Federal Democratic Republic of Ethiopia

Industrial Parks Development Corporations (IPDC)

Terms of Reference (TOR)

For Provision of Services in Supplying, Installation, Commissioning and Maintenance of Industrial Parks Management System.

January 24, 2024

Addis Ababa, Ethiopia

List of Abbreviations

IP	Industrial Park
FDI	Foreign Direct Investment
IPDC	IPs Development Corporations
IPs	Industrial Parks
IPMS	Industrial Parks Management System
IPDC-HO	IPs Development Corporations- Head Office
SMS	Short Message Service
VOIP	Voice over Internet Protocol
BOD	Biological Oxygen Demand
ZLD	Zero Liquid Discharge
ETP	Effluent Treatment Plan
WTP	Water Treatment Plan
KWh	Kilowatt per hour
COD	Chemical Oxygen Demand
ETP	Estimated Transmit Power
STP	Sewage Treatment Plans
FIFO	First In First Out
AACRA	Addis Ababa City Road Authority
MUI	Ministry of Urban and Infrastructure
ERA	Ethiopian Road Authority
CRM	Customer Relationship Management
PH	Power of Hydrogen
GRN	Goods Receiving Notes
RGRN	Return Goods Receiving Note
SIN	Store Issue Voucher
PIN	Property identification number
PEHAA	Public Enterprise Holding and Administration Agency
MLS	Ministry of Labor and Skills.

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1. Background

The Ethiopian Industrial Parks Development Corporation (IPDC) was established in 2014, as one of the public enterprises. Inspired by the full support of the government, IPDC is becoming an engine of rapid industrialization that nurtures manufacturing industries, to accelerate economic transformation, promote and attract both domestic and foreign investors. The Industrial Parks Development Corporation of Ethiopia (IPDC), being both the developer and owner of various parks is mandated to ensure that the Industrial Parks are well suited to the needs of investors and continue to operate efficiently. To activate investment services, it avails serviced industrial land, pre-built sheds equipped with all-encompassing utilities, and infrastructural facilities that fit international standards.

In addition to this, IPDC is operating in 12 industry parks that are found dispersed across different regional governments. Each of the IP has its own manager that reports to the IPDC head office. IPDC works with the Ethiopian Investment Commission, Ethiopian Revenue and Customs Authority, as well as other institutions, to provide a one-stop shop service for investors investing in designated industrial parks.

In nutshell, the following are the major services provided by IPDC:

- Industrial park (IP) lease and/or sub-lease approval
- One-stop-shop service
- Services provided on behalf of Investors
- Service provided for Private Developer
- Other services such as after care services

Even though there are some automated systems that lack seamless integration which are currently in use by some sectors in the corporation, the majority of the services have been provided using conventional method. Hence, there is a need to develop a comprehensive system that automates all the services provided by the corporation in the way that solves the limitations of the existing systems by introducing the Industrial Parks Management System (IPMS).

2. Purpose of ToR

The purpose of this ToR is to hire a highly competitive and experienced information system development firm to develop a system that automates the business processes of the Industrial Park development corporation. The Consultant Firm will implement a holistic approach in initiatives that could contribute towards addressing over all challenges through the proper IP Management System.

3. Objectives

The objective of the assignment is to design and implement a web based and/or mobile app named Industrial Parks Management System (IPMS) that automates the IPDC's business processes:

- To provide clients with self-service options, such as the ability to track the status of their applications for an industrial park or to request information.
- To automate tasks, such as sending reminders and alerts to internal staff, security, maintenance personnel, management, investors and other stakeholders.
- To improve communication and collaboration between IPDC, Industrial parks, and its partners.
- To provide insights into data, such as generating reports on performance of the IPs based on various criteria and KPI
- To allow IPDC exchange data with other systems via APIs.

Generally, IPMS's goal is to allow IPDC to better serve its clients, stakeholders and partners by automating all its services.

4. Significance of the System

The significance of the proposed system is to automate the overall business processes of IPDC in a way of reducing the complexities of the existing conventional system. So that the system will enable the management to make informed decision on issues related to the Corporation.

In general, the proposed system holds significance importance in the following aspects:-

- **Real Time Information**: - is to generate quality and real time data on selected areas of programme performance to guide decision- making processes across the IPDC, corporations.
- **Regular Monitoring**: - is for collecting, analyzing, and using information to track and improve the performance, impact, and risks of an activity, project, program, or policy. This is good for SWOT analysis, to measure progress and achievements against planned objectives and indicators, to ensure accountability and responsibility to stakeholders and beneficiaries, for resource allocation as well.
- **Automation**: - the proposed system enhances productivity, efficiency, quality and Safety in the corporation and it also creates new opportunities for innovation, business models, and social impact, by addressing existing challenges.

5. Duties and Responsibilities

The consultant firm should cover all system development phases: requirement analysis, System Requirement Specification, designing, development, testing, deployment and maintenance. Furthermore, the consultant is responsible to propose, validate and provide all the necessary hardware, software and network infrastructure requirements that might be required for successful system deployment. Not only that, but this assignment also includes configuring the system on production environment, rollout, prepare user manual documentation and train the IT staff on technologies the system uses, and end users within the corporation.

Specifically consultant firm is expected to:

- Analyse the existing systems to identify gaps and develop a detailed Gap Analysis Document.
- Conduct a comprehensive System Requirement Study for all modules and the gaps identified to develop a detailed system requirements document.
- Produce a System Design Document (SDD), Quality Assurance Strategy, and Hardware Assessment Report as per the approved System Requirements.
- Propose the necessary software, hardware and networking infrastructure requirements that might be required for the successful deployment of system.
- Implement the proposed system as per the approved requirements and design specifications.
- Test the proposed system using various testing mechanisms to assure the quality of the system.
- Develop up to date user and technical manuals, standard procedures, and guidelines for maintaining the system.
- Train and transfer the required knowledge to technical staff to learn the details of the design, installation, management, and troubleshooting, and to end-users on how they operate the system.
- Handover stable version of the System including full ownership of the source code, all related technical documentation, and obtain an Operational acceptance of the IPMS.
- Providing on-going technical support and maintenance of the platform within warranty period of **12** months.
- Build the IPMS on a design-operate-transfer model.
- Use of Agile principles, with project milestones planned based on sprints;
- Ensure use of state of the art version control and repository such as Git/GitHub for source code management and Jira for project flow management;
- Ensure IPMS is interoperable with other systems via industry standard protocols such as web-services.
- Make the appropriate recommendations to the client on IT related issues ;

- Maintain confidentiality of any information accessed as part of this consultancy engagement;
- Develop a strategy for periodic and needs-based maintenance of the IPMS platform after the warranty period.
- Deliver IPMS that meets the specifications and requirements of the IPDC on agreed time and budget.
- Follow the standards, policies, and procedures of the IPDC, as well as any applicable laws, regulations, or ethical codes.
- Report any issues, problems, or risks that may arise during the project execution, and proposing solutions or alternatives.

6. Scope of Work

The proposed system is confined to be focused on the automation of the overall business processes of Industrial Parks Development Corporation (IPDC) divisions: CEO, Corporate, Operation, development and Industry Parks as per their requirement specifications. Accordingly, the proposed system is dedicated to automate the various tasks run by different departments available under aforementioned divisions. The proposed system should be operated across all the current and upcoming Industrial Parks by establishing communication among each other and also with head office. The major tasks needed to be automated are stated in detail under section seven.

7. Functional Requirements

This section covers the description of major tasks, modules and features of the IPMS that aims to automate the works of all IPDC Sectors (CEO, Corporate, Operation and Development) and their respective departments (IT, Legal, Corporate Audit, Investment Promotion and marketing, Business development, Ethics & Anti-Corruption, Strategic plan and performance management, Human Capital, Procurement and Supply management, Property management and General service, Finance, Energy study & supply, IP follow-up & support, Security and Safety, Environmental, Health & social Safeguard, Master Plan &Land Bank Management, Design Management, Construction management, Construction supervision and Contract Administration, Construction Management.

The intended system will have multiple modules that are stated in the next sections with their respective sectors and departments.

7.1 CEO Sector

The CEO is the highest ranking executive, who is responsible for making strategic decisions, managing the overall operations, and driving the strategic direction of IPDC. The CEO reports to the board of directors and is accountable for IPDC's performance, profitability, & growth. There are four sectors under the CEO namely Corporate Resource Management, Land and Infrastructure Development, Operation and Management, and Investment Promotion and Client Relations; that holds different functional departments under their supervision. The major departments under the CEO supervision include:

- Ethics and Anti-corruption
- Corporate Audit
- Legal Service
- Information Communication and Technology
- Gender and Social Responsibility
- Strategic Plan and Performance Management
- Communication
- Risk, Compliance and Quality assurance

Note: The CEO should be provided with high level representation of overall activities of the system using different graphs and charts as a dashboard. And also should be provided with the functionality to view and audit activities of a specific office through the system.

Legal Service Department

Legal Advice Module

The legal advice module of the system aims to help legal department manage its customer interaction with regard to legal advice request. It is used to accept legal advice requests coming to the office, allow the department experts to analyze the request and provide expert level advice accordingly. It can also be used to generate reports and analytic that can help the department to improve its service provision.

The source of the legal advice request is either from an individual or an office within IPDC. Once it reaches the department then it will be assigned to an expert so that he/she can work on it to provide the appropriate response to the request. The response will then be reviewed by the department head and sent back to the requesting body upon his/her approval. This module can be used as a knowledge management tool; where by experts can review responses to similar request

that are previously recorded on the system. Here are the workflows:

- Capture and manage legal advice requests as a multimedia content where the request can be recorded as video, audio, image, or text format.
- Assign request to the appropriate legal expert.
- Prepare responses using multimedia content type.
- Forward the response to the department head.
- Review the response for approval or rejection.
- Provide response to the customer upon department heads' approval.
- Notify customers of the request status and progress.

Case-flow Management Module

The case flow management module of the system aims to help legal department manage its interaction with the judicial system of the country by managing case related information where IPDC is either the plaintiff or the defendant. It will automate routine clerical tasks so that experts can focus on strategic tasks and other areas that require their skills and expertise. It can also be used as inquiry processing in response to daily individual questions about the status of specific case.

IPDC represented by legal department might accuse or be accused by an individual or public or private organization. So, in either case, court order document or letter comes to the record and archives service desk and assigned to legal department by the responsible body. Once it reaches the department then it will be assigned to an expert so that he/she can work on it to provide the appropriate response to the request. The response will then be reviewed by the department head and formal court hearing is conduct as per the court schedule. Some of the most important requirements of this module are:

Case Tracking

- Capture and manage case-related information
- Assign case to the appropriate expert
- Register case related information using case record management starting from initial filing to case close.
- Review case activities with other experts.
- Provide inquiry processing to status checking.
- Provide case tracking report.

Calendar Management

- Capture and manage case court dates
- Prepare calendar
- Provide periodic court date preview
- Notify experts on court dates in a timely and efficient manner.

Case Record Management

- Capture and manage case records using multimedia content type.
- Maintain and continuously update records and case histories.
- Provide indexing as a cross-reference to case files specially non-electronic files
- Archive case record upon conclusion as a closed case.

Corporate Audit Department

Audit Module

The audit module of the system aims to help the internal audit department to manage its activities of auditing by streamlining and organizing the planning process. It provides standards-driven audit checklists to keep the audit work aligned with regulatory compliance requirements. In the long it provides an end-to-end audit trial for all audits conducted within IPDC keeping an historical record of audit findings and recommendation actions suggested.

This module helps the department to plan audit activities. An audit activity is initiated based on the plan and in some cases IPDC management and/or board can also initiate audit activity. Then the audit activity undergoes through the audit process and final report is submitted to the management and/or board. Some of the most important requirements of this module are:

Planning Management

- Capture and manage audit plan.
- Capture and manage audit request.
- Assign roles to audit team.
- Prepare engagement/announcement letter.
- Schedule and manage entrance conference.
- Conduct preliminary survey.
- Conduct internal control review.
- Prepare audit program.

Fieldwork Management

- Perform transaction testing for financial audit.
- Conduct audit investigation for performance audit.
- Audit query disposal.
- Prepare audit summary.
- Prepare working paper documentation.

Audit Report Management

- Prepare draft audit report.
- Review draft audit report with peers.
- Schedule and manage exit conference.
- Share formal draft audit report for comment by auditee.
- Capture and manage auditee/client responses.
- Prepare final audit report.
- Issue final audit report.

Audit Follow-up Module

Quality audit produces a report that contains findings, observations, and recommendations for improvement. This doesn't mean that it is the end of the process because it is essential to evaluate and follow up on the implementation of the audit recommendations to ensure that they are addressed and resolved. This module aims to help facilitate this process of the department by integrating output of the audit module and performing the follow up activities as per the audit report. Some of the most important requirements of this module are:

- Prepare action plan by the auditee within 30 days of audit report acceptance.
- Prepare format/questionnaire for follow up audit activities.
- Capture and manage auditee's response letter to audit report findings.
- Monitor and review auditee's actions to address the deficiencies and recommendation.
- Test actions taken by the auditee to resolve the audit report findings and make sure desired result is achieved.
- Identify and capture unresolved findings.
- Review and file documentation and records.
- Prepare audit follow up report based on unresolved findings.
- Issue final audit follow up report.
- Identify actions for verification during the next audit.
- Make continual assessment

Ethics and Anti-Corruption Department

Ethics and Anti-Corruption module

Corruption can take many different forms ranging from low level officials asking for small bribes to highly prominent elected representatives misusing government funds for their own personal gain.

This module of the system aims to help the department manage its activities related to corruption prevention by accepting input on incidences of corruption, collecting detail information to further investigate the claim, and finally perform corrective actions as per the investigation result. In addition to this the module allows the department to manage and administer awareness creation and training activities. It also helps the department reward or recognizes those employees with good ethical behavior.

The module also includes encryption or anonymization features to protect identities of reporters and encourage reporting without fear of retaliation. It also includes follow-up and communication functionality to get feedback on how the case is being handled.

The module also ensures that quality of submission is increase by controlling volume of submission, where submissions/inputs that undergo through the investigation process needs to be relevant. Some of the most important requirements of the module are:

Governance Management

- Prepare ethics building and corruption prevention strategy.
- Prepare code of conduct guideline.
- Identify proclamations, regulations, instructions and manuals that opens a room for corruption and wrongdoings.
- Revise accordingly to align with current situations.

Corruption and Ethics Management

- Receive input on misconduct and corruption.

  Note 1: input types are corruption prevention, corruption risk study, or anti-corruption.

  Note 2: Ensure confidentiality so that indicators of ethical violations and corruption are not attacked.

- Analyze and investigate to gather additional information

- Monitor and make decision using findings

  Note: The decision might be returning stolen assets or if it is simple violation submitting proposal to the top management or if it is serious violation submitting case to police and prosecutor is performed.
- Follow-up on the implementation of the recommendation.
- Employee and management announcement and awareness.
- Prepare report.

In addition to the corruption and ethics management feature the department requires to manage the activities related to decision made by discipline and grievance committee, to manage practices that are vulnerable to conflict of interest, to manage attempts of revenge on anonymous reporters, and to manage conflict among employees in the work environment. So, the following features are considered as sub functionalities under corruption and ethics management.

A. Committee Decision Management

- Register discipline and grievance committee decisions.
- Follow-up and report its implementation.

B. Conflict of Interest Management

- Identify and research practices that lead to conflict of interest.
- Set grading.
- Prepare prevention procedure manual.

C. Revenge Management

- Capture and investigate influence on whistle-blower.
- Take corrective actions to findings.
- Report result.

D. Work Relation Management

- Identify work conflicts.
- Resolve the conflict and take corrective action.

Acknowledgment Management

- Define evaluation points based on the requirements of FDRE Ethics and Anti-Corruption Commission (EACC).
- Identify staffs and higher officials with best ethical behavior.
- Evaluate based on those criteria and set points.

- Schedule recognition program.
- Conduct the recognition program.

Project Management

- Design capacity building project and programs to enhance good ethics and anti-corruption.
- Present to higher officials for approval.
- Implement and follow-up.

In addition to managing project ideas the department also requires a feature that handles its communication with other departments. So, the following feature is considered as sub functionality under project management.

SLA Management:

- Prepare Service Level Agreement (SLA).
- Sign SLA with other departments.
- Implement and follow-up.

Assets Management

- Identify employees and higher officials that doesn't register their asset.
- Notify employees to register their assets.
- Coordinate asset registration.
- Provide first level approvals.

In addition to coordination of asset registration the department needs to perform follow-up on employees activities with regard to acquiring new assets and report if there is any wrongdoings. So, the following feature is considered as sub functionality under the assets management.

Assets Follow-up Management

- Identify employees with assets from unknown source.
- Identify employee with conflict of interest.
- Organize information.
- Expose employees with such issues.
- Follow-up.

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Communication Department

Communication Service Module

This module aims to help the department manage communication activities interms of organizing park tours, news and press release that are posted on both digital and print media bodies, follow-up social media activities and provide feedback on questions related to the corporation, and other general communication activities. Some of the most important requirements of the module are:

Tour Management

- Identify stakeholders from investors, public, and private organizations.
- Organize media tour of industrial parks.
- Collect feedback from stakeholders.
- Implement and report on tour status.

News Management

- Prepare news showing corporation activities.
- Prepare magazine.
- Transmit through both print and digital media platform.

Press Release Management

- Receive planned events from corporation departments.
- Prepare press release.
- Communicate different media bodies.
- Follow-up and deliver the event.

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Social Media Management

- Prepare relevant media contents (Video, Audio, Image, Text) showing current state of parks.
- Prepare design and graphics of content.
- Distribute using corporation social media.
- Administer Social Media.

Media Monitoring Management

- Perform media monitoring activities.
- Identify reports about the corporation on various media outlets.
- Provide feedback for reports that need correction.
- Archive report.

7.2 Investment Promotion and Marketing Sector

Investment Promotion and Marketing Sector this sector plays crucial roles in attracting and retaining investors, by creating a favorable investment climate and showcasing opportunities and performing marketing strategies to effectively communicate and promote those opportunities to potential investors. The major departments under this sector include:

- Investment Promotion & client Relations
- Marketing and Branding
- Business Development

Business Development Department

Income Generation Module

The income generation module of the system aims to help the business development (BD) department manage its activities of formulating income generation ideas through new business ideas, investor need assessment, alternative investment options, and cost minimization. It helps the department to handle multiple income flows. It also improves employee's performance and productivity because it helps streamline workflows and reduce employee workload. It can also create better collaboration with other departments and industry parks; anyone with access can contribute and share data to the department.

The income generation always starts with business idea that have a potential to generate new income, then thorough analysis to identify its pros and cons as well as feasibility study to test how feasible it is conducted , and finally presented to the management with appropriate recommendation. And sometimes it can undergo through the implementation phase with the availability of fund and approval by the management. Some of the most important requirements of this module are:

Business Idea Management

- Capture and manage business ideas.
    1. From Industry Parks
    2. From other Head Quarter (HQ) departments
- Analyze the business idea.
- Conduct and record feasibility study.

- Forward the business idea to the management for approval.
- Avail funds and budget.
- Implement the business.

Investor Management

- Identify key investors to proactively communicate and engage.
- Conduct investor need assessment.
- Formulate business idea.
- Continue process with "Business Idea Management".

Business Partnership Management

- Collect and capture business partnership proposal.
- Analyze the proposal.
- Capture the proposal comment.
- Forward comment.

Alternative Investment Management

- Identify alternative investment options.
- Capture and manage alternative investment options.
- Select alternative investment option for feasibility study.
- Conduct assessment.
- Prepare alternative investment document.
- Forward alternative investment document to the management.

Cost Management

- Identify top 10 and top 5 operational costs.
- Capture and manage HQ and/or park operational costs.
- Conduct assessment.
- Prepare recommendation for cost minimization.
- Forward cost minimization recommendations.

Investment Promotion and client Relations Department

Promotion Module

This module of the system aims to help the department to manage promotional activities that are performed to create good image of IPDC on different events. Some of the most important requirement of the module are:

Content Management

- Prepare multimedia (Video, Audio, Image, Text) promotional contents that support different local and international languages.
- Prepare a promotional giveaway that holds IPDC logo.

Event Management

- Identify local and international investment forums/bazaars/exhibitions.
- Organize local and international investment outreach programs.
- Select the appropriate event.
- Prepare content using "Content Management Feature".
- Participate in those events.

Media Management

- Select digital and/or print media bodies.
- Prepare content using "Content Management Feature".
- Transmit promotional videos on selected digital media stations.
- Transmit promotional content on print media (booklet, brochure, flyer, banner, and billboard).

Marketing and Branding Department

Marketing Module

This module of the system aims to help the department to manage marketing activities that are performed to provide information about the corporation. Investors and stakeholders can have better understanding about the products and services provided by the corporation. It also allows the department to accept investor proposal and follow-up on it and forward it to the appropriate department upon agreement.

Some of the most important requirements of the module are:

Investor Management

A. Information Sharing

- Organize investment related information.
- Analyze investment related information.
- Provide and consult investors on investment related information.

B. Collaboration

- Attract international investors in collaboration with Ministry of Foreign Affairs (MOFA) and Ethiopian embassies all over the world.
- Create work relationship with embassies residing in the country.

- Identify stakeholders.
- Identify favorable investment environment for investors.
- Organize a discussion forum.

Proposal Management

- Receive investor proposal.
- Evaluate investor Project proposal.
- Consult and follow-up until contract agreement.
- Forward to investment monitoring and support department.

Branding Module

This feature aims to help the department manage activities related to ensuring everyone is following uniform branding for any activities involving the corporation as per the prepared guideline.

- Develop a brand guideline that guides the corporations internal and external communication activities.
- Provide training and awareness.
- Follow-up HQ and parks to use brand guideline in a uniform manner.

7.3 Operation and Management Sector

Operation and management sector plays a vital role in maintaining industrial parks infrastructure, supporting tenants, and fostering environment friendly industrialization. The sector ensure the smooth functioning of utilities, roads, and buildings, prioritize safety and environmental compliance, and act as a helping hand for incoming and existing businesses. From onboarding and administrative support to logistics and optional facilities management, they cater to the needs of tenants. The sector also work to attracting new businesses, and retaining existing ones through tenant satisfaction initiatives. By embracing technology and innovation, the sector strive to optimize park operations and enhance the overall tenant experience. The departments that report for the operation and management sector are the following:

- ✓ Investor Aftercare & Supervision
- ✓ Environment, Health and social safeguard
- ✓ Utility and Infrastructure management
- ✓ Security and Safety

Investor Aftercare & Supervision Department

Customer/Investor Relation management Module:

The CRM/IRM module of the system aims to help IPDC manage its customer interactions and data. It is used to track customer contact information, follow-up investors' performance as per the core objectives such as job creation, export, technology transfer, and support investors to facilitate their production, opportunities to attract new investors, customer service issues (complaints), and marketing campaigns. CRM module is also required to generate reports and analytics that can help IPDC improve its customer relationships and grow its business. Some of the most important requirements for this module are:

Customer/Investor Management

- Capture and manage customer/investor information, including contact details, company information, and compliance status.
- Assign customers to the appropriate department or employee.
- Receive and record customer status progress reports (export, local sale, job creation, linkage, technology transfer, etc.).
- Provide feedback or recommendations on customer status progress reports.
- Record and manage employee address books.

Request Management

- Capture and dispatch different requests coming from the investors, such as licenses, maintenance, and labour requests.
- Track the status of requests and keep investor updated.
- Provide reports on request volume, turnaround time, and other metrics.
- Notify customers of their status and progress.
- Provide live responses to customer questions via live chat.

Service Satisfaction

- Ability to record, analyse, and report service satisfaction
- Allow investor relation staff to conduct survey on service satisfaction

Reporting and Analytics

- Generate reports on customer activity, compliance, requests, and other metrics.
- Customize reports to meet the needs of specific users.
- Analyze reports to identify trends and opportunities.

Profile Management

- Prepare profile of local and international investors that are residing in industry parks.
- Group investors according to their sector.
- Follow-up using different communication means (telephone, email, and physical) so that investors are encourage to invest.
- Record follow-up status and response of investors.

Utility and Infrastructure management Department

Repair and Maintenance Module

The repair and maintenance module is meant to help IPDC and the industry parks manage their repair and maintenance activities more efficiently and effectively. The module can be used to track and manage maintenance requests, schedule and record preventive maintenance tasks, track inventory of spare parts and materials, generate reports on maintenance costs and performance, and more. Some of the most important requirements for this module are:

Maintenance Types and Details

- Ability to create and manage maintenance types and details, including:
- Maintenance type (e.g., preventive, corrective, emergency)
- Maintenance task (e.g., inspection, cleaning, lubrication, repair, replacement)
- Ability to record and maintain park properties that can possibly be maintained

Maintenance schedule and resource distribution

- Ability to create maintenance schedule
- Ability to define and manage maintenance resources required (e.g., labor, materials, equipment and time)
- Ability to evenly distribute maintenance activities to respected employees (maintenance schedule)

Preventive Maintenance

- Ability to schedule and record preventive maintenance tasks
- Ability to identify and ensure that equipment undergoes routine cleanings, inspections, lubrication, servicing, and much more

- Ability to identify equipment and machinery that require preventive/predictive maintenance
- Ability to track and monitor maintenance progress for equipment and machinery with real-time data sharing
- Ability to use real-time data to guide decision making for early failure detection and smooth operation

Maintenance Costs

- Ability to define, edit, and share maintenance costs to investors or business units
- Ability to outsource maintenance processes to other firms

Maintenance Requests

- Ability to record and receive maintenance, modification, and expansion requests
- Ability for investors to submit design/layouts and related documents
- Ability to notify users of the status of requests, give feedback, and approve or deny requests

Additional Requirements

- Integration with other modules of the industry parks management information system, such as the asset/inventory management module.
- Ability to generate reports on a variety of metrics, such as maintenance costs, service satisfaction, and asset utilization
- Ability to generate work orders and track status of maintenance work and work completion sign off.
- The ability to record average response time for maintenance activities
- Ability to generate spare parts, tools, and safety equipment purchase request and status tracking.
- Ability to hierarchically authenticate management level in accessing, modifying, and updating information.
- Generate individual machinery/equipment maintenance history card.
- Prepare maintenance logbook with standard formats from which variety of reports can be generated such as type of fault, repetition of fault, total downtime
- Prepare power interruption recording, tracking and generate summarized report to respective stages of management.

Inventory Management module

The inventory management module shall:

- **Support for multiple warehouses or locations.** Track inventory across multiple locations, such as one or more warehouses at HQ of IPDC or one or more warehouses per industry parks
- **Manage purchase orders.** This shall support users and IPs to place purchase orders, track progress and approval status of it. In addition, send notification to the requesters upon arrival of the ordered items into the inventory.
- **Track inventory levels for all items in the system**. This includes the quantity of each item on hand, as well as the location of the item.
- **Allow users to add, edit, and delete items from the system**. This includes the ability to create new items, update existing items, and delete items that are no longer needed. Items might include chemicals, reagents and spare parts at the various industrial parks
- **Support different units of measurements.** This allows users to add, edit and delete custom measurement units in addition to the common ones like PCs, litters, etc.
- **Allow for FIFO checkout of items.** Allow users to checkout inventory items based on the first in first out rule. For some items, items expiration dates shall also be considered
- **Generate reports on inventory levels, usage, and other metrics.** This allows users to track inventory trends, identify areas where costs can be reduced, and make informed decisions about inventory management. The reports shall have different filtering options such as usage stats per IP, items ordered but not purchased, ordered and purchased, count of items available in stock, items being used, date ranges etc.
- **Track the location of items in the system**. This includes the ability to track items by warehouse, storage location, or even shelf location.
- **Manage reorder points and levels for items**. This allows users to ensure that items are always in stock when needed, while avoiding overstocking and unnecessary costs.
- **Generate alerts when inventory levels fall below a certain threshold**. This allows users to proactively take steps to replenish inventory before it runs out.
- **Integrate with other systems, such as accounting, maintenance and repair module.** This allows users to share data between the inventory management system and other systems, streamlining workflows and improving efficiency.
- **Support for multiple currencies.** This allows IPDC to track inventory in multiple currencies, which is useful for some items that can be bought directly from abroad in other currencies.
- **Support for barcode scanning.** This allows IPDC to quickly and easily scan barcodes to add items to the inventory system or to check inventory levels.
- **Support for serial number tracking.** This allows users to track individual items by their serial numbers, which is useful for items that are high-value or that require regular maintenance.

- **Support for batch tracking.** This allows users to track groups of items by their batch numbers, which is useful for items that are manufactured or purchased in batches.
- **Support for expiration date tracking.** This allows users to track the expiration dates of items, which is important for ensuring the safety and quality of products.
- **Support for custom fields and attributes.** This allows users to add custom fields and attributes to items to track additional information, such as supplier information, warranty information, or maintenance records.

Utility (ZLD: ETP, STP and WTP) Module

The utility process module of the system is an important tool for helping industry parks manages their water and waste-water treatment processes more efficiently and effectively. By tracking and analyzing these data, industry parks can identify areas for improvement and make changes to optimize their operations. This can lead to reduced costs, improved water quality, and reduced environmental impact. The followings are the major features of the utility module:

Daily Process Tracking

- Track the quantity and characteristics of inlet water and waste-water from each company or shed, benchmarking it against the treatment facility's permissible inlet characteristic.
- Track the quantity and characteristics of water and waste-water at the receiving chamber, equalization tank, and each major stage of the treatment process.
- Track the quantity and characteristics of sewerage treatment (STP)
- Track the quantity and characteristics of clean water and recycled water, as well as the discharge/reuse quantity.

Resource Consumption and Meter Readings

- Track the electric power consumption
- Record and analyse daily resource consumptions and meter readings for the utilities (water, energy, and others).
- Record and maintain data on water consumed by the investors, wastes released from industries or sheds, and service information.
- For water supply plants, track the water quality, amount of treatment chemicals used, and quality of water supply.
- Inventory management or chemical (treatment) stock management to ensure reliable and uninterrupted chemical supply and mitigate the expiration of chemicals and reagents by monitoring the stocks date of expiration and applying a FIFO concept.

Utility and Billing Management Module

Recording and maintaining utility consumptions, meter readings, rent, and other incomes:

- The module must be able to record and maintain utility consumptions, meter readings, rent, and other incomes for each tenant in the industrial park.
- The module must be able to track the consumption of each type of utility, such as water, electricity, treated industrial water, etc.
- The module must be able to track the rent and other utilities and services payments for each tenant.
- The module must be able to generate reports on utility consumption, meter readings, rent, and other incomes for individual tenants, groups of tenants, or the entire industrial park.

Processing and generating bills for all services available within industrial parks:

- The module must be able to process and generate bills (payment orders) for all services available within the industrial park, such as rent, utilities, security, and maintenance based up on the contract signed.
- The module must be able to calculate the bill amount for services the customer used and that were not cover under the contract.
- The module must be able to send bills (payment orders) to tenants via email or post.
- The module must be able to track the payment status of each tenant for each service.
- The module shall send notifications for the tenants and IPDC concerned office on payments due.

Report and Data Sharing

- Use the key processes of the water and waste-water treatment process and device template to share real-time data of the treatment process.
- Analyse the kinetics of important processes using benchmarks.
- Share data on flow rate, chemical dosage, power consumption, water quality metrics, MLSS, ammonia nitrogen levels, and others.
- The system should be able to generate reports on a variety of metrics, such as resource consumption, water quality, and treatment efficiency.

Additional requirements:

- The module must be able to periodically update the consumption and their respective costs.
- The module must be able to set payment periods and notify investors accordingly.
- The module must accommodate viewing and analysis of payment processes.
- The module should be able to integrate with other systems, such as accounting systems and customer relationship management (CRM) systems.

Environment, Health and social safeguard Department

Solid waste management module

- Record amount of ETP sludge, STP sludge, Salt and other chemicals generated and disposing mechanisms.
- Record the amount of solid wastes (disposable, recycled) generated form each company and disposing methods and
- Record the frequency of solid waste collected by the IP/Service provider

Greening module

The system shall allow users to:

- Record the amount of green area
- Track greening activities such as number of plantations (new plant or recovered), the amount of inputs used for plantation, water consumptions, number and type of the plants in the IP, the growth rate of plantation, any events or initiatives' on greening activities.
- Record environmental protection issues performed, environmental assessment and inspection activities
- Number of social activities/ responsibilities investors performed and number of beneficiaries

Report and Data Sharing

The system should be able to generate reports on a variety of metrics, such as ETP Sludge STP sludge, etc.

Performance Monitoring and Evaluation Module

The performance and evaluation module is an important tool for helping industrial parks improve their performance and achieve their goals. By tracking and analyzing performance data, industrial parks can identify areas for improvement and make changes to optimize their operations. This can lead to increased occupancy rates, improved tenant satisfaction, reduced environmental impact, and increased profitability.

Activity and KPI Management

- Define, capture, and edit activities and key performance indicators (KPIs) to be monitored. It shall also capture explanatory notes/remarks against each KPI.
- Record and analyse the trends of each key performance indicators
- Generate a checklist based up on goals and activities for monitoring and evaluation purpose.

Performance

- Capture, compare, and give remarks on KPIs planned versus achieved.
- Track and measure the performance of industrial parks on a variety of KPIs, such as factory shed utilization rates, tenant satisfaction, and environmental impact.
- Compare the performance of industrial parks to each other and to industry benchmarks.
- Identify and show areas where industrial parks can improve their performance.

Reporting

- Generate a summary report on the findings of monitoring and evaluation. The report shall have options to filter using different parameters and metrics.
- The system shall allow generating and sharing reports to authorized body.
- Generate reports on a variety of contract-related metrics, such as contract value, contract performance, change order activity, and billing and collection activity
- Allow users to customize reports to meet their specific needs
- Generate reports on billing, payment and collection activity related with each contracts
- Generate payment statements and schedules based up on the contract

Integration

- Integrate with other systems used by the industrial park corporation, such as the ERP and other modules
- Ability to cross check amount on contract versus amount in the IPDC's accounting software.

Security and Safety Department

Safety and Security-Module

This module of the system should track all safety and security-related equipment that are legally owned by the IP and incidents in the industrial park, and allow users to easily view and manage this information. This can help to preserve safety and security in the park by identifying areas where improvement is needed, and by ensuring that safety and security-related equipment and personnel are properly maintained, inspected and legalized.

Security

The security sub-module of the system for industrial park shall support to:

- **Keep track of all security incidents including what the gap was, how it was handled, the government institution the case reported to and how much it cost.** This feature allows users to record and analyse security incidents inside and outside the park, including measures taken, average response time, number of theft and robbery cases, the government institution the case reported to and its status and capital lost due to security breaches.
- **Allow investors to report security issues and receive updates on the status of their reports.** Provide an online reporting system for investors to report security issues and receive notifications on its status to the IP security manager. It should enable them to send reports in different formats with attachments. Furthermore, the system shall also allow them to report via the system when changing security personnel, training security personnel, or inviting VIP guests to the IPs.
- **Controls that can enter and exit the park**. Provide online person access control, including sending notifications and receiving permission requests from security personnel in the gate. Track people coming in to the park along with the purpose of their visit
- **Track the movement of vehicles and properties in the park.**
    - ✓ Track the entrance and exit of VIP cars, investors' cars, and cars for providing different services in the IP
    - ✓ **Record and manage the entrance and exit of properties** (excluding properties under Customs supervision).
    - ✓ **Track the number of security drills and training sessions conducted.** Record and analyze the number of patrolling, security drills performed, and security

training conducted. Allow user to send training invitation using the system. The system shall generate report that shows the ratio of attendants to invitees at training, percentage of staff who has attended at least one security training to total staff.

- ✓ **Track traffic incidents and violations**. Record the number of traffic incidents, insurance status and number of traffic laws broken in the park.
- ✓ **Track the number of stakeholders meetings, agendas brought to meetings, and issues solved.** Record and analyze the number of stakeholders meetings, agendas discussed, stakeholders involved in the meeting (Federal and regional police, civil security guards), issues solved, and completed collaboration with stakeholders.
- ✓ **Track the number and status of security equipment.** Record the number of security instruments and machines inside the IP, the status and functioning of surveillance cameras, patrol cars, etc. Data bout certain security related equipments such as fire arms must be kept confidential and only privileged users can have access to.
- ✓ **Track crime rate in industrial parks** this could help the corporation to make a strategic progress on crime prevention

Safety

The safety management feature of the system for industrial park can:

- **Track all safety-related activities, including drills, training, inspections, and incidents.** Record and analyze information on the number of fire, health and emergency response and safety trainings conducted, the name of the company/shed number/, the number of trainees, and the specific title addressed, ratio of attendees at fire, and safety communications published.
- The system shall also be able to track the services provided by IP pre hospital and ambulance service such as number of vaccinated operators, number of HIV consulted and tested operators and family planning, sexual reproductive health consulting and medical service and number of first aid trainees.

Allow investors to report safety issues and receive updates on the status of their reports.

- Provide an online reporting system for investors to report any safety issues and receive notifications, send reports in different formats with attachments, and also receive any

notifications on safety issues from the investors, report when training given to the safety personnel, employee etc.

Track the performance of safety personnel and equipments.

- Track the functionality and number of alarms, detectors, sprinklers, hydrants, fire hoses, banal boards, emergency phones and all other equipment.
- Track the number, type, and expiration dates of all safety instruments and equipment in the industrial park.
- Generate alerts when safety instruments or equipment are due for inspection or have expired.
- Track the minimum number of on standby fire-fighters, pre-hospital service nurses and the average time it takes for them to reach the scene of an accident.
- Track the number of safety critical instrumentations/alarms that fail to operate as designed, either in use or during testing.
- Allow users to record the number of safety protocol breaches, reported traffic accidents, and the estimated capital lost due to fire or other incidents.

Keep track of all incidents, including what happened, how it was handled, and how much it cost.

- Send automatic alerts to safety personnel, management and investors when safety incidents occur. Automatically notify /the IP/shed number/ when fire and other emergencies occur,
- The number of fire trucks, ambulances, fire fighters and nurses dispatched.
- Update status of an emergency progress of the response efforts to all concerned parties.
- The time it takes to fight the fire or the reported incident
- The amount of water, foam, powder or CO2 used
- Damage analysis report
- Track the fire-fighting procedure of social responsibility given by IPs.

Identify areas where safety can be improved by analyzing data on safety inspections, incidents, and other metrics.

- Record and analyse the number of safety inspections conducted, number of non-conformance with legal or internal standards in safety inspections, measures taken to address non-conformity, number of minor and major industrial injuries per number of

workers, man days lost due to minor/major industrial injury, referral cases of pre-hospital and ambulance service, etc.

- The system shall also track risk assessment results specially identified hazards, vulnerable groups/infrastructures, and measures taken to minimize the adverse effects and the level of the risks
- The system should also track frequent hazards recorded and prioritize the sever hazard that may potentially cause disasters and evaluate any associated risks within IP

Energy study and supply Module (department name changed)

The primary role of this module is to automate the traditional maintenance management system to help maintenance teams manage their work more efficiently. The module automates many of the tasks involved in maintenance management, such as scheduling, tracking, and reporting.

Maintenance planning, scheduling, and tracking:

- The system shall allow the maintenance planner to plan maintenance tasks automatically, based on principles such as protecting the planner, focusing on future work, using component level, and using judgement.
- The system shall enable flexible maintenance scheduling based on the following principles: preparing job plans, prioritizing tasks, scheduling work for every hour, and measuring success by schedule compliance.
- The system shall enable management team to automatically track status and performed activities, maintenance performance, etc.

Preventive, predictive, and corrective maintenance strategy:

- The system shall enable the preparation of weekly/monthly/yearly maintenance planning for electrical and electromechanical equipment, machinery, and systems.
- The system shall enable the creation of maintenance schedules and generation of work orders, and the adjustment of schedules to account for emergency works.
- The system shall enable the preparation of inspection checklists and maintenance logbooks to record and file essential maintenance activities.
- The system shall enable the creation of detailed procedural maintenance manuals for complex systems.

IPDC
Industrial Parks Development Corporation
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- The system shall enable the preparation of preventive maintenance plans that are aligned with Industrial Park maintenance goals.
- The system shall enable the coordination of maintenance personnel and available resources to keep equipment and machinery operating in good condition and ensure that repairs are done timely.
- The system shall enable the effective management of resources such as human resources, tools, equipment, and workshops.

Automatic report generation:

- The system shall support automatic report generation capability, such as reports on temperature trends of machinery, number of work orders, performed maintenance activities, pending tasks, spare parts utilization, and total preventive, predictive, and corrective maintenance.

Inspection and audit management:

- The system shall enable the feeding of scheduled inspection numerical data such as temperature, pressure, current, and voltage of transformers, generators, and pumps.
- The system shall allow the auditing of the status of maintenance works concerning safety, planning, scheduling, training, documents, policies, and practices.

Stakeholder/vendor management:

- The system shall have the capability to track, monitor, and manage vendors and stakeholders.

Asset availability and inventory management:

- The system shall enable the registration of all fixed and movable assets.
- The system shall have spare parts inventory monitoring, control, and management capability.

Power interruption data register:

- Record and analyse the power interruption, measures taken, improvements, focus area, responsible body etc.

7.4. Land and Infrastructure Development Sector

Land and Infrastructure Development Sector is one of the five (5) sectors available under the Ethiopian Industrial Parks Development Corporation (IPDC) and the sector has crucial roles which run by the various departments involved under it. The major departments available under the IPDC development sector include:

- ✓ Master-Plan and Land Bank management
- ✓ Design Management
- ✓ Construction Management
- ✓ Construction supervision & Contract Admin

Design Management Department (the specific tasks of this new department)

Design management is another department owned under IPDC Land and Infrastructure Development sector and its primary responsibility is implementing the design.

Design Implementation - Module

- Ensuring contractors' correct interpretation and implementation of the design intent.
- Reviewing and approval of contractors' submittals (shop drawings, materials, method statements, mock-ups, as-built drawings and operations and maintenance manuals).
- Make sure cost-effective architectural and structural design.
- Approval (work permit) of out sourced projects.
- Design new different projects.

Construction management Department (the specific tasks of this new department)

As per the IPDC corporation organogram, Construction Management Department has been delegated and implementing wing for the provision of IPS workers housing, water supply and Access Roads and drainage provision to industrial parks by considering the existing and future scenarios when the parks become fully operational.

The major tasks (modules) performed under the Construction Management Department are described as follows:

IPs Workers Housing Provision - Module

- Developer prepares proposal for affordable housing and submit either to IPDC or EIC.
- The IPDC reviews the proposal & delivers the case to EIC.
- EIC reviews the proposal and requests IPDC to prepare land for the housing.
- IPDC prepares a land if available and sends plan format to EIC.
- EIC prepares a title dead map and makes agreement with developer.
- IPDC makes agreements with the developer.

- Developer submits request with necessary documents for construction permit (If needs modification and additional files).
- IPDC reviews the documents and makes a site visit and issuing construction permit and follow up & supervise construction.
- Developer requests for provisional occupancy permit.
- IPDC conducting site survey and issuing a provisional occupancy permit (noting necessary modification if required).
- After fixing the comments on provisional occupancy permit, developer requests for permanent occupancy permit after six months
- IPDC issuing permanent occupancy permit after inspection

Water Supply Process

- Prepare TOR – by Expert
- Sends TOR to department (Suggests back to expert if there is comment)
- The department will send TOR to Sector /DCEO/ (Suggests back to expert & department if there is comment)
- Purchasing & Property Administration
- Float
- Bid closing/opening (request sector /DCEO/ If clarity is required)
- Evaluation
- Contract signing by purchasing and property administration
- Collecting contract document
- Construction supervision and project management
- Test & commissioning
- Provisional handing over
- Final handing over

Hydrogeology Study and Approval

a) **Contractor's Hydrogeological Study & Approval –** by consultant
   - ✓ Contractor selects site and requests consultant for approval
   - ✓ Consultant allows contractor to commence study
   - ✓ Contractor commences study
   - ✓ Contractor submits study report to consultant for approval
   - ✓ Study report will be reviewed by the consultant
   - ✓ Study report will be accepted/returned
   - ✓ Project close out - after finalized all scope of works

b) **Tenant's Hydrogeological Study and Approval –** requested by Tenant
   - ✓ Tenant submits request letter to CEO
   - ✓ CEO directs letter directed to Deputy CEO
   - ✓ Deputy CEO directs letter to development sector

- ✓ Development sector forwards the issue to department
- ✓ Department directs letter to expert
- ✓ Expert visits site & requests tenant to submit the study report.
- ✓ Tenant submits study report
- ✓ Expert reviews the study report (requests clarification if any)
- ✓ Drilling Permission- IPDC permits he tenant to conduct drilling work for water supply
- ✓ Drilling Supervision- expert make follow up and supervision on site
- ✓ Well completion report – Tenant will be requested to submit well completion report after the drilling work is completed
- ✓ Closeout

c) Hydrogeological study and Approval- when IPDC hires consultant

- ✓ Prepare TOR - expert will prepare TOR that states IPDC requirement on the scope and objective of the work and its qualification requirement etc.
- ✓ Sends TOR to department (made discussion and if it might have comments will be incorporated)
- ✓ Department sends TOR to sector/DCEO
- ✓ Purchasing (the final TOR document will be sent to IPDC, purchasing department for further action)
- ✓ Bid float (on side of purchasing department)
- ✓ Contract award (on side of purchasing department)
- ✓ Site handover (between client & consultant to make suitable on site to do study by consultant)
- ✓ Study commencement (by consultant)
- ✓ Study report submission (consultant submits study report to IPDC)
- ✓ Review of study (by IPDC)
- ✓ Payment issuance (by IPDC)
- ✓ Project closeout

Payment Approval and Issuance

The department needs to review, approve and follow up the issuance of payments for both contractor and consultant.

- Payment request (on side of contractor or consultant)
- Sent to IPDC'S Archive
- Sent to CEO or Transformation
- Sent to Sector/DCEO/
- Sent to Department
- Sent to Expert
- Expert makes site visit and checking payment (on side of IPDC)
- Expert drafts letter to Bole Lemi Industrial Park (in-house memo for review and approval)

- Sent to Department (the department sends back to expert for comment if any)
- Sent to Sector/DCEO
- Sent to Industrial Park (Bole Lemi IP)
- Sent to Archive
- Sent to Sector /DCEO
- Sent to Department
- Sent to Expert
- Expert drafts letter to Corporate
- Sent to Department
- Send to Sector /DCEO/ (send back to expert If there is comment)
- Corporate Resource Management (for Implementation)
- Payment will be effective

Road and Drainage Provision - Module

Road and Drainage construction for the industrial parks with coordination of IPDC, ERA, AACRA, MoUI & other utility providers. The Budget for the road construction is allocated for ERA and/or AACRA through ministry of finance.

- Send layout of the park - (road standard inside IPs, expected traffic volume of the park, number of workers expected to be hired etc.)
- Notify expected time of the road has to be functional
- Request letter to ERA and/or AACRA for the provision of Access Road and Drainage with its expected cost estimation
- Write supporting letter to Ministry of Finance concerning budget allocation & approval to ERA/AACRA for the requested access road
- Follow & conduct joint site visit, Design & construction have meeting with the concerned ERA/AACRA department head for Access Road & Drainage for smooth integration with IPs.
- If necessary, write supportive letter to the respected city Admin to expedite the access road and/or drainage compensation process

Construction supervision & Contract Admin Department (the specific tasks of this new department)

Contract Administration module

- Overseeing contractors' planning, organization and execution of contracts.
- Reviewing, approving and monitoring of contractors' construction schedules.
- Reviewing and verification of contractor's interim payment certificates and change orders and assessment of contractors' claims for additional work.
- Reviewing and verification of contractors' guarantees and insurances.

- Preparing contract documents with BOQ and specification.
- Reviewing and managing tender with negotiating terms for contracts.
- Contract administration and supervision works

Reviewing Existing Contracts - Module

- Explaining terms to stakeholders
- Analysing risks and maintaining records
- Construction supervision and controlling
- Monitoring the progress of works and ensuring that construction is in compliance with the contract drawings, schedules and specifications
- Ensuring adequate quality control of the executed works.
- Monitoring and control of contractors' health, safety and environmental plans and provisions.

7.5 **Crosscutting Modules**

A. Contract Module

The contract module is essential tool for helping industrial parks manage their contracts more efficiently and effectively. By tracking and managing contract data, industrial parks can reduce the risk of disputes, improve cash flow, and ensure that contracts are completed on time and budget.
Contract Administration (IP follow-up and Support department)

Contract Management

- Create, receive, review, approve and reject contracts.
- Ability to manage different types of contracts, such as construction contracts, contractual agreement to rent shed, building or room, lease agreements, and service contracts.
- Track and manage contract performance and status,
- Provide alerts and notifications for important contract events

Change Order Management (addendum of contractual agreement)

- Manage the change order process from initiation to completion
- Support for renewal of contractual agreement
- Track and manage change order costs and schedules
- Generate reports on change order activity

Contract Preparation and Legal Review (Procurement department)

- Support the sharing of draft contracts for legal review.
- Receive and manage legal opinions on contracts.
- Track and facilitate the signing of contracts.
- Contract handover to the concerned body

Vendor and Contract Tracking (Finance department)

- Enabling the tracking of vendor contracts, including negotiation, and cost-effectiveness analysis.
- Providing alerts for contract renewals and expirations.

B. Training and Development

IPDC arranges training and development for an employee in order to enhance their awareness, skills, knowledge, and abilities, as well as improving their job performance and productivity. Accordingly, the system shall contain the Training and Development module that manages the activities related with Training and Development across different divisions and departments under IPDC. Training can be conducted through various methods such as on-job training, off-job training, and apprenticeship training. Some of the steps to be followed are:

- Need assessment and planning
- Announcement of Training Programs (For short term, Middle level, and Long
- Registration Process
- Selection Process
- Schedule the training program.
- Deliver training as per the training need and program.
- Approval of results
- Result notification for competitors
- Training Contract agreement (based on necessity)
- Report and Analysis.

C. Incoming/Outgoing Letters

IPDC issues letters to the concerned external stakeholders/firms and internal sectors/departments, and also will replay the letter comes from internal sectors/departments, and goes to external stakeholders on different issues undertaken by the corporation.

Outgoing letter

- Draft a letter
- Approve
- Archive
- Send to concerned party

Incoming Letter

- Letter sent from stakeholders/Firms
- Received by IPDC's Archive
- Sent to CEO
- Directed/sent to concerned party
- Expert will either document or
- Prepare draft letter (if it needs reply follow same steps for outgoing letter)

D. Employee Self-Service

- Employee access to view personal information and send comments to HR
- Sending different HR service Requests (permission, Work experience etc.)
- Sending Different requests (per diem, overtime, … from Finance)

E. Communications medium module

Publications of rules and guidance

- **Announcement board:** A central location where park administrators can post and/or upload guidelines, manuals, plans and any documentation related to environmental issues. Furthermore, it also shall allow users to create, edit, update and delete announcements and news for all stakeholders to see. It should also support bulk SMS and group email to disseminate information for stakeholders as required
- **Discussion forums**: Discussion forums where stakeholders can ask questions, share ideas, and give comments on the published documents, rules, news and guidelines
- **Survey and polls:** The communication module should provide a channel for stakeholders to provide feedback and support to the park administration through surveys and polls
- **Directory of stakeholders:** A searchable directory of all stakeholders in the industrial park, including their contact information.
- **Virtual meeting:** The system shall support to schedule and conduct virtual meetings for various purposes.

Complaints

- **Ability to receive and record complaints from multiple channels:** This includes complaints received through self-service portal, phone, email, social media, and in person.
- **Ability to classify:** The system should be able to classify complaints based on type, severity, and other criteria.
- **Ability to assign complaints:** The system should also be able to route complaints to the appropriate department or individual for resolution.
- **Ability to track and manage complaint resolution**: The system should allow users to track the status of complaint resolution and receive updates. The system should also provide users with the ability to provide feedback on the resolution process.
- **Ability to generate reports:** The system should be able to generate reports on a variety of metrics, such as the number of complaints received, the average time to resolution, and the customer satisfaction rate.
- **Integration:** The module should be integrated with other modules, such as the customer/Investor relationship management (CRM) system.

Communication Management

- Allow efficient communication with customers and employees via email, SMS, and VOIP.
- Schedule and manage calls, activities, and meetings.
- Send notifications and reports to customers and employees.

F. **Dashboard:** Show informative statistics and notifications on an easy to use dashboard based on role and privileges of the user.

G. **Have audit trail:** all activities of the individuals who are logged into the system should be saved for the sake of the system Audit.

H. **Report Module**

- All the above modules must be reported to the privileged and authorized personnel.
- The system must give all necessary information in required format (depends on the Functional Requirements of the system).
- The system must be able to present reports in various formats including charts.
- Generating reports with printable versions based on predefined templates (according to the Functional Requirement of the system).

- **Customized Report**: The system must be able to provide customized report by organizing information regarding various issues based on the requests from different internal as well as external stakeholders.

8. Non-functional requirements

Non-functional requirements define the quality characteristics of the IPMS project. In the proposed system, the following non-functional requirements, but not limited are expected to be fulfilled.

- **Accessibility**: the system is expected to be accessible on all major web browsers like Chrome, Firefox, Microsoft Edge, etc. and comply with web content accessibility guidelines (WCAG).
- **Compatibility**: The system must be responsive and be able to be used on a variety of devices, including smartphones, tablets, and laptops.
- **Usability**: The system should be intuitive, user-friendly, and allows users to easily navigate, interact with, and accomplish tasks with minimum number of clicks.
- **Security**: The system will allow definition of roles and assignment of privileges to individuals so that IPDC users will be granted access based on a Role based Access Control Mechanism (RBAC) to protect the privacy and security of users and data. The system also should comply with security requirements set by authorized national agencies.
- **Localization support**: The System should support data entry and reporting using multiple local languages based on Ethiopian and Gregorian calendars.
- **Integration**: The system should have the capability to integrate with the existing system to migrate data and harmonize any tasks of IPDC.
- **Performance**: System performance is the essential criteria for system development.
- **Availability**: The System must have the capacity of being available at all times (24/7). The System should support multiple database servers;
- **Maintainability**: The System will follow standard coding/implementation practices with a modular approach to development.
- **Reliability**: The system should have the ability to operate correctly and consistently. And also, Numerical computations should be accurate enough, number of significant digits, must be flexible to the users' requirements.
- **Scalability:** The system should handle the increasing workloads or accommodate growth in terms of users, data, or transactions.
- **Security:** the system shall have the options to assure all data inside the system or its part are protected against attacks or unauthorized access.

9. Deliverables

During the development time frame, the consultant firm should deliver a complete system that includes all modules with required functionalities and a complete set of documentations including flowchart, user and technical support guidelines and the process of the system. Specifically, the major deliverables are the following:

No	Deliverables	% of completion
1	Inception Report	10%
2	Software development plan: project work plan & resources required.	
3	Requirements Specification document	15%
4	System Design Document	
5	System Prototype: System that implemented all high-priority functional requirements of the system.	20%
6	Full scale System implementation	20%
7	System testing: Test Plans, test cases and test results	
8	Source code with Technical Software Documentation & API documentation	
9	User Manuals	10%
10	Training IT team on technologies used to build the system.	
11	Training for end-users	
12	Pilot and User Acceptance Testing(UAT)	10%
13	System rollout and go live	5%
14	Maintenance and Support	10%

10. Duration

As per the IPDC's proposed plan, the project should be accomplished and all deliverables must be completed, submitted, validated, approved and accepted within eight months after consultant firm signed the project contract. Hence, the consultant firm is expected to present the detailed action plan defining activities with allotted time within the eight month timeframe upon proposal submission.

11. Consultant Team Composition and Qualifications

A. General Experience

The firm has to submit his overall years of experience starting from its establishment to date, supported by testimonials/certificates. As a requirement, the firm must have general experience of at least ten years in software development.

B. Specific Firm Experience

The firm shall have specific experience of at least two projects within the past ten years, which are similar in nature and complexity to this project. Preferably, the firm should have experience in implementing large scale (nation-wide or enterprise wide) digital transformation project. In addition, if the project is in progress and achieved more than 75%, the firm can supply either the payment certificate and can be considered.

C. Organizational Structure

The company should submit its organizational structure/charts in a clear, neat, and precise manner as understandable by a third party.

D. Annual Financial Report

The firm is expected to have positive financial cash flow and present an audit report of three years.

E. Team composition and staffing

A dedicated project team of implementation experts, project managers, and subject matter experts will be assigned to the project's execution. IPDC needs a minimum of eleven people with specialization summarized on the table below.

No	Position	Qualification	Experience	Required no
1	Project Manager	MSc/BSc in CS/IT/CE/SE/ and other related fields, preferably PMI certified.	8/10 years and at least 2 years of experience in managerial position	1
2	System Architect	MSc/BSc in CS/IT/CE/SE/ and other related fields.	6/8 years of relevant work experience.	2
3	Senior Systems Analyst	MSc/BSc in CS/IT/CE/SE/ and other related fields.	6/8 years of relevant work experience.	2
4	Database Specialist	MSc/BSc in CS/IT/CE/SE/ and other related fields.	6/8 years' experience in database design and implementation.	1
5	Software Development Specialist	MSc/BSc in CS/IT/CE/SE/ and other related fields.	6/8 years, at least 4 years of experience in software development industry.	4
6	System Administrator	MSc/BSc in CS/IT/CE/SE/ and other related fields.	4/6 years of relevant work experience in system configuration and administration; Experience in managing systems deployed on the cloud environment.	1

12. Financial plan

- 10% advanced payment upon signing the contract agreement.
- 10% after delivering inception report & Software development plan to the IPDC (all stakeholders must approve).
- 15% after the submission of Requirements Specification documents and System design documents (blueprint: UI, UX, detailed class and ER diagram).
- 20% after delivering system prototype.
- 20% after delivering fully functional System that includes all modules, system integrations, System Testing reports and source code with technical and API documentations.
- 10% after conducting training for end-users and IT staff (specifically training on development technology).
- 10% after conducting user acceptance testing and getting approval from Functional & technical teams of the final testing.
- 5% after successful deployment and Migrations of data on production environment and go-live.
- 10% after post-delivery support and maintenance for 12 months.

13. Duty Station and Accountability

The Consultant Firm and all stakeholders are expected to execute the project stationed at the Industrial Parks Development Corporation (IPDC) head office, Addis Ababa, Ethiopia. However consultant firm may travel to Industrial parks found at different parts of the country as required. The Consultant Firm will be accountable to IPDC, and also liable to execute the assignments diligently according to the agreement.

14. Reporting

Frequency

- **Weekly status reports**: These reports should provide a brief overview of the project's progress, including any risks or challenges that have been identified.
- **Monthly progress reports:** These reports should provide a more detailed overview of the project's progress, including milestones that have been reached, deliverables that have been completed, and any changes to the project plan.
- **Ad hoc reporting**: In addition to the above, the consultant should be prepared to provide ad hoc reports to the IPDC as needed. For example, when IPDC requests a report on a specific aspect of the project, such as the schedule.

Method

- **Digital mediums:** Weekly and Ad-hoc reports can be communicated using a predefined status reporting template as required via emails and/or other digital mediums.
- **Written report:** The monthly report, however, shall be presented in written format with signs offs of the PM from the consultant side. In addition, completion of any milestone needs to be submitted along with a supporting written report that shall be signed off by both parties.
- **Web-based dashboards:** The consultant shall provide IPDC access to the project management tools; it uses such as kanban board as it provides IPDC with real-time access to information about the project's progress.

Approval Process

- The consultant submits the deliverable or milestone to the IPDC IT head for review.
- The IT head and SMEs review the deliverable or milestone and provide feedback. As it might be needed, the IT head can forward the deliverable to subject matter experts (SME), quality assurance team and third party to check compliance with standards. For example, the deliverable might be reviewed by INSA for security audit.
- The IPDC IT head would have final say on approval over all deliverables and milestones.
- Once the IT head, SMEs and others involved approve the deliverable or milestone, it shall be signed off and closed.

IPDC
Industrial Parks Development Corporation
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