**UNITED NATIONS
OFFICE AT NAIROBI**
The UN Headquarters in Africa

UNON
Information & Communication
Technology Strategy

Global Service Delivery
**(UNON ICTS provides ICT services to UNEP, UN-HABITAT,
UNON, & other co-located UN agencies)**

- **Infrastructure & Communication Management**
- **Resource Management Systems**
- **Knowledge Management Systems**
- **Client Services**

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1. Executive Summary

The General Assembly approved new "Information and communications strategy for the United Nations Secretariat" on 23/12/2008 (A/62/793). The approved strategy will serve as the Organization-wide approach for meeting the strategic ICT needs of the Secretariat over the next three to five years. The strategic ICT needs of the Secretariat have been identified and summarized into four broad categories of "institutional drivers". These are: knowledge sharing and collaboration; improvement of and support for internal Secretariat operations; communications and infrastructure; and overall ICT management. In addition, three strategic programmes of high Organization-wide value and corresponding to the identified institutional drivers are proposed to achieve the vision: (a) knowledge management; (b) resource management; and (c) infrastructure management.
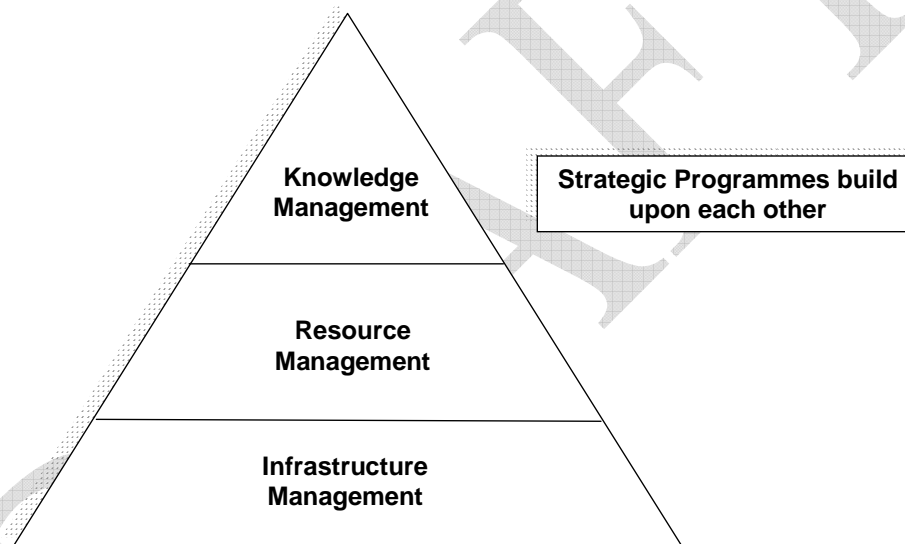
For the implementation of the new ICT strategy at the United Nations Office at Nairobi, UNON/ICTS has already put in place the necessary structure and established three corresponding sub-programmes: Knowledge Management Systems Section (KMS), Resource Management Systems Section (RMS) and Infrastructure Management Systems Section (IMS). This document focuses on the implementation strategies and identifies resource requirements of the various subprograms. Whilst it emphasizes use of existing resources there is certainly a fundament need for additional regular and project resources. The document specifies what the core services of the various subprograms are and the activities that are deemed to be projects for 2009-2013

The three sub-programmes in UNON/ICTS provide critical support to all major strategic programmes and projects.

The Knowledge Management sub-programme provides strategic direction, and monitors programmes and project status to ensure retention of institutional knowledge and support organizational innovation. The core services from Knowledge Management includes Document management, Web Content Management, Digital Asset Management, Archives and Record management, Collaborative services, Information management policies, Enterprise Portal, Knowledge Hub and Lotus notes based application to OAH. To provide these services for next four years the estimated investment is about 4,656,005 USD (4.656 million USD).

The Resource Management sub-programme provides strategic direction, reviews all investments and monitors programmes and project status to ensure improvement in our capabilities in managing human, financial and other resources. The core services from Resource Management include continuing ERP-(IMIS) support, Database Management and Data Warehouse and Reporting. To provide these services for the next four years the estimated investment is about 1,590,875 USD (1.6 million USD).

The Infrastructure Management sub-programme provides strategic direction, reviews proposed ICTS investments and monitors programmes and project status to ensure improvement in the UNON/ICTS infrastructure. The core services from IT Infrastructure Management include file and print services, Internet access, mobile access to corporate e-Mail, peer-to-peer home connectivity for senior staff, VHF/UHF services, telephony services, VC services, satellite connectivity services, Remote access to corporate application using Citrix environment, Web based access to email, Communications and Access to Business Solutions/Applications. It also plans to include a new set of services like IPT/IPVC, Desktop VC, Remote setup, administration and management of ICT infrastructure at out-posted/regional offices, Connect all out-posted/regional offices using IPT and on a single corporate telephony system, VPN connection from each out-posted/regional offices to Nairobi, Replicated file systems between out-posted/regional offices and Nairobi, Fully operational DRBC site and Remote interpretation. To provide these services for the next four years the estimated investment is about 2,342,700 USD (2.342 million USD). In addition to this, the estimated investment for each Office away from Headquarters 'OAH' comprising of more than 100 users is about 296,650 USD that will enable the OAH for a localized instance of Domino/Notes infrastructure, IPT/IPVC environment and access to all corporate applications.

The Client Services facilitates and coordinates all ICTS related end user services across the three sub-programmes within UNON/ICTS. It is also responsible for setting ICTS standards, capacity plans, and technology trainings and ensures business continuity within the user community. The core services of Client Services include Help-Desk support, Quality Assurance and Research, IT Training, Budget Estimates and Control,

and Client Billing, etc. To provide these services for the next four years the estimated investment is about 847,000 USD (0.847 million USD).

To implement the proposed solutionS and to continue the operation for the next four years (2009-2013) the total estimated investment is about 9,436,580 USD (**9.436 million USD**). Analyzing this investment into vital/critical, essential and desirable components, it is estimated about 4,617,728 USD **(4.617 million USD – 48%)** is *vital* component that shall be required to initiate new services or for upgrading existing services, etc., and about 3,827,468 USD (**3.827 million USD – 41%**) is *essential* component for smooth operations of these services and about 991,384 USD (**0.991 million USD – 11%**) is *desirable* component that may be required for specific business function. The total estimate is exclusive of proposed investment for each Office Away from Headquarters 'OAH'. The estimate for each OAH is about 296,650 USD.

In accordance with the ICT Strategy for the UN-Secretariat (A/62/793), this documents details the vital and essential solutions to meet the Information Technology challenges for the next four years period (2009-2013). The goal of the proposed solution is to optimize the investment and ensure continued alignment with the substantive and support programmes of the UN-Secretariat.

The overall solution recommended in this proposal under each sub-programme can be implemented by multiple projects. The scope, schedule, implementation cost, etc will be documented in each project plan. This proposal does not prioritize Lotus Notes Implementation in different OAH. The sum total cost of all such projects cannot exceed the estimated amount of 9,436,580 USD (9.436 million USD). A detail breakup of the estimates is documented under cost estimation. The project execution team may use existing resources to optimize the cost and adopt cost saving means to ensure the projects are executed with in the estimated value.

2.0. Knowledge Management Systems

2.1 Introduction

Knowledge management systems provide an effective collaborative environment in which UNEP, UN-HABITAT and UNON staff and their stakeholders can capture, share and own the substantive knowledge relevant to their expertise. For example, UNEP, UN-HABITAT and UNON are a host to a number of in-house experts on various areas like carbon emission, climate change, global warming, urban development, youth development, finance, human resources management, etc. The knowledge management system will provide the tools to leverage expertise both within the organization and among all stakeholders. In addition, all staff generate knowledge that contributes to their areas of expertise (both substantive and administrative), which should be retained when they leave; likewise the operations of the division of administrative services often generate knowledge as a by product. This knowledge in the form of processes, best practices and lessons learned can be more uniformly kept and made accessible with the help of knowledge management tools and policies.

The knowledge management and application development section in ICTS at UNON provides lotus notes based workflow applications to automate some of the paper based workflow processes in UNON administrative services. These applications are mostly used by the staff located in Nairobi and not accessible to staff posted in Offices Away from Headquarters 'OAH'. Few of the staff uses the citrix environment to access the applications but, the majority of the staff is not able to access the applications due to connectivity issues.

The current knowledge management system provides a rudimentary form using lotus notes based databases with workflow solutions build on top of the database. Lotus notes is not a fully fledged document management system capable of meeting the enterprise wide demands for content management, document management, archival and records management, etc to aid the knowledge workers in today's ever demanding environment.

This strategy document describes the infrastructure and resources required to initiate a strong computing platform to launch the knowledge management systems. It provides a comprehensive solution along with cost estimates for a four year period to implement and maintain a knowledge management system.

2.2. Business Opportunity

2.2.1. Overview

UNON/ICTS provides ICT services to three major United Nations programmes namely, UNEP, UNHABITAT and UNON'. These programmes have typical information technology 'IT' challenges with respect to connectivity, web content management and access to workflow and other corporate applications by its largely distributed staff across the globe. To resolve these two fundamental problems and to streamline business processes there is a strategic need to provide a common platform to launch the Web Content Management System 'WCMS' which eminates from a fully fledged information management system as well create a single identity email addresses for all the respective programme staff across the globe.

In the third quarter of 2009 a proposed East African undersea fibre optic cable will be operational in Kenya and accessible for use by UNON and its clients at Gigiri. The infrastructure upgrade should improve connectivity and enable a more effective and efficient access to the said corporate applications environment.

Some of the business team in UNEP and UN-HABIITAT have also expressed some challenges faced in e-Administration of their activities and processes from several aspects. Traditionally these administrative processes to a large extent are based on hard copies of documents which are printed, reprinted, copied, signed, lost, reprinted and archived. This process contributes not only to high levels of paper consumption, energy use for printing, use of toners, and waste generation, but also to an overall slow-down of the administrative processes. Tracking individual transactions is difficult and contributes to reduced efficiency of the administrative service. To minimize these shortcomings and to maintain the knowledge in the form of processes, best practices and lessons learned in a more uniform manner, and make it accessible to staff across the organization an appropriate knowledge management system using the Documentum platform is recommended herein.

Based on detail studies and benchmarking on several products carried out by United Nations Secretariat at New York, 'Documentum' was identified to the standard corporate platform for resolving some of the prominent problems in content management, collaborative management, record and archival management areas. The documentum platform provides a stable environment for building strategic solutions that can implement a Knowledge Management environment within the United Nations and its programmes across the globe. We emphasis the UN Secretariat directed standard for implementing Web Content Management, Document Management, and Records and

Archival Management at Nairobi for all such requirements in UNEP, UN-HABITAT and UNON.

This section of the document identifies the technology, resource requirements and cost estimates for implementing an optimum solution for UNEP, UN-HABITAT and UNON that can address the following:

- A complete Document Management System that provides a docbase for all unstructured data to support content management with workflows around the documents and support portal development within the respective organizations.
- A robust collaborative environment for all knowledge workers to collaborate and contribute to their programme management in geographically distributed teams
- Web Content Management System.
- Records and Archival management system for automating and maintaining all the existing records in the organization there by enhancing search facility for all kinds of information
- Lotus Notes based Applications to Field Offices or Offices Away from Head-Quarters 'OAH' and its eventual migration to the Documentum platform

Formulation/design of the above mentioned solutions leads to the following new core services of the knowledge management service at ICTS in UNON:

Document Management: This service implements an organization-wide content management facility to manage official documents, records, and business correspondence. Design and implement workflow processes. Support migration content from all existing content repositories. Also enable a more effective search capability and faster retrieval of unstructured documents within the content repositories. Ensure improved document security, integrity and version control of all documents. Overall reduces document storage requirements (cost and space).

Web Content Management – Organization-wide: This service aids in migrating all existing respective program-wide websites to the new web content management environment. This service will ensure organization-wide websites are easy to update, have a common look and feel and provide all staff and the global public with easy to locate, up to date information on all substantive programmes.

Collaboration service - Create Collaboration and Knowledge Sharing Environment: Introduces enhanced tools for the collaboration and sharing of information. This service will establish the necessary technical and policy components for knowledge sharing and the enabling environments.

Digital Assets Management 'DAM': Implements advanced digital asset management capabilities. This service ensures all digital resources are easily accessible and available for repurposing. Web publishing is improved. Communication is enhanced to a wider audience within the organization and to external knowledge bodies/partners/agencies.

Archives and Records Management: Enhance institutional record management and archival capabilities. This service will provide automated facility for retaining and preserving institutional knowledge.

IM Policy: This service will establish organization-wide information management policies, processes and standards. Includes security, taxonomy, retention, etc. for documents created within the knowledge management area. There by documents and content can be consistent, secure and up to date. Also enables universally accessible and shareable Data formats.

Enterprise Portal: Implement an enterprise portal facility to enable user interface customization, simplify access and provide single sign on capability. This service integrates comprehensive portal technologies allowing users to access the most relevant information more quickly.

Knowledge Hubs: Create knowledge hubs for specific communities of practice, regional groups, specialized thematic areas, etc. All substantive programmes, member states and the global public have access to relevant, easy to find information on specific issues. UNEP, UN-HABITAT and UNON becomes an authoritative "knowledge broker" in their respective fields.

Lotus Notes based application to OAH: Over 50 percent of UNEP and UN-HABITAT staff are located outside Kenya and have none or very limited access to lotus notes based workflow applications unlike their counterparts in Nairobi. This causes some amount of pain in not having standard business processes across UNEP and UN-HABITAT and to accord best practices for conducting day-today business activities. This document also details how lotus notes based applications can be implemented at various OAH or field offices.

These set of core services will be designed and constructed over a period of four years. Initially some of the basic services will be enabled and over time more services can be built on top of them.

2.3. Business Benefit

The Documentum platform as a solution highlights a number of key benefits along with implementing Web Content Management, Record and Archival management, UNEP, UN-HABITAT and UNON can take advantage of this solution to realize the value of their Information Life Cycle 'ILM' strategies.

- One of the most important benefits is the ability for UNEP, UN-HABITAT and UNON staff to create and deliver accurate, reliable web content. It provides web development teams with the tools to focus on site design, function and managing content for a complex global UNEP and UN-HABITAT (organization-wide) web site. This eliminates the critical issue of how content is gathered and published in the respective programs/organisations web site.

- The Documentum platform takes full advantage of the existing information assets within UNEP, UN-HABIATAT and UNON in a way that eliminates and minimizes manual or paper-based processing and also helps users to quickly find information they are looking for regardless of format or location. In addition it also increases the speed of access of frequently retrieved information.

- A Documentum platform provides broadest range of content management functionality not just web content management functionality and it can seamlessly integrate with the organisations web environment. By building on Documentum platform UNEP, UN-HABITAT and UNON can put in place a reliable, scalable and extensible foundation for the future that can aid the Knowledge Management capability.
  - Documentum platform can act as central repository to manage and deliver content with powerful workflows that allow all staff to contribute, edit and approve the content. This content can be accessed through the variety of devices, including terminals and PDAs.
  - This platform will enable content management services through a single-click command menu or through automated operations.

- The collaborative tool (eRoom) provides a corporate repository across digital workspaces, extending business processes across the firewall while maintaining the security of the internal repository and delivering centrally managed content to multiple applications and projects

- Lotus Notes based applications streamline work flow activities in daily routine of jobs carried out by staff. These applications provide a facility to view any activity

at different stages in the workflow enabling tracking of application status. These applications also help in overall management reporting on various activities.

- By implementing the knowledge management solution using the Documentum platform there could be reduced greenhouse gas emissions associated with production, transport, use, copying, and disposal of paper and products needed for printing/copying activities (like printing chemicals, toners etc).

- The knowledge management solution using the Documentum platform could improve efficiency and speed of admin processes, supported by a tracking system of for individual transactions with a centralized documentation and archiving. Provides multiple point access and reduced need for storage space in individual work areas, thereby allowing an increased flexibility in office set-ups and office operations.

2.4. Proposed Solution

Two separate set of solutions are proposed, one for Knowledge Management services using a Documentum platform and another for workflow based corporate applications using the lotus notes platform.

2.4.1 Knowledge Management System

The proposed solution is organized on a documentum content management platform with a collaborative tool for capturing the tacit knowledge in various UNON, UNEP and UN-HABITAT programmes and migration of this knowledgebase into the platform for web publishing, document management and archival & disposal of documents.

The Documentum content management platform is the foundation on which content applications are built, forming the basis for information-based solutions from managing business documents and enabling collaboration to publishing content to global websites. Documentum platform is an enterprise-class content management system with a unified content architecture, the Documentum platform offers the flexibility and economy of single release cycle, code base, security model and audit trail for all UNEP, UNON, and UN-HABITAT content management applications.

Content Management Life-Cycle: The ability to manage documents is vital to productivity and the Documentum platform addresses every stage of the life-cycle from creation and capture, through management and delivery, to archival and storage. This enables the global '*One UN Organization identity*' like *One UNEP* or *One UN-HABITAT*

to manage business-critical documents anywhere within the organization. The platform offers a robust, truly scalable enterprise document management solution.

Enterprise Content Lifecycle

Process	- Workflow - Document Assembly	- Categorize - Encryption	
Create/Capture	**Manage**	**Deliver**	**Archive**
- Authoring - Importing - Aggregation - Imaging/Digitization	- Content Intelligence - Transformation - Library Services - Repository Services - Search/Indexing	- Publishing - Web Delivery - Portal Delivery - Content Distribution - Streaming - Rights Enforcement	- Archive - Records Management - Disposal - Retention Policy
Collaborate	- Team-based collaboration - Discussion Groups - Real time	- Content-centric collaboration - Instant messaging - Polling	

Enterprise Life-cycle block diagram

Documentum Physical Architecture: The physical architecture shows the unified architecture with eRoom and all other Documentum Services that will enable users to manage the knowledge-base. The component in this architecture includes the content servers, application server, web server, content transformation server, eRoom server, database server, and index server. These servers together form the Documentum platform and also referred to as Documentum server farm. The farm can also facilitate business process services, Information Rights Management services or Captiva Input Access services, etc. A Branch Office Caching Server 'BOCS' is proposed for some of the OAH for accessing the Documentum instance at Nairobi. BOCS improves the access performance to various documents and objects on the Documentum platform for staff at OAH. The diagram below depicts the Documentum platform with all the components interacting with each other. The platform enables document management, content management integrated with eRoom enterprise for a complete solution.
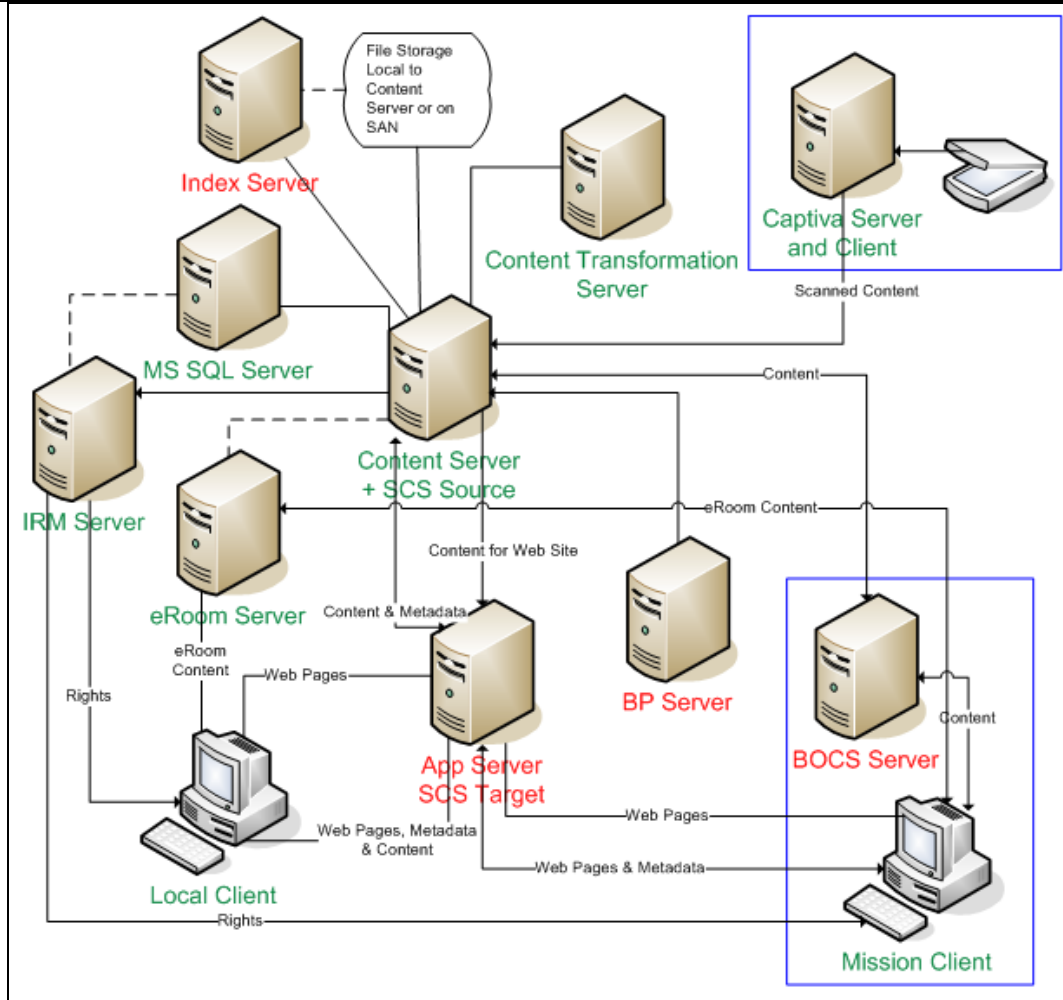
Documentum physical architecture conceptual diagram

Documentum Logical Architecture: The logical architecture shows the different implementation layers of the solution. The architecture enables the best-of-class collaboration and content management for higher return on investment.

Logical Architecture – Document Management

Client Layer
- Internet Explorer
- Firefox
- Desktop

Presentation Layer
- WDK
- Application Connectors
- Portlets
- Webparts
- Standard Protocols
- UCF

Services Layer
- Library Services
- Workflow Services
- Lifecycle Services
- Security Services
- Reporting Services
- Archival Services
- Integration Services
- Transformation
- XML Services
- Delivery Services
- Search Services

Repository Infrastructure Layer
- Directory Services
- Full-text Index
- Operating System
- Storage
- Database

Documentum logical architecture diagram

Web Content Management: The Documentum web content management services manage the content, underlying structure, and publishing process for websites and portals. Documentum simplifies a global web presence and helps organizations focus on their key business objectives. It empowers knowledge workers to create compelling content and sites that drive a superior customer experience. It will allow various units in UNEP, UN-HABITAT and UNON respectively to work together to define standards, lower operation costs and tame web sprawl through a consolidated infrastructure. The conceptual diagram below depicts the Documentum architecture for web content management in the production environment. It also shows how the content will be replicated to the UN Secretariat DRBC site at Brindisi.
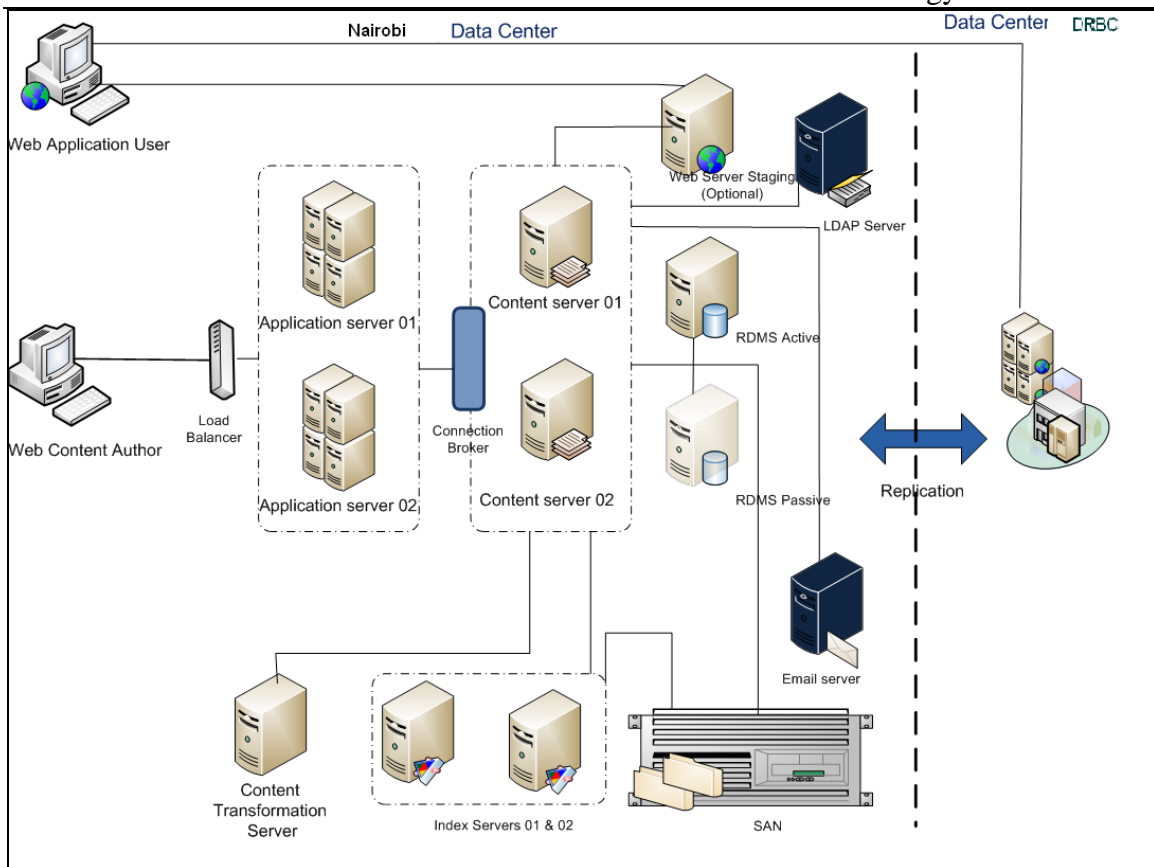
Documentum Physical Architecture – Web Content Management System

The physical architecture diagram shown above is a conceptual view, as we may have other server for development activities and testing activities before the source code is migrated to the production environment, those details are not shown as part of this architecture but they are in tandem to this architecture and located in the Documentum server farm.

The logical architecture for web content management is similar to the logical architecture diagram shown in the previous page; it will be layered as repository infrastructure layer, services layer, presentation layer and client layer.

Documentum platform provides many tools for various document and content management functions; one of them is Web Publisher and Web Publisher Site Manager that help in web content management. Web Publisher provides utilities for Web Content Editors a form based approach that separates layout from content, New Page Builder that aids in design sites and create content and New Portlet Builder that helps in Building and publishing portlets.

Content Collaboration: As UNEP, UN-HABITAT and UNON teams collaborate to produce knowledge-based clients, such as carbon neutral environment, global warming, and ozone depletion, urban planning, water and sanitation or any other business documents and presentations; they often repurpose existing work, draw on internal and web-based information sources, follow standard procedures and exchange ideas from review to approval. Traditionally much of this 'contextual collaborative content' resides beyond the managed, organizations repository; therefore, it is never secured and archived and cannot be searched, audited or reused broadly. Documentum platform offers an enterprise repository and collaborative processes providing teams with an environment within which to work and capture this contextual information.

Documentum eRoom Enterprise: Provides a web-based collaborative workspace for distributed teams. eRoom enterprise provides a highly flexible collaborative workspace that enables knowledge workers to plan and execute a project as well as collaborate with extended enterprise teams. Along with native integration with the Documentum content management platform, eRoom enterprise provides the best collaboration workspace for teams and full access to enterprise content and workflow processes. The key benefit from eRoom include the project teams around the world can accelerate and improve the development and delivery of services, optimize collaborative business processes, improve innovation and streamline decision-making.

eRoom Real-Time Services 'RTS': Web Conferencing and eRoom Integration (Optional element) – eRoom Real-Time services integrates web conferencing with the Documentum eRoom digital workspace, providing tools for real-time meetings, presentations, and collaboration. Users can share applications whiteboards sessions, desktop, live demonstrations and one-to-many presentations. Distributed teams can work simultaneously on critical project deliverables and capture, index, and reuse the collective output of each session. eRoom RTS provides one of the possible best in class digital collaboration environment for UNEP, UN-HABITAT and UNON staff at different locations that supports true green initiatives introduced by UN Environmental Programme. The eRoom RTS is an additional component on top of the eRoom enterprise tool that allows Web Conferencing features that can support in reducing travel cost by replacing various seminars and conferences into a digital based web conferences that can be relayed and stored for all future use.

Collaboration and Content Management - eRoom: Collaboration and content management will enable getting work done faster and better in a unified approach. Content management in its traditional form is a solution for managing content associated with specific UNON, UNEP and UN-HABITAT programmes and processes that can provide powerful capabilities for capturing, managing, delivering and archiving programme (business) critical content. Web based collaborative tools enable a dynamic

and flexible environment for bringing people together, allowing them to focus on the programme goal, and deliverables.

Documentum platform enables best-of-class collaboration and content management, various UNEP, UN-HABITAT and UNON programmes will realize a higher return on investment from both technologies, deriving benefits through increased productivity, cost savings and faster time to market. Collaborative work processes will enable teams to work dynamically toward a common goal while generating content that must be managed within a common repository for capture, storage and archival.

Business processes must seamlessly support structured tasks to speed up execution and support collaborative interactions to resolve issues, make decisions and engage external participants. Since the content is stored in an enterprise repository, individual outside the project team can search for reference, reuse or publish information, eliminating redundant work while leveraging best practices.

Benefits of collaborative and content management tool
- Provide an enterprise repository across collaborative workspace
- Extend business processes across the firewall while maintaining the security of the internal repository
- Support the classifications of collaborative content according to UNEP, UN-HABITAT and UNON taxonomies and categorization strategies
- Deliver centrally managed content to multiple applications and project there by facilitate portal development and enable quick search capabilities.

Unified Content Management Structure
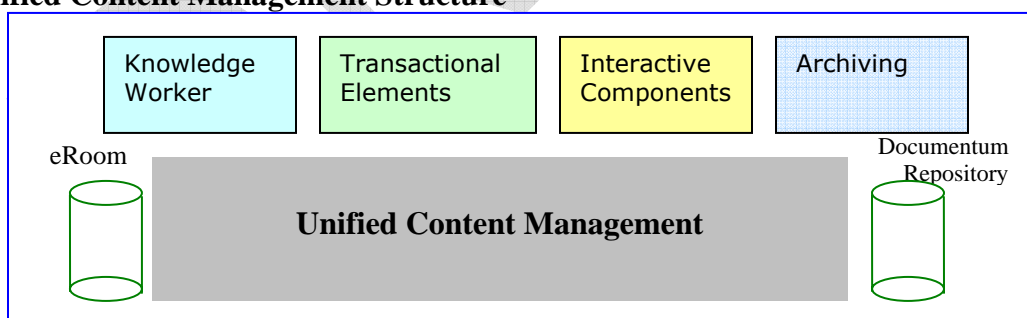
Documentum provides a set of tools for web content management with content rich transactional processes. The above diagram shows different elements in a unified content management structure in Documentum platform. This structure further enhances the content capturing and storage from other sources like scanners, faxes, emails and paper forms by digitizing the paper formats. This unifies the Digital Asset Management and Web Content Management there by right set of content can be published on the Web.

Record Management: Recordkeeping solutions help organizations manage content in compliance with legal and regulatory requirements as well as internal mandates and best practices for document retention. A record manager makes it easy to control the entire life cycle (*similar to workflow-stage diagram shown below*) of corporate records - the creations, safeguard, access and destruction of records according to a broad range of system enforced policies. With Record manager, organization can comply with the recordkeeping requirements of regulations, leverage uniform policies across all formats and take advantage of a pervasive solution built on a modular, service-oriented architecture that provides flexibility without increasing complexity. Record managers provides features for file plan administration, classifications, compound records, platform unification, physical record support, automated capture and record disposal.

Archiving: Documentum platform helps to address archiving challenges with solutions to cost effectively preserve content for long-term retention and archival. The archiving products provide consistent enforcement of retention, security and rights management policies. Documentum Platform also enables application-specific archiving facility like email archiving and integrated content archiving to help you comply with regulatory and eDiscovery requirements and improve access to all content types.

Documentum Content Management at different workflow stages
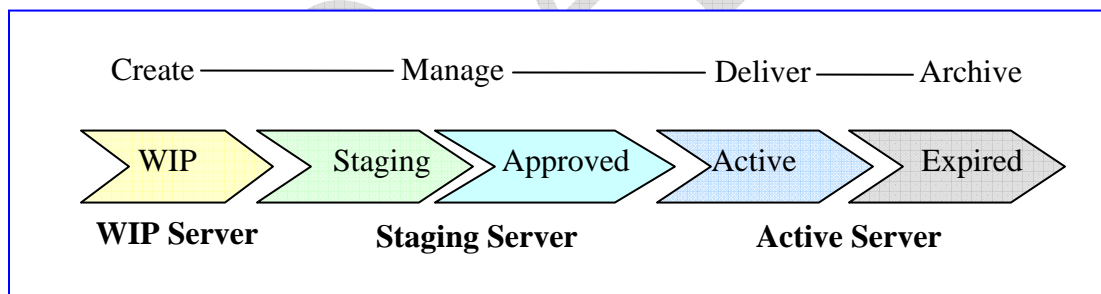
High Level Workflow Stages

The above diagram shows different workflow stages within Documentum platform. Documentum platform with eRoom server together will enable UNEP, UN-Habitat and UNON to resolve the fundamental problem of Content Management, Web Content Management, Document management, Record & Archival management and provides strong computing environment for future Knowledge Management and Information Life-Cycle Management 'ILM' strategies that can lower cost of content management, mitigate security risk, increase productivity of knowledge worker, streamline communication with stakeholders and cost-effectively preserve content for long-term retention and archiving.

2.4.2 Lotus Notes based application for Field Offices (OAH)

As we implement the knowledge management system using the Documentum platform some of the existing lotus notes application will be phased out over a period of time. These existing applications will be transitioned into the Documentum platform or some of them will be transitioned into the new ERP platform. If funding is forthcoming, we can estimate that from 2010 all lotus notes based applications development will be reduced and conversion of these application to Documentum platform will be planned and phase-out (retire) by the biennium 2011-2012.

To access the various existing lotus notes based workflow applications, we recommend implementing deploying notes/domino servers at each OAH. This will enable a standard notes environment across the board to enable effective access worldwide..   The implementation of the lotus notes server is discussed under Infrastructure management services (section 4.0).

This section of the document suggests some of the business applications that have staff interactions on a day-to-day basis like education grant, travel processing, and lump sum payment as well some other business critical applications. These applications will be primarily be hosted at the Nairobi data centre and replicated to the regional offices or OAH of UNEP and UN_HABITAT on a real-time basis.
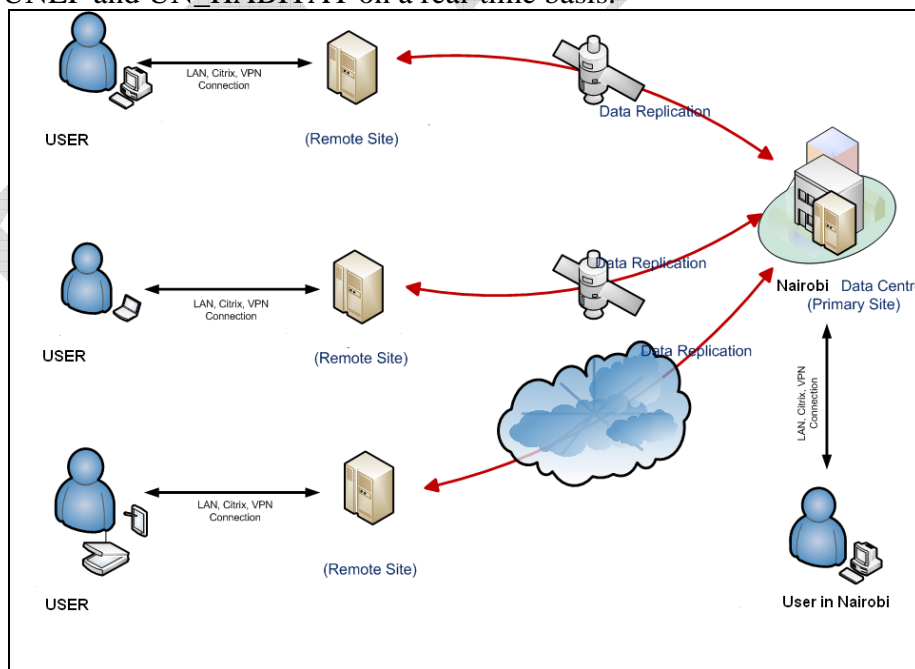
Diagram showing Lotus Notes Replication to Regional Offices or OAH

2.5. Implementation Plan

2.5.1 Knowledge Management Systems

Module-I – Setup of eRoom servers

Phase-1 – Implement eRoom at Nairobi: Implement the first instance of eRoom facility at Nairobi that onboard all staff at Nairobi. This helps the programs to initiate and fast track some of their important and high priority projects.

Phase-2 – Implement eRoom at Mirror site in Geneva: Implement the second instance of eRoom facility at the mirror site at Geneva and initiate replication between Nairobi and Geneva eRoom facilities. This is for a short period till a complete Documentum production instance is ready at Brindisi-Italy.

Phase-3 – Migrate the eRoom server from mirror site to Brindisi: Move the eRoom server to Brindisi-Italy such that eRoom server can be located along with the Documentum production instance, that can directly interface with the UNON DocBase on the Documentum production instance.

Phase-4 – Setup eRoom Real time Service 'RTS': if the business demands to have a collaborative environment for business processing including enabling web conferencing solution using the collaborative setup, then eRoom Real Time Service server will be implemented that can support Web conferencing, white board session and One-to-many presentations.

Module-II – Setup of Documentum Instance

Phase-1 – Setup Documentum instance at Nairobi: Implement a complete Documentum instance at Nairobi along with eRoom servers such that the Knowledgebase from eRoom can be shared/linked with the Documentum Repository (Docbase).

Phase-2 – Replicate the Docbase with instance at Brindisi: When the UN secretariat instance at Brindisi is ready and the same can be shared for all staff, the Docbase will be replicated with the Brindisi setup for Disaster Recovery and Business Continuity function.

Phase-3 – Setup Documentum Hub at OAH: Certain identified OAH will have Documentum Hub consisting of the Application server and Branch Office caching server that can improve the access performance to content at the Nairobi repository, thereby enabling seamless access to repository objects at all time.

2.5.2 Lotus Notes based application access to OAH

Module-III

Phase-1 – Implement existing Applications: Some of the existing application that meets day-to-day staff requirements like education grant, travel claim processing, lump sum payment, etc. This requires notes/domino servers with email deployed at the OAH, regional or out-posted office.

Phase-2 – Implement the business identified applications: Identify common business requirements that require a lotus notes based solution from the business users that can be converted from existing form or developed to meet the business need.

2.6. Resource Requirements

2.6.1 Human Resource Estimate

To implement human resource requirement to fully implement the proposed knowledge management solutions are:

Existing Resources:
At present the Knowledge Management and Application development Section has the following resources:
1. One P4 staff member, section chief responsible for overall planning, development. architecture and management of the section
2. Two P2 and one P1 staff members, responsible for developing lotus notes based workflow solutions and coordinating user requirements, coding, testing and user training.
3. Two G6 staff members, responsible for developing web content, web based surveys and other small application development to meet internal requirement of UNON administrative needs.

New Resources:
To implement the Documentum platform and develop solutions on Documentum the following resources shall be required:
1. One P3, - responsible for administering various Documentum servers, Documentum software products, user administration and rolling-out applications.
2. Two G7 staff members, - responsible for developing and maintaining applications on Documentum platform including eRoom set-up and administration.

Note: As ICT phase out lotus notes application and migrate to Documentum, some of the existing resources will also be re-trained in Documentum area to meet the application conversion needs.

2.6.2 Cost Estimation Sheet

One time setup of each module (for 2009 - First year)

Sr. No	Description of the investment components	Cost in USD
Module 1	**eRoom Setup at Nairobi and Mirror site in Geneva/Brindisi-DRBC**	
1	Hardware – four (4) fault tolerant Server (MS-Windows based)	40,000
2	Software License – MS-SQL, MS-SQL Replicator, IIS Server, etc.	50,000
3	Storage 1TB with fast mirroring option at Nairobi and Mirror Site	60,000
4	Misc cost at 10%	15,000
	Total cost	**165,000**
Optional Module	**eRoom Real Time Services 'RTS' setup at Nairobi for Web conferencing, white board session, etc.**	
1	Hardware – two (2) fault Tolerant servers	25,000
2	Software license cost	20,000
3	eRoom Real Time Services 'RTS' license cost @72 USD/seat (Recurring annually for estimated 600 users)	43,200
4	Storage 4-TB with fast mirroring option	100,000
5	Misc cost at 10%	19,000
	Total cost	**207,200**
Module 2	**Documentum Setup**	
	Hardware Estimates	
1	Hardware – Production servers (11-13 number)	110,000
2	Hardware – Development and Testing server (8-9 number)	85,000
3	Additional hardware for the HUB in each OAH (@20,000USD for 3 OAH in Montreal, Geneva and Bangkok)	60,000
4	Storage 4 TB with fast mirroring option	100,000
5	Hardware *Contingency cost* (for Documentum Server farm)	25,000

	Backup Hardware Estimates	
6	Sun StorageTek SL 48 with two LTO4 tape drives, FC interface card	20,000
7	250 LTO4 tapes (Year end backups for 10 years + month ends for past 2 years)	20,000
8	Networker software license	25,000
	Software and License Estimates	
9	Documentum per user license cost @240USD/seat (Recurring annually for estimated 200 users in 2009-2010)	48,000
10	Database server license cost (Sybase/Oracle/MS-SQL)	80,000
	One time Consulting Estimates from EMC	
11	Consulting fees (for Arch Design, Server setup, etc) for 126 days @$928 per day	116,928
12	Cost of Flights, Accommodation and Daily Per Diem	45,000
	Training Estimates	
13	Initial Documentum Train-The-Trainer course and other online user training licenses	138,000
	Staffing or Human Resource Estimates	
14	Annual Staff (recurring cost for 3 resources)	220,000
	Travel Estimates	
15	Travel cost to New York & Brindisi	40,000
16	Misc cost at 10%	115,293
	Total cost	**1,248,221**
Optional Module	**Additional Software Cost - Captiva, Adobe and IRM server, etc. Estimates with 20% annual support fees**	
1	InputAccel Enterprise Server	51,131
2	Dispatcher Classification and Extraction for InputAccel Server	56,952
3	Adobe LiveCycle Forms for Documentum per CPU cost	48,000
4	Adobe LiveCycle Output Server per CPU cost	23,760
5	**OCR Modules** Prime Asian OCR per instance cost	19,680
6	VERUS Arabic OCR for 600,000 pages per year	49,402
7	IRM licenses priced at $100 per named for 250 users	30,000
8	PDF Annotation Services licenses @ 37.5 USD for 250 users	11,250
9	Document Transformation Services per CPU cost	6,000
10	Media Transformation Services per CPU cost	18,000

11	Misc cost at 10%	31,000
	Total cost	**345,174**
Module 3	**Lotus notes application setup**	
	Staffing or Human Resource Estimate	
1	Human resource cost for 2 resources	80,000
2	Misc cost at 10%	8,000
	Total cost	**88,000**
	Overall cost (Module1+Module2+Module3+Optional Module)	**2,053,596**

Assumptions:
- The number of Documentum users is estimated to be 200 users in the first year.
- The number of eRoom RTS users is estimated to be 600 users in the first year.
- Documentum instance at Brindisi-Italy will be available and the same will be shared by UN Secretariat at no additional cost other than the license cost of 240USD/User.
- Communication link between the OAH and the mirror site at Geneva or the Brindisi-DRBC will utilize the existing communication infrastructure at each of the OAH and is not estimated as part of this proposal.
- Estimates for content development and content conversion are not estimated as part of this document. They will be individually estimated at each Business Unit where such requirement exists.
- Production Hardware and Software licenses is estimated as part of the first year cost, but the implementation may be done in second year after building the required applications.
- Additional Software like Captiva-InputAccel, IRM, OCR modules, Adobe Lifecycle suite, etc will be implemented based on the business needs/application requirements.

Annual Recurring cost estimates for maintenance of each module
(for 2010 - Second year)

Sr. No	Description of the Item	Cost in USD
Module 1	**eRoom maintenance and continuance**	
1	Annual hardware maintenance and software subscriptions	17,000
	Recurring cost Total	**17,000**

Optional Module	eRoom Real Time Services 'RTS' setup at Nairobi	
1	Annual hardware maintenance and software subscriptions	10,000
2	eRoom Real Time Services license cost @72 USD/seat (Recurring annually for estimated 600 users)	43,200
	Recurring cost Total	**53,200**

Module 2	**Documentum maintenance and continuance**	
	Hardware Estimates	
1	Annual hardware maintenance cost	38,000
	Backup Software Estimate	
2	Networker software license	10,000
	Software and License Estimates	
3	Software annual subscription cost	40,000
4	Documentum per user license cost @240USD/seat (Recurring annually for estimated 200 user)	48,000
	Staff and Human Resource Estimates	
5	Annual staffing (recurring cost for 3 resources)	220,000
	Training Estimates	
6	Documentum training cost	40,000
7	Misc cost at 10%	39,600
	Recurring cost Total	**435,600**

Optional Module	**Annual support fees - Captiva, Adobe and IRM server, etc. Estimated at 20% of the license cost**	
1	InputAccel Enterprise Server	8,522
2	Dispatcher Classification and Extraction for InputAccel Server	9,492
3	Adobe LiveCycle Forms for Documentum per CPU cost	8,000
4	Adobe LiveCycle Output Server per CPU cost	3,960
5	**OCR Modules**	

	Prime Asian OCR per instance cost	3,280
6	VERUS Arabic OCR for 600,00 pages per year	8,234
7	IRM licenses priced at $100 per named for 250 users	5,000
8	PDF Annotation Services licenses @ 37.5 USD for 250 users	1,875
9	Document Transformation Services per CPU cost	1,000
10	Media Transformation Services per CPU cost	3,000
11	Misc cost at 10%	6,000
	Total cost	**58,363**

Module 3	**Lotus notes application maintenance and continuance**	
1	Annual staffing - recurring cost for 2 resources	80,000
2	User training at different OAH	40,000
3	Misc cost at 10%	12,000
	Recurring cost Total	**132,000**

	Overall cost (Module1+Module2+Module3+Optional Module)	**696,163**

Assumptions:

- The number of Documentum users is estimated to be 200 users till the end of second year.
- The Documentum instance at Brindisi-Italy will be shared by UN-Secretariat using the same license cost and there is no additional cost for using the Brindisi-Italy based Documentum instance.
- No additional storage space will be required for the second year and information will be archived into removable media.
- Travel related cost estimates is not included as part of this annual recurring cost estimates as it is assumed such business travel will be completed in the initial setup phase and if any such travel cost incurred it will be budgeted else-where.
- Communication link between the OAH and the mirror site at Geneva or Brindisi DRBC will utilize the existing communication infrastructure at each of the OAH and is not estimated as part of this proposal.
- Application development or customization or conversion of existing application is not part of this solution.

Annual Recurring cost estimates for maintenance of each module
(for 2011 - Third Year)

Sr. No	Description of the Item	Cost in USD
Module 1	**eRoom maintenance and continuance**	
1	Annual hardware maintenance and software subscriptions	17,000
	Recurring cost Total	**17,000**
Optional Module	**eRoom Real Time Services 'RTS' setup at Nairobi**	
1	Annual hardware maintenance and software subscriptions	10,000
2	Estimated increase in Storage 4-TB with fast mirroring option	100,000
3	eRoom RTS per user license cost @72USD/seat plus a 5% increase in license cost. (Recurring annually for estimated 600 user)	45,360
	Recurring cost Total	**155,360**
Module 2	**Documentum maintenance and continuance**	
	Hardware Estimtes	
1	Annual hardware maintenance cost	38,000
2	Estimated increase in Storage 4 TB with fast mirroring option	100,000
3	250 LTO4 tapes for back-up neds	20,000
	Software, Backup software and License fee Estimates	
4	Software annual subscription cost	40,000
5	Documentum per user license cost @240USD/seat, plus a 5% increase in license cost. (Recurring annually for 500 user)	126,000
6	Networker software license	10,000
	Staffing and Human Resource Estimates	
7	Annual staffing (recurring cost for 3 resources)	220,000
	Training Estimates	
8	Documentum training cost	80,000
9	Misc cost at 10%	63,400
	Recurring cost Total	**697,400**
Optional Module	**Annual support fees - Captiva, Adobe and IRM server, etc. Estimated at 20% of the license cost**	
1	InputAccel Enterprise Server	8,522
2	Dispatcher Classification and Extraction for InputAccel Server	9,492
3	Adobe LiveCycle Forms for Documentum per CPU cost	8,000

4	Adobe LiveCycle Output Server per CPU cost	3,960
5	**OCR Modules**	
	Prime Asian OCR per instance cost	3,280
6	VERUS Arabic OCR for 600,00 pages per year	8,234
7	IRM licenses priced at $100 per named for 250 users	5,000
8	PDF Annotation Services licenses @ 37.5 USD for 250 users	1,875
9	Document Transformation Services per CPU cost	1,000
10	Media Transformation Services per CPU cost	3,000
11	Misc cost at 10%	6,000
	Total cost	**58,363**
Module 3	**Lotus notes application maintenance and continuance**	
1	Annual staffing (recurring cost for 2 resources -increase of 10%)	88,000
2	User training at different OAH	40,000
3	Misc cost at 10%	13,000
	Recurring cost Total	**141,000**
	Overall cost (Module1+Module2+Module3+Optional module)	**1,069,123**

Assumptions:

- The number of Documentum users is estimated to increase up to 500 users by the beginning of third year. The license cost is expected to increase by 5% only, as stated in the UN-HQ contract with EMC Corporation.
- There is no increase in number of users for additional software products like Captive, OCR modules, Adobe Lifecycle suite, IRM, etc under optional modules.
- The Documentum instance at Brindisi-Italy will be shared by UN-Secretariat using the same license cost and there is no additional cost for using the Brindisi-Italy based Documentum instance.
- Increase in storage at the end of Second Year and the cost of storage is estimated based on current pricing understanding with the vendor.
- No anticipated travel related cost estimation for third and forth year.
- Application development or customization or conversion of existing application is not part of this solution.

Annual Recurring cost estimates for maintenance of each module

(for 2012 to 2013 - Fourth and Fifth Year)

Sr. No	Description of the Item	Cost in USD
Module 1	**eRoom maintenance and continuance**	

1	Annual hardware maintenance and software subscriptions	17,000
	Recurring cost Total	**17,000**
Optional Module	**eRoom Real Time Services 'RTS' setup at Nairobi**	
1	Annual hardware maintenance and software subscriptions	10,000
2	eRoom RTS per user license cost @72USD/seat plus a 5% increase in license cost. (Recurring annually for estimated 600 user)	45,360
	Recurring cost Total	**55,360**
Module 2	**Documentum maintenance and continuance**	
	Hardware Estimtes	
1	Annual hardware maintenance cost	38,000
	Software, Backup software and License fee Estimates	
2	Software annual subscription cost	40,000
3	Documentum per user license cost @240USD/seat, plus a 5% increase in license cost. (Recurring annually for 500 user)	126,000
4	Networker software license	10,000
	Staffing and Human Resource Estimates	
5	Annual staffing (recurring cost for 3 resources)	220,000
	Training Estimates	
6	Documentum training cost	80,000
7	Misc cost at 10%	51,400
	Recurring cost Total	**565,400**
Optional Module	**Annual support fees - Captiva, Adobe and IRM server, etc. Estimated at 20% of the license cost**	
1	InputAccel Enterprise Server	8,522
2	Dispatcher Classification and Extraction for InputAccel Server	9,492
3	Adobe LiveCycle Forms for Documentum per CPU cost	8,000
4	Adobe LiveCycle Output Server per CPU cost	3,960
5	**OCR Modules** Prime Asian OCR per instance cost	3,280
6	VERUS Arabic OCR for 600,00 pages per year	8,234
7	IRM licenses priced at $100 per named for 250 users	5,000
8	PDF Annotation Services licenses @ 37.5 USD for 250 users	1,875
9	Document Transformation Services per CPU cost	1,000
10	Media Transformation Services per CPU cost	3,000

11	Misc cost at 10%	6,000
	Total cost	**58,363**
Module 3	**Lotus notes application maintenance and continuance**	
1	Annual staffing (recurring cost for 2 resources -increase of 10%)	88,000
2	User training at different OAH	40,000
3	Misc cost at 10%	13,000
	Recurring cost Total	**141,000**
	Overall cost (Module1+Module2+Module3+Optional module)	**837,123**

Assumptions:

- The number of Documentum users is estimated to increase up to 500 users by the beginning of third year. The license cost is expected to increase by 5% only, as stated in the UN-HQ contract with EMC Corporation.
- The Documentum instance at Brindisi-Italy will be shared by UN-Secretariat using the same license cost and there is no additional cost for using the Brindisi-Italy based Documentum instance.
- No increase in storage or backup is anticipated for fourth and fifth year
- No anticipated travel related cost estimation for third and forth year.

2.7. Risk Envisaged

1. *Lack of funds to invest in Infrastructure*: This is an high risk area as the current pain for users will continue and it will be a difficult task to achieve various greenhouse initiatives and reduce cost and carbon foot prints in UNEP and UN-HABITAT
   Contingency: To work closely with business unit in sharing resources and funds for greenhouse initiatives in UNEP, UN-HABITAT and UNON

2. *Lack of Human Resource:* This is another high risk area, without substantive investment into human resources and training many new initiatives will suffer leading to difficulties and hardship in such initiatives.

3. *Risk of not implementing Documentum Instance at Nairobi*: This will be a high risk area as the current pain area will continue with in UNEP, UN-HABITAT an UNON and it will be a difficult task to achieve objectives like '*One UNEP identity*' '*One UNHABITAT identity*. The cost of content management will increase drastically and user satisfaction rate will decrease by a large factor.
   Contingency: to share the UN Secretariat instance at Brindisi or New York. The implementation is a very large instance and sharing and accessing UNEP, UN-HABITAT and UNON specific content will continue to be an issue, it could be a stop gap or short term arrangement to use the Brindisi or New York instance in the long run UNEP, UN-HABITAT and UNON need to invest in the Content Management or Documentum platform for efficient management of the corporate information

4. *Risk of not having Corporate Application at OAH*: This is medium risk area, the staff and business will continue to have its issues and Headquarters will lack all necessary control on critical elements of business. Also impacts the 'One UNEP identity' and '*One UN-HABITAT identity'*.
   Contingency: If Documentum platform is available all such business critical application can be migrated to Documentum platform and made available to all OAH or out-posted staff in UNEP, and UN-HABITAT.

3.0. Resource Management System

3.1. Introduction

This section of the document focuses on implementation of Resource Management Services (RMS) at Nairobi, which is done through the UNON/ICTS Resource Management Section.

The Resource Management Section works closely with offices from UNEP, UN-HABITAT and UNON to develop tools and techniques to improve institutional policies and work processes for the effective management of financial, human and other resources. The Resource Management Section is maintaining IMIS and all applications surrounding it, interacts with all offices in determining their needs and providing workable solutions for reporting and data extractions for decision making. The Resource Management Section is to become more and more involved in the process of preparation for, transition to and implementation of the new UMOJA (SAP-ERP) in UNEP, UN-HABITAT and UNON offices in Nairobi and in their worldwide regional offices.

The core functions of the Resource Management Section can be summarized under three main categories of services:

1. ERP (IMIS) support
   a) Ensuring that IMIS is fully operational at all times by constantly monitoring the server and database performance, overnight processes and coordination with UNHQ IMIS support team when resolving systems problems. Providing guidance and support to all IMIS users on a daily basis and organizing training sessions for proper usability of the system..
   b) Based on continues discussion and constant feedback from different offices, the unit is defining, designing, developing and implementing IMIS extensions for overcoming shortfalls of the main system . With the goal of optimizing and making as intuitive and easy to use as possible various administrative management processes and providing quick reports for decision-making and resource monitoring.
   c) The unit will be leading all activities related to preparation, integration and migration of UNON's IMIS data and reporting to the new ERP system.
   d) Design a new Project Information Management System for UNEP as an intermediate solution until the new ERP is implemented.
   e) Implementation of the Post Management system for UNEP, UN-HABITAT and UNON as a step forward for preparing and cleansing post/position related information
   f) Implementing new self help reporting tools for programme managers

2. Database Management
    a) Designing and maintenance of databases and data for various systems – Lotus Notes based workflow applications, Project management system, Resource mobilization system, all add-on to IMIS current and legacy systems
    b) Developing different store procedures and data extracts for specific needs of UNEP, UN-Habitat or other organizations

3. Data Warehouse and Reporting
    a) Using the report generating tool (Crystal Reports) the unit has created more than 300 hundred highly formatted reports in the areas of finance, HR, procurement, travel, fund and project management
    b) Professional report layout and parameterized generation of reports provides the basic self-servicing capabilities to end users
    c) With the constantly growing demand for more managerial and analytical reports, faster access to information and better support to decision making bodies, the unit initiated a process of developing a data warehouse with functional data marts as a starting point for building and enabling a new BI (Business Intelligence) capability

3.2. Business Opportunity

a. On 23 December 2008, the General Assembly approved the governance framework for the ERP project and provided $20 million to continue the implementation of the new ERP, including the creation of a multi-year special account for the project. The procurement process for selecting software provided was finalized and SAP is the selected software on which basis the system will be designed and implemented. The approved initial plan for the implementation of the ERP project spans over next 5 years and will result in replacement of IMIS and another 200+ systems currently in operation. The implementation work started with establishment of "AS IS", which will continue with the design of "TO BE" and finalization of the next four years road map by end of the year. The services of a system integrator will be also procured by the end of the year. During biennium 2010-2011 the first phase of the project will be designed, developed, tested and implemented.

The first phase covers the following functional areas:
- Finance and Budget: - general ledger; accounts receivable; accounts payable; inter-agency; cash
- Human resources: - position management; recruiting; time and absence; non-international staff benefits; compensation; payroll; reporting

- Supply Chain and Central Support: - procurement; transportation; reporting

The second phase of the project is to be completed in the biennium 2012-2013 and will cover the following areas:
- Finance and Budget: - risk management, cost accounting, budget formulation, grant and project management
- Human resources: -international staff benefits; payroll; compensation & separation; mobility
- Supply Chain and Central Support: -asset management; travel; security; reporting

The above outlined plan for implementation of the ERP will result in a parallel usage by UNEP, UN-Habitat and UNON of existing IMIS and related application and different elements of the new ERP system. This environment will require a new approach for extraction of data and preparation of different types of operational and managerial reports. One of the best practises for such type of operation is building a data warehouse, wherein the data will be imported from heterogeneous systems including IMIS and ERP. The development of a robust multidimensional reporting interface to the data warehouse using the Business Objects platform and its capability is another best practice for providing solution for different reporting needs.

b. UNEP Medium-term Strategy for 2010-2013 expected accomplishments along six thematic cross-cutting priorities, includes specific outputs and is in line with results-based management principles wherein all programmatic activities are linked to results chain. Each output requires series of activities for its achievement and is managed by one division accountable for its implementation. The management vehicle to establish this accountability relationship for the result, the timing, the utilization of financial and human resources, and the quality of activities is called a project and all of UNEP's programme of work for 2010-2011 will be delivered through projects.

UNON/ICTS RMS is mandated to support UNEP in the effective implementation of its programme of work for 2010-2011 and to do so will embark on development and implementation of a new Project Information Management Systems, which will automate few if not all of the following functionalities:
- project initiation and concept preparation in accordance with predefined QAS Sub-programmes, Expected Accomplishments, Outputs and Activities, and usage of templates and standard workflow process,

reference to build a repository of project concepts for full control and consistency of project initiation process across UNEP divisions

- project document creation, resource mobilization and alignment of project budget to outputs and activities, regions and countries of projects executions/benefits, donors funding
- streamlining review and approval process for project initiation and full project documents by PAG and building repository of project concepts and documents accessible by everybody in UNEP and usable for publishing via different means to regions, countries, member states and donors
- project execution and management at UNEP, division, regional level as well as at programme and output level
- reporting at level of project, programme of work, outputs, activities, donors, member states and governing council

d) UNON/ICTS RMS is also mandated to support UNON offices in their day-to-day efforts to provide HR, financial and other services to their respective clients. Based on numerous discussions and requests from UNON/HRMS and UNON/BFMS both representing staff members needs in their respective areas, an agreement was reached for UNON/ICTS to develop a staff member portal called **myIMIS,** which will provide a "one stop shop" for all staff members of UNEP, UNHABITAT and UNON to view an overall picture of their contractual status, personnel details such as addresses, dependents and emergency contacts, their entitlements, payroll details, medical insurances, outstanding receivable/payables, leave balances and telephone bills.

3.3. Business Benefit

Given the realities of technology and the various organizations with which UNON works and supports, UNON will always need to pull information from multiple information systems like IMIS, ERP, PIMS and other static data sources. By building a data warehouse which integrates data from various operational systems, stores historical information, and enables enhanced reporting, analysis, and forecasting UNON/ICTS will provide long lasting solution to its clients. With the implementation of Business Objects solutions, with its intuitive web interface and access to flexible ad hoc reporting, robust query and analysis capabilities, and information-rich dashboards UNON/ICTS will empower end users and decision-makers with greater information insight. Business Objects includes Web Intelligence, a web-based query and analysis solution that delivers secure, self-service access to data and intuitive information analysis. With just a few mouse clicks, end users can create a query from scratch, format the information retrieved, and easily analyze it to understand underlying trends and root causes. Another component of Business Object is Crystal Xcelsius , which lets you easily create business dashboards connecting to any existing business data source and create intuitive data presentations. Extensive integration with Microsoft Office includes the capability to store and manage Word, PowerPoint, and Excel documents in the system repository. With Business Objects Live Office, end users embed accurate, updatable data in documents, spreadsheets, and presentations while allowing IT to maintain control of the underlying information.

With implementation of the new Project Information Management System (PIMS) UNON/ICTS will provide systematic solution to the core substantive programme and project management operations, will support globalization approach of executing projects and will improve project management capability. The new PIMS will eliminate the need of maintaining existing scattered project management systems and will provide up to date, accurate and uniform reporting capabilities to all offices and will allow managers to take optimal decisions.

The following are some of the benefits that the new PIMS is expected to bring:
- Captured Programme of Work and associated Costed Work Plans of Divisions with their respective outputs and related activities
- Donor database is used for streamlining the resource mobilization and project funding activities
- Predefined templates/forms are used for project creation, review and approval, and for streamlining and standardizing the project development cycle

- Alignment of anticipated achievements, outcomes and impacts of projects to Programme of Work and Costed Work Plan so making explicit the requirements for results-based management during project design phase
- Allow project managers to align project activities to Costed Work Plan outputs so making possible the budgeting and reporting based on defined output costs
- Streamlining the process of monitoring resources, outputs and activities
- Creating repository of project concepts, documents and reports against which new concepts can be compared and derived from, reducing development efforts, time and cost
- Accurate and timely reporting on project activities and transparency of project execution
- Management and reporting on MoUs and other legal instruments
- Updated statistics of all trust funds for ease of referring to when developing and revising projects and reporting

With the implementation of myIMIS portal, there will be no need for staff members of UNON/HRMS and UNON/BFMS to spend time answering staff member queries about their profiles, entitlements, benefits etc. but focus on much more value add work. At the same time each staff member will be able to inquire on their current HR and payroll information at any time from anywhere and will also be able to simulate the level of rental adjustment they may be entitled to for a certain amount of rent or see what the level of entitlements they would get if, for example, they move to another duty station, receive a promotion or change their dependency status.

3.4. Proposed Solution

The programme of work on UNON/ICTS Resource Management Section (RMS) is to be implemented on project basis executed mainly by RM Sections staff and any missing expertise will be mitigated by usage of consultants.

I. UMOJA (ERP-SAP) implementation will follow the established implementation road map by the CITO office, whereas RMS will work closely with the ERP project team and will take part in: - preparing all section staff to become trainers by organizing appropriate train the trainer program; coordinate all activities for data preparation and migration from IMIS into SAP; build necessary bridges for moving data from IMIS into SAP and vise versa during the period when both systems will be in use; develop solutions for reporting around both IMIS and the new ERP.

II. *Data Warehouse* - Building a Data Warehouse is a project that is quite complex, require significant planning, patience and persistence. The project will be executed by both internal resources and external consultancy services and will rely on

features provided by Sybase IQ as a database solution aiming at managing big volumes of data and returning fast query results, and on features of SAP BusinessObjects, a leader in BI solutions.

A Data Warehouse is a subject oriented, integrated, non-volatile, and time variant collection of data that supports decision making. The purpose of a data warehouse is to provide information for managerial decision making that is distinct from, and does not interfere with the performance requirement of the Online Transaction Processing Systems (OLTP) like IMIS. This is usually done by re-engineering OLTP data around business subjects and making it easily available to the managerial community in a separate repository. This subject-based modeling allows a more logical view of the data from business users' perspective.

Before being loaded into the data warehouse, data must go through a transformation or integration process. This process has several distinct steps to make data clean, uniform, and quality assured for use in data warehouse. Data in the warehouse is not frequently updated, will not change during execution of neither an analysis, nor will two users get different answers requesting the same information. In essence, the purpose of the data warehouse is to get data out of the system, and turn it into information. This analysis-driven, time variant data are often pre-summarized into levels usable for decision support, negating the need to summarize atomic level data in query operations. Industry has adopted a term encompassing the process of accessing and analyzing data warehouse data – OLAP. OLAP stands for Online Analytical Processing and it involves using a multidimensional database model, and appropriate access and analysis tools to quickly pull data from the warehouse, and turn it in meaningful information.

Data warehouse provides several qualitative benefits - standardized, clean, value-added data to create information from disparate sources. Combining data from these various sources (IMIS, ERP, MIPS and etc) cleansing, standardizing and enhancing it to create information has benefits that can be measured quantitatively. Another benefit includes better managing customer (vendors and donors) relationship. The data warehouse provides access to organizational data to support cost-effective decision making, it provides immediate, on-demand, high-performance response that is required for decision making, a major strength of the data warehouse is the support for ad-hoc queries, or unplanned exploration of data. It gives users and businesses the freedom and ability to analyze data in different ways, rather than being constrained by predefined reports.

At the backbone of any data warehouse is a database server that comes with all tools and utilities for data loading, scalable and can manage big volumes of data,

and most importantly returns fast query results. Sybase IQ is a highly optimized analytics server designed specifically to deliver faster results for mission-critical business intelligence, data warehouse and reporting solutions on any standard hardware and operating systems. It works with diverse data – including unstructured data – and diverse data sources to deliver unsurpassed query performance at the lowest price/performance available.

Sybase IQ combines extraordinary speed and agility with low total cost of ownership, enabling enterprises to perform analysis and reporting that was previously impossible, impractical or cost-prohibitive. This is possible through Sybase IQ's unique indexing and column-based processing approach to analytical and reporting processes. Unlike transactional databases that were designed to support business transactions, Sybase IQ was architected for reporting and analysis, has query speed 10X - 100X faster than traditional row-based databases, runs on standard operating systems including Linux, Windows and Unix, and supports all popular BI tools like Business Objects, Cognos, Microstrategy.

A data warehouse is not a combination of database server and data loading/extracting tools but rather a complete functioning information system including a Business Intelligence tool like SAP BusinessObjects. The SAP BusinessObjects offers the latest technology innovations and delivers a connected, interactive, and open business intelligence solution. It utilizes the industry standard in operational and financial reporting, as well as ad hoc reporting capabilities and world-class visualization technology. SAP BusinessObjects Web Intelligence module capabilities allow ad-hoc reporting, easy-to-use interface for end user reporting and powerful query features for fulfilling any requirements for self-service reports and analysis without IT involvement. Xcelsius provides advance data visualization environment to design and consume highly-interactive BI dashboards in PDF documents and presentations. Crystal Reports component enables the creation and modification of formatted reports with professional report layout and Live Office module integrates BI data within MS Office documents like spreadsheets and presentations.

Proposed Data Warehouse Architecture and Enabling Processes
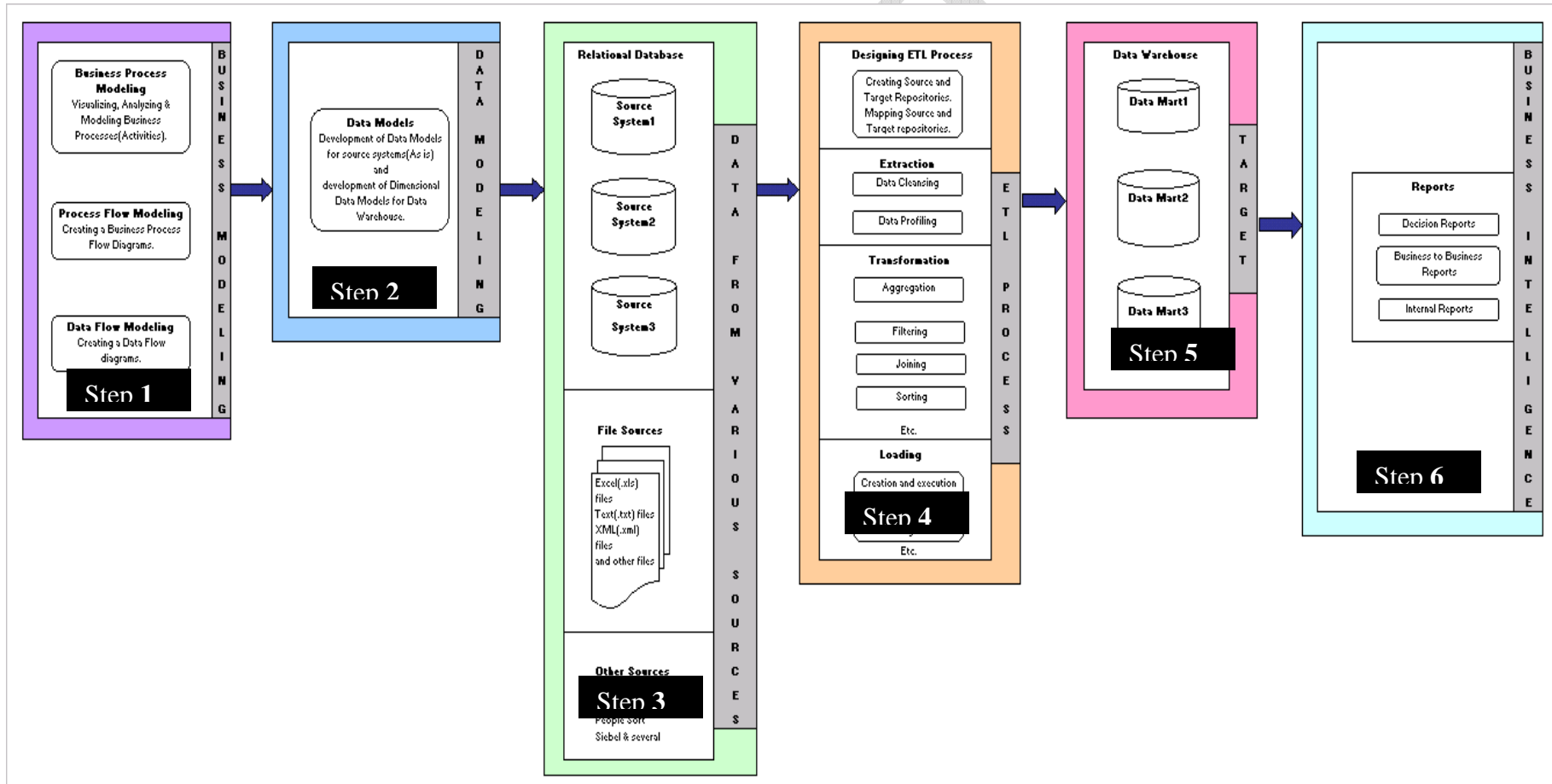
III. ***Project Information Management System (PIMS)*** development and implementation initiative stems from the UNEP Governing Council's decision UNEP/GSSS.X/8 paragraph 95 "UNEP will create one common database, which satisfies the needs of all divisions and regional offices and provides stakeholders with key project information";

And with reference to UNEP ICT Task Force made recommendation for building UNEP-wide core applications providing wide-access to projects, projects' monitoring, financial and substantive project information, staff and other resources information;

And in response to "Management arrangements for the implementation of the UNEP Programme of Work 2010-2011" wherein PIMS is referred to as basis for project monitoring by divisions, as well as a tool for independent reviews of project implementation and the quality of project supervision by QAS and the Evaluation Section. PIMS will be a data source for management reports UNEP's Senior Management Team and for statutory reports to member states.

The proposed UNEP programme of work and budget for 2010-2011 is in line with UNEP Medium-term Strategy for 2010-2013 expected accomplishments along six thematic cross-cutting priorities, includes specific outputs and is in line with results-based management principles wherein all programmatic activities are linked to results chain. Each output requires series of activities for its achievement and is managed by one division accountable for its implementation. The management vehicle to establish this accountability relationship for the result, the timing, the utilization of financial and human resources, and the quality of activities is called a project and all of UNEP programme of work for 2010-2011 will be delivered through projects.

UNEP programme of work is executed through projects in accordance to appropriations approved by its Governing Council, which is done at a subprogramme level. All of these projects can be initiated via project concept proposed by any division for any subprogramme. The project concepts are reviewed and approved by PAG before the full development of project documents are created, which contain outputs, indicators for success, management arrangements, activities and milestones. After a pier-review and approval by PAG the projects implementation become source of information for monitoring and reporting on the delivery of programme of work and means for UNEP to manage results.

The new Project Information Management Systems will automate few if not all of the above and will provide technical solutions for:
- project initiation and concept preparation in accordance to predefined by QAS Subprogrammes, Expected Accomplishments, Outputs and Activities, and usage of templates and standard workflow process, reference to build repository of project concepts for full control and consistency of project initiation process across UNEP divisions
- project document creation, resource mobilization and alignment of project budget to outputs and activities, regions and countries of projects executions/benefits, donors funding
- streamlining review and approval process for project initiation and full project documents by PAG and building repository of project concepts and documents accessible by everybody in UNEP and usable for publishing via different means to regions, countries, member states and donors
- project execution and management at UNEP, division, regional level as well as at programme and output level
- reporting at level of project, programme of work, outputs, activities, donors, member states and governing council
- Linkages between IMIS and PIMS for automated transfer of recorded in IMIS expenditures;

The new Project Information Management System will allow for complete and global integration of all project management functions across UNEP offices and it will enable UNEP to systematize, improve on administrative processes and more effectively and efficiently manage and report on projects implementation by providing following functionalities and capabilities:
- To capture programme of work and project related data from all UNEP divisions and regional offices
- To support decision-making, coordination and collaboration during project life cycle and project management processes
- To support UNEP management by enhancing accountability, transparency and internal control for all project related transactions
- To provide easy access to financial and substantial reports by UNEP management, project managers, staff and donors from any where
- To enable information exchange and project knowledge management for all UNEP staff and stakeholders world-wide
- To reduce the cost of maintenance and operation and be flexible enough to accommodate continual changes in UNEP operation

- To provide monitoring and managing tool for divisional directors and project managers through the project life cycle

IV. **myIMIS** project is aiming at delivering a "one stop shop" portal for staff members of UNEP, UN-HABITAT and UNON to see an overall picture of their contractual status, personnel details as addresses, dependents and emergency contacts, their entitlements, payroll details, medical insurances, outstanding receivable/payables, leave balances, telephone bills etc.

- myIMIS portal will also provide ability for staff members to change some of their own details such as home, office and emergency addresses and record them into IMIS.

- myIMIS portal will also allow staff members and HRMS staff to simulate the worth of some entitlements such as salary and rental subsidies by calculating their worth depending on the input of defined parameters such as grade, duty station, dependency status etc.

- Currently staff members' details can be found in IMIS but to have a clear overall past, present and potential picture involves a great deal of delving into different places to find the information source. This is time consuming for HRMS and BFMS staff members when they are requested or need to find these details. It is often impossible for the staff members themselves to do this on their own because of the way that IMIS is structured, or because of security implications applied by how IMIS operates or simply because staff members often do not know where to look for this information.

- myIMIS portal is a web based system that will be accessible from all UNEP, UN-HABITAT offices, including offices away from Headquarters and liaison offices of both organizations, will eliminate the need for UNON/HRMS and UNON/BFMS staff to spend time answering different queries about staff members profiles, entitlements, benefits etc.

3.5. Implementation Plan

3.5.1. UMOJA (ERP-SAP) project

The implementation of the UMOJA project will follow the established implementation road map by the OICT and as such at this stage there is a vision that the RMS team will take a very active role in preparing UNEP, UN-Habitat and

UNON offices; participating in relevant training, building systems that will help in cleansing and transforming data into the new system and providing user training once the first phase of the project is implemented.

3.5.2. myIMIS

Problem Definition - IMIS is not providing an efficent way (self service) to staff members to review their personnel data, current entitlements, payroll pay slips, simulation of entitlements like salary at a different duty station or category & grade, rental subsidy, medical insurances etc.

Requirements Analysis - performing a requirements analysis is critical to the success of any project, including myIMIS, for which we will follow the below steps:

a. Clearly state problem(s) myIMIS will try to solve.
b. Identify all data sources and formats – IMIS in general and numerous tables in the areas of HR, payroll and references.
c. Identify the users of the completed system – all staff members of UNEP, UN-Habitat and UNON as well as HRMS and BFMS as custodians of data and service provides.
d. Formulate a specific budget - time, money, personnel – myIMIS will be developed by utilizing RMS resources and as such will not require additional financial or human resources; the project is to be completed in three months.
e. Discussions with representatives of HRMS and BFMS as well as with staff members from different offices have taken place.
f. Ask management to specifically state their success criteria – initially to be used by all staff members of the above mentioned organizations and later on to become UN Secretariat wide system.
g. Produce a detailed development schedule - due date 10/04/2009.
h. Get a sign-off of the requirements, resource allocation, and schedule - 15/04/2009

Information/Data Modeling - Information and Data modeling is led by the project manager (Chief RMS) and, together database manager and the rest of the development team to assure flexibility, scalability, and usability of the system.

Design & Prototyping – systems' functionality are being generated by using GUI prototyping software and will be completed by 20/04/2009 and will be demonstrated to focus groups of users.

Development & Documentation – the development of various data extractions procedures is already underway and will become a starting point for creation of system's user interface (once the requirements analysis is almost completed, the prototype is working, and the focus groups are satisfied). A detailed development schedule (due by 10/04/2009) will be available to all parties involved to ensure success of the project.

Test & Review – is activity that takes place throughout the development cycle, including prototyping, development, deployment, operations, and enhancements. It is a process that never ends nor is a popular job, but it is critical for developing a system that works and meets each of the requirements. The review task will be performed by the project manager and testing will be done by all team members as well as by members of focus groups.

Deployment & Training - once the development is complete, all features are tested and the documentation is ready the system will be deployed on UNON Intranet. The understanding is that the system is not going to require a great deal of training but nevertheless, there will be a small training campaign organized for staff in Nairobi. More detailed training will be conducted for Help Desk staff in order to provide continues support to the users.

Enhancement – it is a normal practice that with the usage of any successful system (myIMIS is going to be one of them), users become more sophisticated and will want more and more capabilities. We know this from the very beginning and will be able to add additional features at any time, something that is built in the initial design of the system.

3.5.3 Project Information Management System (PIMS)

The design, development and implementation process for PIMS will follow similar steps as the above described steps for myIMIS system.

When it comes to PIMS implementation it's really a must to have the project execution and project reporting modules of the system implemented by the end of the year. This surely doesn't change the overall scope of PIMS defined at "project definition" stage, but imply that a phased approach will be followed for development and implementation of the systems' functionalities.

There is quite a lot of work already done related to Requirements Analysis, Information/Data Modeling and Design & Prototyping steps of the followed

methodology and the presumption is that this will help the successful implementation of such a complex system in the estimated time frame.

3.5.4. Data Warehouse and Information Management System

The design, development and implementation process for data warehouse (DW) and Management Information System (MIS) will follow similar steps as the above described steps for myIMIS system.

At this early stage is known that we have to:
- procure software Sybase IQ and SAP BusinessObjects XI Edge
- procure consultancy services for Data Warehouse design and development as well as for BI implementation
- procure hardware for running Sybase IQ and SAP BusinessObjects XI
- procure training services for administration of SYBASE IQ, Sybase ETL server and BusinsessObjects development and administration

The above procurement processes will take approximately 6 months and this is the time when part of Problem Definition and Requirements Analysis will be carried out. The complete development schedule will be prepared only after the consultant is on board and a full scope of the system is established. The envisaged implementation of the project is by mid next year.

3.6. Resource Requirements

3.6.1 Human Resource Estimate

To implement the RMS recommended projects the following requiremts are envisaged;

Existing Resources:
Resource Management Service consists of:
One P4 staff member - Section Chief responsible for overall planning, leading design and development work, and management.

One P3 staff member - database developer responsible for designing databases, and developing database elements as table structures, indexes, store procedures, and their maintenance

Four G7 positions occupied by staff members responsible for developing windows and web based applications and systems working on top or around IMIS, creating reporting solutions and providing continues support to these applications and IMIS (two positions are currently vacant)

Two G6 positions occupied by staff members responsible for creation of reports, supporting applications and providing training to systems' users

New Resources required:
To implement Data Warehouse and BusinessObjects based BI solutions we need to procure/outsource on consultancy basis specialized expertise.

To mitigate the lack of existing web development resources and to bring to a higher level of outputs of the Resource Management Section, it is recommended to establish two positions at L1 level as project personnel. The main area covered by staff occupying these two positions will be Project Information Management System and Data Warehousing and BI reporting projects.

3.6.2 Costs Estimation Sheet for implementation of RMS projects

Initial cost for 2009

Ser#	Description of the investment components	US$ Cost
1	Hardware – two fault tolerant servers (MS-Windows based) for running myIMIS, PIMS and SAP BusinessObjects web servers	40000
2	Hardware – two fault tolerant servers (Solaris based) for running Sybase IQ database	40000
3	Sybase IQ server (software and support)	72000
4	Sybase IQ – Annual Maintenance	26140
5	SAP BusinessObjexts XI Edge Standard 20 CAL	55000
6	Xcelsius Enterprise Designer	1220
7	Business Objects yearly Support	12368
8	Consultant for Data Warehouse design and development	60000
9	Consultant for BI solutions design and development	60000
10	Training for RMS staff in areas – Sybase IQ, ETL, Business Objects	45000
11	Additional software components and licenses	10000
12	Two L1 positions for 2 years (cost for 6 months in 2009)	90000

13	Misc cost at 10%	51173
	Total Cost 2009	**562,901**

Subsequent year running cost

Ser#	Description of the investment components	US$ Cost
	Annual Hardware Maintenance	8000
1	Sybase IQ – Annual Maintenance	26140
2	Business Objects yearly Support	12368
3	Consultant for Data Warehouse design and development	60000
4	Two L1 positions for 2 years (cost for 12 months)	180000
	Training for RMS staff in areas of – Sybase, IQ, ETL, Business objects	25000
5	Misc cost at 10%	31150
	Recurring Cost each year - Total	**342,658**

Note that the existing budget of the RMS can cover the procurement of four servers needed for running different applications, Sybase IQ and Sybase IQ itself.

3.7. Risk Envisaged

The timetable for implementation of the systems can be affected if funding is not available for starting recruitment and procurement processes.

The capacities of internal expertise do not cover all competencies of PIMS, Data Warehouse and Business Object BI implementation and needs to be upgraded for proper design, development and operation of the respective systems. This risk will be mitigated by establishing 2 L1 posts for a period of 2 years (longer is a nice to have option) and employing 2 external consultants for the period of one year and six months for the design, development and implementation of data warehouse and BI systems.

4.0. Infrastructure Management Services

4.1 Introduction

Infrastructure Management Section (IMS) is the foundation stone of the Information and Communications Technology Services that provides an efficient, effective, secure and scalable platform for providing ICT services to its clients (primarily UNEP, UN-HABITAT and UNON) including co-located UN agencies at the UN Offices at Nairobi (UNON) in Nairobi plus the outposted/regional offices of UNEP/UN-HABITAT all over the world.

IMS has been providing the requisite platform which has been used by the various other services sections of ICTS to deliver the required ICT services to its clients at UNON in Nairobi. IMS has been trying to extend these ICT services to the outposted/regional offices of UNEP/UN-HABITAT but has been severely hampered by the exorbitant cost of establishing appropriate IT connectivity.

With the undersea fibre connectivity expected to be operational in early August 2009, UNON/ICTS is well positioned to then extend services to all outposted/regional offices of UNEP/UN-HABITAT worldwide.

This section of the strategy document describes the infrastructure and resources required to initiate a strong ICT platform so that the other ICT services are able to deliver ICT services at a level that are equal to, if not better, with the services available at other UN duty stations. It provides a comprehensive solution along with cost estimates for a four year period to implement and maintain a fully fledged resource and knowledge management system.

4.2. Business Opportunity

4.2.1. Overview

UNON has typical information and communications technology 'ICT' challenges with respect to access to ICT services both within Nairobi and access from outposted/regional offices. To resolve these two fundamental problems and to streamline business processes the Strategic Implementation Team 'SIT' at UNEP headquarters implemented a mirror site at UNICC in Geneva that was to provide web access Notes e-Mail of UNEP staff member and culminate in the provision of an e-Mail identity for all UNEP staff. The mirror site was also to provide a common platform to launch the Web Content Management System 'WCMS'. To realize full business benefit from the mirror site implementation and to maximise the investment in mirror site, SIT wanted to extend the mirror site for implementing lotus notes based workflow applications to all UNEP staff posted in OAH. This will enable access to common workflow based applications for day-to-day business activities to all UNEP staff.

East Africa and particularly Nairobi will be enhanced by the fibre optics cable based communication network to connect to the World Wide Web. This infrastructure upgrade in communication technology calls for a retake/plan for enhanced delivery of ICT services to UNEP and UNHABITAT staff across the globe and bring forward the establishment of the disaster recovery and business continuity 'DRBC' plan. The basis for enhanced services will be afull availability of STM 1 (155 mbs duplex) CONNECTIVITY TO THE UNDERSEA network.

Some of the existing services that will be enhanced are:

1. Remote access to corporate applications (Citrix)
2. Web access to e-Mail
3. Communications
4. Access to Busines solutions/applications.

Some of the new ICT services that will be available:

1. IPT/IPVC, Desktop VC
2. Remote setup, administration. management of ICT infrastructure at outposted/regional offices
3. All outposted/regional offices using IPT and on a single corporate telephony system
4. VPN connection from each outposted /regional offices to Nairobi
5. Replicated file systems between outposted/regional offices and Nairobi

6. Fully operational DRBC site.
7. Remote interpretation

This proposal identifies the technology, resources and cost requirements to implement an optimum solution for UNEP and UN-HABITAT that can address the following:

- Localized Domino/Notes based mail services at outposted/regional offices
- VPN setup at each outposted/regional offices
- File services that are in sync with those at Nairobi
- IPT services at each outposted/regional offices

Lotus Notes based application to OAH: UNEP and UN-HABITAT employs a substantial number of their staff outside their Head Quarter in Nairobi. The staffs in these offices do not have access to some if not most of the corporate business applications like their counter parts in headquarters, Nairobi. This causes some amount of pain in not having standard business processes across UNEP/UN-HABITAT and to implement best practices for conducting day-today business activities. This document details how best we will alleviate this short fall for example how lotus notes based applications can be implemented at the mirror site and at various OAH or field offices.

VPN setup at each outposted/regional offices: Establishment of VPN connections at the outposted/regional offices will enable staff away from HQ to seamlessly and transparently access corporate applications.

File services that are in sync with those at Nairobi: Establishment of synced file services will enable real time collaboration.

Corporate IPT services at both HQ and outposted/regional offices: This will enable instant and efficient voice and video communication between staff.

4.3. Business Benefit

Both UNEP and UN-HABITAT can realize a number of key benefits along with implementing localized Domino/Notes services, synchronized file services and VPN services at each outposted/regional office.

- UNEP/UN-HABITAT staff members operate as one with a corporate shared address book.
- All staff members will be able to access their e-Mail locally yet operate globally.
- All staff members will be able to access all Notes based applications locally and operate in real time.
- All staff members will be able to share files in 'near-real-time'

- All staff members will be able to access global corporate applications based both in Nairobi and at UN-HQ transparently and speedily
- All staff members will be using a single IP based telephony system providing enhanced services like IPVC and desktop VC
- Staff members will be able to initiate IPVC or desktop VC on their own as and when they require it.
- Will provide ability for staff member to move with their extensions when they move offices.
- Establishment of a central integrated and unified messaging system that is accessible from all over the world.
- Lotus Notes based applications will streamline work flow activities in daily routine of jobs carried out by staff. These applications provide a facility to view any activity at different stages in the workflow enabling tracking of application status. These applications also help in overall management reporting on various activities.

STM-1 Connectivity Diagram
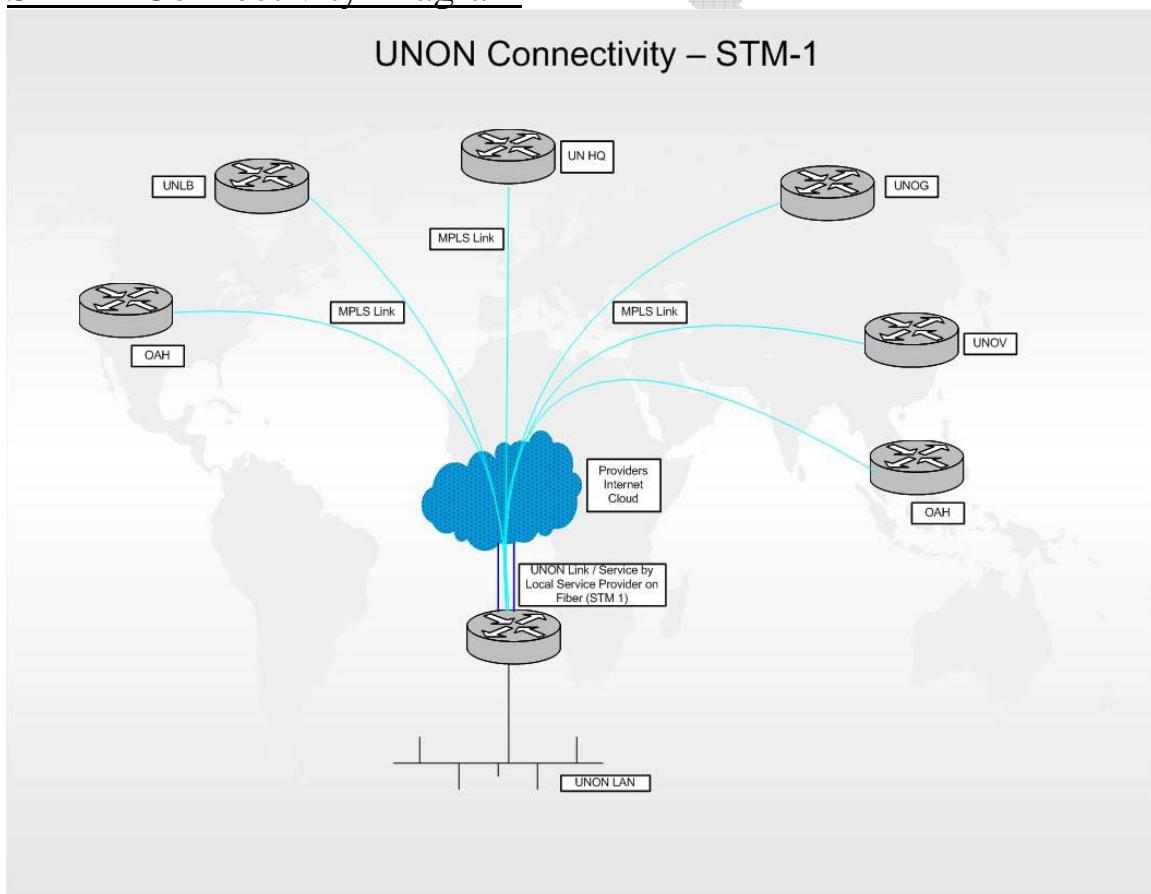
4.4. Current Core Services

IMS and Communications Section currently provides the hardware platform and requisite server services that facilitates the work of the various ICTS sections and delivers a platform for IT service delivery and communication needs of the organisation. Furthermore, IMS provides the core IT services like corporate Local and Wide are networking, e-Mail, file services, print services, mobile access to e-Mail, remote access to corporate applications using thin clients, telephony (both local and International) services and radio communication (VHF/UHF) services .

4.4.1. Enhanced Services

IMS will establish the necessary hardware/software services at UNON to provide for IPT/IPVC services, remote translation and web casting.

In addition establish necessary hardware/software services at each of the outposted/regional offices to provide for the following services

- Domino/Notes infrastructure
- VPN connectivity
- IPT/IPVC services

4.5. Resource Requirements

4.5.1. Enhancement and strengthening infrastructure at Nairobi

Sr. No	Hardware costs (1st Year)	Cost in USD
1	2 high end Domino/Notes servers	60,000
2	Upgrade existing servers to full memory capacity	100,000
3	10 Intel based servers with 16GB RAM each	100,000
4	1 high end enterprise backup device and associated tapes	60,000
5	2*14TB*2 Storage array	80,000
6	Cisco switches and line cards	120,000
7	Cisco IPT/IPVC h/w to support 5,000 users	200,000
8	Contingency cost at 10%	80,000
	Total Hardware cost	**800,000**

Sr. No	Software costs (1st Year)	Cost in USD
1	Legato Networker licenses	25,000
2	Replication Software	45,000
3	Cisco IOS upgrade and NMS software	75,000
4	Cisco IPT/IPVC s/w to support 5,000 users	110,000
4	Contingency cost at 10%	25,500
	Total Software cost	**280,500**

Sr. No	Human Resource costs (1st Year)	Cost in USD
1	One NO staff to head Notes admin group	100,000
2	Consultancy cost for streamlining Solaris File cluster	20,000
3	One G7 staff to specifically handle IPT issues (previous staff handling PABX issues will be re-trained to handle IPT issues)	40,000
	Total human resource (1st year) cost	**170,000**

Sr. No	Hardware costs (2nd Year onwards)	Cost in USD
1	Maintenance (10% of hardware)	88,000
	Total per year Hardware cost	**88,000**

Sr. No	Software costs (2nd Year onwards)	Cost in USD
1	Legato Networker licenses	10,000
2	Replication Software	10,000
3	Cisco IOS upgrade and NMS software	15,000

4	IPT/IPVC	75,000
5	Contingency cost at 10%	11,000
	Total per year Software cost	**121,000**

Sr. No	Human Resource costs (2nd year onwards)	Cost in USD
1	One NO staff for to head Notes admin group	100,000
2	One G7 staff to specifically handle IPT issues	44,000
3	Contingency cost at 10%	14,400
	Total per year human resource cost	**158,400**

4.5.2. Expanding services to UNEP/UN-Habitat outposted/regional offices

UNON/ICTS will establish a localized instance of Domino/Notes infrastructure at every outposted/regional office that has 10 or more staff. UNON/ICTS also proposes to establish a IPT/IPVC environment at each of the outposted/regional offices by installing a call manager with associated ancillary equipment so that the telephony infrastructure can operate for a limited period even during events when there is no connectivity between Nairobi and the regional/outposted office. Furthermore, appropriate hardware/software will be put in place at the remote office in order to enable seamless and transparent access to all corporate applications at Nairobi and at UN-HQ. The cost depicted below is modular based on a site comprising at most 100 users.

Sr. No	Hardware costs (1st Year)	Cost in USD
1	1 high end Domino/Notes/File server	25,000
2	1 high end Unix server to provide proxy & mail gateway services	15,000
3	VPN Gateway	25,000
4	IPT/IPVC hardware (maximum of 100 users)	50,000
5	Contingency cost at 10%	11,500
	Total Hardware cost	**126,500**

Sr. No	Software costs (1st Year)	Cost
		in USD
1	Lotus Notes/Domino licences	12,000
2	VPN software	15,000
3	IPT/IPVC software (maximum of 100 users)	25,000
3	Contingency cost at 10%	5,200
	Total Software cost	**57,200**

Sr. No	Hardware costs (2nd Year onwards)	Cost
		in USD
1	Maintenance (10% of hardware)	12,650
	Total per year Hardware cost	**12,650**

Sr. No	Software costs (2nd Year onwards)	Cost
		in USD
1	Lotus Notes/Domino licences	5,000
2	VPN software	5,000
3	IPT/IPVC software (maximum of 100 users)	15,000
	Total Software cost	**25,000**

4.6. Resource Requirements

4.6.1 Human Resource Estimate

To implement the IMS recommended projects the following requiremts are envisaged;

Existing Resources:
Infrastructure Management Service consists of:
One P4 staff member - Section Chief responsible for overall planning, leading design and development work, and management.

One P3 staff member – Sub unit chief responsible for overall planning, leading design and development work, and management relating to communication aspects (voice/VHF/UHF/VC/IPT/IPVC)

One P3 staff member – Sub unit chief responsible for overall planning, leading design and development work, and management relating to infrastructure security.

One P3 staff member – Sub unit chief responsible for overall planning, leading design and development work, and management relating to Data Centre Operations.

Two G6 positions occupied by staff members responsible for doing the day-to-day administrative work on the switches and routers relating to LAN/WAN administration and management.

One G7 and one G6 positions being occupied by staff members responsible for the day-to-day administrative work relating to the administration and management of the NOTES/Domino infrastructure.

One G7 and one G6 positions being occupied by staff members responsible for the day-to-day administrative work relating to the administration and management of all the UNIX servers and services.

One G6 position being occupied by a staff member responsible for the day-to-day administrative work relating to administration and management of databases relating to IMIS operations.

One G6 position being occupied by a staff member responsible for the day-to-day administrative work relating to the provision of mobile e-Mail access to corporate e-Mail.
One G7 post being occupied by a staff member who is a telecom specialist and is responsible for the overall supervision and guidance of the two G7 and one G6 telecom technicians.

Two G7 and one G6 telecom technicians occupied by staff members who are responsible for the day-to-day administrative work relating to the provision of telephony and VC services as well as maintenance and administration of the satellite earth stations and the PABX system.

One G4 and two G3 positions being occupied by staff members for the day-to-day operations of telephone calls.

New Resources required:

To mitigate the lack of in depth knowledge of Lotus/Domino, it is recommended to establish a national officer post. The main area covered by staff occupying this position (Lotus/Domino Administration Professional) will be to constantly analyze, propose, revamp and upgrade the Lotus/Domino infrastructure with the aim to provide exemplary Lotus/Domino services both within the campus and to outposted/regional offices that UNON serves.

To mitigate the lack of expert knowledge in IPT/IPVC, it is recommended to establish a national officer post. The main area covered by staff occupying this position (IPT specialist) will be to train and lead a team for the migration of the voice infrastructure to an IPT environment.

4.7. Risk Envisaged

1. *Risk of not implementing IPT/IPVC*: This will be a high risk area as the current PABX system is past end-of-life (EOL). The cost of upkeep of the PABX just to keep services at current level will not only be exorbitant and may well be impossible due to lack of expertise and/or lack of parts.

2. *Risk of not implementing localized instance of Domino/Notes at outposted/regional offices*:   This will be another high risk area since this would mean each outposted/regional offices would continue to operate in silo mode and unable to reap the benefits of a common mail/groupware platform and common workflow applications.

3. *Risk of not implementing IPT/IPVC at regional/outposted offices:* Foregoing this would mean letting an opportunity to bring together both headquarter and its regional/outposted staff members closer and operate as a close knit family collaborating, communicating and consulting at unprecedented levels because of the resulting technology.

4. *Risk of not webcasting services:* Nairobi has been lagging behind the digitally connected OAHs like UNOV and UNOG in being able to provide an ever increasing audience that relies on the Internet for their information needs. Enabling webcasting services would allow UNON to provide real time access of all conferences and meetings being held at Nairobi to the digital world.

5. *Risk of not connecting establishing VPN connectivity to all outposted/regional offices*: Not establishing the VPN links between Nairobi and the outposted/regional offices would hinder the transparent and secure access of corporate applications and resources at Nairobi by regional/outposted staff and obstruct collaborative work.

5.0. Client Services

5.1. Introduction

The primary role of UNON/ICTS Client Services Section is facilitating and coordinating computer related end user services within the UNON complex. The unit is also responsible for setting ICTS standards and ensuring business continuity within the user community. Client Services Section also ensures that UNON's ICT Human Resource Capacity is adequate to support current and planned technology platform and the capacity of ICT focal points in client organizations is maintained at a level which enables them to complement the work of UNON/ICTS as well as enhance end-user competence in the application and use of information technology, particularly office automation tools.

The Client Services Section performs the following functions:

Client Services Unit

Provide our clients with effective and efficient service, implement a Service Level Management process to improve IT service delivery. Continually improve the quality of ICT services to UNON clients. Resolve the client service calls within set benchmarks. Provide timely and appropriate IT solutions to ICTS and clients, keep abreast of changes in IT with an aim of improving services to ICTS clients.

Quality Assurance and Research Unit

This Unit is responsible for ensuring quality control and implementing change management procedures for software development, including implementation of best practice Customer Relationship Management (**CRM**) system and Information Technology Infrastructure Library (**ITIL**) framework which are industry standards for the provision of Client Services as well as ISO27000 and ISO 14000 environmental management standards for procurement of ICT products

IT Training Unit

This Unit is responsible for conducting user skill improvement requirements assessment and Identifying training opportunities, developing training plans, conducting regular training sessions and setting up training facilities and Programmes for **all staff** at UNON, UNEP and UNHABITAT.

Budget Estimates and Control

The office is also responsible for preparing ICTS Budget Estimates and Budget control as well as management and control of Service Level Agreements.

Billing Unit

The unit handles internal and external telephone bills, Service Level Agreements (**SLA's**) and billing related queries, oversees implementation of policy issues pertaining to UNON telephone recovery procedures, report generation and provision of billing statistics.

5.2. Business Opportunity

5.2.1. Overview

With the arrival of the undersea fibre optics, UNON/ICTS Client Services Section proposes the implementation of an integrated Service Desk (using Siebel CRM) to enable clients both at UNON and OAH's to easily call for and access ICTS services (single point of contact).

Service Desks are facilities that are specifically set up to manage telephone calls from customers. They are intended to provide orderly cost efficient telephone-based services. They serve as the primary telephone interface with customers for specific services provided by the agencies. The Service Desks have structured environments where calls are handled by a group of skilled professionals who provide the service required by the caller or transfer the call to someone designated for that purpose.

5.3. Proposed Solution

5.3.1 Implementation of a 24/7 Service Desk (using Siebel CRM)

Implement a 24/7 Service Desk (using Siebel CRM) accessible to OAH's and UNEP staff members in Nairobi. Implement a Service Level Management process to improve IT service delivery and comply with ITIL and international standards for service delivery (ISO20000). Implement a global request management system to improve delivery of facility and ICT services. Provide customer self-service capabilities where appropriate. Implement an integrated contact, meeting, trip and event management/ scheduling system.

5.3.1.1 Business Benefit

The key customer benefits of the ICTS Service Desk would include:

Convenient Customer Access to the Services Required and Enhanced Customer Relations
Staff (at OAH's or at UNON) from different time zones can get immediate assistance from the ICTS Service Desk in case of a problem. The ICTS Service Desk will give staff quick access to the information they want and thus results in improved productivity.

Accurate, Appropriate Responses and Improved Efficiency
Improved responsiveness, timeliness, efficiency and quality of ICT and Facilities services.

Higher customer satisfaction and consistent customer experience across service providers and channels.

Transparent access to performance management data enabling monitoring and improvement of service levels.

Productivity gains through process re-engineering and best practices adoption

Performance Monitoring

A Service Desk will allow for the tracking of the number of calls received each day, how many of these calls were positively resolved, etc. These statistics will allow for development of measures to improve service to clients

Better Office Communication Handling

The ICTS Service Desk, aside from handling live calls, will also be able to process emails, fax, web-based queries, web-cam conferencing, Instant Messaging, and other means of communication. This will offer clients more ways by which they can get assistance from ICTS.

5.4. Implementation Plan

5.4.1. ICTS Service Desk

Steps
- Acquisition of Siebel servers and software by UNHQ
- Hiring of outsourced staff in Nairobi
- Training of staff / Outsourced staff
- Commissioning of Service Desk (24/7)
- Acquisition of additional Telephone Billing Licences to support OAH staff

5.5. Resource Requirements

Current Costing: The current cost to support a client base of over 1,750 at UNON is as follows:

Sr. No	Description of the Investment Components	Cost in USD
1	Staffing cost (6GS staff)	371,800
2	Contractual Services (11 outsources staff)	153,356
3	Overhead cost for 6GS staff	60,000
	Total Cost	**585,156**

The current support is provided from 8.00am to 6.00pm Monday to Friday and 9.00am to 1.00pm on Saturdays. Majority of the UNEP and UNHABITAT staff in Europe and Middle-east can be supported (225 OAH staff members of the total 358 OAH staff members) within the above time frame. This represents over 62% of the total OAH staff. **In order to accommodate additional work load, without compromising set benchmarks, additional 4 outsourced staff will be required (additional cost US$60,000) per year.**

Please refer to the attached table (OAH Staffing) showing the total number of OAH staff distribution by region including time frames.

5.5.1. Cost Estimation Sheet

Provision of Service Desk support for OAH's within the above time frame
For One time setup of each item **(First year)**

Sr. No	Description of the Investment Components	Cost in USD
Module 1		
1	Acquisition of Siebel Hardware *	
2	Acquisition of Siebel Software *	
3	Additional Telephone Billing Licences	10,000
5	Misc Cost at 10%	1,000
	Total Cost	**11,000**

- **Assumptions: * Siebel Hardware and Software at Brindisi-Italy will be available and the same will be shared by UN Secretariat at no additional cost.**

Annual Recurring cost estimates for Maintenance of each of the item **(from First year)**

Sr. No	Description of the Item	Cost in USD
Module 1		
1	Hiring of 4 Additional Outsourced staff(average US$16,000 per year per staff)	60,000
2	Training Costs: Siebel (existing staff and additional staff)	30,000
3	Misc Cost at 10%	9,000
	Total cost	**99,000**

Annual Recurring cost estimates for Maintenance of each of the item **(from Second year)**

Sr. No	Description of the Item	Cost in USD
Module 1		
1	Hiring of 4 Additional Outsourced staff(average US$16,000 per year per staff)	60,000
2	Continues training costs (existing staff and additional staff)	10,000
3	Misc Cost at 10%	7,000
	Total cost	**77,000**

Provision of Service Desk support for OAH's 24/7

For One time setup of each item **(First year)**

Sr. No	Description of the Investment Components	Cost in USD
Module 1		
1	Acquisition of Siebel Hardware *	
2	Acquisition of Siebel Software *	
3	Additional Telephone Billing Licences	10,000
5	Misc Cost at 10%	1,000
	Total Cost	**11,000**

- **Assumptions: * Siebel Hardware and Software at Brindisi-Italy will be available and the same will be shared by UN Secretariat at no additional cost.**

Annual Recurring cost estimates for Maintenance of each of the item **(from First year)**

Sr. No	Description of the Item	Cost in USD
Module 1		
1	Hiring of 10 Additional Outsourced staff(average US$16,000 per year per staff)	160,000
2	Training Costs: Siebel (existing staff and additional staff)	60,000
3	Misc Cost at 10%	22,000
	Total cost	**242,000**

Annual Recurring cost estimates for Maintenance of each of the item **(from Second year)**

Sr. No	Description of the Item	Cost in USD
Module 1		
1	Hiring of 4 Additional Outsourced staff(average US$16,000 per year per staff)	160,000
2	Continues training costs (existing staff and additional staff)	20,000
3	Misc Cost at 10%	18,000
	Total cost	**198,000**

5.6. Risk Envisaged

- In case of fibre optic failure, Office outside of Nairobi would not be able to access ICTS Services. There will be limited connectivity via satellite backup which can not be adequate for all services.
- The current Help Desk System is out dated and is not adequate to support future client Services needs

6.0 Glossary

A glossary of terms and definitions used in this proposal document is provided that might not be known to the reader or open to misinterpretation. A standard glossary is included to all readers and reviewers.

6.1 Abbreviation and Terms

Abbreviation/Terms	Explanation
UNEP	United Nations Environment Programme
UN-ICC	United Nations – International Computing Centre
IT	Information Technology
DRBC	Disaster Recovery and Business Continuity
CMS	Content Management System
WCMS	Web Content Management System
ILM	Information Life-cycle Management
OAH	Office Away from HeadQuarters
WIP	Work In Progress
eRoom	A Digital workspace for collaboration
MS	Microsoft
SQL	Structured Query Language
USD	United States Dollar (US Currency unit)
STM-1	Synchronous Transport Module
SDH	Synchronous Digital Hierarchy
SONET	Synchronous optical Network
ERP	Enterprise Resource Planning System
PIMS	Project Information Management System
SLA	Service Level Agreement
ISO	International Standard organization
ITIL	Information Technology Infrastructure Library
CRM	Customer Relationship Management
DW	Data Warehouse
MIS	Management Information System
BI	Business Intelligence

6.2 References

Sr. No	Document title	Author / Contact / Source
1	ICT Strategy for the Secretariat - Final April 2008	UN Secretariat – CITO's Office

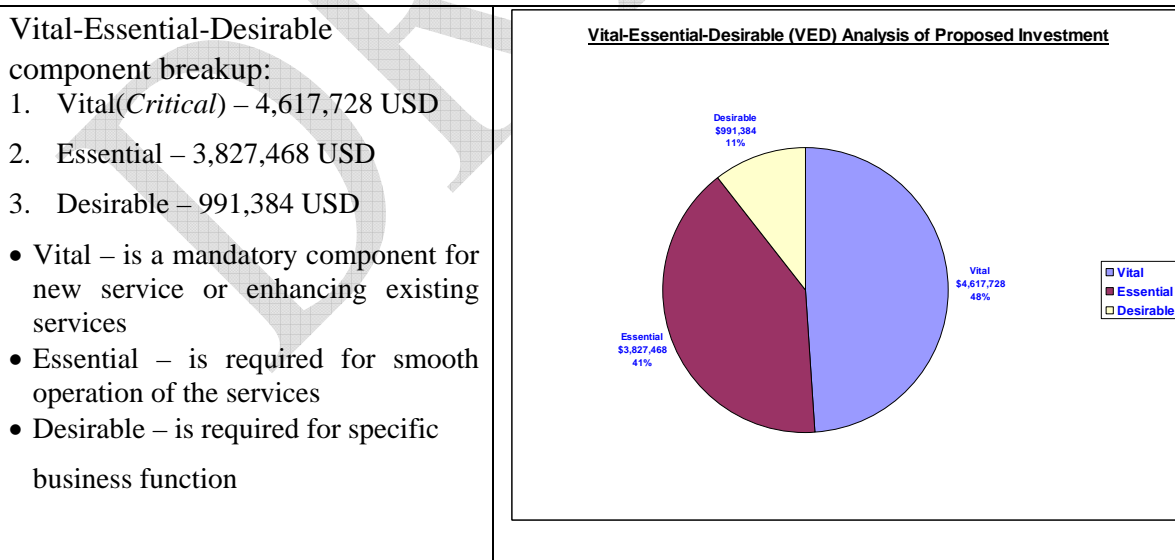| 2	ERP A-62-510-Rev1 -Master	UN Secretariat – CITO's Office

7.0 Appendix – A

7.1. Overall Analysis of the Proposed Investment components

Yearly Break-up of Proposed Investment Estimates

The yearly breakup: 1.First year – 4,109,997 USD 2.Second year – 1,604,221 USD 3.Third year – 1,977,181 USD 4.Fourth year – 1,745,181 USD Overall Estimates – **9,436,580** USD	

Vital/Essential/Desirable Component Break-up of Proposed Investment Estimates

Vital-Essential-Desirable component breakup: 1. Vital(*Critical*) – 4,617,728 USD 2. Essential – 3,827,468 USD 3. Desirable – 991,384 USD • Vital – is a mandatory component for new service or enhancing existing services • Essential – is required for smooth operation of the services • Desirable – is required for specific business function	

Sub-Programme wise Break-up of Proposed Investment Estimates

Sub-programme wise Break-up:

- Knowledge Management – 4,656,005 USD
- Resource Management – 1,590,875 USD
- Infrastructure Management – 2,342,700 USD
- Client Service – 847,000 USD

Sub-Programme-wise Break-up of Proposed Investment

Client Service
$847,000
9%

Infrastructure Management
$2,342,700
25%

Knowledge Management
$4,656,005
49%

Resource Management
$1,590,875
17%

- □ Knowledge Management
- ■ Resource Management
- □ Infrastructure Management
- □ Client Service

Categorized Break-up of Proposed Investment Estimates

Category wise Break-up:

- Hardware – 2,108,360 USD (22.34%)
- Software – 2,272,276 USD (24.08%)
- Consulting Fees – 436,928 USD (4.63%)
- Human-Res(Staffing) – 3,103,000 USD (32.88%)
- Training – 698,000 USD (7.4%)
- Travel – 40,000 USD (0.42%)
Contingency (Misc.) – 778,016 USD (8.24%)

Categorized Break-up of Proposed Investment

Contingency(Misc.)
$778,016.00
8.24%

Travel
$40,000.00
0.42%

Training
$698,000.00
7.40%

Hardware
$2,108,360.00
22.34%

Human Res(Staffing)
$3,103,000.00
32.88%

Software
$2,272,276.00
24.08%

Consulting Fees
$436,928.00
4.63%

- □ Hardware
- ■ Software
- □ Consulting Fees
- □ Human Res(Staffing)
- ■ Training
- □ Travel
- ■ Contingency(Misc.)

7.2. Analysis of Knowledge Management Sub-programme's Proposed Investment components

Yearly Break-up of Proposed Investment Estimates

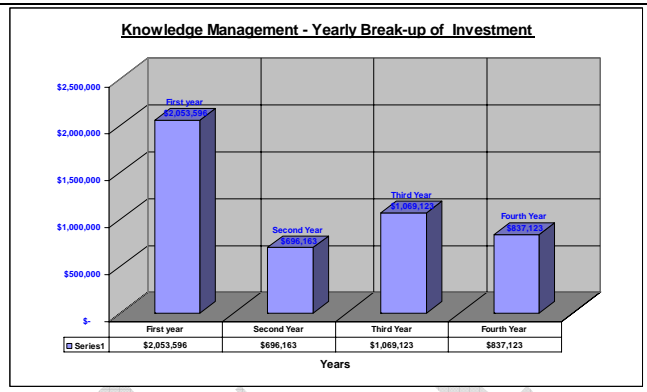Yearly Break-up of KM sub-programme Proposed Investments
- First Year – 2,053,596 USD
- Second Year – 696,163 USD
- *Third Year – 1,069,123 USD
- Fourth Year – 837,123 USD

Total Investment of 4,656,005 USD

*increase in third year investment is due to the planned increase in storage capacity and software license fees.

Knowledge Management - Yearly Break-up of Investment

	First year	Second Year	Third Year	Fourth Year
Series1	$2,053,596	$696,163	$1,069,123	$837,123

Vital/Essential/Desirable Component Break-up of Proposed Investment Estimates
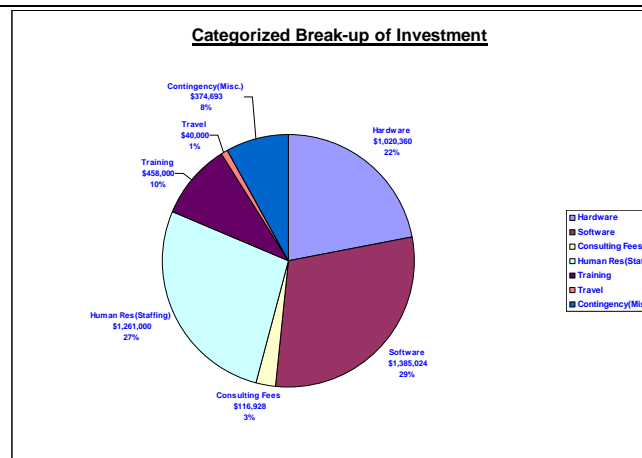
Vital-Essential-Desirable component breakup:
- Vital(Critical) – 1,433,000 USD
- Essential – 2,231,621 USD
- Desirable – 991,384 USD

- Vital – is a mandatory component for new service or enhancing existing services
- Essential – is required for smooth operation of the services
- Desirable – is required for specific business function

Knowledge Management VED Analysis

Desirable $991,384 21%
Vital $1,433,000 31%
Essential $2,231,621 48%
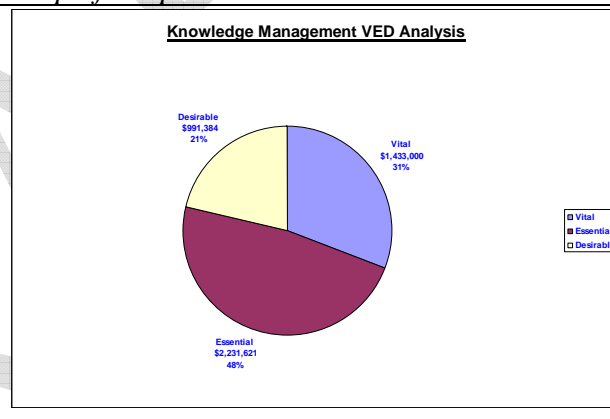
Categorized Break-up of Proposed Investment Estimates

Category wise Break-up:

- Hardware – 1,020,360 USD (22%)
- Software – 1,385,024 USD (29%)
- Consulting Fees – 116,928 USD (3%)
- Human-Res(Staffing) – 1,261,000 USD (27%)
- Training – 458,000 USD (10%)
- Travel – 40,000 USD (1%)

Contingency (Misc.) – 374,693 USD (8%)

Categorized Break-up of Investment

Contingency(Misc.) $374,693 8%
Travel $40,000 1%
Training $458,000 10%
Hardware $1,020,360 22%
Human Res(Staffing) $1,261,000 27%
Consulting Fees $116,928 3%
Software $1,385,024 29%

7.3. Analysis of Resource Management Sub-programme's Proposed Investment components

Yearly Break-up of Proposed Investment Estimates

Yearly Break-up of RM sub-programme Proposed Investments

- First Year – 562,901 USD
- Second Year – 342,658 USD
- Third Year – 342,658 USD
- Fourth Year – 342,658 USD

Total Investment of 1,590,875 USD
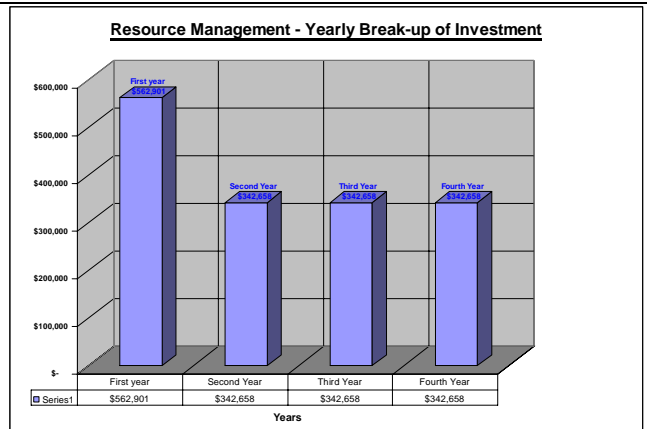
Vital/Essential/Desirable Component Break-up of Proposed Investment Estimates

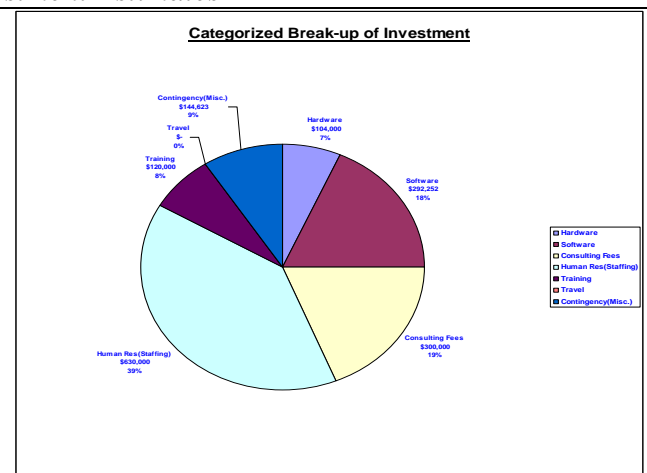Vital-Essential-Desirable component breakup:
- Vital(Critical) – 945,728 USD
- Essential – 645,147 USD
- Desirable – 0 USD
- Vital – is a mandatory component for new service or enhancing existing services
- Essential – is required for smooth operation of the services
- Desirable – is required for specific business function
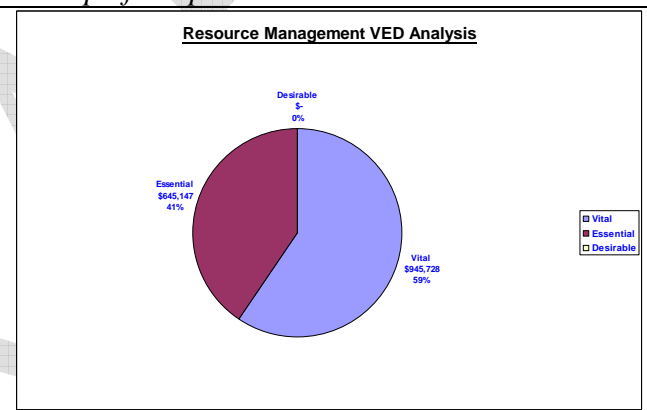
Categorized Break-up of Proposed Investment Estimates

Category wise Break-up:

- Hardware – 104,000 USD (7%)
- Software – 292,252 USD (18%)
- Consulting Fees – 300,000 USD (19%)
- Human-Res(Staffing) – 630,00 USD (39%)
- Training – 120,000 USD (8%)
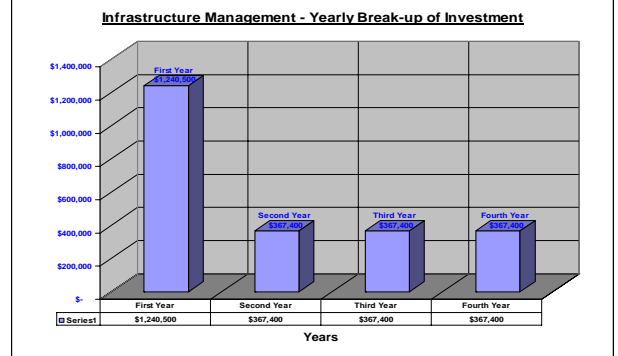- Travel – 0 USD (0%)
- Contingency (Misc.) – 144,623 USD (9%)

7.4. Analysis of Infrastructure Management Sub-programme's Proposed Investment components

Yearly Break-up of Proposed Investment Estimates

Yearly Break-up of RM sub-programme Proposed Investments

- First Year – 1,240,500 USD
- Second Year – 367,400 USD
- Third Year – 367,400 USD
- Fourth Year – 367,400 USD

Total Investment of 2,342,700 USD

Infrastructure Management - Yearly Break-up of Investment

	First Year	Second Year	Third Year	Fourth Year
Series1	$1,240,500	$367,400	$367,400	$367,400

Vital/Essential/Desirable Component Break-up of Proposed Investment Estimates

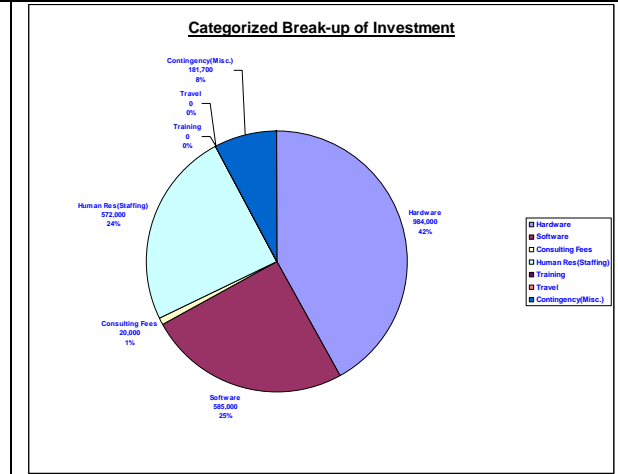Vital-Essential-Desirable component breakup:
- Vital(Critical) – 1,589,000 USD
- Essential – 753,700 USD
- Desirable – 0 USD
- Vital – is a mandatory component for new service or enhancing existing services
- Essential – is required for smooth operation of the services
- Desirable – is required for specific business function

Infrastructure Management VED Analysis

Desirable $- 0%
Essential $753,700 32%
Vital $1,589,000 68%
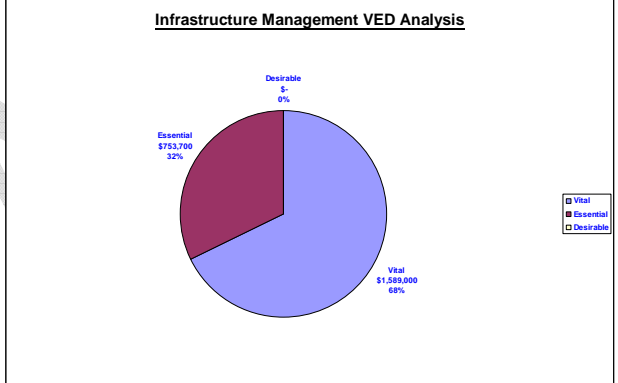
Categorized Break-up of Proposed Investment Estimates

Category wise Break-up:

- Hardware – 984,000 USD (42%)
- Software – 585,000 USD (25%)
- Consulting Fees – 20,000 USD (1%)
- Human-Res(Staffing) – 572,000 USD (24%)
- Training – 0 USD (0%)
- Travel – 0 USD (0%)
- Contingency (Misc.) – 181,700 USD (8%)

Categorized Break-up of Investment

Contingency(Misc.) 181,700 8%
Travel 0 0%
Training 0 0%
Human Res(Staffing) 572,000 24%
Hardware 984,000 42%
Consulting Fees 20,000 1%
Software 585,000 25%

7.5. Analysis of Client Services Sub-programme's Proposed Investment components

Yearly Break-up of Proposed Investment Estimates

| Yearly Break-up of RM sub-programme Proposed Investments • First Year – 253,000 USD • Second Year – 198,000 USD • Third Year – 198,000 USD • Fourth Year – 198,000 USD Total Investment of 847,000 USD	
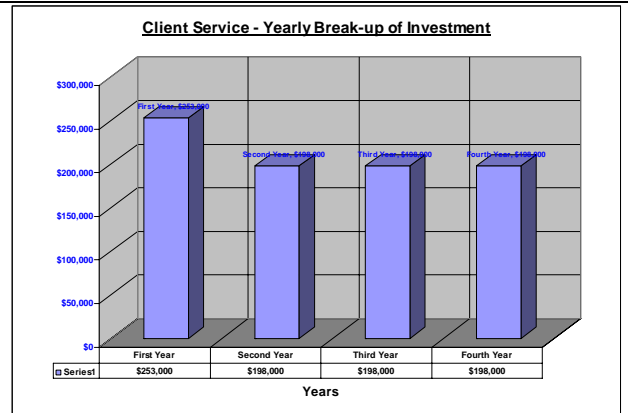
Vital/Essential/Desirable Component Break-up of Proposed Investment Estimates

Vital-Essential-Desirable component breakup: • Vital(Critical) – 650,000 USD • Essential – 197,000 USD • Desirable – 0 USD • Vital – is a mandatory component for new service or enhancing existing services • Essential – is required for smooth operation of the services • Desirable – is required for specific business function	
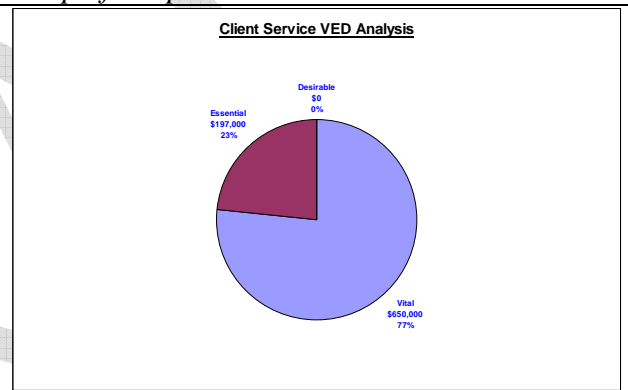
Categorized Break-up of Proposed Investment Estimates

Category wise Break-up: • Hardware – 0 USD (0%) • Software – 10,000 USD (1%) • Consulting Fees – 0 USD (0%) • Human-Res(Staffing) – 640,000 USD (76%) • Training – 120,000 USD (14%) • Travel – 0 USD (0%) • Contingency (Misc.) – 77,000 USD (9%)	