GOVERNMENT OF PAKISTAN
PLANNING COMMISSION
MINISTRY OF PLANNING, DEVELOPMENT & REFORM

PC-I

Strengthening of Ministry of Planning, Development and Reform in IT

(Digital Management Unit (DMU) of Planning Commission)

October, 2019

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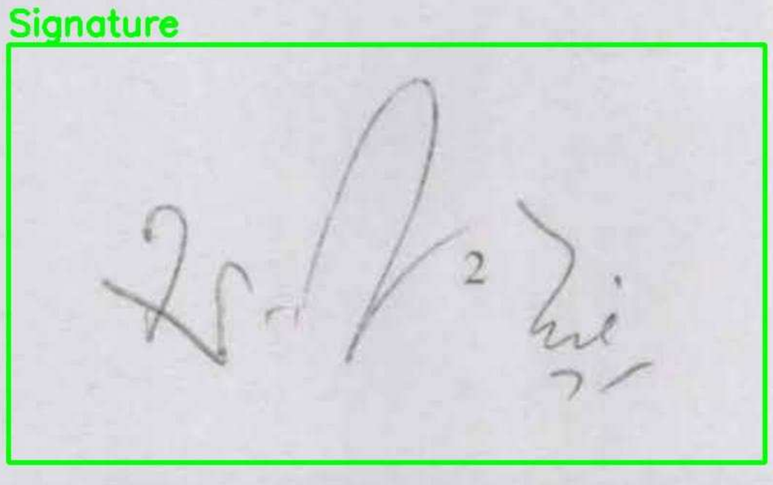

GOVERNMENT OF PAKISTAN

PLANNING COMMISSION

MINISTRY OF PLANNING, DEVELOPMENT & REFORM

1. Name of the project

Strengthening of Ministry of Planning, Development and Reform in IT
(Digital Management Unit (DMU) of Planning Commission)

2. Location

Ministry of Planning, Development & Reform, 'P'-Block, Pak Secretariat, Islamabad.

3. Authorities responsible for:

i.	**Sponsoring:**	Ministry of Planning, Development & Reform
ii.	**Execution:**	EIS/ ICT Section in collaboration with PITB & SUPARCO
iii.	**Operation and maintenance:**	Ministry of Planning, Development & Reform
iv.	**Concerned Federal Ministry:**	Ministry of Planning, Development & Reform

4. Plan provision

The 12th Five Year Plan emphasizes on e-Governance and Citizen Services with special focus on automation and digitization of government's functions and a strong governmental data backbone to move towards data-driven decision making in the government.Also,one of the main pillars mentioned in Pakistan Vision 2025 is 'Pillar-III: Domestic Governance, Institutional Reforms and modernization of public sector' that envisions to transform the public sector into a data-driven, knowledge-based governance.In line with the objectives laid down in the 12th Five Year Plan, the project has been designed to establish a Data-Driven Integrated National Development Hub to transform the Planning Commission into a "Smart Governance" organization.

5. Project objectives and its relationship with sector objectives

The **project objectives** are as follows:

a. To leverage new digital and information technology tools and systems, such as data analytics,data visualization, knowledge repository and geo-spatial tools, to enhance efficiency and effectiveness of the Planning Commission in its core business processes.

Signature

b. To establish a Geospatial technology Cell in the Planning Commission to develop an IT-based spatio-temporal National Development Profile by incorporating high-resolution satellite imagery by using geospatial datasets in the planning, mapping, execution & monitoring processes of CPEC & PSPD funded projects.
c. To establish a Data Analytics facility in Planning Commission to comply with the Senate Resolution No. 396 and enable Planning Commission to implement an organization-wide data-driven insight platform. Additionally, this would also cover data visualization of Key Performance Indicators (KPIs) to track progress towards Sustainable Development Goals (SDGs) laid down by United Nations.
d. To develop a complete Development Projects Suite that would be a combination of various systems encompassing automation of core business processes covering PC-Is/ PC-IIs tracking, appraisal,economic & financial analysis, project approval,allocation and release of funds, projects monitoring & evaluation, project completion and post-completion tracking. This Suite would have systems for all project phases from PC-I to PC-V.
e. To transform various facilities and locations in M/o PDR into a Digital Experience (DX) by introducing digital devices and gadgets in line with modern emerging trends.
f. To upgrade the existing network, computer hardware and I.T. facilities by replacing and scaling-up the I.T. infrastructure & equipment in the Ministry to enable continuous efficient delivery of services.
g. To arrange and provide trainings to end-users of operating various systems to be developed under this project. Also, provide trainings to technical/ I.T. professionals so that they can manage operations and support services for the whole ICT infrastructure of the Ministry.
h. To enhance in-house capacity and strengthen technical manpower in delivering improved services through latest digital.

According to the 12th Five Year Plan, the **sectoral objectives** are:

a. To leverage and benefit from productivity improvements in government, business, and society as well as enhancements in quality of life of ordinary citizens, and disruption of traditional processes and systems.
b. To fully exploit the potential of information and communications technology as the quickest (and "surest") pathway for wealth creation through high tech software exports as well as freelancing in the emerging "gig economy."
c. To unleash the power of entrepreneurship – particularly, but not limited to – in the ICT sector as an important pillar and strategy for employment and wealth creation.
d. To build upon the successes of deregulation and introduction of 3/4G licenses to further expand and position Pakistan as a leading market in 4/5G and Broadband technologies in the region.

Relationshp between project and sectoral objectives:

The sectoral objectives provide the basis to derive objectives and scope of this project. In this respect, the sectoral objectives emphasize leveraging the potential of emerging information and communication technology to improve government businessby making it data-driven and align its processes to enable acceleration towards knowledge-economy. This project is one of the initiatives that will have a synergistic effect in achieving sectoral objectives.

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6. Description, justification, technical parameters and technology transfer aspects

6.1 Existing Situation of Automation

Automated Systems

Current situation of automation in the Ministry is mentioned as follows:

During the last many years, there have been attempts to automate the Ministry. However, the current situation is that Ministry's website is operational with some content being updated regularly. Also some database systems with limited capabilities are operational and partially in use. Following is a brief synopsis of the I.T. systems and tools available:

i. *PC-I Automation System - Public Investment Authorization (PIA)*

PIA Section is responsible to initiate appraisal process and issue authorizations to the approved projects. As such, this Section primarily interfaces between Ministry's technical and economic sections and project executing agencies during processing of PC-I documents. However, attempts to automate this process has not been successful in the past. It requires re-thinking on modern lines to address the problems being faced by PIA Section. Easing management of burgeoning workload in PIA Section and at the same time supporting them in having insight into the national level development scenario, requires modern automated tools to be inducted in their business processes. As per the information provided by JACC, PC-Is of approved projects are available in electronic form (PDF) and the initial version of PC-I Automation System has been developed. However, it has many issues as it is still not fully operational and needs to be reviwed. In this regard, PITB is already requested to support Planning Commission and share their softwares for complete project processing cycle.

ii. *PSDP Automation System - Programming & Investment Planning (PIP)*

PIP Section is responsible for authorization of funds to the approved projects. It has small Excel/Access-based tools available to manage its day to day tasks. There is a very high level of expectation from this Section for the kind response required by the highest echelons of the government. As such, inspite of best efforts of this Section, the current tools are inadequate to support and provide this kind of response. With a portfolio of more than 800 projects at the Federal Government level, workload at PIP Section also affects quality of performance/ response. A comprehensive PSDP Automation System is required that is linked to PC-I Automation System and other internal systems to enable efficient processing of releases and updating the status of development expenditure.

iii. *Economic Appraisal*

Economic Appraisal Section is an important section of the Ministry. All projects coming for approval are appraised for their economic and financial viability in this Section. There is no IT-based tool or system available that could act as a knowledge repository for its work to refer to. The Economic Appraisal Section has to do a lot of research work to get required information to

Signature

make its analyses. An Economic Appraisal knowledge repository alongwith economic and financial models for use by the professionals of this section would further enhance the quality of their work.

iv. *Project Monitoring & Evaluation System (PMES) – Projects Wing*

PMES was developed with the support of Asian Development Bank (ADB) funding through a consultant. The consultant thereafter also provided support and maintenance services for 3 years. But, the services discontinued after non-renewal of the contract. With passage of time, the in-house technical team in the Projects Wing also depleted and maintaining the system has become very difficult. The PMES has been developed in Java with Oracle as the backend DBMS.

PMES focuses on projects that are submitted for CDWP and ECNEC. As such it does not cover DDWP level projects. DDWP projects are covered by E-Office Suite for Federal Government. Currently, in PMES, one-page project profile is used by about 70% users, and Project Progress report is filled by about 50% of the users. However, with advanced technologies available now, code for PMES will have to be transformed and re-written for improved performance as well to make it maintainable in the future.

v. *E*-Office Suite – Organization-wide System

E-Office Suite for Federal Government has been developed by M/o Information Technology. Out of its six modules, Inter-office Correspondence (IC) module is being deployed in the Ministry. About 50% of the scanning of office files has been completed. Training of officers and staff is being conducted. The system has been developed using Java with Websphere and DB2 as the database.

vi. *Website*

Ministry's website has been revamped and is being continuously developed and maintained by the in-house team. The content is updated on a regular basis and provides information about the major activities being carried out by the Ministry. A separate website for China-Pakistan Economic Corridor (CPEC) initiative has been developed by the Ministry.

I.T. Organization and Computer Infrastructure

Ministry of Planning, Development & Reform has its own computer center, namely *Jawaid Azfar Computer Center* (JACC), situated in 'P' Block. Following are the main IT related organizational setups in the Ministry and brief description of their role:

a. Jawaid Azfar Computer Center

Jawaid Azfar Computer Center (JACC) was established in 1980s with the purpose to provide computing facilities to the Planning Commission. Currently, it is responsible for providing I.T. services to the M/o PDR. The main services that JACC provides are:

- Providing hardware, networking and internet services and their maintenance in the M/o PDR;
- Development and Maintenance of software, both customized and licensed, that are used by the Ministry;
- Development & maintenance of website and regularly update content on it;
- Providing training to officers and staff of the Ministry in use of computers and other relevant software;
- Provide designing, composing and data entry support for publications and presentations for all events conducted/ arranged by the Ministry.

JACC is headed by a Director General with a team comprising of systems analyst, software & web developers, hardware engineer and technicians, network administrator, trainers and data processing and entry staff. Currently, all the technical posts of JACC are vacant and the work is being performed through personnel working on contractual basis in a project that will complete its approved duration period in the near future.

b. ICT Section

Information & Communication Technology (ICT) Section is a Technical Section of the Ministry and primarily responsible for all I.T, telecom and space technology related development projects. The main functions of this Section are to conduct project appraisal, monitoring and evaluation of projects falling in its domain. The section prepares annual, five year and long term plans. It also provides input towards policy formulation, guidelines and matters related to ICT sector.

Due to the technical/ strategic nature of the work, the task was assigned to regular IT officers of the ministry and being looked after by Chief and Deputy Chief, EIS Section, respectively. In this project Chief and Deputy Chief of EIS Section will be given additional responsibility of Project Director and Project Manager respectively. EIS Section will continue to perform the duties of ICT Section.

c. Energy Information System Section

Energy Information System (EIS) Section is part of Energy Wing of Ministry of Planning, Development & Reform. Its main responsibility is to provide computing facility services to Energy Wing such as hardware, internet, energy planning related software and tools. It is also responsible to maintain national energy database and integrated energy planning model to facilitate energy professionals in their work. The EIS Section is headed by a Chief and supported by two Deputy Chiefs.

d. MIS Section, Projects Wing

MIS Section is part of Projects Wing of the Ministry. MIS Section is currently a project-based organization having contractual IT professionals working in it. MIS Section is mainly responsible to support Projects Wing in carrying out monitoring and evaluation of development projects. The MIS Section is maintaining Projects Monitoring & Evaluation System (PMES) that was developed with ADB-funded support through private sector. MIS Section is headed by a Director General on contract basis and supported by a team of IT personnel.

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6.2 Justification

Inspite of using aforementioned automated systems and tools, Planning Commission is still lacking an integrated enterprise-wide automated system and digital tools to make it an organization with "smart governance" processes.

Challenges & Gaps

A number of challenges are being faced by the Ministry of Planning, Development & Reform in its IT related domain. These challenges are related to Reporting, Technical and Skills areas. Following is the crux of main challenges in each of these areas:

i. Difficulty in compiling Integrated Profiles of Projects & Programs due to Disparate Silos of Data in the organization:
ii. Currently, M/o PDR does not have any comprehensive organization-wide automated system to carry out its primary core functions.
iii. There is no near real-time automated data aggregation or drill-down facility within the M/o PDR, therefore, it needs more reliance on Ministries/ executing agencies to get the latest data.This repetitive process of reaching to the desired information takes a long time.
iv. The existing computer hardware and networking equipment is at the end of life and needs to be replaced to cater to the emerging requirements of the next decade.
v. Inspite of many officers of M/o PDR being capable of using computers in their day to day work, a continuous skills learning is required to enable the officers in using the newer technical applications and techniques in their work.
vi. Technical human resource in JACC requires to be placed on permanent, regular posts to have a sustainable operations and support environment. Till that time, high quality technical resources would be required for operations and support of the systems in the M/o PDR.

Rationale for the Project

This project has been designed to address the above challenges and gaps. In this respect, the idea is to transform the ministry's infrastructure and systems by equipping it with smart &modern technologies, implementing advanced IT solutions and upgrading existing facilities to achieve better productivity. To achieve this goal, it is planned to introduce a holistic digital solution for the Ministry.

The project envisages development and implementation of enterprise-wide computerized systems that are inter-linked to provide seamless processing of various activities being carried out in M/o PDR. As huge datasets are available in the form of publications, reports, documents and forms, these would be required to be made on-line for ingestion, discovery and analysis by the ministry's officers and staff. The use of data analytics, geo-spatial technology, knowledge repository engine, and other emerging useful and relevant technologies would be required to accomplish this vision. Resultantly, this would help in making M/o PDR a National Development Hub with 'smart governance' processes.

Currently, matters related to ICT Section are being looked after by EIS Section. Also, there are no regular personnel in JACC to take care of techical matters. As such, the project is proposed to be

managed/ overseen by ICT/ EIS Section. Furthermore, it is also planned to include a component of capacity building/ training and supplement the skillset by onboarding technical human resource in JACC under this project, till the time regular posts are filled. This would ensure continuity of work and efforts undertaken through this project, resulting in long-term benefits for the ministry.

6.3 Project Description

Vision

To transform Planning Commission into a National Development Hub based on "smart governance" processes using the latest information technology tools and techniques.

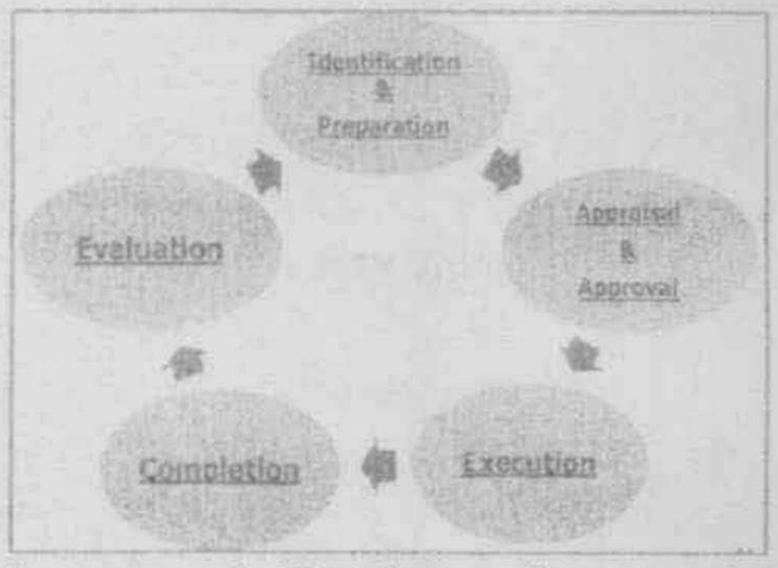
Description of Scope of Project

The project has been divided into 5 components in order to accomplish the vision:

Component-I:	Core Business Systems/ Intelligent Project Automation System (iPAS)
Component-II:	Geo-Spatial Data Facility
Component-III:	Data Analytics Platform
Component-IV:	Premises Facilitation Infrastructure
Component-V:	Capacity Building & Human Resource Strengthening

Component-I: Core Business Systems/ Intelligent Project Automation System (iPAS)

Existing Planning Process Lifecycle



The Planning process starts with preparation of project document (PC-I) by the executing agency and submission through its relevant Federal Ministry to the Planning Commission's Public Investment Authorization (PIA) Section. The PC-I is then circulated for appraisal to relevant sections within the Ministry. Once appraisal process is complete, the PC-I is either accepted for putting up for approval of Central Development Working Party (CDWP), returned with observations for re-submission or rejected. The acceptable projects are submitted to CDWP for approval. The forum discusses the project and decides accordingly about the fate of the project. If the project cost is above Rs. 3,000 million, the project is recommended for approval of Executive Committee of National Economic Council (ECNEC).

Once the project is approved, it is included in the Annual Development Program with allocation of funds for that year. The projects that are allocated funds are then released money on quarterly basis. The Public Investment Programming (PIP) Section is responsible for release of funds to the projects. On submission of relevant documents by the executing agency, PIP Section scrutinizes them and then funds are released.

Signature

Executing agencies are required to submit Monthly Progress Reports (PC-III) to the Projects Wing. An online system, PMES, is available in the Projects Wing of M/o PDR that can be accessed by the executing agencies to submit and update information about the project. However, its use is not mandatory and therefore, complete data of all projects in the development portfolio is not available in PMES.

During the course of the project, Projects Wing can select it for monitoring at any time. A monitoring team is assigned to visit and check the project. A monitoring report is prepared by the team that includes any issues, anomalies or suggestions for improvement about the project.

Once the project is completed, the executing agency has to submit Project Completion document (PC-IV) to the Planning Commission. It also includes whether project objectives have been met and what lessons have been learnt, so that these could be used for better execution of other projects.

After the project is complete and closed, the executing agency has to submit a Post-Completion Report (PC-V) for 5 years to the Planning Commission.

A PC-II is submitted only for projects for which Detailed Feasibility is required. PC-II is submitted for approval of conducting feasibility study by the consultants. Only after the feasibility study for such projects, PC-I is prepared and submitted to the Planning Commission.

It is planned to enhance and fully implement the following systems to cater to the Core Business Functions of the Planning Commission:

a. Development Projects Suite
    i. PC-I Automation System
    ii. PSDP Automation System
    iii. Integration with PMES
b. Other Software Systems of the Ministry
c. E-Office Implementation

Detail of these systems is as follows:

I. Development Projects Suite

i. PC-I Automation System

Preparation of PC-I is a tedious task which include activities like surveys, feasibility studies, planning, budgeting, finalization of technical methodologies and other associated decisions. Each and every component of the PC-I is very important as it is the baseline document to be executed, monitored and evaluated. An automated system will help in processing/ appraisal of the PC-I and also build an electronic library of PC-I submitted to the Planning Commission. Following main functionality is envisaged for this system:

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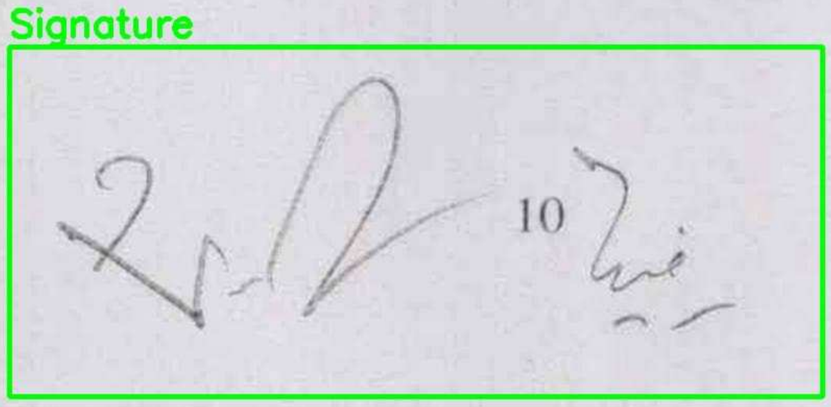

- Enhancing the existing initial version of PC-I Automation System, by extending the system for use by executing agencies, so that all the stakeholders/ project executing agenciesin various ministries are able to submit PC-Is in the form of soft copies using this module.
- Automation of processes for ECNEC will also be covered as an extension to the PC-I Automation System.
- Standard Operating Procedures (SOPs), practices, and necessary security mechanisms for electronic transmission of information/ documents through the PC-I automation system will be developed.
- Integration with PMES with PC-I Automation system would enable to complete the project lifecycle processing at the Planning Commission. The integration component would include coverage of PC-III, PC-IV and PC-V for every project.

ii. PSDP Automation System

The most critical factor during execution of a project is timely availability and utilization of funds. To track the financial status of projects (i.e., release of funds, utilization, surrender etc.) executed by the Ministries/ Divisions, it is imperative to have an automated system. Resultantly, this will enable smooth execution of project and timely corrective actions by the stakeholders. The main features envisaged in this system are:

- Automation of PSDP fund allocations, releases and expenditures to facilitate PIP Section to carry out its functions.
- Using this system, ministries would be able to easily send requests for release of funds to the Planning Commission.
- Enable ministries to send request for development budget allocations to Planning Commission.
- Generate Reports and display latest status and KPIs on an Executive Dashboard about project allocations, releases and expenditures to facilitate higher authorities of Planning Commission and other Ministries to have instant access to latest information. This will also include visualization of key statistics.
- Generate regular daily, weekly, monthly, quarterly and yearly reports.
- Generate Province wise, Ministry wise, Vision 2025 Pillars wise and Sector wise reports
- Interlink datasets of PSDP with Data Analytics Platform.

iii. Integration with Projects Monitoring, Evaluation System (PMES)

Modern information technology tools make efficient monitoring of the projects possible through customized information systems. Timely corrective actions lead to better chances of success for individual projects as well asto achieve efficient implementation of Development Portfolio leading to meet the required goals. Already PMES is implemented and being used partially in the Planning Commission.

To further enhance its efficacy,it is proposed that the existing PMES should be completely overhauled and interlinked with PC-I and PSDP Automation Systems. In this respect, overhauling should be done by Projects Wing under their PMES project. However, close

Signature

coordination would be required during design and development of PMES System to have seamless integration with other systems developed under this project.

II. Other Software Systems required by the Ministry

Automating various administrative activities carried out in the Ministry would enable it to manage these activities more efficiently.It is proposed to have a provision to develop/ procure software systems for the Ministry such as Internal Complaint Management System, Security/ Surveillence Software, Library Software, Committee Room Booking/ Scheduling, etc. These systems will be deployed on the servers placed at JACC within the premises of the Ministry.

III. Implementation of e-Office application in M/o PDR

The complete Ministry will be moved to e-Office application cutover stage in this project. The adoption of e-Office by all sections of M/oPDR will further be strengthened with help of administration.

Component-II: Geo-Spatial Data Facility

The rationale for establishing Geo-Spatial Technology Cell/ Facility at Planning Commission is to improve and add value to the appraisal, fund release, monitoring and performance evaluation activities of the infrastructure and social sector projects by usingRemote Sensing/Geographical Information System (RS/GIS) technology. The use of this technology will enable improved baseline planning & monitoring. This will also introduce control over the project progress and minimize implementation periods by quick mapping and monitoring.

Geo-Spatial Technology Cell will be established with the technical support of SUPARCO.The established Cell will perform its work in close coordination with SUPARCO. This will assure access to highly specialized expertise. Thus, Geospatial Technology Cell will provide effective utilization of space technology in development planning processes.

The analytical wing in collaboration with SUPARCO cell will generate and process data through variety of instrument including imagery and drone based multi-spectral dataset for infrastructure and agriculture based applications. Artificial intelligence and software solutions will be developed in collaboration with universities which will facilitate internal data processing capabilities.

Sub-Components of the Geospatial Technology Cell:

i. Sub-component 1: Establishment of Geospatial Technology Cell

Geo-Spatial Technology Cell will be established in M/o PDR. It will be equipped with state of the art technology lab and human resource. Technical Coordinators/ other officers will be attached from SUPARCO & Planning Commission on attachment/ additional charge basis and other technical manpower/staff will be hired as per laid down recruitment procedure for PSDP funded

Projects. Necessary computer equipment, networking and related infrastructure to have an operational facility will also be provided.

Procurement of the specialized Hardware/ Software will be carried out by Ministry of Planning, Development & Reform. This includes but not limited to the followings:

- Workstations
- RS&GIS& other Software
- SUPARCO Satellite Data

ii. Sub-component 2: Technical support for Planning & Evaluation of PSDP projects

Geo-Spatial Technology Cell will provide technical support for the selected projects for Planning & Evaluation activities. It will include review of feasibility studies, mapping and spatial analysis of the Infrastructure projects based on the information available in PC-1, satellite data interpretation and analytical skills for improved decision making.

Expected Outputs of the Geo-Spatial Technology Cell

The expected outcomes will be:

i. Establishment of the Geospatial lab
ii. Operational use of the satellite data and allied analytics
iii. Mapping & Evaluation of all PSDP funded projects by International standards
iv. Knowledge / Data Management relating to PSDP
v. Capacity building

Integration of Geo-Spatial Information System with PC-I Automation System

The Geo-Spatial Technology Cell will be supplied with satellite imagery and data by SUPARCO for various areas of interest related to national development. At Planning Commission, this GIS information will be linked with the PC-Is Automation System for getting clarity about the proposed project sites during appraisal and CDWP approval processes. The integration of Geo-spatial and development projects information would form the core of National Spatial Data Infrastructure (NDSI). The NDSI will enrich the Planning Commission's overall decision making capability by having the following features:

National Spatial Data Infrastructure (NSDI)

- To bring & integrate all available data into Planning Commission's NSDI system.
- NSDI can be used to establish and enforce standards for different types of data that will become available at the Data Centre of Planning Commission. This will facilitate Planners to manage and maintain information to carry out their job functions.
- The idea is to use data resting in silos at multiple divisions, agencies to give a holistic view for data-driven policy making. For instance, the census data at PBS use 33 indicators that can provide insights (using Data Analytics technology) for future requirements of public schools, hospitals, roads, graveyards, shopping centers in a particular town, municipality or a village. Similarly, data available in health department,

Signature

education department, HEC can all be mined together to bring forth new sets of information that can guide the Planning Commission to allocate PSDP funds in a more transparent and logical manner.

Mapping of SDGs and Socio-Economic Indicators

As a result of NSDI, it would become possible to establish relationship of social sector development projects with respect to Sustainable Development Goals (SDGs). The major benefit would accrue in the form of maps linking information in PC-Is against the SDGs.This will facilitate users toview the projects against relevant SDGs which will be mapped with their relevant Pillar.In this respect, a comprehensive web portal catering to a variety of users will be developed to disseminate progress in various socio-economic indicators and accomplishment of various SDGs.

Thesystem will be capable of following functionalities:

- Mapping of information in PC-Is against SDGs and Vision 2025 pillars.
- Overview of SDGs against respective pillars
- Annual Plans, 5-year Plan, and PSDP updates
- Users interactions, feedback, suggestions, and back-end response management
- To showcase reports, datasets, and visualization of key statistics through Data Analytics Platform.

Component-III: Data Analytics Platform

The third component of this project is establishment of a Data Analytics Platform. This platform would act as the central system to provide top management of M/o PDR an integrated insight on various aspects of national development as well as internal activities. In this respect, the Data Analytics Platform will employ various emerging technologies and tools such as Business Intelligence, Data Analytics and Knowledge Repository to create an ecosystem of decision support enabling the following application areas:

I. ***National Development Profile***

Combination of Data Analytics and Geographical Information System (GIS) technologies can be applied to make an Integrated National Development Profile. Instead of relying on compiling loads of data, a spatio-temporal form of display backed by NSDI and Data Analytics tools will enable quick visual picture at the national level.

II. ***Decision Making***

One of the important application areas of Data Anaytics is support in decision making. Instead of carrying out extraneous effort, the Data Analytics tools can provide proactive alerts, drill-down to identify specific causes, multi-dimensional views and more details.

III. ***Instant Insight***

At times, top echelons have to get more insight instantaneously. For this purpose, executive dashboards are used, which assist them in getting the relevant insight to make a better decision.

Key Performance Indicators (KPIs) and linked drill-down facility helps in reaching to the desired level of information required at the time. Use of Dashboard Technologies is best facilitated when used in conjunction with Data Analytics tools and Knowledge repositories.

IV. *Appraisal*

Appraisal is the most important stage of scrutinizing a project. When professionals doing appraisal are equipped with right tools and methodologies they can carry out their job in a much improved manner. Knowledge repositories are helpful in accessing previous practices and information that could be helpful in appraisal process.

Also, computational tools, such as statistical and economic analysis tools as well as other analytical tools can supplement the experts/ professionals in doing project analysis. These tools could be made available in a cloud environment to minimize the maintenance and upgrade costs of using such tools.

Proposed Sub-Components of Data Analytics Platform

In light of the above mentioned challenges, inadequacies, available technologies and application areas, a high level description of the proposed solution is provided in the ensuing paragraphs.

Value Addition

- Discovery of Patterns and Behaviors
- Achieve Planning &Operational Efficiency
- Effective Controls and Informed Decisions
- Enhanced Compliance Management & Monitoring
- Alerts for Proactive Management
- Ad hoc Queries

The proposed solution is envisaged to add value to the internal efficiency of the Ministry as well as upscale its capability in terms of effective planning. The Ministry will be able to get new insight through data discovery of invisible patterns, proactively engage executing agencies in complying with M/o PDR's instructions for development projects. The ability to perform predictive analytics – ability to know what may happen in future – will provide a handy tool to M/o PDR to detect anomalous patterns and generate automatic alerts for proactive decisions and directives.

Each sub-component of the proposed platform is related to the application area indicated above and consisting of a core technology tool taken from the international practices.The components are proposed to be deployed in a cloud environment, so that relevant authorized users of the Ministry can access them from anywhere and on any kind of communication device which is internet-enabled.

In light of the above, it is proposedto have a comprehensive Data Analytics platform solution. Main sub-components of this proposed platform, are:

- ***GIS-based National Development Profile*** - *DevPIXEL*

Developmental Picture Element (DevPIXEL) will provide National Development Profile in Geo-spatial temporal form, showing development projects/ activities over a timeline, with drill-down

Signature

capability for detailed information about the specific project. At the backend, DevPIXEL will be linked to NSDI that will provide geo-spatial information to the DevPIXEL.

- ***Organizational Knowledge Repository Hub*** *- PlanoPEDIA*

A Wikipedia style system will form basis of a repository of documents, reports, articles, directives, guidelines, manuals, events, and all related knowledge created over time and available in official files or library in the Ministry. This knowledge tool, namely PlanoPEDIA, will be available for internal use of the officers only to refer and refresh/ update their knowledge in carrying out their work. In this regard, PlanoPEDIA and Library Management System could also be linked to facilitate end-users in accessing published historical documents and record.

- ***Executive Dashboard for senior management*** *-PlanMetrics*

An Executive Dashboard will provide access to all required Key Performance Indicators (KPIs) of National Development Program at the aggregate level (national) in graphical, map, visual, tabular and textual formats. This Dashboard, namely PlanMetrics, will be linked to a data analytics engine.

- ***Data Analytics Engine & Data Pipeline*** *-Planalytics*

The core sub-component of the Data Analytics Platform would be the data analytics engine and an Extract, Transform, Load (ETL) Data Pipeline that will provide detailed data to PlanMetrics and DevPIXEL. This core sub-component will consist of planning related databases, data warehouse and data analytics engine.

Salient Features:

Following are the salient features/ functionality of the Data Analytics Platform:

- A Data Analytics engine will facilitate National Development Planning and Analysis.
- A Wiki-enabled software for implementing a customized Knowledge Hub.
- A Data Visualization software for implementing a highly intuitive and easy to use Executive Dashboard accessible on all device forms (desktop, laptop, tablet, mobile phones, large displays, etc.).
- A data analytics platform that will cover both descriptive (initially) and predictive analytics (a a later stage) for planning exercises, with special reference to both annual and long-term planning.
- A database/ datawarehouse system for capturing, compiling and querying all planning related data, i.e., historical to current. ETL (Extract, Load, Transform) tools will be required to create a Data Pipeline for supply of data to Data Analytics engine.
- A Geo-spatial software engine for compiling and displaying all geo-spatial related data, to build a National Development Profile.
- Backend infrastructure (both hardware and software) for operations as well as maintenance & support.

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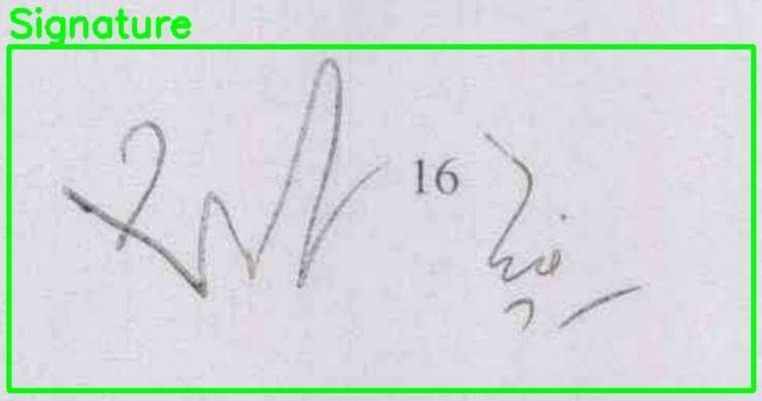


Snapshot of Complete Proposed Solution Infrastructure

Following is a diagrammatic representationof major components of the Proposed solutionthat includes Component I, II & III mentioned above(Figure-2):

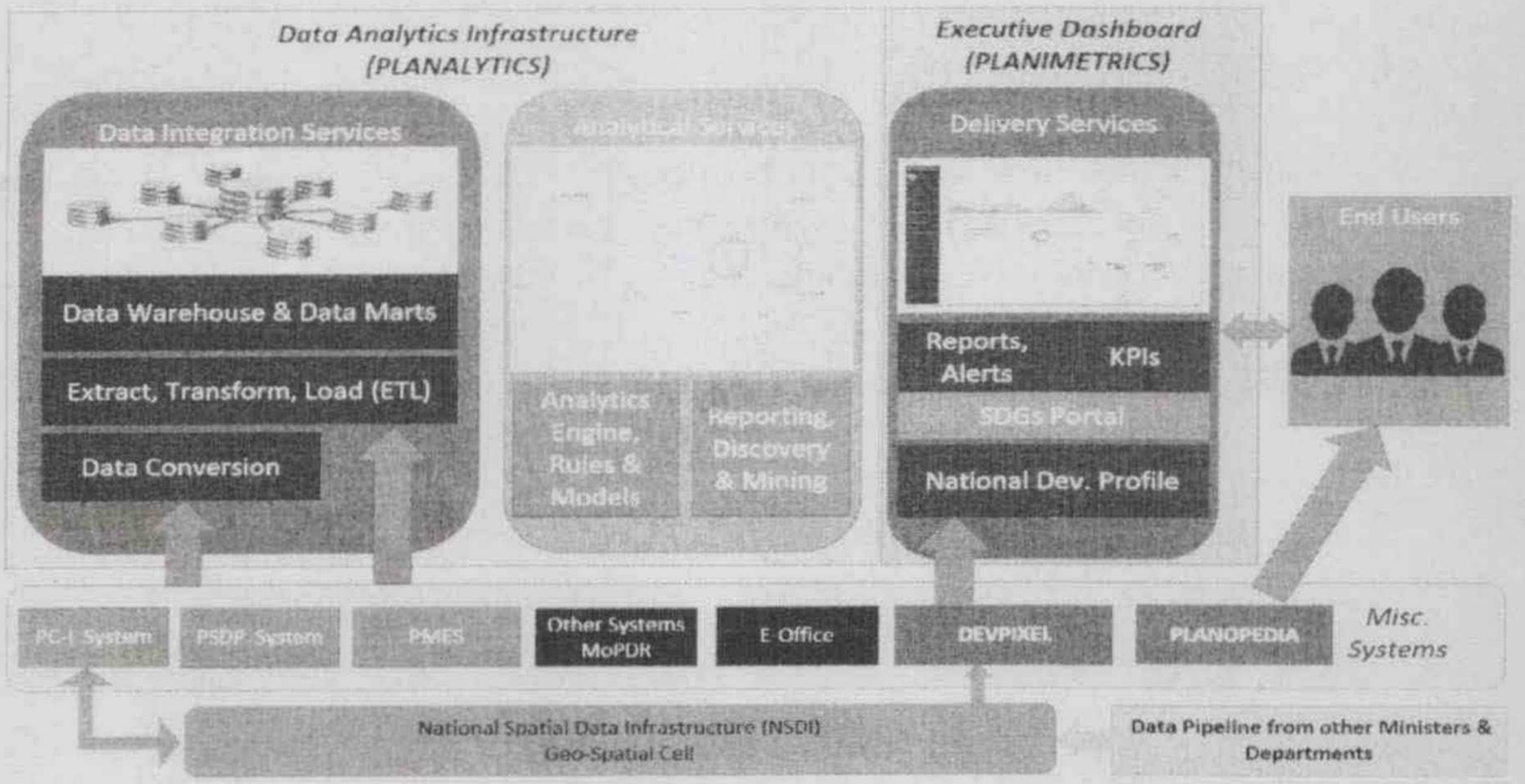


Figure2: Major Components of Proposed Solution Infrastructure

The proposed solution will have the capability to be deployed on any platform including on-premises, cloud and mobile. For on-premises environment, the solution can be designed to operate on Linux and MS Windows operating systems. The solution can also be designed for operating in a private cloud environment.

National Telecommunication Corporation (NTC) has established a Cloud-based National Data Center that meets Tier-III standards for data centers. This Data Center provides various services, which include Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS) facilties. M/o PDR can take advantage of this facility to deploy/ host the solution/ services in this Data Centre.

The Proposed infrastructure must be able to refresh the data warehouse with data captured by MIS and PMES on regular basis. The data refresh/ updation duration can be reduced by M/o PDR through a directive.

Component-IV: Premises Facilitation Infrastructure

Besides the above components that are directly related to core business processes of M/o PDR, the premises of the ministry also requires to induct modern digital technologies that would upgrade its various locations within the office buildings with latest computer hardware, equipment/ devices and

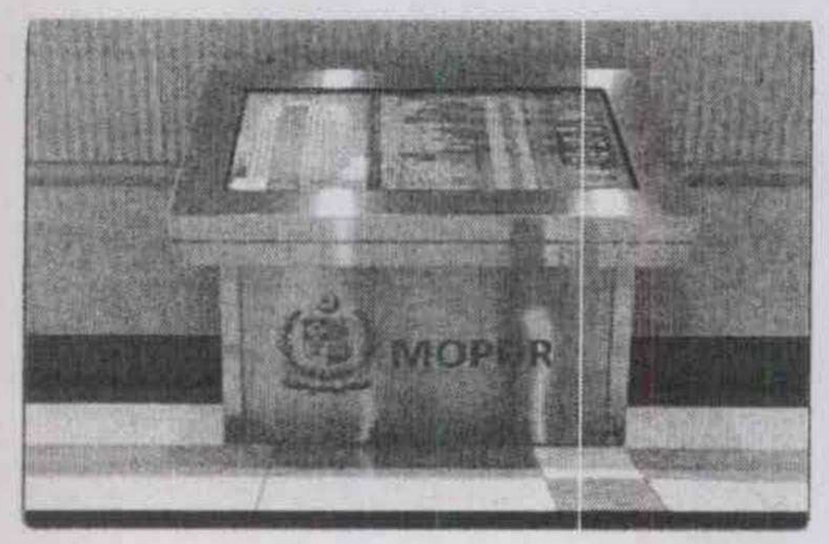
Signature

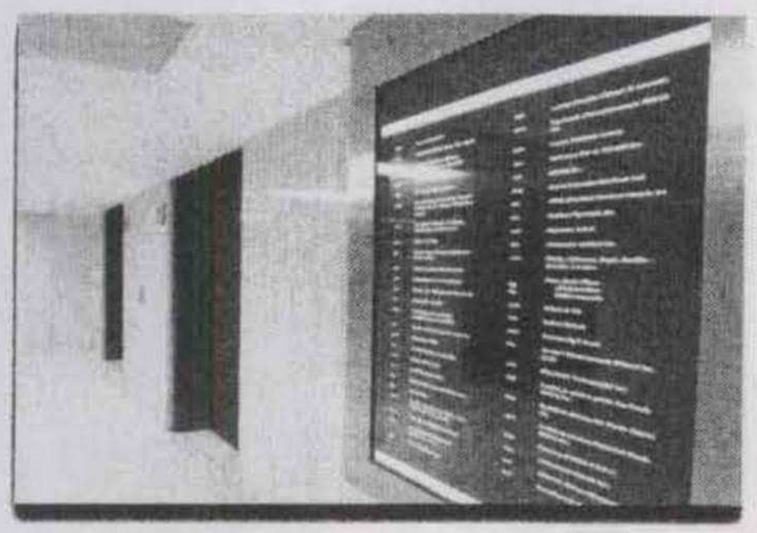
systems. Component-IV relates to procurement and installation of hardware infrastructure in the ministry, which are as follows:

I. Visitors' Orientation Digital Devices

- **Smart Notice Boards using LED/Interactive LED screen** on main entrance that can display the agenda of daily meetings, Ministry's news, important message from Minister/Secretary, News headlines, Employee of the month picture etc.

- **Digital Directory** that may be used by the visitors to locate a certain office/officer/resource using interactive floor plan of the complete building as introduced in modern countries.





II. Digital Devices in Ministry's Premises

i. Smart Video Conference System & Video Walls for Auditorium

- Deployment of Video Conferencing system at auditorium of P-Block.
- Old projectors and multimedia screens would be replaced by smart walls using LED TV screens that will save power and also reduce the replacement/maintenance cost of bulky projectors coupled with the short life span of four to five years.
- With smart walls, the display quality will be much more enhanced for audience attending CDWP and other high-level meetings.

ii. Digital Office Devices& Softwares

- Digital Flip Charts for meeting/ committee rooms/ training facilities for brainstorming sessions, trainings and meetings.
- Digital Signage Devices at various places within the Ministry's premises for displaying general information, statements or visual content.
- Interactive, multi-touch sensing tables for selected rooms in 'P' Block and JACC.

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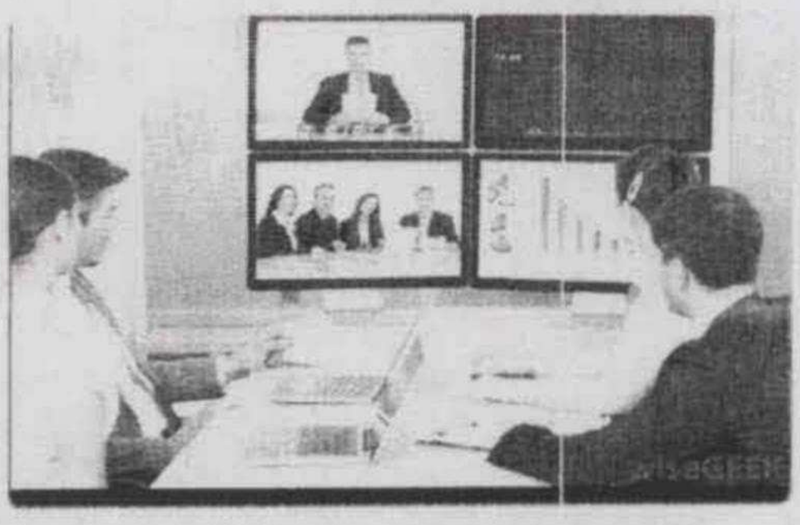

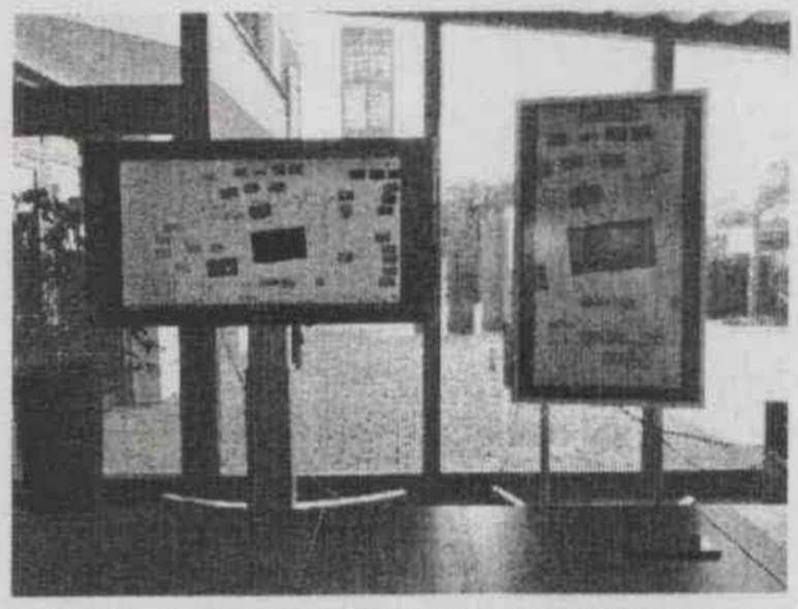

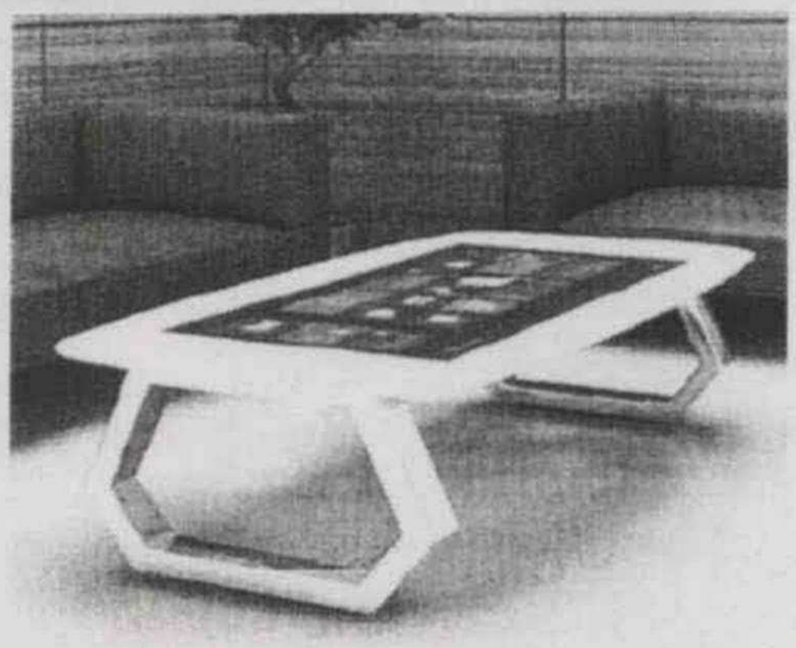

- A provision is being made for any requirement that may arising during project execution to have software applications/ technology for facilitation of visitors, proceedings of the meetings, such as augmented/ virtual reality based applications, etc.

III. Upgradation of Fixed Network Infrastructure

- Replacement of existing End of Life Switches placed on each floor at P-Block with latest Layer 3 switches having inter-VLAN routing capability to ensure both security as well as manageability of the complete network (Intranet).
- Creation of Virtual LANs (VLAN) for every department (i.e. Admin & Accounts department, IT support section, Technical sections).

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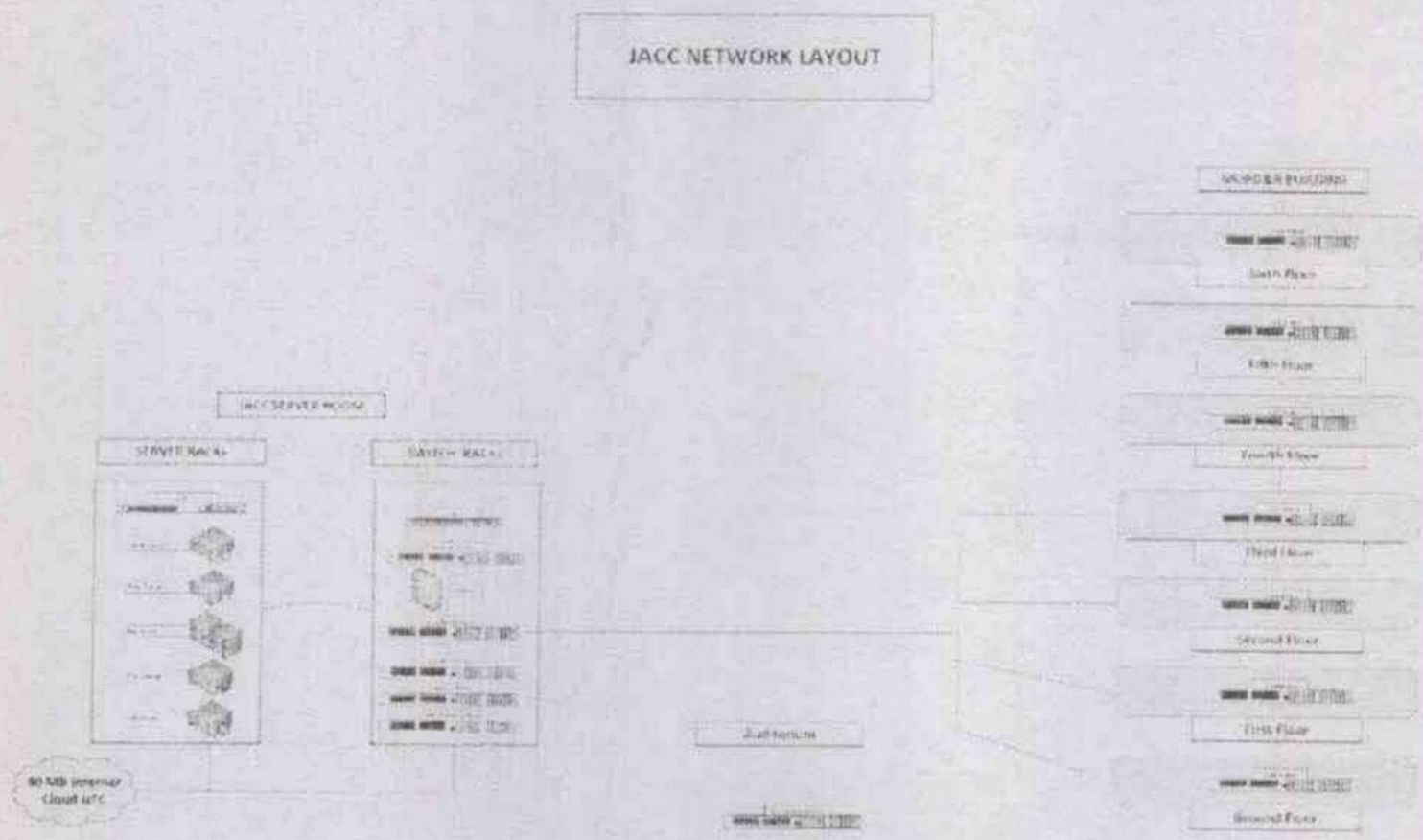

Figure 3: Network Layout of proposed upgradation of LAN at P-Block

IV. Hardware/Software

- Two hundred desktops and seventy-five laptops would be purchased to cater the existing demands of officers and staff of M/oPDR.
- Licensed operating system and associated software packages will be purchased and installed.
- Licensed Antivirus software would be installed on existing and new computers.

V. Infrastructure strengthening

- Overhauling/ Renovation works are required for Old building of JACC, particularly the Computer laboratory and the Server room.
- A new computer LAB for training purposes, server room, and multiple office rooms would be constructed.

Component-V: Capacity Building & HR Strengthening

I. Training of officers and Staff (IT Capacity Building)

Human resource development of various sections of Planning Commission will remain the core objective of the project, through on job and field trainings. In this respect, following kinds of trainings will be conducted:

- Training of PC-I Automation& PSDP Systems to Chiefs/Deputy Chiefs of M/oPDR and other ministries/departments.
- Geo-spatial analysis trainings for relevant officers and staff of M/o PDR. These will be (a) Basic trainings at newly established lab & (b) Advanced trainings at SUPARCO premises. The duration of these trainings will be based on needs of the M/o PDR.

- Various trainings for the employees of Planning Commission in office automation & modern IT software (including but not limited to Microsoft Office, ERP, E-Office, ISO/ CMMI etc.)

II. Pool of Experts & Consultants

- As per the guidelines of the Deputy Chairman, Planning Commission, a third party appraisal/ evaluation of PC-I/ PC-II may be made. For this purpose, a Pool of Experts associated with ICT Section is proposed to be constituted. The Pool of Experts will be recommended by Chief ICT and taken on board with the approval of Member (S&T, ICT)
- The Pool of Experts will consist of maximum five experts related to IT, Telecom, Space Technologies. The criteria of eligibility of experts will be decided by Chief ICT in consultation with Member (S&T, ICT). They will be paid TA/ DA @ Rs. 5,000/- for the Experts meetings and in case of outstatin actual TA/ DA willl also be paid.
- The remuneration to experts will be made on the basis of the project cost. Two types of PC-Is are proposed based on the project cost. For PC-Is upto a project cost of PKR 1000 million, remunerations will be paid to experts at the rate of PKR 25,000 per PC-I. For PC-Is having cost above PKR 1000 million, remunerations will be paid at the rate of PKR 50,000 per PC-I.
- Individual Consultants for short term special assignments/works are proposed to be hired, as and when required. The remunerations for consultants will be made based on the scope and duration of the work. The individual consultants will be selected based on the criteria in the TORs to be prepared at the time of required services. The TORs will be prepared by ICT Section and approved by Member (S&T, ICT), Planning Commission.

III. Strengthening of IT Setups of the Ministry

- Hiring of skilled professionals for this project to provide operational support to the systems that will be developed/ procured under this project.
- Procurement of services of private sector software development firm(s) to develop solutions for systems mentioned in Components I, II & III of this project.
- Procurement of services of individual consultant for short-term (12-18 months maximum during the course of the project life) to provide expert input in preparation of Requirements Specification Document (RSD), EOI, RFP, Business Process Document and Implementation Roadmap to enable selected software development firm(s) to develop the solution.

IT Setups of the Ministry

JACC has been providing IT facilities to the whole Ministry of Planning, Development & Reform spread across four buildings (P-Block, S&T building, PPMI and Shalimar Plaza). Jawaid Azfar Computer Centre (JACC) was established in year 1985. The present sanctioned strength of technical posts of JACC (Regular side) is eight, out of which only three posts have been filled on permanent basis.

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Due to inadequate strength in JACC to perform regular IT operational and development activities and to carry out additional functions of ICT sector project appraisal (PC-Is), preparation of annual plans, 5 year plans, etc. , a project "Upgradation of JACC" was initiated in 2006. The project had a number of extensions and revisions. The last revision was made in 2016. The project completion date is December, 2019. In order to address this shortage, an appropriate number of ICT professionals need to be hired to keep the existing systems operational as well as to handle the operations and upkeep of the systems and infrastructure that will be implemented in the new project "Strengthening of Ministry of Planning, Development and Reform in IT (Digital Management Unit (DMU) of Planning Commission)".

7. Capital cost estimates

Project Cost: **Rs.** 419.538 (**Annex I**)

8. Annual operating and maintenance cost after completion of the Project

Annex-II

9. Demand and supply analysis

N/A

10. Financial plan and mode of financing

PSDP 100%

11. Project benefits and analysis

i) Financial

N/A

ii) Economic

N/A

iii) Social benefits with indicators

N/A

iv) Employment generation (direct and indirect)

Direct: 30 (**Annex-III**)

Indirect: Nil

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v) **Environmental impact**

Various systems, especially the PC-I Automation and PSDP Automation systems, will result in reducing paper-based printing cost that goes into the appraisal, approval and funds disbursement processes. Digitalizing the core processes in the Ministry would thus bring in cleaner, clutter-free office environment.

vi) **Impact of delays on project cost and viability**

Delays will result in increase of project cost due to the inflation and foreign exchange rate. Additionally, delay in project approval will also present major obstacles for smooth running of existing IT facilities available in the M/oPDR. Thus creating a chaotic situation in smooth performing of work.

12. Implementation schedule

Planned Start Date: November, 2019

Planned Completion Date: October, 2022

Implementation Schedule is at Annex –IV

Implementation Approach

The proposed technologies to be introduced in the Ministry under this project are first of its kind in a Federal Ministry. It is therefore, essential to adopt an implementation approach which is agile as well as sustainable in the long run. The main components of the proposed solution can be started simultaneously with a selected user-base and data-set. This would enable M/o PDR to learn new concepts and technologies involved. Systemsrelated to core processes of development planning could be taken up on priority and the Base System could then be expanded by adding other systems/ features resulting in a full-scale enterprise-wide system. This approach would also minimize risks such as:

- scope creep due to emerging requirements in future;
- coordination among various segments/ stakeholders involved in this projects; and
- non-optimal utilization of resources procured under the project

This would also enable the development team to take design and development activities in a holistic manner and prevent duplication of human resources, reduce infrastructure costs for implementation and prevent gap in learning cycle.

Following main activities will be carried out to implement the proposed solution:

i. Selection of Individual Consultant/ Expert
ii. Requirements Analysis, Preparation of RSD, EOI, RFP by Individual Consultant
iii. Selection of Software Development Firm/ Vendor

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iv. Technical Solution Detailed Design& Identification of Data
v. Procurement Process for licensed software, hardware, other IT Infrastructure
vi. Development and Demonstration of Base System by Selected Firm/ Vendor
vii. Data Conversion/ Uploading and ETL of subset of identified/ indicated data
viii. Complete Documentation
ix. Training to End-Users, Technical Operations Team
x. Testing – Soft Launch Operations
xi. Acceptance of System
xii. Transfer of Solution to M/o PDR Technical Operations Team
xiii. Full operations & Post-deployment technical support

It is proposed that development of systems/ applications may be outsourced to private sector firm on competitve basis.

M/o PDR may opt for post-deployment support from the Solution Provider for a period of 2 years for mainstreaming the system in its work/ business processes.

13. A. Management structure and manpower requirements

Member (S&T and ICT), Planning Commission will oversee the implementation of the project. However, implementing the proposed solution would require adept project management. It is proposed that M/o PDR should form a core group that should act as the Project Management Office (PMO) for this project. The core group should consist of 3 to 4 officers to lead and coordinate all matters pertaining to the project as proposed in "Management Team". It is proposed that core group of M/o PDR may be empowered to make quick decisions or reach directly to the competent authorities to resolve complex issues during implementation. Currenly, officers of EIS Section are performing the duties of ICT Section on look after basis and they will also continue to perform the duties of ICT Section.

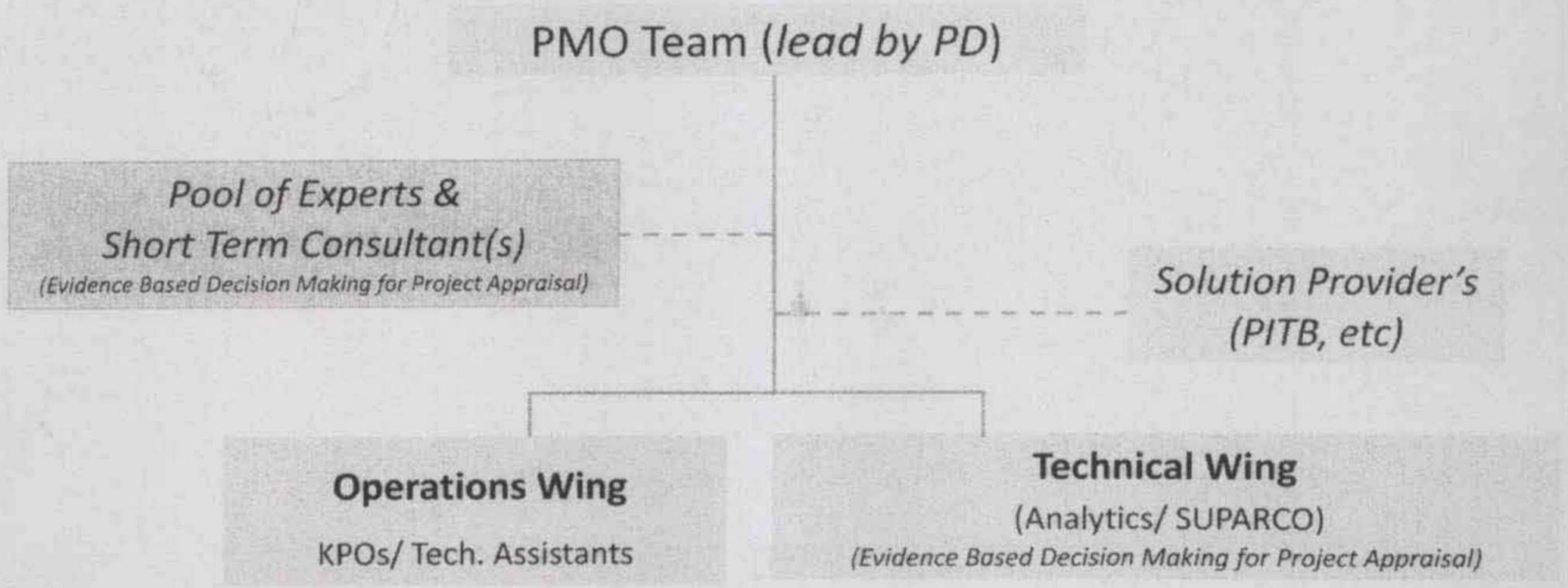
It is planned that most of the software development will be outsourced. As the Solution Development Provider will be mainly responsible to carry out all the technical development aspects of the project, his team would be adequately equipped. The Solution Development Provider will also include experienced professionals/ experts in itsproject team for various technologies such as data analytics, GIS/ Geo-spatial technology, predictive analytics algorithms, knowledge repository, cloud computing and other relevant required tools for implementing the proposed solution.

As per the direction of the Deputy Chairman, Planning Commission softwares, dashboards already avialble will be presffered. In this regard, Punjab IT Board (PITB) was contacted. PITB has agreed to provide the software developed related to Project Management by them and suggested that customiztion cost may be included in the PC-I and the provision has been made accordingly. However, other software will be obtained from the market based on compettative bidding process. As per the direction of the Deputy Chairman, Member (S&T and ICT) has proposed a component in this project based on the "Pool of Experts" and Short Term Consutltants for enhancing the ICT related capacity of the ministry.

Signature

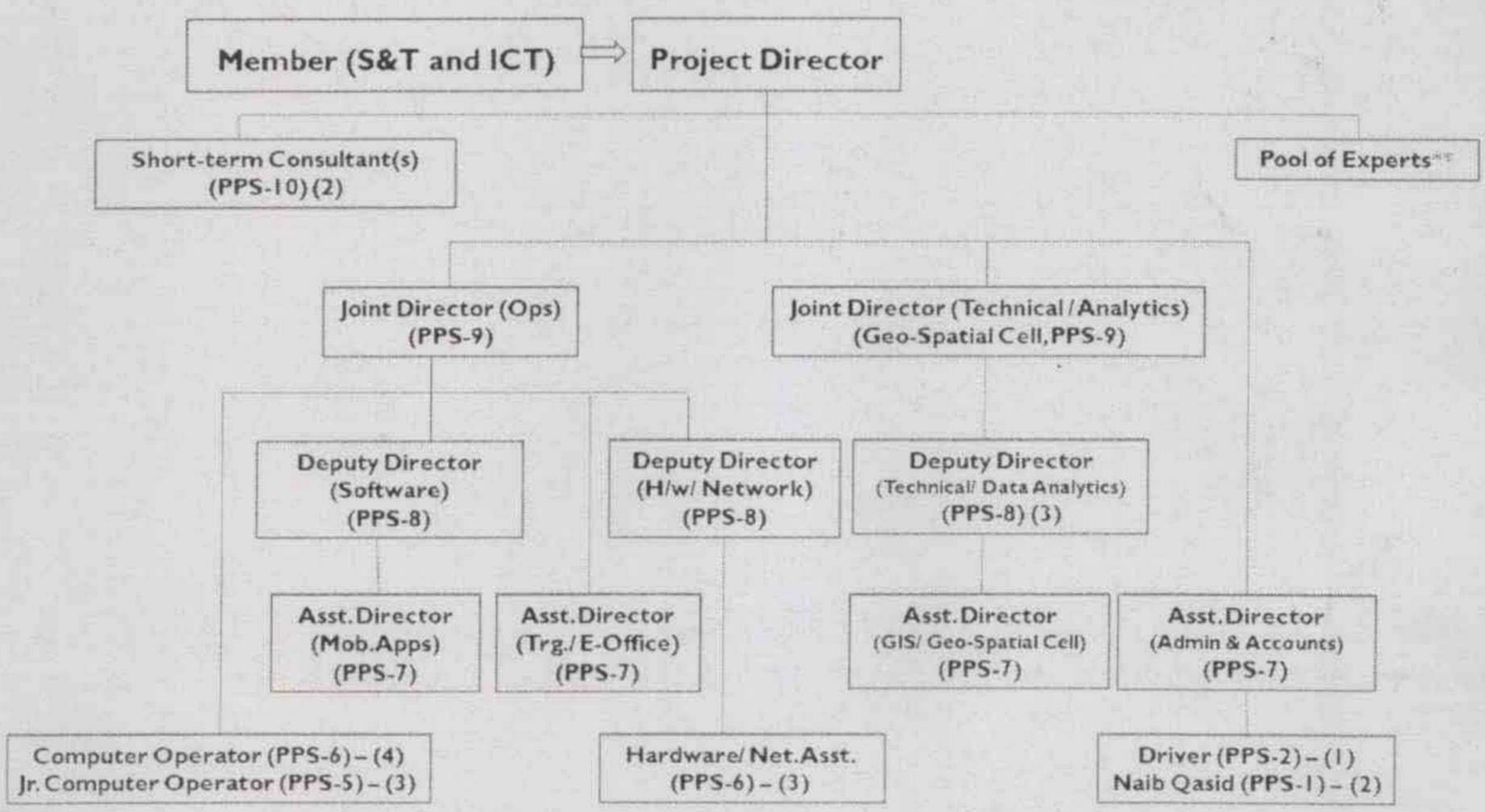
Finally, as per the direction of the minister, Geo Spatial Cell is already established with the support of SUPARCO and will be enhanced through this project. Both of these initatives will provide evidence based decision making to cater for the dire need of the minitsty for efficient technical apprisal of projects.

DMU PROJECT – STRUCTURAL DESIGN



Strong coordination and quick communication will be the key ingredients in successful execution to this project in time. Therefore, full support and necessary access and permissions will be provided by the relevant authorities of M/o PDR to develop and implement the solution.

ORGANOGRAM



** *Short-term Consultant(s) and Pool of Experts are not employees of Project*

Signature

B. Result Based Monitoring (RBM) Indicators

S.	Milestone	Output	Outcome	Impact
1.	Full Development/ Automation of Complete Project Management Lifecyle from prepation of PC-I to PC-V.	Fully functional Development Projects Software Suite	a) Integration of all other ministries and stakeholders into Planning Commission's PC-I Automation system. And Process Automation of ECNEC. b) Integration of all processes of PC-I to PC-V	a) Improved Transparency in PSDP b) Smooth, quick and transparent operations of PSDP
2.	Enterprise Resource Planning (ERP) System	Full ERP System consisting of HRMS, Library, Assets & Inventory, Complaints, Pensioner facilitation, & Accounts management.	Full automation of major internal business processes of M/o PDR	Increased work productivity by having access to information anytime, anywhere by authorized personnel.
3.	Establishment of Geo-Spatial Facility &Provision of Technical Services	Establishment of National Spatial Data Infrastructure Integration with other Systems in the M/o PDR	Reliable KPIs and other metrics using geospatial data	Instant Visualization of progress in Development Projects.
4.	Implementation of Data Analytics Platform	A complete data analytics solution integrating various data sources, creating data pipelines and an executive dashboard for insight into development program.	Establishment of data-driven decision making and insight system to enable M/o PDR in functions.	A data driven facility enabling various tiers of decision makers to access appropriate information instantly.
5.	Procurement of IT equipment	Upgraded network, servers and hardware/software in the ministry.	Replacement of Obsolete computer equipment	Hardware infrastructure compliant to software solution to be developed under this project.
6.	Trainings	a) End-user training on various software b) Technical Training to operations	Well trained officers and staff.	Trainings to all staff to increase IT competency and work efficiency

		personnel in M/o PDR.		
7.	Smart walls, Dashboard, Digital Directories, Other Digital Devices/ Tools/ Solutions	a) Various types of digital devices/ solutions installed for facilitation. b) Conference Rooms equipped with Video Conferencing Systems	a) Facilitation of visitors, meeting participants and officers b) Remote Conferencing resulting in reduction in financial expenditure & travelling.	Modernized look of ministry due to latest digital devices, gadgets and solutions in Ministry.

Signature

14. Certified that the project proposal has been prepared on the basis of instructions provided by the Planning Commission for the preparation of PC-I for Infrastructure sector projects.

Prepared by:
Nasir Mahmood
Deputy Chief ICT/ EIS Section

Signature

Checked by:
Zia ud Din Azhar
Chief ICT/ EIS Section

Signature

Endorsed by:
Syed Hussain Abidi
Member (S&T and ICT)
Planning Commission

Signature

Verified by:
Syed Waqar ul Hasaan,
Additional Secretary,
Ministry of Planning, Development & Reform

Signature

Approved by:
Zafar Hasan
Secretary,
Ministry of Planning, Development & Reform

CAPITAL COST					(Annex-I) Page 29	
Item Description	Qty	Unit Price	Annual Estimate			Cost
			2019-20	2020-21	2021-22	
1. Employee Related Expenses Post	No of Posts	Salary Per Month	-	-	-	-
- ICT Consultant (PPS-10)*	2	250,000	6,000,000	6,300,000	6,600,000	18,900,000
- Joint Director (Analytics/ Technical) (PPS-09)*	1	175,000	2,100,000	2,205,000	2,310,000	6,615,000
- Joint Director (Operations) (PPS-09)*	1	175,000	2,100,000	2,205,000	2,310,000	6,615,000
- Deputy Director, Technical Appraisal (PPS-08)	2	125,000	3,000,000	3,150,000	3,300,000	9,450,000
- Deputy Director, GIS/ Geo Spatial Cell (PPS-08)	1	125,000	1,500,000	1,575,000	1,650,000	4,725,000
- Deputy Director, Data Analytics (PPS-08)	1	125,000	1,500,000	1,575,000	1,650,000	4,725,000
- Deputy Director, Software/ Web (PPS-08)*	1	125,000	1,500,000	1,575,000	1,650,000	4,725,000
- Deputy Director, Hardware/Network (PPS-08)*	2	125,000	3,000,000	3,150,000	3,300,000	9,450,000
- Asstt. Director, Training/ E-Office (PPS-07)*	2	90,000	2,160,000	2,268,000	2,376,000	6,804,000
- Asstt. Director, GIS/ Geo Spatial Cell (PPS-07)	1	90,000	1,080,000	1,134,000	1,188,000	3,402,000
- Asstt. Director (Admin & Accounts) (PPS-07/08)	1	125,000	1,500,000	1,575,000	1,650,000	4,725,000
- Asstt. Acounts (PPS-05/06)	1	60,000	720,000	756,000	792,000	2,268,000
- Computer Operator (PPS-06)*	4	60,000	2,880,000	3,024,000	3,168,000	9,072,000
- Hardware/ Network Assistant (PPS-06)*	3	60,000	2,160,000	2,268,000	2,376,000	6,804,000
- Jr. Computer Operator (PPS-05)*	3	40,000	1,440,000	1,512,000	1,584,000	4,536,000
- PS to Project Director (PPS-05)	1	40,000	480,000	504,000	528,000	1,512,000
- Driver (PPS-02)	1	20,000	240,000	252,000	264,000	756,000
- Naib Qasid/ Farash (PPS-01)	2	16,000	384,000	403,200	422,400	1,209,600
- Additional Charge Allow/Honorarium/Overtime/Arrears		-	4,000,000	5,000,000	5,000,000	14,000,000
Total 1:	**30**		**37,744,000**	**40,431,200**	**42,118,400**	**120,293,600**

** These posts will be filled by PITB for coordination and implementation of Intelligent Project Automation System (iPAS) and to be placed in MOPDR*

Item Description	Qty	Unit Price	Annual Estimate			Cost
			2019-20	2020-21	2021-22	
CAPITAL COST				(Annex-I) Page 30		
Item Description	**Qty**	**Unit Price**	**Annual Estimate**			**Cost**
			2019-20	**2020-21**	**2021-22**	
2. Individual Consultants & Experts Remunerations						
Panel of Expert Local Charges	Lumpsum	150,000	150,000	150,000	150,000	450,000
TA/DA	Lumpsum	300,000	300,000	300,000	300,000	900,000
Experts Remunerations for Appraisals/ Review - DocType-A	40	50,000	2,000,000	2,000,000	2,000,000	6,000,000
Experts Remunerations for Appraisals/ Review - DocType-B	120	25,000	3,000,000	3,000,000	3,000,000	9,000,000
Individual Consultant - Short Term Assignments	Lumpsum		4,800,000	4,800,000	4,800,000	14,400,000
Total 2:			**10,250,000**	**10,250,000**	**10,250,000**	**30,750,000**
3. Equipment						
Multi-spectral Drone Technology with Software licenses	1	5,000,000	5,000,000			5,000,000
Storage Area Network (SAN) for backup (48TB to 50TB)	1	3,250,000	3,250,000			3,250,000
WorkStations for GIS Cell at JACC	2	2,500,000	5,000,000			5,000,000
Server machine + Connections to SAN (SFPs) for GIS Lab	1	2,500,000	2,500,000			2,500,000
Laptops (High end) for Data Scientiest/GIS Specialist	2	250,000	500,000			500,000
Mid-range Servers for Core Business Systems	2	3,000,000	6,000,000			6,000,000
Desktop Computers to replace Old Desktops	50	145,000	3,625,000	3,625,000	-	7,250,000
Notebook/ Laptop Computers for BPS-19 & above	50	190,000	7,600,000	1,900,000	-	9,500,000
Scanner	50	50,000	-	2,500,000	-	2,500,000
Heavy Duty Scanners	12	140,000	1,680,000	-	-	1,680,000
Colour Laser Printer (Heavy Duty)	1	200,000	200,000	-	-	200,000
Laser Jet Printers (B&W)	100	40,000	2,000,000	2,000,000	-	4,000,000
Upgradation of the Network of Ministry of PD&R	1	12,000,000	12,000,000	-	-	12,000,000
Storage Area Network (SAN) for backup (15TB - 20TB)	1	7,000,000	7,000,000	-	-	7,000,000
Video Conference system for 3rd floor Committee Room	1	10,000,000	10,000,000			10,000,000
Video Wall (LED) for "P" Block Auditorium	1	10,000,000	10,000,000	-	-	10,000,000
Interactive LED Screens	1	800,000	-	800,000		800,000
LED screens	2	125,000		250,000		250,000
Electronic Notice Board for "P" Block Reception, Auditorium and JACC with LED Screens	3	600,000		1,800,000	-	1,800,000
Interactive, Multi-touch Screen tables	3	300,000	900,000			900,000
Digital Flip Charts	3	600,000	1,800,000			1,800,000
Digital Signage Devices / Solution	-	3,000,000	3,000,000			3,000,000
Paper Shredder	2	100,000	0	200,000		200,000
Reversible AC	5	80,000	400,000			400,000
Fan Heaters	5	15,000	75,000	-	-	75,000
Total 3:			**82,530,000**	**13,075,000**	**0**	**95,605,000**

Item Description	Qty	Unit Price	Annual Estimate			Cost
			2019-20	2020-21	2021-22	
				(Annex-I) Page 31		
4. Softwares - MS Office 2019 (Business)	50	35,000	1,750,000	-	-	1,750,000
- Antivirus security suite	500	1,300	325,000	325,000	-	650,000
- Adobe Photoshop CS6	1	150,000	-	150,000	-	150,000
ESRI ArcGIS Suite for Desktop with Standard Extension	1	2,400,000	2,400,000			2,400,000
ERDAS Imagine Professional	1	3,250,000	3,250,000			3,250,000
- Application software/Miscellaneous/ License Renewal	1	1,000,000	300,000	350,000	350,000	1,000,000
Software Solution Development (Component (1,2,3,4)						
- **Component 1:** Intelligent Project Automation System (iPAS) Solution by PITB		53,466,600	21,386,640	18,713,310	13,366,650	53,466,600
- **Component 2:** Geo-Spatial Solution (Customization/ Integration with Software Systems) by SUPARCO		17,500,000	6,125,000	7,000,000	4,375,000	17,500,000
- **Component 3:** Data Analytics Platform Solution (Development/ Customization/ Integration of software systems)		35,000,000	12,250,000	15,750,000	7,000,000	35,000,000
- **Component 4:** Premises Facilitation Softwares (Development/ Customization/ Integration of software systems)		5,000,000	2,500,000	1,500,000	1,000,000	5,000,000
Sub Total Software Solution Development (Component 1,2,3,4)		110,966,600	42,261,640	42,963,310	25,741,650	110,966,600
Total 4:			**50,286,640**	**43,788,310**	**26,091,650**	**120,166,600**
5. Renovation of Building						
Furniture (Computer table/Chairs)	32	50,000	800,000	800,000	-	1,600,000
Funishing of Computer Lab (Multimedia, speakers)	1	400,000	400,000			400,000
General Renovation of JACC Building	1	2,000,000	2,000,000			2,000,000
Total 5:			**3,200,000**	**800,000**	-	**4,000,000**

Item Description	Qty	Unit Price	Annual Estimate			Cost
			2019-20	2020-21	2021-22	
				(Annex-I) Page 32		
6. Operating Expenses						
R&D and Data Processing, Capacity Building (SUPARCO Cell)			5,000,000	5,000,000	5,000,000	15,000,000
Courier Services			30,000	30,000	33,500	93,500
Telephone charges			100,000	100,000	100,000	300,000
Advertisement			420,000	420,000	420,000	1,260,000
Stationery, Consumables, Toiletries			500,000	500,000	500,000	1,500,000
Confrences, Seminars, Trainings, Workshops			1,000,000	2,000,000	2,000,000	5,000,000
Bandwidth/ Connectivity Charges/ Cloud Service Charges	per year	Annual chg	2,500,000	2,750,000	3,025,000	8,275,000
*POL			200,000	300,000	400,000	900,000
*Repair & Maintenance of vehicle			100,000	200,000	250,000	550,000
Equipment Repairs, Upgradation etc			1,000,000	1,200,000	1,425,000	3,625,000
Total 6:			**10,850,000**	**12,500,000**	**13,153,500**	**36,503,500**
Total 1+2+3+4+5+6			**194,860,640**	**120,844,510**	**91,613,550**	**407,318,700**
Contingencies (3%)		3.00%	5,845,819	3,625,335	2,748,407	12,219,561
Grand Total			**200,706,459**	**124,469,845**	**94,361,957**	**419,538,261**

* for existing vehicles used in the "Upgradation of JACC" project

Annex-II

ANNUAL RECURRING COST

Rs. Million

Item	Annual Total
Salaries	**25.00**
Hardware/Software Equipment Maintenance	**10.00**
Broadband/ Web Hosting/ Connectivity Charges	**5.00**
Stationery	**2.00**
Misc. Charges	**1.00**
Total	**43.00**

Signature

Annex-III

MANAGEMENT STRUCTURE

S. No.	Post	No. of Posts
	Management Team	
1	Project Director*	1
2-3	ICT Consultant (PPS-10)	2
4	Project Manager*	1
	R& D Team	
5-6	Deputy Director, Technical Appraisal	2
	Geo-Spatial Cell Team	
7	Deputy Director, GIS/ Geo Spatial Cell) (PPS-8)	1
8	Asst. Director, GIS/ Geo Spatial Cell (PPS-7)	1
	Technical Team	
9	Joint Director (Analytics/ Technical) (PPS-9)	1
10	Deputy Director, Data Analytics (PPS-8)	1
11	Deputy Director, Software/ Web (PPS-8)	1
	Operations Team	
12	Joint Director (Operations) (PPS-9)	1
13-14	Deputy Director, Hardware/ Network (PPS-8)	2
15-16	Asst. Director, Training/ E-Office (PPS-7)	2
	Computer/Data Entry Operators/ Hardware Technicians	
17-20	Computer Operators (PPS-6)	4
21-23	Jr. Computer Operators (PPS-5)	3
24-26	Hardware/ Network Assistant (PPS-6)	3
	Administration Support Staff	
27	Asst. Director, Admin & Accounts (PPS-7/8)	1
28	Asst. (Accounts) (PPS-5/6)	1
29	PS to Project Director (PPS-5)	1
30	Driver (PPS-2)	1
31-32	Naib Qasid/ Farash (PPS-1)	2
	Total	32

Signature

JOB DESCRIPTIONS

1. ICT Consultant

Job Description

- Provide expert advice on the design, structure and efficiency on ICT systems within the organization and different projects.
- To provide need assessment and advise on development of information system solutions.
- To provide recommendations on strategy, implementation and organization.
- To guide MoPDR & Planning Commission in the use of emerging technologies
- Attend meetings with senior management, Project Director and Member S&T/ICT.

SKILLS

- Ability to analyse business processes, complex data and computer systems/ solutions.
- Ability to identify technology and organizational requirements.
- A creative approach to problem solving.
- Teamwork and leadership skills.
- Ability to present findings and recommendations effectively to the management as well as the development team.

Qualification

BS (16 years) or equivalent in Computer Science or related field from some reputed foreign or Local HEC-recognized university/institution.

The candidate must have atleast 15 years of experience in IT/ICT multinational organization or a reputed IT/Telecom company. Must have worked on management level for more than 5 years.

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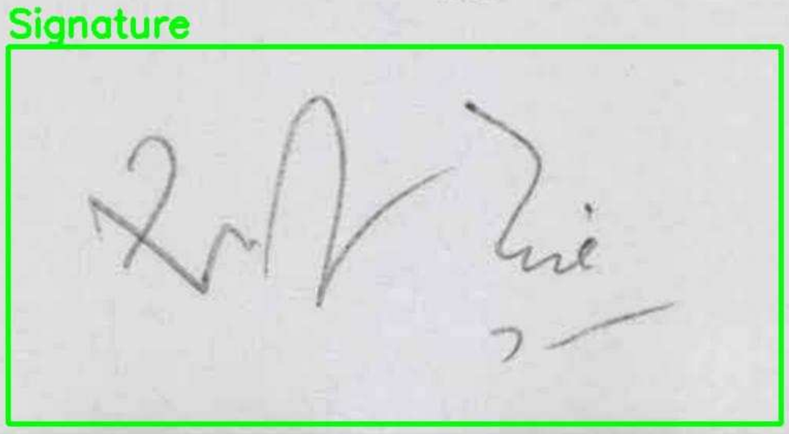

2. **Joint Director (Analytics/ Technical)**

Job Description:

Development, implementation and maintenance of software applications, web portal, databases etc. deployed within Planning Commission.

Study the present business processes and carryout re-engineering for improvement in efficiency and transparency and to avoid duplication.

Monitor the development and testing of software.

Coordinate and supervise the vendor during deployment of application.

Carryout all modifications, improvements etc. in the application after taking over the application from the vendor and/or enter into some sort of application maintenance agreement.

Implementation of policies for Performance Tuning of applications.

Supervise the work of Web Developer by reviewing code suggesting improvements, elimination of security and performance issues.

Any other duties assigned by Project Director and Member S&T/IT.

Qualifications:

BS (16 years) or equivalent in Computer Science or related field from some reputed foreign or Local HEC-recognized university/institution.

Experience:

Atleast 10 years of relevant experience relating to data analytics, system study, design, development, testing, deployment and training of software applications relating to web enabled, client server database applications and report writing. Hands on Programming Skills and software design patterns.

Experience in the field of data analytics preferred.

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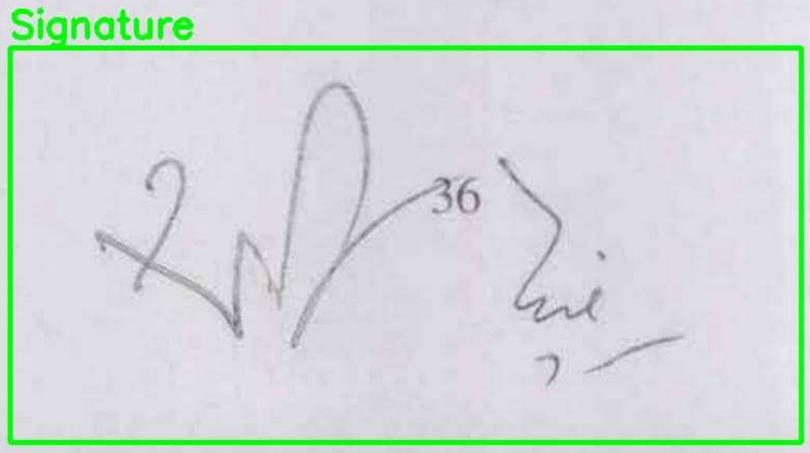

3. **Joint Director (Operations)**

Job Description:

- Act as focal person for the data-communication &network operations, hardware issues, etc.
- Develop, implement and maintain helpdesk for handling/ rectification of issues related to network, hardware and internet.
- Preparation of RFQ and tender documents for the procurement of computer hardware equipment and computer Stationery/ consumables.
- Manage the administrative matters as assigned by the Management.
- Coordinate and supervise the Hardware/Network & System Administrators and ensure upkeep of the LAN, WAN and computer equipment.
- Liaise with the vendor(s) and manage service maintenance agreement related to computer hardware.
- Supervise Data Processing Officer and approve/monitor duties for preparation of presentational material for senior management.
- Supervise technical support for presentations, seminars, meetings, etc.

Qualifications:
BS (16 years) or equivalent in Computer Science or related field from some reputed foreign or Local HEC-recognized university/institution.

At least 10 years of relevant experience relating to coordination, helpdesk management, hardware, networks and training of office automation/ software applications relating to web enabled, client server database applications and report writing. Training experience in domain of networking will be preferred. Qualification requirement may be relaxed for suitable candidates.

Signature

4. **DeputyDirector (Data Analytics)**

Job Description:

Development, implementation and maintenance of software applications, web portal, databases etc. deployed within Planning Commission.

Study the present business processes and carryout re-engineering for improvement in efficiency and transparency and to avoid duplication.

Monitor the development and testing of software.

Coordinate and supervise the vendor during deployment of application.

Carryout all modifications, improvements etc. in the application after taking over the application from the vendor and/or enter into some sort of application maintenance agreement.

Implementation of policies for Performance Tuning of applications.

Supervise the work of Web Developer by reviewing code suggesting improvements, elimination of security and performance issues.

Any other duties assigned by Project Director and Member S&T/IT.

Qualifications:

BS (16 years) or equivalent in Computer Science or related field from some reputed foreign or Local HEC-recognized university/institution.

Experience:

6-8 years of relevant experience relating to data analytics, system study, design, development, testing, deployment and training of software applications relating to web enabled, client server database applications and report writing. Hands on Programming Skills and software design patterns.

Experience in the field of data analytics preferred.

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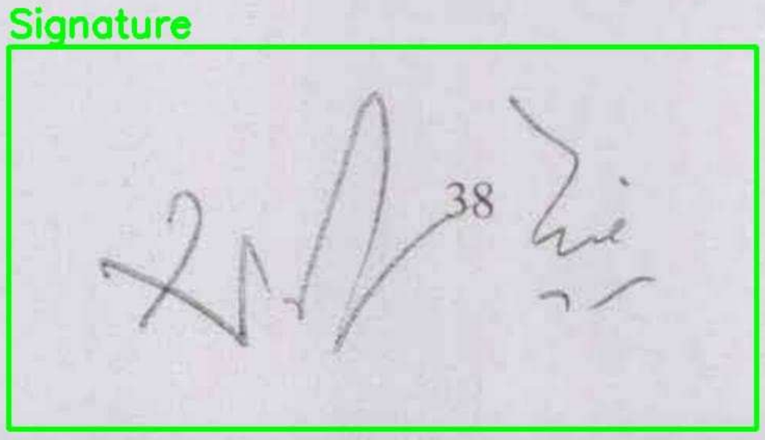

5. **Deputy Director (Software/ Web)**

Job Description:

- Study the present business processes and carryout re-engineering for improvement in efficiency and transparency and to avoid duplication.
- Develop all aspects of software applications and web portal including UX design, interactivity of application, server side business login, and data access layer.
- Assign work to data processing staff to ensure timely completion of milestone.
- Investigates and reconciles any discrepancies in files.
- Evaluate performance of data processing staff for productivity, capability and technical expertise.
- Work with end users to analyse data processing needs and to determine system development and modification activities.
- Develop standard operating procedures for effectiveness and efficiency of data processing operations.
- Manage daily activities of the data processing team and distribute routine reports, daily and weekly.
- Manage data processing jobs such as end-of-day processing, full system backups, new account set-up and running miscellaneous reports and queries.
- Schedule and monitor data processing tasks to meet deadlines.
- Ensure data processing operations are properly documented for future references.
- Identify information system problems and recommend appropriate solutions.
- Train the team on data processing techniques and practices.
- Assisting JAVA web Developer for software requirement analysis and design.
- Development, implementation and maintenance of software applications, web portal, databases etc. deployed within Planning Commission.
- Develop all aspects of software applications and web portal including UX design, interactivity of application, server side business login, and data access layer.
- Write documentation and user manuals of applications being developed.
- Any other duties assigned by Web Developer and Joint Director IT.

Qualifications:

BS (16 years) or equivalent in Computer Science or related field from some reputed foreign or Local HEC-recognized university/institution.

Experience

6-8 years of experience in software/ web applications.

Signature

6. **DeputyDirector (Technical Appraisal)**

Job Description:

Technical Appraisal of PC-Is
Working papers for CDWP and Summaries for ECNEC
Participation in DDWP Meetings
Analysis of various Proposals
PSDP Preparation (IT Sector)
Preparation of ICT Chapter of Annual Plan, 5-Year Plan and Vision Documents
PSDP Reviews and Monitoring of Projects

Any other duties assigned by Chief (ICT), Project Director and Member S&T/IT.

Qualifications:
BS (16 years) or equivalent in Computer Science or related field from some reputed foreign or Local HEC-recognized university/institution.

Experience:
6-8 years of relevant experience relating to project apprisal in the sectors of IT, Telecom, Space etc.

Experience in the field of project apprisal will be preferred.

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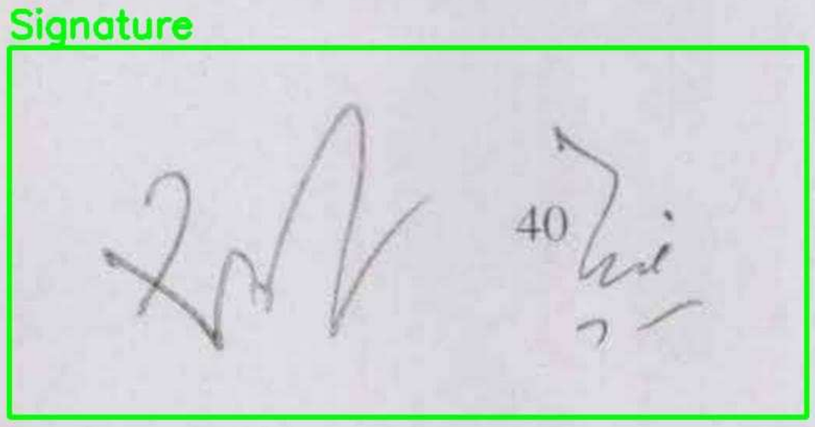

7. **Deputy Director (Hardware/Network)**

Job Description:

- Maintenance of Computer Equipment and Networking of Ministry of Planning, Development & Reform.
- Preparation of procedures for taking Backups.
- Develop standard operating procedures for the use of network infrastructure.
- Ensure data secrecy and protection of Senior Management
- Supervise the work of Hardware/ Networking Assistants.

Qualification:

BS/Masters Telecom/Computer Science/ IT or 16 years of equivalent qualification. Preference will be given for hands-on experience of resolving hardware and networking issues.

Experience:

6-8 Years experience in relevant field. But preference will be given to candidates with more experience in the field.

Signature

8. **Deputy Director (GIS/ Geo Spatial Cell)**

Job Description:

- To work on GIS requirements of the ministry in coordination with SUPARCO.
- Study the present business processes and carryout re-engineering for improvement in efficiency and transparency and to avoid duplication.
- Assign work to data processing staff to ensure timely completion of milestone.
- Investigates and reconciles any discrepancies in data.
- Evaluate performance of data processing staff for productivity, capability and technical expertise.
- Work with end users to analyse data processing needs and to determine system development and modification activities.
- Develop standard operating procedures for effectiveness and efficiency of data processing operations.
- Manage daily activities of the data processing team and distribute routine reports, daily and weekly.
- Manage data processing jobs such as end-of-day processing, full system backups, new account set-up and running miscellaneous reports and queries.
- Schedule and monitor data processing tasks to meet deadlines.
- Ensure data processing operations are properly documented for future references.
- Identify information system problems and recommend appropriate solutions.
- Train the team on data processing techniques and practices.
- Any other duties assigned by Technical Coordinator (GIS Cell).

Qualifications:

BS (16 years) or equivalent in Computer Science or related field from some reputed foreign or Local HEC-recognized university/institution.

Experience

6-8 years of experience in GIS applications.

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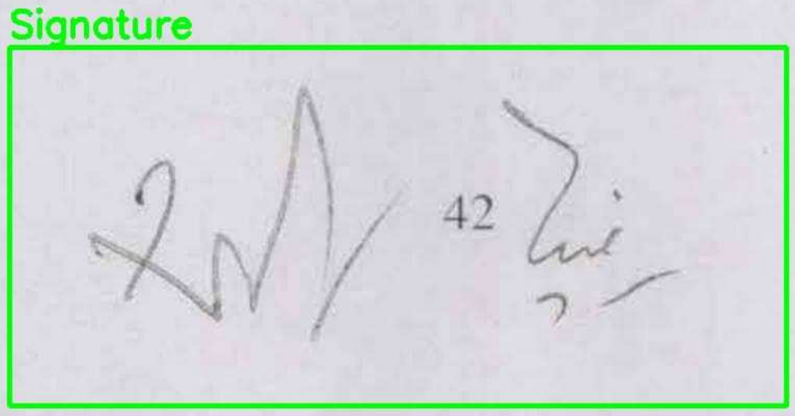

9. **Assistant Director (GIS/ Geo Spatial Cell)**

Job Description:

- To work on GIS requirements of the ministry in coordination with SUPARCO.
- Study the present business processes and carryout re-engineering for improvement in efficiency and transparency and to avoid duplication.
- Assign work to data processing staff to ensure timely completion of milestone.
- Investigates and reconciles any discrepancies in data.
- Evaluate performance of data processing staff for productivity, capability and technical expertise.
- Work with end users to analyse data processing needs and to determine system development and modification activities.
- Develop standard operating procedures for effectiveness and efficiency of data processing operations.
- Manage daily activities of the data processing team and distribute routine reports, daily and weekly.
- Manage data processing jobs such as end-of-day processing, full system backups, new account set-up and running miscellaneous reports and queries.
- Schedule and monitor data processing tasks to meet deadlines.
- Ensure data processing operations are properly documented for future references.
- Identify information system problems and recommend appropriate solutions.
- Train the team on data processing techniques and practices.
- Any other duties assigned by Technical Coordinator (GIS Cell).

Qualifications:

BS (16 years) or equivalent in Computer Science or related field from some reputed foreign or Local HEC-recognized university/institution.

Experience

Minimum of 3 years of experience in GIS applications

Signature

10. Assistant Director (Training/ E-Office)

Job Description:

i. Assist Joint Director (Operations) in Research, design and development of new training programs and materials based upon the needs of staff.
ii. Prepare training materials such as user manuals, general inquiry documentation for casual users, and detailed documentation for power users, and online site - specific documentation.
iii. Preparation of hand outs, MCQs and similar documents. Preparation and design of on line tests of trainees.
iv. Delivery of training to the officers of Planning Commission for E-Office.
v. Will be focal person for E-Office software implementation for MoPDR.
vi. Will ensure un-interrupted and smooth E-Filing services across 3 buildings of MoPDR.
vii. Candidate must have strong IT as well as communication skills in order to coordinate with MoPDR and NITB staff and spearhead E-Office teams.

Qualification:

BS (16 years) or equivalent in Computer Science or related field from some reputed foreign or Local HEC-recognized university/institution.

Experience:

- Minimum of 3 years of work experience in relevant field.
- Experience in preparation of curriculum for IT training and teaching of IT courses.

Signature

11. Hardware/ Network Assistant

Job Description:

- Installation of operating system and other software as per requirement of users.
- Troubleshoot day-to-day IT related problems faced by Officers/Staff of P&D Division in the use of computers.
- Year around regular maintenance of all computer/network/IT equipment.

Qualification:

BA/B.Sc. with Diploma or Certificate in Hardware and/or Networking. Higher qualification will be given preference.

Experience:

- 5-7 Years of experience in relevant field will be preferred.
- Certifications of Microsoft, Cisco, Redhat etc. will be preferred.

12. Computer Operator

Job Description:

- Preparation, design, composing of documents, presentations as per the requests/ instructions received from higher management.
- Manage/ handle IT equipment (multimedia, computers, etc.) during the meetings, events, etc. held in the Ministry of Planning, Development & Reform/ Planning Commission.
- Any other duty assigned by the Project Director or higher management.

Qualification:

F.A/F.Sc./DAE or equivalent with relevant experience of 5-6 years in using advanced features of MS Office Suite (Word, Excel, PowerPoint). Hands-on experience in CorelDraw, Adobe Photoshop or other graphics/ animation tools will be given due weightage. Typing speed of at least 60 wpm is required. Diploma or Certificate in Computers will be preferred.

13. Junior Computer Operator

Job Description:

- Preparation, design, composing of documents, presentations, etc as per the requests/ instructions received from higher management.
- Manage/ handle IT equipment (multimedia, computers, etc.) during the meetings, events, etc. held in the Ministry of Planning, Development & Reform/ Planning Commission.
- Any other duty assigned by the Project Director(JACC) and Data Processing Officer.

Qualification:

F.A/F.Sc or Equivalent with Diploma or Certificate in Computers with relevant experience of 1-2 years in using advanced features of MS Office Suite (Word, Excel, PowerPoint) Hands-on experience in

Signature

CorelDraw, Adobe Photoshop or other graphics/ animation tools will be given due weightage. Typing speed of about 40 wpm is required

14. Assistant Director (Admin & Accounts)

Job Description:
To assist the Project Director for administrative services in planning, organizing, directing and reviewing the activities and operations of the department. Issues related to Procurement and Tendering, Records Management and Administration; to coordinate assigned activities with other departments and outside Planning Commission; and to provide highly responsible and complex administrative support to the team. Maintaining office files, indexing of office files, keeping track of inventory, stationery etc. Drafting letters on behalf of Project Director. Can use e-Office software and has experience working on Microsoft Word, Excel and Powerpoint.

- Handling of AGPR related tasks
- Handling of bills related to the project
- Assist assistant director (admin) in operational activities
- Maintenance of log books, registers, audit related financial documents.

Qualification:
BA/BSc or equivalent from any reputed foreign or Local HEC-recognized university/institution. Candidates with 16-years of education would be preferred.

Experience:
Minimum of 5 years of experience in office administration and accounts.

Preference will be given to the candidates having experience of government sector admin/ accounts.

Signature

15. **Assistant (Accounts)**

Job Description:

- Drafting letters on behalf of Project Director. Can use e-Office software and has experience working on Microsoft Word, Excel and Powerpoint.
- Handling of AGPR related tasks
- Handling of bills related to the project
- Assist assistant director (admin) in operational activities
- Maintenance of log books, registers, audit related financial documents.

Qualification:

B.Com. or equivalent from any reputed foreign or Local HEC-recognized university/institution.

Experience:

4-5 years of experience in accounts. Preference will be given to the candidates having experience of government sector accounts.

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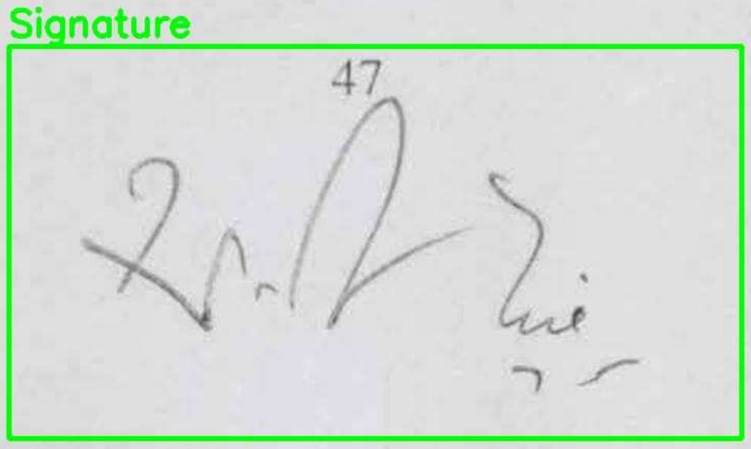

16. PS to Project Director

Job Description:

- Answer, screen and forward incoming phone calls
- Provide basic and accurate information in-person and via phone/email
- Receive, sort and distribute daily mail/deliveries of Project Director
- Update calendars and schedule meetings of Project Director
- Perform other clerical receptionist duties such as filing, photocopying, transcribing and faxing

Qualification:
B.A /B.Com or equivalent

Experience

1-2 years of experience in national/multinational firm as a personal secretary or general office administration is required.

17. Driver

Job Description:

- Drive and maintain official vehicle
- Maintain log book of official vehicle.

Qualification:
Matric. Valid Driving License for car/ light vehicles.

Experience
2-3 years in driving office vehicles/ cars in public or private sector organizations

18. Naib Qasid/ Farash

Job Description:

- Perform duties as directed by concerned/ relevant officers and staff, such as dusting, cleaning, photocopying, etc.

Qualification:
Middle

Experience
2-3 years experience in public or private sector organizations.

Note: *All the positions will be filled on merit basis only.*

Signature

Project Schedule

WBS	Activity	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8	Qtr 9	Qtr 10	Qtr 11	Qtr 12
1	**Project Initiation & Hiring**												
1.1	Project Initiation & Project Staff Hiring												
1.2a	MOU with PITB												
1.2b	MOU with SUPARCO												
1.3	Requirements Analysis & Specification												
1.4	Solution Development Firm - Procurement of Services												
2	**Component 1: Core Systems**												
2.1	Provision of Services by PITB (IPAS Customization, Enhancement, etc.)												
2.2	Integration with PMES												
2.3	E-Office Implementation & Services												
3	**Component 2: Geo-Spatial Facility**												
3.1	Establishment of Geo-Spatial Cell												
3.2	Implementing NSDI												
3.3	Provision of Technical Services												
4	**Component 3: Data Analytics Platform**												
4.1	National Development Profile												
4.2	Organizational Knowledge Repository												
4.3	Executive Dashboard												
4.4	Data Analytics Engine & Data Pipeline												

Project Schedule

5	**Component 4: Premises Facilitation Infrastructure**												
5.1	Procurement Process (H/w, Licensed S/w)												
5.2	Upgrading Network Infrastructure												
5.3	Installation of Smart Orientation Devices												
5.4	Video Conferencing System												
6	**Component 5: Capacity Building**												
6.1	End-User Training												
6.2	Technical Training												
6.3	Pool of Experts Services												
7	**Soft Launching of Solution**												
7.1	Integration Testing												
7.2	Transition to Production stage												
7.3	Acceptance												
7.4	Handing over & Operations												
8	**Post-Deployment Support**												

Annex-V

Detailed Specification of Hardware/Equipment

No	Name of Item	Specification
1	**Desktop Computer for Officers**	**Processor:** 9th generation Intel Core i5 or i7, 6-core (3.0GHz or above) with at least 9MB Level 2 Cache memory **Chipset:** Intel Original Q370 chipset **RAM:** DDR4-4GB or higher capacity **Optical Drive:** DVD Writer (Super Drive) 8x DVD+/-RW **VGA:** Intel HD Graphics 630 or equivalent **Hard Disk:** 1TB 7200rpm 3.5" SATA **LAN Card:** 100/1000 Ethernet NIC (Integrated) **Monitor:** LCD 18.5" or higher **Keyboard/Mouse:** Standard OEM Multimedia/Brand specific **Software:** Licensed (Windows 10 Professional) **Warranty:** 3 Year Limited **Casing:** Original, Tower with 250W or more power supply HP, Dell or Equivalent
2	**Notebook/ Laptop Computer (Branded)**	**Processor:** 9th generationIntel Core i7- 3.0 GHz, 8MB Cache or higher **Chipset:** Intel Original chipset **RAM:** DDR4 type memory 8GB (2400MHz) or higher **Hard Disk:** 512 SSD PCI-e or 1 TB SATA **VGA /Sound :** Integrated UHD 630 or higher (Intel HD chipset) **Sound:** Two speakers **Communication:** 802.11ac (dual band) 2*2, RJ-45 LAN port **Screen Size:** 15.6" (FHD with antiglare coating), Brightness of 220cd/m^2 or more (300 cd/m^2 will be preferred), Non-Touch screen models only **External Ports**: Multi-Format Digital Media Card Reader for Secure Digital cards, 2 Super Speed USB 3.0 type A/3.1 type C, 1 HDMI 1 Headphone-out/microphone-in combo jack, HD Webcam **OS Version:** Windows 10 Professional **Carrying Case:** OEM recommended (briefcase style) **Warranty :** 3 Years local HP, Dell or Equivalent
3	**Heavy Duty Scanner**	**Scan Technology:** CMOS CIS (Contact Image Sensor) **Scan Type:** Flatbed; ADF; Colour Scanning: Yes **Scan Speed:** Up to 30 ppm/60 ipm **Scan Resolution Hardware:** Up to 600 x 600 dpi (colour and monochrome, ADF); Up to 1200 x 1200 dpi (colour and monochrome, flatbed) **Optical:** Up to 600 x 600 dpi (colour and monochrome, ADF); Up to 1200 x 1200 dpi (colour and monochrome, flatbed) **Scan File Format:** PDF, JPEG, PNG, BMP, TIFF, Text (.txt), Rich Text (rtf) and searchable PDF **Scan Input Modes Scan front-panel function:** Save as PDF, Save as JPEG, Email as PDF, Email as JPEG, Send to Cloud, Everyday Scan and Save as Editable Text (OCR); HP Scan in Win OS, HP Easy Scan/ICA in **Light Source (Scanning)** Light Emitting Diode (LED) **Image Scaling Or Enlargement Range** Will not perform any arbitrary scaling **Output resolution:**75, 150, 200, 240, 300, 400, 500, 600 and 1200 ppi

Signature

		Grayscale Levels/Bit Depth 256; Bit Depth: 24-bit **Duty Cycle (daily)** 4,000 pages (ADF), 100 pages (Flatbed) **Multi Feed Detection** Yes **Auto Document Feeder Capacity Standard,** 50 sheets (75 g/m² paper) **Duplex ADF Scanning** Yes **Media Size (ADF)** A4, A5, A6, B5, B5 (JIS), **Media Weight (ADF)** 45 to 120 g/m² **External I/O ports** Hi-Speed USB 2.0 or USB 3.0; Built-in Fast Ethernet 10/100/1000 Base-TX network port **Standard Connectivity** Hi-Speed USB 2.0 and USB 3.0; Built-in Fast Ethernet 10/100/1000 Base-TX network port **Network Ready** Build-in Ethernet, Wi-Fi 802.11 b/g/n **Supported Network Protocols Via built-in networking solution:** TCP/IP, IPv4, IPv6, Web Services; Control Panel 7.11 cm (2.8") touchscreen, 3 buttons (Back, Home, Help) **Scanner Advanced Features** Blank page removal; Auto orientation; Auto colour detect; Auto crop; Auto exposure; Hole removal; Straighten content; Erase edges; Clean up background;Auto threshold; Colour drop out; OCR Digital Sending Standard Features Scan to email; Scan to PC; Scan to Network **Media Types Supported** Paper (banner, inkjet, photo, plain), envelopes, labels, cards **Compatible Operating Systems** Windows 7 or higher; HP or Equivalent
4	**Standard Scanner**	**Scan Technology:** CMOS CIS (Contact Image Sensor) **Scan Type:** Flatbed, ADF; Colour Scanning: Yes **Scan Speed** Up to 20 ppm/40 ipm (black & white, grey and colour, 300 dpi) **Scan Resolution Hardware:** Up to 600 x 600 dpi (colour and monochrome, ADF); Up to 1200 x 1200 dpi (colour and monochrome, flatbed) **Optical:** Up to 600 dpi (colour and monochrome, ADF); Up to 1200 dpi (colour and monochrome, flatbed) **Scan File Format** For text and images: PDF, JPEG, PNG, BMP, TIFF, TXT(Text), RTF (Rich Text) and searchable PDF **Scan Input Modes** Scan front-panel function: Save as PDF, Save as JPEG, Email as PDF. **Light Source (Scanning)** Light Emitting Diode (LED) **Output resolution dpi settings** 75, 150, 200, 240, 300, 400, 500, 600 and 1200 **Grayscale Levels/Bit Depth** 256; Bit Depth: 24-bit **Duty Cycle (daily)** Up to 1000-2000 pages (ADF) **Auto Document Feeder Capacity** Standard, 50 sheets **Duplex ADF Scanning:** Yes **Media Size (ADF)** A4; A5; A6; B5; B5 (JIS), **Media Weight (ADF)** 60 to 105 g/m² **External I/O ports:** Hi-Speed USB 2.0 **Scanner Advanced Features** One pass duplex scanning; One button scan; OCR; Configurable scan shortcuts **Media Types Supported** Paper (banner, inkjet, photo, plain), envelopes, labels, cards (greeting, index) **Compatible Operating Systems** Windows 10, 8/8.1, 7 HP or Equivalent
5	**Network Laser Printer**	LaserJet Min 55 ppm or higher Monthly print volume Up to 10000 to 50000 pages Automatic Two sided Printing

Signature

		FastRes 1200 Up to 1200 x 1200 dpi Paper handling input, standard Two 500-sheet input trays 100-sheet multi-purpose tray 3500-sheet High-capacity input tray Embedded Jetdirect (Gigabit Ethernet) print server, 1 Hi-Speed USB 2.0, 1 EIO Slot, 1 external and 2 internal Host USB 2.0-like ports for 3rd party connection Warranty: One year with parts and labour
6	**Laser Printers (B&W)**	Print Technology: Laser Speed: Black (normal, A4): Up to 18 ppm Resolution Black (best): Up to 600 x 600 x 1 dpi; Black (normal): Up to 600 x 400 x 2 dpi Duty cycle (monthly, A4)3 Up to 8,000 pages Media Standard: sizes A4; A5; A6; envelopes (C5, DL); custom Recommended Weights 65 to 120 g/m² Types: Plain paper, envelope, postcard, Label Paper handling Input (standard): 150-sheet input tray; Output (standard): 100-sheet output bin Processor speed: 500 MHz Operating system compatibility: Windows 10, 8.1, 8, 7: 32-bit or 64-bit Connectivity (standard) Hi-Speed USB 2.0 port HP or Equivalent
7	**Paper Shredder**	Multiple Paper sheets, may handle staples and CDs Sheet capacity: 18 to 20 Sheets Shred size: Cross-cut 4 x 38mm Paper throat width: 260mm Shredder bin volume: 25L or more Motor power: 250W
8	**Mid Range Server**	**Processor:**Intel Xeon E5-2650v4 2.6GHz,7.2GT/,6Core **Cache:**2.5 MB per core, **Memory:**4x64 GB,1866MHz,Dual Rank LV RDIMMs **Hard Disk:**6 x 900 GB 2.5-inch 15K RPM,6Gbps SAS Hot Plug HardDrive **Hard Disk RAID**:RAID Controller with RAID O,1,5,10 Support **Optical Drive:**DVD+/-RW **Drive Bays:** Up to sixteen(16)2.5" drives,hot plug drive bays **Communication:**Embedded 4x1GbE Network Adapter **Power:**Dual,Hot-plug,Redundant Power Supply(1+1), **Chassis:** 2U 2.5" Rack Chassis **Warranty:**3 Years Parts Exchange Service Warranty **Operating System:** Windows Server 2016 or latest HP, Dell or Equivalent
9	**Electronic Notice Board for P Block Reception, Auitorium and JACC with LED Screens**	Wall mounted Electronic Notice Board, Minimum size 55"; Resolution 1920x1080p, Pixel pitch(mm: 0.63x0.63; Brightness: min 450cd/m; Bezelwidth: 9.5 (T/L/R) 15.6 (B), Contrast Ratio: 1100:1, Aspect Ratio: 16:9, Display Colors: 16.7M; Media Player; CPU: Quad Core Cortex A9 1.8 GHz; GPU:ARM Mali400 Quad Core 533MHz; Memory: 2GB DDR3; Storage: 16GB EMMC; Sound Speaker; Software for Content & Control; Mount Bracket and Installation; Samsung or Equivalent
10	**Video Conference**	Codec based System with 4K Ultra HD Resolution and Full HD camera, codec, Microphone Array,

Signature

	System for 3rd floor committee room of P-Block	cables, and touch control The unit should support H.323, SIP standards for communications. Video:H.261, H.263, H.264, H.265 ,H.263+, H.263++ The unit should support 1080p 60 fps Should support content sharing using standard based H.239 and SIP. Wireless Presentation Sharing; Supports dual content sources for local meetings Audio: G.711, G.728, G.729A, G.722, G.722.1, AAC-LD OPUS or better 20kHz bandwidth or better with crystal clear audio and stereo sound. Automatic Gain Control and Automatic Noise Suppression Keyboard noise reduction and instant adaptation echo cancellation 3 x HDMI inputs support formats up to maximum 4K 3 x Microphone Input, 2x HDMI Audio Inputs 2 x HDMI outputs support formats up to 4K Camera Minimum 20 x zoom or better Automatic or manual focus/brightness/white balance IPv4 and IPv6 support Auto Gatekeeper Discovery; IP Precedence H.323 based Packet Lost Recovery; Media Encryption (H.323, SIP): AES-128, AES-256; Multiparty Support 3+1 Streaming & Recording
11	**Interactive Multi-Touch Tables**	Size 43", Commercial grade LED Display with option for Full HD resolution or 4K UHD resolution; support for multi-touch points, supports MS Windows, Android&iOS operating systems, Built-in Wi-Fi and LAN connectivity.
12	**Digital Flip Charts**	Screen Size: Minimum 55", Brightness (with glass) min. 220nits, Resolution, 2160x3840, viewing angle: 178/178 degrees, Panel Technology: E-LED 60 Hz, Inputs: At least HDMI, USB 2 (ver 2.0 x 2, side 1, Assy 1); Internal Sensor NFC, Acceleration Sensor, Proximity Sensor; Output: Touch Out, USB, External Controls: Touch Input RJ45; Touch Pen Type Passive; Power Supply, AC 100-240V; Built-in Speakers (2x10W); Application Software for Flip, Built-in Document Viewer for MS Office, PDF etc; Power Cable, Touch Out Cable, Moving Stand, Protection Glass; Samsung or Equivalent.
13	**Misc. Equipment/ Devices**	• Multi-spectral Drone Tecnology with software licenses • Server machine + connections to SAN (SFPs) for GIS Lab • Workstations for GIS • Laptops (High End) for GIS/ Analysis • SAN 48TB to 50TB for GIS/ Analysis • SAN for backup 15TB-20TB • Reversible A/C • Fan Heater
14	**Color Laser Printer (Heavy Duty)**	**Control panel:** Touch screen with colour graphics. Print: Print technology Laser **Print speed:**Black& Color (A4, normal) Up to 38 ppm; Black& Color (A4, duplex): Up to 38 ipm; **Print resolution:**Black (best): Up to 1200 x 1200 dpi, HP ImageREt 3600 (best); Colour (best): Up to 1200 x 1200 dpi, HP ImageREt 3600 (best); **Monthly duty cycle** Up to 80,000 pages A4; monthly page volume : 2,000 to 7,500 pages **Print area:** Print margins Top: 2 mm absolute/5 mm assured image, Bottom: 2 mm absolute/5 mm assured image, Left: 2 mm absolute/5 mm assured image, Right: 2 mm absolute/5 mm assured image; Maximum print area: **Duplex printing:** Automatic (standard). Processor speed: 1.2 GHz **Connectivity:** Standard Hi-Speed USB 2.0 port; Built-in Fast Ethernet 10/100/1000Base-TX network port

Signature

		Supported network protocols:IPv4/IPv6: Apple Bonjour Compatible (Mac OS 10.2.4 or higher), SNMPv1/v2c/v3, HTTP, HTTPS, FTP, TFTP, Port 9100, LPD, WS Discovery, IPP, Secure-IPP, IPsec/Firewall;IPv6: DHCPv6, MLDv1, ICMPv6; IPv4: Auto-IP, SLP, Telnet, IGMPv2, BOOTP/DHCP, WINS, IP Direct Mode, WS Print; Other: NetWare NDS, Bindery, NDPS, ePrint **Network capabilities:** Standard (built-in Gigabit Ethernet). Hard disk 4 GB non-volatile storage, firmware encryption (AES 128 or AES 256) of customer/job data; Secure Cryptographic Erase – Job Data, Secure Erase – Disk. Memory Standard: 1 GB. Media handling: Standard: 3 ; Maximum: 5 **Media handling:**Standard input: 100-sheet multipurpose tray, 550- sheet input tray 2, 550-sheet media input tray 3 **Optional input:** 550-sheet media input tray 4, 550- sheet media input tray 5 **Media weight:**Tray 1: 60 to 220 g/m² (plain paper), 105 to 220 g/m² (glossy paper); Tray 2: 60 to 220 g/m² (plain paper), 105 to 220 g/m² (glossy paper). **Print Drivers:** MS Windows 10, MS Windows 8, Windows Server 2003, Windows Server 2008 (32-bit & 64-bit), Windows Server 2008 R2 HP or Equivalent
15	**Video Wall for Auditorium, P Block**	Video Wall Display (55 Inches Video wall (Bezel 1.7 mm) Full HD Display 1080P Video Wall Controller (3.5U Chassis) 12 HDMI Inputs; 20 HDMI Outputs High quality HDMI Cable withMounting And Installation Samsung or Equivalent
16	**Interactive LED Screens**	55" IWB 6 points touch MB (Multiboard) Integrated Intel Based PC (Core i5/4GB RAM/500GB Hard disk drive) Features: TV Tuner/Main Control unit/Remote Control/Full HD MultiTouch Screen/Wall Mount Kit/Set of Applications: EasiNote (Education/ Meetings), EasyMeeting (Conference/Meetings), EasiSign (Signature Software), EasiShow (Presentations), Wifi PC Control (Wireless keyboard/Mouse, Presentations/File with Pad Smasung or Equivalent
17	**LED Screen**	42" LED display wall mounted, UHD with 1 year parts replacement service.
18	**DigitalSignage Devices/ Solution**	Display size: 65", Resolution: 1920X1080p, Pixel Pitch(mm): 0.744X0.744, Brightness: 450 cd/m, Bezelwidth: 9.5 (T/L/R) 15.6 (B), Contrat Ratio: 1100:1, Aspect Ratio: 16:9, Display Colors: 16.7M Media Player; CPU: Quad Core Cortex A9 1.8 GHz; GPU:ARM Mali400 Quad Core 533MHz; Memory: 2GB DDR3; Storage: 16GB EMMC; Sound Speaker; Digital Sinage Software CMP; Mount Bracket and Installation
19	**Access Switch (48 Ports/ 24 ports) & related networking equipment**	Layer 2 / Layer 3 managed switches from Cisco/Juniper with 3 years support according to latest specs and Operating system. Detailed specifications including other related networking devices will be based on and procured in light on procurement process.

* Minor modifications are possible in view of new/ changed technologies within PC-I cost estimates.

LICENSED SYSTEM SOFTWARE SPECIFICATIONS

1- **Kaspersky Endpoint Security Business (Advanced)** latest version with 3 years subscription

Services: Installation and configuration of Kaspersky security centre/ Administration server

Training: certification for Two (2) technical personnel with certificate issued from OEM

2- **Microsoft Office (Business) 2016** includes WORD, EXCEL, POWERPOINT, OUTLOOK software

3- **Microsoft Project Professional 2016**

4- **Adobe professional 2016/2017 suite**

5- **Microsoft Windows 10 professional**

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