractor.

PMP C will describe permanent milestones and roadmap for the project. For making decisions on altering finalized plans (PMP C) or performing updates on completed modules after approval of PMP C, the Change Management Process will be executed. After PMP C is approved, Change Management process will be effective. So, if any changes are demanded related to PMP C, Change Management will evaluate new change requests and its effects. If Change Management Board makes an agreement on the change request, then PMP C will be updated accordingly. Even if new changes cause extension of the project, no penalty will be imposed on the Contractor firm, if the latency is caused by Change Management Board approved reasons.

Penalty

If there is an extension of the project without an approved reason by Change Management, a weekly penalty will be applied as 0,1 percent of the project price.

There could be delays on the planned activities caused by the ACC IT Department and PIU IT Coordinator during the project, the Contractor has to report such cases formally in order to prevent penalties. These reports will be taken into consideration and legal action will not be applied to the Contractor company due to the extension of the project duration.

Bug Report

Errors/Bugs/Performance issues in the deployed software (in both test and production environments) will be reported to PIU IT Coordinator so she/he will evaluate, categorize and report them to the Contractor (depending on the provided help desk tool) if found necessary. The Contractor has to fix the problems flagged as urgent as soon as possible and publish a new minor version for these bug fixes. For non-urgent problems, they must be fixed until the next planned version deployment.

Bug Fix Report

The Contractor must prepare Bug Fix Reports (depending on the provided help desk tool) in order to inform the PIU IT Coordinator about fixed problems and their effective versions (of software, minor or major versions), the effective scope of the fixes which needs to be re-tested, request additional information on unclear cases, etc. These reports will be used for testing of each deployment.

Help Desk

The Contractor must provide a help desk tool as a software or system to report and monitor errors/bugs/performance issues. This system will be used to collect problems submitted by the users, evaluate, categorize, report and monitor bug/problem fixes by The PIU IT Coordinator. Categorization is an essential feature, in order to filter and/or prioritize the problems before reporting to the Contractor.

Test Stage

Preparation

Test scenarios and version merge checklists/plans will be prepared and test methodology will be suggested by the Contractor before acceptance of every planned software version. Version merge plan describes the steps of updating the latest version in the production environment to the final version. When there are multiple versions deployed in the test environment without updating the production version, the merge checklist / plan should consist of every step from the latest production version to the latest test version (including manual operations such as DB schema changes, data updates etc.).

For PMP planned major Versions, the scenarios have to be approved by PIU IT Coordinator in order to be used in testing of the system. These scenarios have to cover all functional and UI tests. Test scenarios have to cover previously reported problems and their fixes for the first minor or major version to be deployed. All test preparations have to be done by the Contractor before the deployment of software, in order to avoid unnecessary delays or extension of the project calendar.

Test Environment

When the development of the current plan is completed, completely or partially, every version update will be tested on ACC Test servers. The Contractor will suggest the test environment specifications, in order to be considered, revised and finalized by the Head of ACC IT Department and PIU IT Coordinator. According to these specifications, the ACC IT Department will prepare the Test Environment. The Contractor will have limited access to ACC Servers and Network, enabling them to fulfill their planned activities, such as configurations and deployments on the Test environment, in coordination with the ACC IT Department.

Testing

For major versions (planned in PMP documents), the deployed versions will be tested completely and test results will be reviewed by the ACC IT Department and PIU IT Coordinator, reported to the

Contractor until the version passes all tests, being ready to be deployed to the production environment.

For bug-fixes and problem-fixes, minor versions can be deployed to test environment, together with the bug-fix reports showing the scope of modifications in this version. These minor versions are tested only for the given scope until the version passes all tests and becomes ready to be deployed to the production environment.

When a version has to be deployed to test servers more than once, the version merge checklist / plan has to be reviewed and updated if necessary, in order to be prepared for production environment deployment steps.

Acceptance

Main testing criteria for major versions are the test scenarios. For both major versions and the bug-fix minor versions testing criteria include are the bug-fix reports and/or the test scenarios containing those fixes.

When any version on test environment passes all planned /related tests, the test results are evaluated by ACC IT Department and PIU IT Coordinator in order to verify that the version meets the predetermined criteria, for version approval. Any approved version is deployed to the production environment, following the version merge checklist / plan steps.

All PMP versions and minor bug-fix versions will be completed until the final version approval.

In the Final Version Acceptance test period, there will be a Penetration Test covering the whole system. The Contractor will make necessary improvements until both the standard tests and the Penetration Test are successful.

Following the successful tests, the Head of ACC IT Department and the PIU IT Coordinator will approve the deployment of the Final Version to the production servers, accepting the product and finalizing the Development Period.

Cyber Security Strategic Report

The Contractor will prepare a report about the Cyber Security Strategy. The first report will cover which cyber security approaches will be used during the development of the project.

In the second report which approaches used and possible risks will be mentioned. Also, it will offer a solution to possible risks.

This generic description explains the cyber security approach that is to be taken as reference for the project:

A software considering cybersecurity could be developed under 3 main subjects. These subjects are;

Identify key assets and threats: The first step in developing a cybersecurity roadmap is to identify the assets you're protecting. This step involves active consideration of the business context, combined with straightforward asset management, risk assessment, and threat management processes.

Prioritize risks and threats: The key questions to identify top priority risks are as follows; What are the active and current risks or threats that could damage the Project?

From a security perspective, what are the main concerns of the senior executive? Which risks and threats would damage the Project the most? Following the risk assessment, the Contractor company should come up with treatments and classify those solutions according to their difficulty in terms of implementation.

Set achievable goals: While a cybersecurity roadmap should identify all activities that you'd like to undertake, you need to identify those goals that will be truly achievable. Link goals to business objectives. Identify the business reason for each goal or activity.

Cyber Security Audit

The Contractor will make an independent penetration test for the whole system in the project. Penetration test has to be done by a certificated company. The results of the test will be shared with ACC IT Department and PIU IT Coordinator. The test has to pass the test clearly for acceptance of the Final Version. Otherwise, the development process cannot be concluded.

The second penetration test will be done before starting the second year of Maintenance. The results of the test will be shared with ACC IT Department and PIU IT Coordinator. The software has to pass the tests clearly for the start of the second maintenance period. Otherwise, the Contractor is obliged to make all necessary improvements and corrections to pass the test. All the tests mentioned have to be conducted by an independent and certified third party.

Environment

Development, test and production servers (Application servers, Database Servers, File Servers, Load Balancers etc.) will be provided by ACC and these will be located in ACC Central Union Headquarters. The testing of the software will be performed on these servers. The software development team will access these servers over a VPN connection and will deploy software to these servers. The access rights to the network and server structure will be determined and managed by ACC IT Department, depending on strict ACC IT regulations based on their active Standards.

The Contractor must agree to provide a temporary testing environment as a precaution if necessary, solely for software features / business rules tests in order to avoid interruption of the project, in case any delays happen about Servers will be provided by ACC. If such a necessity occurs, performance will not be important, the Contractor may use any functional structure to publish the initial test versions of the software.

Maintenance

After the final approval, the first period of maintenance will start. After the second penetration test passed clearly, the second period of maintenance will start. the maintenance is for sustainability and modification (limited to the complete software scope/modules and functions) of the system.

Responsibilities

PIU IT Coordinator's main duty is supervision and coordination of the Software Development process, working with the Contractor and ACC IT Department

Under this project, ACC Project Director will be responsible for evaluating the progress of the project. The progress report will be prepared by the PIU IT Coordinator, it will be approved by the head of ACC IT Department and presented to the Project Director.

The Project Director will guide the PIU whenever it deems necessary and makes recommendations.

The PIU IT Coordinator will be responsible for managing the process of software development within the project and reporting it to the Project Director. PIU IT Coordinator will be responsible for the progress of the works within his department.

In this context, the technical acceptance is under the responsibility of PIU IT Coordinator and the Head of ACC IT Department. The Head of ACC IT Department will operate as the final verifying body when the work is done.

G. MANAGEMENT OF PROJECT

Project supervision and work environment are under the responsibility of the Contractor. The main concern of the PIU IT Coordinator is the supervision of the Software Development to be completed adequately and in time. He / She will define the responsibilities of the Contractor in a way that the plan is executed without problems depending on project requirements defined in the signed contract. The Contractor will be the responsible body for the terms agreed on the contract.

PIU IT Coordinator will be responsible for follow-up on the software development process, providing software requirements, coordination of software development processes between the Contractor and ACC. The Contractor will inform the PIU IT Coordinator on the progress and the deviations related to the software development processes.

Business analysis is the most important part of the development process, it must be well understood and the document must be written in plain and clear language, so non-IT counterparts can read, understand and make comments on stated business rules. In such a short period, changes in the agreed analysis will cause delays and other problems.

The Contractor may observe that some information given in analysis has some missing parts or may think of some better way to change the real-life operations. Such suggestions which are for the benefit of the ACC and PIU must be excluded from this rule, so the Contractor may feel free to come with better options even if they would cause alteration of plans or delays in non-calendar-dependent version deployments.

Focal point in this project is PIU IT Coordinator. When there is a need to establish a managerial issue to be resolved with the contracting firm, at this point, the authority will be of the Head of ACC IT Department. If there is a major conflict with the contracting firm, the ACC Central Union will have the authority to resolve the conflict. The path to be followed to resolve the conflict will be determined by the ACC Central Union, but the responsibility for the implementation of the specified method will belong to the PIU IT Coordinator and Head of ACC IT Department.

The documents related to the Technical Specifications will cover quality assurance. In this context, after the approval of the software at the end of the 12 months, it will be guaranteed that the Contractor company will make sure developed software will be eligible for the use of all project users

in a bug-free way during the following 24-month period. Also, for this 24-months maintenance period, the Contractor company will assure ACC about the software's required maintenance, bug-fix, software updates (not including development of new modules), necessary update support for other dependencies such as software libraries as well. PIU IT Coordinator will make sure that the development is done under a certain quality and standard.

In line with the tests to be carried out by the Contractor firm during the version submissions, even if the software has met the required criteria, the ACC IT Department will have the right to repeat the tests within the framework of its authority.

Verification and Validation will be the responsibility of the PIU IT Coordinator. The PIU IT Coordinator is also responsible for obtaining approval from the required authority as ACC Central Union.

H. DURATION, LOCATION AND TIMING OF ASSIGNMENT

Following the signing of the contract, the Contractor will share the general and the first version of Business Analysis with the IT Coordinator of the ACC Project Implementation Unit at the end of the first month of the Project. The overall period given to the Contractor to complete the requested service is 12 months after the signing of the Contract. At the end of these 12 months, the Contractor is expected to complete the development and delivery of the desired service as defined in this document.

The duration of the contract with the contracting firm will be at least 36 months. The contracting firm will be responsible for the preparation, getting approval, testing, and delivery of the services to be specified in the contracts within this relatively short period, in line with the requests of ACC IT Department and PIU It Coordinator. The maintenance period will be the last 24 months of this 36 months.

There is an estimated workflow table at development process. Thus, an expectation of timing can be seen at the table clearly but It will be determined specifically after the signing of the contract.

During software development process, it is not required that the software development team must be resident in Ankara, but test engineer(s), business analyst(s), project manager of the Contractor must be resident in Ankara. Also, Contractor must have an official office in Ankara.

After the end of the development process, there will be 24-month maintenance. Therefore, the contract duration will be minimum 36 months. The software development period will be finalized after the acceptance of the final version of the software, with a successful penetration test. In the maintenance period, there will be another penetration test. So, meeting the expectations of penetration tests are critical for project closeout plan.

Time Range	Activity
0 – 12	Development
12-24	Maintenance

i. QUALIFICATION CRITERIA REQUIRED FOR CONSULTANT

Bidding will be conducted using the International Competitive Bidding (ICB) procedures specified in the World Bank's Guidelines: Procurement under IBRD Loans and IDA Credits, edition of 2011 revised in July 2014, and is open to all Bidders eligible as defined in these Guidelines, that meet the following minimum qualification criteria:

- a. **Bidder must be actively in operation in the following fields: mobile security software, management information system, and proven capability to provide, design, installation, warranty and support of production system for web Sites, web applications and cluster systems such as cybersecurity based or high performance web applications in accordance with this Contract for a period of minimum five (5) years (2015, 2016, 2017, 2018, and 2019). The leader of the JV should have been active in each of those fields.**
- b. During the past five (5) years (2015, 2016, 2017, 2018, and 2019) the Bidder (an individual firm submitting the bid or jointly within the joint venture) must have completed at least two (2) successful contracts involving in each of those contracts all of the following activities: supply, development, installation and post-sales support for an integrated system for a client. Those reference systems should be fully operational at the date of issuing these bidding documents. In case of a JV, the leader should have completed at least one of those contracts.
- c. Bidder shall provide training in Purchaser's country/, associated with the operation and administration of the system, as well as for all developed and installed products. Language of trainings will be Turkish language.
- d. Bidder shall have an office in the Purchaser's country or have a partner that is registered as a legal entity in the Purchaser's country having official status of a developer / provider partner, or having a consortium agreement associated with this Contract. This is necessary during the implementation, deployment, training, warranty period for smooth and reliable implementation of the Contract.
- e. The Bidder shall provide all software licenses for all components and products offered, demonstrating the software owner's permission to use the offered software solution for the contract
- f. Plan - schedule of services shall be authorized by the Purchaser and signed by the Purchaser within twenty (20) business days after signing the contract. Supplier shall promptly provide services by approved schedule.
- g. To have ISO 9001: 2015 or equivalent for quality management and ISO 27001:2013 or equivalent for managing information security is preferable (Bidder shall submit notarized copies of Certificate on compliance issued by the authorized body).

- h. Having SPICE Level 2/CMMI 3 or +8-year development of product experience is preferable
- i. The Bidder shall provide service and technical support and warranty, including new versions of the software.
- j. The Bidder shall prepare appropriate guidance for all components of the System in Turkish language.
- k. The Bidder shall have proven capabilities, specialization or competency in Application Integrations, Application Development, No SQL Data Platforms.
- l. Bidders will have completed R&D cybersecurity or high performance web application projects, is preferable
- m. Technological Product Experience Certificate is preferable

J. PAYMENT PLAN

Month	0	1	2	3	4	6	7	8	9	10	12
Activity	Signin Inception Report	Business Analysis Report	First Version of Deploy ment	Business Analysis Report	Second Version of Deploy ment	Third Version of Deploy ment		Fourth Version of Deploy ment		Fifth Version of Deploy ment	Sixth Version of Deploy ment
Payment	%20	%5	%10	%5	%5	%10		%5		%10	%15
Total	%85										

Month	12-24	24-36
Activity	Maintenance	Maintenance
Payment	%7.5	%7.5

