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<b>Description of Request</b>	Request for Proposal for a Network Information System (NIS) to replace the current Distribution and Transmission NIS systems; implement a NIS for Eskom Telecommunications and support of the implemented solution
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## 1. High level background


The current Network Information Systems (NIS) used in Distribution (Dx) and Transmission (Tx) has been in use for more than 20 years. The system can no longer accommodate any further and urgent business requirements and a new NIS is required to fully replace the current technology for the bespoke (customized) solutions used in Distribution and Transmission. Eskom Telecommunications also needs an NIS system for their assets and currently have no system. The goal is to deliver a standardised & integrated commercial-off-the-shelf (COTS) Network Information System (NIS) engineering solution for Distribution and Transmission (including Eskom Telecommunications) that will be future proof.

## 2. Scope of work/Business requirements

### 2.1. Provide detailed description and volumes of the product/service requested:

The NIS platform provides electronic access to Distribution's and Transmission's asset data for planning, operations, and maintenance. The NIS is the single/central data source for all network information data as required by all of Eskom's other systems. The solution will provide /assist in:

- System access management, the visualisation of datasets, the user experience, object management, and the management of temporary geometries and maps as standard functionality
- The management of data changes to ensure the updated version of the network data is made available to subscribing systems.
- Data quality management to ensure the data in the system conforms to the relevant business rules and data standards.
- Network tracing and selection to ensure that the electrical & telecommunications network parameters and geospatial characteristics are included for the trace and can be studied. The user can further perform various point analysis tasks.
- Creating, accessing, and exporting reports for use by various stakeholder(s)
- Creating and maintaining network geographical / spatial data
- Creating and maintaining line designs
- Creating and maintaining objects in a Business Planning hierarchy. Producing network conversions and write outs. Ensure data quality through data validation rules and checks. Creating and exporting Business Planning-related reports
- Enable the exchange of data between the NIS and various other Eskom-used applications through integration.
- Manage projects, land, rights approvals, contractors, accounts, documents, and reports.

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- Maintain and export schematics to ensure the accuracy of the network diagrams and ensure that the completed schematic diagram and associated information is released to subscribing systems.
- Receive redline request from various sources to indicate changes required to schematic diagrams.
- Initiate and manage data change request(s) in a standardised manner.
- Manage licence usage, data synchronization, backups, and software patch releases.

The NIS is a design base system and therefore stores both the present and the envisaged future network layout i.e. it is a static view rather than a dynamic, operational view.

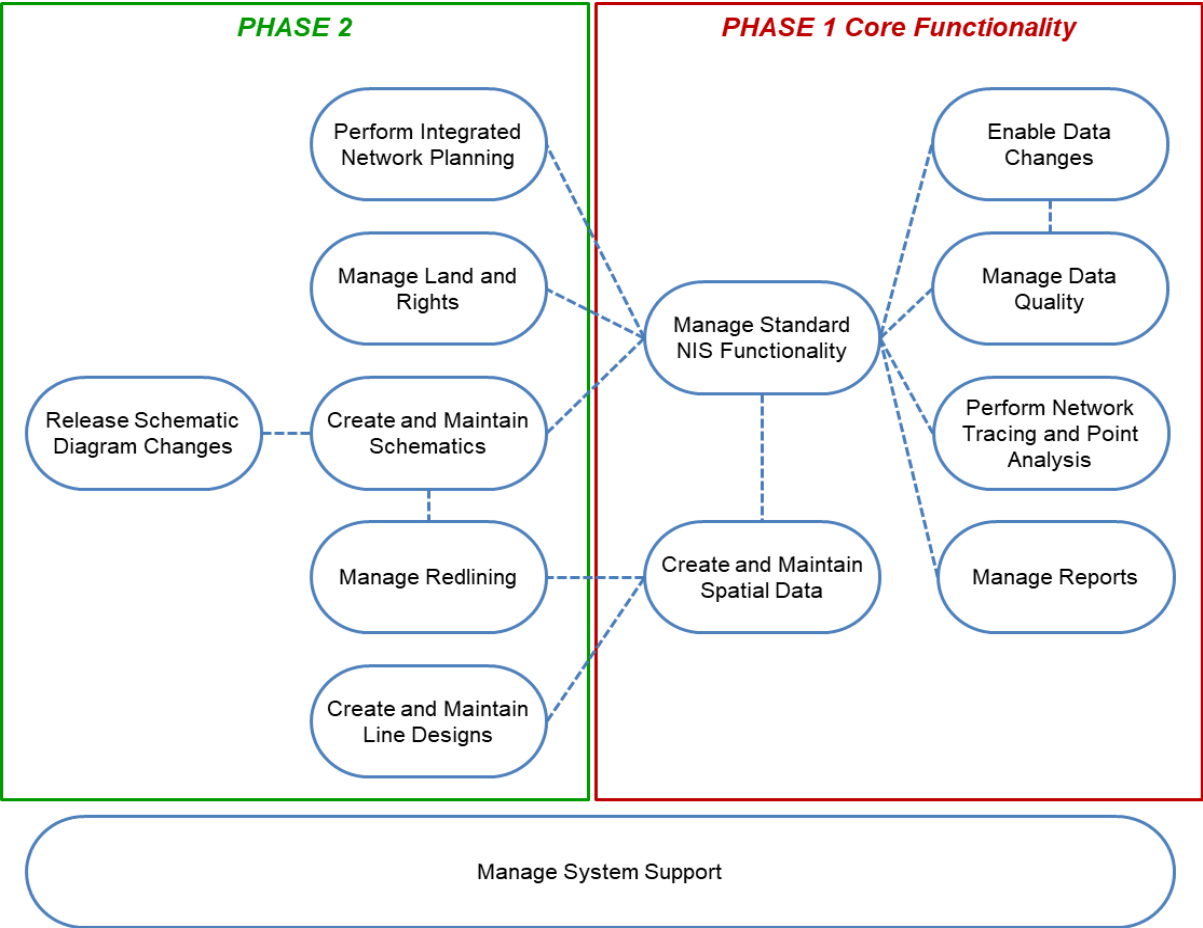



Figure 1: Overview of NIS Use Cases

The proposed solution must cover the **full** requirements as stipulated in the detailed functional requirements in the Technical Evaluation Criteria Spreadsheet.

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Eskom currently utilises two solutions as Network Information Systems namely:

- Smallworld v4.3 (GE) – Figure 2 below demonstrates the current build Smallworld modules.

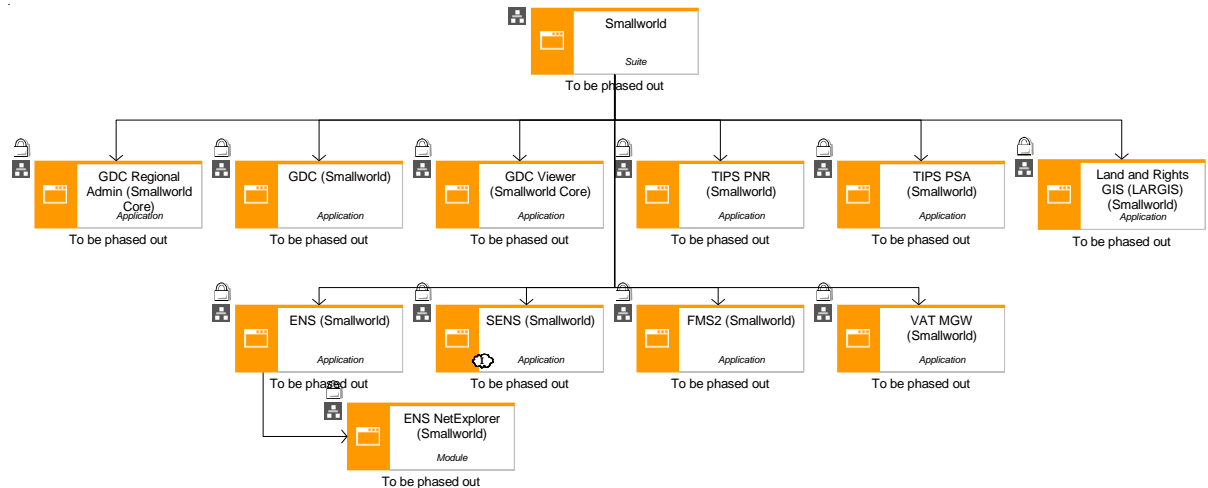


Figure 2: Current build Smallworld modules

**Note:** FMS2 (Smallworld) and VAT MGW(Smallworld) application replacements is not in scope for this NIS project.

- TxSIS - Figure 3 below demonstrates the current build TxSIS modules based on outdated unsupported ESRI technology.

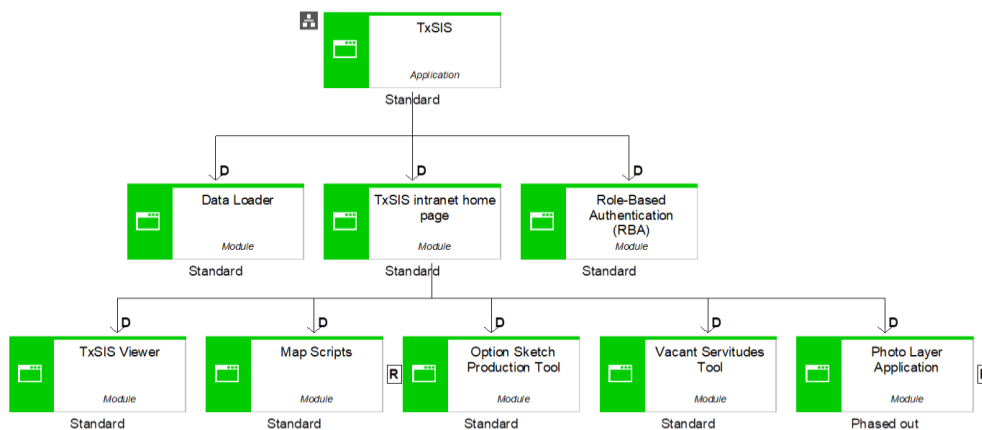



Figure 3: Current build TxSIS modules

The Smallworld solution is utilised by the Distribution Division and TxSIS is utilised by the Transmission Division. Both Smallworld and TxSIS has been in use in the business for over 20 years and therefore contains a large volume of historical data. The Eskom Telecommunications data have mostly not been captured in a specific system.

The new NIS solution should cater for the requirements of both divisions and include the requirements for Eskom Telecommunications (existing in both divisions).

Objects	Description
ENS (Smallworld)	The Engineering Network Schematic (ENS) system is used to manage all Distribution schematic drawings in one system. ENS generates a schematic or operating diagram from the geographical view of the network. The system caters for dense (urban) and long (rural) networks, as well as detailed (per project) and overview (per region) schematics.
ENS NetExplorer (Smallworld)	ENS NetExplorer Schematics Distribution, Redlining and Approval application module
GDC (Smallworld)	The Geographic Data Capturing (GDC) system is the primary GIS tool and is used to manage the graphical representation of Eskom distribution networks and the overlaying organisational boundaries. It contains all the tools required to capture and maintain geographical data and locations. It also comprises of import features from where geographical data can be imported from external systems, Microstation (CAD). The application is also used to construct the hierarchy of the Overhead Lines and substations, all other hierarchies are determined when necessary, based on the position of the objects (stations / overhead lines) and the organisational boundaries. These organisational hierarchies and plant structures are exported to external systems and applied by them. Smallworld 31 (SP2) is a customised functionality that has been added to package solution. And it has been tailored to meet ESKOM's needs.
GDC Regional Admin (Smallworld Core)	GDC Regional Admin is an extension of the GDC application.
GDC Viewer (Smallworld Core)	GDC Viewer is a generic viewing application to view GDC data.
Land and Rights GIS (LARGIS) (Smallworld)	Land rights are a key strategic asset within Eskom with respect to the protection of the right to construct and maintain infrastructure. The Land and Rights GIS application will optimise the management of network land and its rights. It will also provide a platform for the spatial data sets such as current and future land use. Additionally, Lands and Rights will provide for the standardisation of land-based asset data, reports and statutory approval applications in a centralised repository of land right data (spatial and non-spatial) with ease of maintenance.
SENS (Smallworld)	Used to convert the ENS (Smallworld) diagrams to the Network Manager (SCADA), by ABB, application. Within the Eskom distribution management value chain there exist existing applications for Supervisory Control and Data Acquisition (SCADA) and Engineering Network Schematics (ENS), these two systems however are used by very different types of operators for different purposes and therefore are interested in different functionality and sections of the other data within the entire value chain. The SCADA ENS (SENS) application has the responsibility to adapt the output data from the ENS application into a format that is suitable for the SCADA application.

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Objects	Description
TIPS (Smallworld)	TIPS is the planning system used by network planners in the Distribution section of Eskom. This system is based on the Eskom Smallworld environment using the electrical network captured in Smallworld as well as some of the Eskom tools. TIPS adds to this base by adding a simple project and need management facility as well as power systems analysis.
TxSIS	TxSIS is a geographic information system (GIS), computer-based tool for mapping, managing and analysing things that exist and events that happen on Earth. GIS technology integrates common database operations such as query and statistical analysis with the unique visualisation and geographic analysis benefits offered by maps. These abilities distinguish GIS from other information systems and make it valuable to a wide range of public and private enterprises for explaining events, predicting outcomes, and planning strategies. Transmission operates a countrywide enterprise where more than 85% of what we manage has a spatial component. For this reason, the information about where something is, is critical to an effective business operation. All the Geographical co-ordinates shown in TxSIS are based on the World Geodetic System 1984 (WGS84) Ellipsoid, Hatebeesthoek94 Datum.

### **Eskom Cloud Deployments**

Currently, Eskom has two environments available for the deployment of solutions namely:

- The Eskom private on-premise IaaS (third party managed) environment.
- The Eskom private Azure tenant


Eskom is also in the process of establishing relationships with more Hyperscaler Cloud environments. A key requirement for this solution is that it must be hosted in South Africa and that it must be hosted on one of our private IaaS environments. The solution proposal must therefore cater for the 2 scenarios:

- Hosted on Eskom's Azure tenant, with perpetual software licenses.
- Hosted on Eskom's on-premise infrastructure, with perpetual software licenses.

The solution must be provided as a Turnkey solution for the design, development, testing, change management (training material, training, and communication), integration to the relevant systems, deployment & stabilisation.

The following requirements should be provided for:

- Breakdown or decomposition of the functionalities of the solution
- Cost decomposition as per the pricing schedule template
- Implementation approach and timelines (timelines must be in MS Project, and PDF).  
The total implementation period must not exceed 2.5 years.
  - Phase 1 (Core functionality): Manage standard NIS functionality, Enable data changes, Manage data quality, Perform network tracing and point analysis, Manage reports, Create and maintain spatial data & Manage system support use cases

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- Phase 2: Perform integrated network planning, Manage land and rights, Create and maintain schematics, Release schematic diagram changes, Manage redlining & Create and maintain line designs use cases

The solution should be kept up to date with and be aligned to Eskom security policy and standards.

### **Eskom Standards**


The tenderer is to ensure adherence to Eskom architectural standards as far as possible and where applicable. The following base ICT standards apply:

Integration	End interface points, whether consuming or providing, needs to be done in a secure web service fashion. Eskom standard is: Oracle Fusion and IBM DataPower Gateway.
Authentication	Azure AD
Server virtualisation	It is expected that the solution should be able to run in a virtualised environment. Clear motivation and reasons will have to be provided where it is not possible
Storage virtualization	It is expected that the solution should be able to run in a virtualised environment. Clear motivation and reasons will have to be provided where it is not possible. Current Standards of on-premise environment: <ul style="list-style-type: none"> <li>- VMware vSphere 7 or higher,</li> <li>- PowerVM (RISC) (only exceptional cases shall be supported)</li> </ul>
Database	<ul style="list-style-type: none"> <li>• MS SQL 2019</li> <li>• IBM DB2 V 11.5</li> <li>• Oracle Database 19c</li> <li>• Oracle Database 21c</li> <li>• PostgreSQL V13.2 and PostGIS</li> </ul>
Server OS	<ul style="list-style-type: none"> <li>• Microsoft Windows Server 2022</li> <li>• SuSe Linux SLES 15</li> <li>• AIX 7</li> </ul>
Client OS	<ul style="list-style-type: none"> <li>• Windows 10 or higher</li> </ul>
Browser	<ul style="list-style-type: none"> <li>• Edge</li> <li>• Mozilla Firefox v39</li> <li>• Mozilla FireFox V60</li> </ul>
Load Balancer (ADM)	<ul style="list-style-type: none"> <li>• F5 Viprion</li> </ul>
Backup	<ul style="list-style-type: none"> <li>• NetBackup</li> </ul>
Communication Protocol	<ul style="list-style-type: none"> <li>• TCP/IP</li> </ul>
Desktop/Laptop specifications	<ul style="list-style-type: none"> <li>• High End Laptop</li> <li>• Midrange Laptop</li> <li>• Lower Range Laptop</li> </ul>

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Desktop/Laptop specifications

High End Laptop	Processor	11th Gen Core i7-11800H
	Speed	Base 2.3GHz Turbo Frequency 4.6GHz
	Graphics	NVIDIA® T1200 4GB GDDR6
	Storage	512 NVME
	Memory	16 GB DDR4-3200MHz (SoDIMM)
Midrange Laptop	Processor	11th Gen i7-11800H
	Speed	Base 2.3 Turbo Frequency 4.6GHz
	Graphics	NVIDIA® T1200 4GB GDDR6
	Storage	512 NVME
	Memory	16GB DDR4-3200
Lower range Laptop	Processor	11th Gen i5--1135G7
	Speed	Base 2.4GHz Turbo Frequency 4.2GHz
	Graphics	Intel Iris Xe Graphics
	Storage	512 NVME
	Memory	8GB DDR4 3200

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The technical evaluation will take place as follows:

- Gatekeeper Criteria:
  - Complete the questions listed in this section.
  - If any of the criteria in this section is not met, the tenderer will be disqualified.
- Paper based responses evaluation:
  - The weighting for this section is 100%
  - Tenderer is to provide the responses to the evaluation criteria questions, in the comments part of the evaluation criteria, and to provide the section and page the additional content can be obtained.
  - The threshold for this section is 75%
  - Tenderers that meet this threshold will be called to prepare for the demo stage.
- Demo evaluation:
  - The weighting for this section is 100%
  - If selected, a further demonstration of the solution will be required which will need to align to the use cases selected based on the BRS and technical evaluation criteria.
  - Demo is to be performed using the desensitized Eskom data supplied.
  - The threshold for this section is 75%.

**Eskom reserves the right to award a partial contract for the implementation of either the Distribution or Transmission instances.**

The scope and deliverables shall include:

### **2.1.1 Functional Specifications and Detailed Design**


The tenderer is required to deliver approved functional specifications and detailed design (physical design) based on the detailed business requirements specification as part of this RFP. Facilitate review and approval of the detailed design as required by Eskom methodology and governance. Ensure cyber security compliance and integration end points.

The Tenderer is required to render architecture services to this project which includes making sure that Enterprise Architecture Approval Board (EAAB) committee approval is gained before build and again before go-live.

#### **2.1.1.1 Solution Design**

- In the future, both Distribution and Transmission will be separate business entities providing a service(s) to the market. In this light, the data for the two different business units needs to be kept separate from each other.
- The implementation should thus cater for two separate instances for the two business units, taking into consideration that some common data might have to be shared between them.
- The solution must be designed and implemented in such a way to ensure portability between Hyperscalers and from on-premise to Hyperscaler's therefore taking into consideration a flexible architecture utilising a composable and modular architecture. Solution needs to be "cloud native/ready" if an on-premise solution is implemented.



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#### 2.1.1.1.1 Architecture Services

##### **Introduction (Architecture Services):**

The objective is to define and design various architectural components necessary for the successful implementation of the application.

##### **Scope:**

The scope of the architecture work includes the following key areas for both the Distribution and Transmission implementations:

##### **Data Architecture:**

Data Architecture Scope:

- Define the data architecture, including data modelling, storage, retrieval, and data flow diagrams.
- Design data schemas, considering scalability, data integrity, and performance optimization.
- Recommend appropriate database technologies and data storage solutions based on project requirements.

Resource Requirement: Data/Information Architects & System Analysts

Deliverable: Data architecture documentation and diagrams.

##### **Solution Architecture:**

Solution Architecture Scope:

- Collaborate with stakeholders to understand functional and non-functional requirements.
- Develop a comprehensive solution architecture that outlines the application's components, their interactions, and the overall system behaviour, while ensuring that it would be cloud native and portable across different cloud hyperscaler platforms or from on-premise to hyperscaler.
- Identify key software modules, frameworks, and technologies required for the solution.
- Provide guidelines for designing and developing each module while ensuring alignment with project goals.


Resource Requirement: Solution Architect(s), Cloud Architect(s)

Deliverable: Solution architecture documentation and diagrams.

##### **Technical Architecture:**

Technical Architecture Scope:

- Define the technical infrastructure required to support the application's deployment and operation.
- Recommend hardware, network, and cloud and/or on-premise infrastructure configurations to ensure scalability, availability, and performance.
- Specify software development tools, frameworks, and best practices to be used by the development team.
- Collaborate with internal technical stakeholders.

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- Address technical constraints, such as latency, bandwidth, and system compatibility.

Resource Requirement: Technical Architect(s), Cloud Architect(s).

Deliverable: Technical architecture documentation and infrastructure specifications.

### **Security Architecture:**

Security Scope:

- Collaborate with internal IT Security stakeholders.
- Identify potential security threats and vulnerabilities relevant to the application.
- Design security measures, including authentication, authorization, encryption, and access controls.
- Define security policies, protocols, and procedures to safeguard sensitive data and ensure compliance with relevant regulations.
- Conduct security risk assessments and propose mitigation strategies.
- Secure by Design solution modelling and deployment in compliance to Eskom governance to be applied.

Resource Requirement: Security and Cybersecurity Architects/ Specialists

Deliverable: Security architecture documentation and threat model analysis.

### **Integration Architecture:**

Integration Scope:


- Collaborate with internal integration stakeholders such as the Integration CoE.
- Outline the integration points between the application and external systems, services, or APIs.
- Design data exchange formats, protocols, and communication patterns for seamless integration.
- Specify middleware or integration platforms if needed, considering performance and reliability.
- Ensure proper error handling, data consistency, and fault tolerance across integration points.

Resource Requirement: Enterprise Integration Specialist, Data/Information Architects, System Analysts, Cloud Architect, Solution Architect. Refer to the integration scope and requirements (Section 2.1.2.2).

Deliverable: Integration architecture documentation and integration process flowcharts.

### **Architecture Deliverables:**

- Design workshops with business stakeholders to clarify and define in detail business, functional and implementation requirements.
- Comprehensive documentation for each architecture domain (Data, Solution, Technical, Security, Integration), including diagrams, flowcharts, and textual descriptions as outlined above.
- High-level presentations to key stakeholders explaining the architecture rationale, design decisions, and benefits.

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- Collaborative sessions and design workshops with the development team to clarify and define in detail non-functional requirements and architectural concepts, and address implementation challenges.
- Functional specifications document
- All documents and diagrams to be submitted as digital editable copies (MS Office, MS Visio)
- The architecture work will be considered successfully completed upon support/approval of the architecture documentation by both Enterprise Architecture and project stakeholders.
- A lead time of at least two weeks needs to be provided for in the timelines in order to allow for review and approval processes.
- **Communication:**  
Regular update meetings will be held to discuss architecture deliverable progress, address concerns, and ensure alignment with project goals.

#### **Deliverable Acceptance Criteria:**

- Detailed design approved by EAAB
- Approved functional specifications.
- Development environment ready for Build

### **2.1.2 Build, Configure, Integration & Test**

#### **2.1.2.1 Build, Configure**

Configure/develop the solution in accordance with the approved Detailed Design. Provide test cases, provide unit testing evidence. The tenderer must clearly articulate the implementation approach.

#### **2.1.2.2 Integration**


The Tenderer must provide technical resources to build and implement all required interfaces, to ensure the success of the project. Refer to the table in Section 2.1.2.2.1 for systems that must integrate to the solution.

The tenderer must provide an Integration message modeller to complete the following:

- Analysis of message requirements
- Model or update integration message which follow a Common information model.
- Create payloads and envelopes.
- Generate xsd, message model and model dictionary.

The integration scope and deliverables are listed below:

- Analyse, design, develop, test, and deploy integration solutions based on the designs. External interfaces to integrate using Oracle Fusion 12c and IBM WebSphere (Data Power), thus the vendor should be well skilled to work with the mentioned technologies.
- The Integration Centre of Excellence (ICOE) governance process must be followed for all approvals. Kindly reference "SOA Workgroup artefacts". All diagrams and processes are to be captured in the Sparx Eskom Enterprise Architect (EA).

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- All CIM message artefacts (including Mapping Document) to be placed in the Eskom defined CIM SVN. All code to be placed in Eskom defined Code SVN repository. All artefacts to be placed in the Eskom share point.
- Sparx Enterprise Architecture and Altova XMLSpy licences are to be provided by the tenderer for the staff that will be executing the formulation or updating of the Diagrams and Process during the Design

The following are the integration and testing activities and artefacts to be produced and presented at the committee for approval and sign off:

- Business test case document.
- Integration specification document.
- Mapping Document.
- CIM message artefacts including WSDL's and XSD's.
- Code and unit testing review.
- Deployment Guide.
- SIT testing review of results in ALM.
- SIT test case sign-off.
- Performance testing review of results in ALM.
- Performance testing sign-off.
- Pre-transfer documents for go-live approval.
  - Test requirements in ALM.
  - Test cases and results in ALM. Defects managed in ALM.
  - Test plan Document.
  - Non-functional Test plan document.
  - Test closure reports documents.
  - Performance test scripts and results.

#### 2.1.2.2.1 Integration Requirement details

Total number of integration points required		63
Integration points with possible re-useable messages		31
New Integration points		30
Existing manual integration points		2

Logical Application	Physical Application	Integration Requirement for Tx / Dx / Tx&Dx	Source System	To System	Integration Type	Integration Messages	Future Re-use/New/Service
Asset Maintenance	Maximo	Dx	Maximo	NIS	Webservice	Asset Data	New
Asset Maintenance	Maximo	Dx	NIS	Maximo	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Asset Maintenance	SAP Plant Maintenance	Tx	NIS	SAP PM	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Asset Maintenance	SAP Plant Maintenance	Tx	SAP PM	NIS	Webservice	Asset Data	New
Asset Maintenance	AFIS	Tx	NIS	AFIS	Geospatial Web Service / Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Asset Maintenance	TxMI	Tx	NIS	TxMI	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Asset Maintenance	TxMI	Tx	TxMI	NIS	Feature REST API or Offline editing with Manual update Vendor specific	Redlined diagrams	New
Asset Maintenance	PowerOn Advantage (OMS)	Dx	NIS	PowerOn Advantage (OMS)	Geospatial Web Service	Geospatial Web Service	New
Asset Maintenance	PowerOn Advantage (OMS)	Dx	NIS	PowerOn Advantage (OMS)	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Asset Maintenance	PowerOn Advantage (OMS)	Dx	PowerOn Advantage (OMS)	NIS	Webservice	No location	New

Logical Application	Physical Application	Integration Requirement for Tx / Dx / Tx&Dx	Source System	To System	Integration Type	Integration Messages	Future Re-use/New/Service
Asset Maintenance	PowerOn Advantage (OMS)	Dx	PowerOn Advantage (OMS)	NIS	Webservice	Asset Data	New
Geospatial Information Management	Enterprise GIS Portal & Platform	Tx&Dx	Enterprise GIS Portal & Platform	NIS	Geospatial Web Service	Geospatial Data Service	New
Geospatial Information Management	Enterprise GIS Portal & Platform	Tx&Dx	NIS	Enterprise GIS Portal & Platform	Geospatial Web Service	Customer Data	New
Geospatial Information Management	Enterprise GIS Portal & Platform	Tx&Dx	NIS	Enterprise GIS Portal & Platform	Geospatial Web Service	Geospatial Network Service	New
Asset Monitoring	MDMS (Tx)	Tx	MDMS(Tx)	NIS	Webservice	MeterData	New
Asset Monitoring	MV90 Customer Meter Readings	Dx	KSACS MDMS	NIS	Webservice	MeterData	New
Asset Monitoring	AIM	Dx	AIM	NIS	Webservice	MeterData	New
Asset Monitoring	QOS	Tx&Dx	NIS	QOS	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Customer Service Management	Customer Network Link (CNL)	Dx	NIS	Customer Network Link (CNL)	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Customer Service Management	Customer Network Link (CNL)	Dx	Customer Network Link (CNL)	NIS	Webservice	PremiseLocation	Possible Re-Use Existing Integration
Customer Service Management	ACNAC	Dx	ACNAC	NIS	Webservice	ProjectStatus	New
Customer Service Management	ACNAC	Dx	NIS	ACNAC	Webservice	ProjectData	New


Logical Application	Physical Application	Integration Requirement for Tx / Dx / Tx&Dx	Source System	To System	Integration Type	Integration Messages	Future Re-use/New/Service
Document Management	OpenText	Dx&Tx	NIS	OpenText	SOAP Service	DocumentManagement	Possible Re-Use Existing Integration
Document Management	OpenText	Dx&Tx	OpenText	NIS	SOAP Service	DocumentManagement	Possible Re-Use Existing Integration
Lightning Locator & Tracking System	Lightning Locator & Tracking System		NIS	Lightning Locator & Tracking System	Geospatial Web Service / Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Master and Reference Data Management	Master Type Library (MTL)	Dx	MTL	NIS	Webservice	EquipmentTypeData	New
Master and Reference Data Management	Master Type Library (MTL)	Dx	NIS	MTL	Webservice	EquipmentTypeStatusData	New
Master and Reference Data Management	WinDeed	Dx&Tx	Windeed	NIS	Webservice	LandOwner	New
Master and Reference Data Management	WinDeed	Dx&Tx	Windeed	NIS	Webservice	Property	New
Master and Reference Data Management	Top Structure Management (SAP MDM)	Dx	NIS	Top Structure Management (SAP MDM)	Webservice	WiresBusinessArea	Possible Re-Use Existing Integration
Master and Reference Data Management	Top Structure Management (SAP MDM)	Dx	Top Structure Management (SAP MDM)	NIS	Webservice	WiresBusinessArea	Possible Re-Use Existing Integration

Logical Application	Physical Application	Integration Requirement for Tx / Dx / Tx&Dx	Source System	To System	Integration Type	Integration Messages	Future Re-use/New/Service
Master and Reference Data Management	Top Structure Management (SAP MDM)	Dx	Top Structure Management (SAP MDM)	NIS	Webservice	Specialized Work Location	Possible Re-Use Existing Integration
Master and Reference Data Management	Top Structure Management (SAP MDM)	Dx	Top Structure Management (SAP MDM)	NIS	Webservice	Group Customer Service	Possible Re-Use Existing Integration
Material Management	SAP MM	Dx&Tx	SAP MM	NIS	Webservice	ServiceMasters	Possible Re-Use Existing Integration
Mobile Workforce Management	Service Suite	Dx	NIS	Service Suite	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Mobile Workforce Management	Service Suite	Dx	Service Suite	NIS	Feature REST API or Offline editing with Manual update Vendor specific	Redlined diagrams	New
Network Asset Design	Bentley MicroStation CAD	Tx&Dx	Bentley MicroStation CAD	NIS	Manual	MicroStation CAD Design	Existing Capability
Network Asset Design	Bentley ProjectWise	Tx&Dx	Bentley ProjectWise	NIS	TBD	ProjectWise Document	New
Network Asset Design	PLS-CADD	Tx&Dx	PLS-CADD	NIS	Manual	PLS-CADD Tower Data	Existing Capability
Network Asset Design	PowerFactory	Tx&Dx	NIS	PSSE	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Network Asset Design	PowerFactory	Tx&Dx	PowerFactory	NIS	TBD	LoadZones	New



Logical Application	Physical Application	Integration Requirement for Tx / Dx / Tx&Dx	Source System	To System	Integration Type	Integration Messages	Future Re-use/New/Service
Network Asset Design	StationWare	Tx&Dx	NIS	StationWare	JMS Consumption	DiagramChangeSets	Possible Re-Use Existing Integration
Network Asset Design	StationWare	Tx&Dx	NIS	StationWare	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Network Asset Design	StationWare	Tx&Dx	StationWare	NIS	TBD	ProtectionAssetData	New
Network Asset Design	PSSE - Specialized Engineering Tool	Tx&Dx	NIS	PSSE - Specialized Engineering Tool	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Network Asset Design	PSSE - Specialized Engineering Tool	Tx&Dx	PSSE	NIS	TBD	ProtectionAssetData	New
Network Asset Design	PSSE - Specialized Engineering Tool	Tx&Dx	PSSE	NIS	TBD	LoadZones	New
Network Asset Design	ReticMaster	Tx&Dx	NIS	ReticMaster	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Network Asset Design	ReticMaster	Tx&Dx	ReticMaster	NIS	TBD	LoadData	New
Network Planning	PowerGLF	Tx&Dx	NIS	PowerGLF	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Network Planning	PowerGLF	Tx&Dx	PowerGLF	NIS	TBD	LoadForecast	New
Operate Asset	Network Manager (SCADA)	Dx	Network Manager (SCADA)	NIS	JMS Consumption	ListofValues	Possible Re-Use Existing Integration

Logical Application	Physical Application	Integration Requirement for Tx / Dx / Tx&Dx	Source System	To System	Integration Type	Integration Messages	Future Re-use/New/Service
Operate Asset	Network Manager (SCADA)	Dx	NIS	Network Manager (SCADA)	JMS Consumption	DiagramChangeSets	Possible Re-Use Existing Integration
Operate Asset	Network Manager (SCADA)	Dx	NIS	Network Manager (SCADA)	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Operate Asset	PowerOn Fusion SCADA	Dx	NIS	PowerOn Fusion SCADA	Webservice	NetworkChangeSets	Possible Re-Use Existing Integration
Operate Asset	PowerOn Fusion SCADA	Dx	PowerOn Fusion SCADA	NIS	JMS Consumption	ListofValues	Possible Re-Use Existing Integration
Operate Asset	PowerOn Fusion SCADA	Dx	NIS	PowerOn Fusion SCADA	JMS Consumption	DiagramChangeSets	Possible Re-Use Existing Integration
Operate Asset	TEMSE	Tx	TEMSE	NIS	JMS Consumption	ListofValues	Possible Re-Use Existing Integration
Portfolio & Project Management	Primavera	Tx&Dx?	NIS	Primavera	TBD	ProjectData	New
Portfolio & Project Management	SAP PPM	Dx	NIS	SAP PPM	TBD	ProjectData	New
Financial Accounting	SAP FI	Tx&Dx	SAP FI	NIS	Webservice	JournalEntries	Possible Re-Use Existing Integration

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Logical Application	Physical Application	Integration Requirement for Tx / Dx / Tx&Dx	Source System	To System	Integration Type	Integration Messages	Future Re-use/New/Service
Governance Risk & Compliance	SAP QIM (future iGRC)	Tx&Dx	SAP QIM (future iGRC)	NIS	Webservice	Technical issues, audit findings, non-conformances, operational experience	New
Governance Risk & Compliance	SAP EH&S (future iGRC)	Tx&Dx	SAP EH&S (future iGRC)	NIS	Webservice	Environmental and Safety issues and incidents	New

### 2.1.2.3 Testing

The testing team will be responsible to:


- Acquire the testing requirements.
- Develop the test cases for approval by Eskom.
- Conduct testing to ensure that the solution is comprehensively evaluated for implementation in the Eskom IT environment.

The testing staff may not be the same staff as the configuration, development and implementation staff assigned to the Project.

All testing must be completed on Eskom's test management systems (Application Lifecycle Management, Load Runner and Unified Functional Tester) and the tenderer must ensure that test staff is skilled in using the test management systems, Defects reporting and management throughout the project.

The following testing and testing milestones must be completed. A signed off test closure report is required before a test milestone is completed.

- Unit testing – test results from the tenderer's team.
- System Integrated Testing, functionality testing (in QA – end to end functional testing and integration testing. That means testing with other systems and ensuring that all requirements have been successfully configured). This testing must be driven & executed by the tenderer but must include Eskom staff for completeness & authenticity.
- Non-Functional Testing (performance testing and disaster recovery (DR) testing): This testing must be driven & executed by the tenderer but must include Eskom staff for completeness & authenticity.
- User Acceptance Testing (UAT): Testing by the Eskom customer team that the system is working and meets requirements. This testing must be driven by the tenderer but must be executed by Eskom staff for completeness & authenticity.

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All testing requirements must cover all identified interfaces that have been identified. The testing team must adhere to the Testing Standard Document provided as part of the RFP document.

#### **Deliverable Acceptance Criteria:**

The following artefacts must be produced.

Build, configure & Test:

- Solution technical specifications
- Built solution in the Dev environment (unit testing exit criteria met)
- QA/test and/or Pre-Prod environment prepared for SIT, UAT and performance testing.
- Deliverables for turnkey projects in accordance with the testing standard
- Defects raised during the SIT, UAT test cycles addressed.
- Tested solution ready to be deployed to the Production environment.

Integration:

- SOA approval of each integration artefact

#### **2.1.3 Deployment & Go-Live**


Once all the necessary testing (SIT, UAT, regression, performance, disaster recovery (DR) and security & vulnerability) and training is complete, testing reports are signed off, all governance approvals are obtained, the solution will need to be deployed to production. The Tenderer must clearly articulate the deployment approach as part of their response.

Update requirements traceability matrix. Ensure all environments are updated following successful test conclusions. Compile a go-live plan and ensure the solution obtains the necessary governance approvals as follows:

- Production environment set-up for deployment
- Architecture Pre-transfer approval from the Enterprise Architecture Approval Board (EAAB). Evidence required for pre-transfer approval:
  - Completed pre-transfer document.
  - SOA approval (for integration)
  - Approved SIT and UAT test closure report.
  - Approved performance testing closure report
  - Approved DR testing report
  - Accepted security and vulnerability testing report.
- Go/No-Go pack and decision by Group IT Chief Information Officer.
- Change Review Management Committee (CRMC) approval to deploy solution to Production. Evidence required for CRMC approval.
  - Architecture pre-transfer approval
  - Go/No-Go decision.
- Go-live communication.

#### **Deliverable Acceptance Criteria:**

This deliverable will be considered successfully completed once the solution is successfully promoted to the Production environment & the solution is live.

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#### 2.1.4 Stabilization

The tenderer must plan for a minimum of 2 months of stabilization period after each go-live as part of the project. During this period, any issues that come up after the solution is live must be fixed.

#### Deliverable Acceptance Criteria:

- All issues identified post go-live fixed.
- Solution handed over to support and business.

#### 2.1.5 Data Migration

Data Migration is seen as part of the scope of the work and considering the complexity and volume of data to be migrated, enough time and resources should be allowed for the data migration.


The data migration scope of work needs to address the following:

- Data Assessment to understand the existing data formats, structures and any potential data quality issues.
- Data Mapping and Transformation
- Transfer data from the current systems to the new solution without loss or corruption.
- Ensure data accuracy, quality and consistency (i.e. data integrity) during and after the migration process.
- Minimize downtime and business disruption during the migration.
- Validate and reconcile migrated data to confirm successful transfer.
- Ensure compliance with data privacy and security regulations throughout the migration.

Detailed data migration documentation also needs to be prepared outlining the data migration process, including procedures, workflows and transformation rules.

Data Migration needs to be done from the following systems:

- Smallworld 4.3(GE) which has a proprietary managed database.
- TxSIS which is based on outdated unsupported ESRI SDE technology (9.3.1). Its database format is Oracle Database 10g –
- Automated data import is also required for the Telecomms environment who have been utilising various data formats like MS Excel to capture data.

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Below is more information around the data sources:

#### Smallworld – TIPS data

- The Integrated Planning System has 160 table collections. The total records in the collection is:
  - 55 160 for Free State OU
  - 100 007 for Western Cape OU
  - 1 616 022 for Gauteng OU
  - 50 673 for Eastern Cape OU
  - 156 962 for KwaZulu-Natal OU
  - 592 688 for Limpopo OU
  - 487 033 for Mpumalanga OU
  - 55 160 for Northern Cape OU
  - 1 616 064 for North West OU
- The 9 instances are not synchronised and spread through 7 regional databases.

#### Smallworld – LARGIS data

- The LARGIS (Land and Rights Geographical Information System) dataset has 190 Table collections and 41 134 612 combined total records.
- The data is synchronised between replica databases

#### Smallworld – GDC Data


- The GDC (Geographical Data Capture) dataset has 330 Table collections and 165 189 075 combined total records.
- The data is synchronised between replica databases

#### Smallworld - ENS Data

- The ENS (Engineering Network Schematic) dataset has 225 Table collections and the total records in the table collection is:
  - 73 256 257 for Free State OU
  - 67 623 501 for Western Cape OU
  - 93 080 334 for Gauteng OU
  - 89 126 974 for Eastern Cape OU
  - 152 533 972 for KwaZulu-Natal OU
  - 114 952 920 for Limpopo OU
  - 85 516 434 for Mpumalanga OU
  - 42 803 403 for Northern Cape OU
  - 96 053 582 for North West OU
- The 9 instances are not synchronised and spread through 7 regional databases. This does not include the schematic diagrams (current and historical) in the Netexplorer web application and SENS (SCADA Engineering Network Schematic) data.

#### TxSIS Data

- The TXSIS LDR data includes 2002 Oracle tables.

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#### Common Dataset Data

- The common dataset data includes core datasets data used across the systems e.g. Security, Business Views etc which will also need to be migrated.
- The records include multiple fields (physical, dynamic, join, visible, logical, mandatory, primary fields) in varying database formats.

#### **Notes:**


- The estimates are subject to change.
- The detailed design must be informed by the complexity of the existing solutions and their data structures.
- The data model of the proposed solutions should allow for the current complexity of the existing data models.
- Special consideration will have to be given to unique id's (e.g. Plant Slot ID and Business Area ID) that is currently used in various systems that integrates to the Smallworld environment. These IDs will have to be retained in order to preserve the history of the data linked to it, and to support existing integration and application dependencies. Data migration should satisfy the requirement for a comprehensive data conversion and ensure quick and effective migration of all data with 99.9% accuracy.
- The migration strategy may involve more complicated processes like data mapping and ensuring that the migration can accommodate different multi-source systems.

Data migration tools in Eskom are limited and therefore it is strongly recommended that the vendor has data migration and interoperability tools at their disposal. Discussions must be held with business to gain an understanding if there is any data that can be archived.

#### **Deliverable Acceptance Criteria:**

The data migration process will be considered successful when:

- Data is migrated accurately and consistently (i.e. data integrity) as defined in the data mapping plan.
- Migrated data passes validation, reconciliation, and testing phases.
- Stakeholders validate the accuracy and completeness of migrated data.

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### 2.1.6 Security

The solution must be aligned with Eskom security policy and standards.

#### **Access Control:**

Only authorized users should be able to access the network information system. User authentication mechanisms such as strong passwords, multi-factor authentication, and role-based access control should be implemented. The following to be considered:

- Least privilege
- Zero trust approach
- IAM integrable
- Granular access management
- Tracking of user behavior
- MFA enabled
- Privilege Management
- Information Classification link to privileges
- Express route cost
- Conformance to all AAA (Authentication, Authorization and Auditing) framework

#### **Secure Communication:**

All communications between the network information system and external entities should be encrypted using secure protocols. This would prevent the interception and tampering of sensitive data during transmission. The following is to be considered:

- Provide protocols and techniques used to encryption.
- PKI enabled integrable
- Cloud data encryption
- DMZ monitoring capability
- Standard for archiving data to our estate i.e. security controls for data-at-rest

#### **Data Encryption:**

Sensitive data within the network information system should be encrypted at rest to protect against unauthorized access in case of physical theft or unauthorized access of storage devices.


- Data encryption should be identified and described.
- Key management should be described including the security control concerning the keys.
  - Ownership of the keys should reside with Eskom.

#### **Intrusion Prevention:**

The system should have intrusion detection and prevention mechanisms in place to detect and block any unauthorized attempts to access or compromise the network information system. This can include the use of firewalls, intrusion prevention systems, and continuous monitoring.

- Technology architecture design to allow alteration.



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#### **Regular System Updates and Patching:**

The network information system should be regularly updated with the latest security patches and updates to address any known vulnerabilities. This helps to prevent security breaches that exploit outdated software.

- Change management processes.
- How will the system be updated?
- Keep Eskom to latest.
- Application management services

#### **Backup and Disaster Recovery:**

Regular backups of the Network Information System data should be performed and stored in a secure location. A disaster recovery plan should be in place to ensure continuous availability of the system in case of any unforeseen events or data loss.


- Data escrow
- Liabilities
- Due Diligence tests
- Pentest

#### **Secure Configuration:**

All hardware devices, operating systems, and software components of the Network Information System should be securely configured to minimize potential vulnerabilities. Default passwords and unnecessary services should be disabled or changed.

#### **Employee Education and Awareness:**

Regular security awareness training should be provided to all users of the network information system to ensure they are aware of best practices, potential threats, and their responsibilities in maintaining the security of the system.

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### 2.1.7 Project Management

Deliver project documentation required by the Eskom Group IT Product Delivery. This includes but is not limited to:

- Detailed integrated schedule for both Phase 1 (Core) and Phase 2 implementations.
- Regular update meetings to discuss project progress, address concerns, and ensure alignment with project goals.
- Weekly progress reports
- Provide information required by Eskom team members to facilitate governance of the project and its deliverables.
- Integrate the current application support teams into the project delivery team.
- Deliverable Breakdown Structure indicating all fixed cost deliverables with the cost of each deliverable and the total cost of all deliverables.
- Payment milestones will be agreed with the tenderer at contract time but will be based on completed signed off milestones only which are aligned to agreed baseline schedule (schedule submitted as part of Tender documents will be used as guideline).
- Payment schedule forecast and actuals tracking against the forecast.
- Delivery Acceptance Certificates with supporting documents
- Project Management documents e.g. project management plan, project close-out report


### Change Control:

Project change control refers to the changes in project scope, time, and cost. Changes will follow the process below:

- Changes must be approved by the requester, business owner, project manager, and project sponsor.
- Approved changes must be noted in steering committee minutes and scope document must be compiled and signed off.
- Depending on the scale of the change, other approvals external to the project may be required. Guidance in this regard will be provided by Eskom.

Failure to carry out any of the following will not constitute a scope, time or cost change request.


- Failure to execute on an instruction that later creates a delay because the instruction was not adhered to.
- Delays due to poor coordination and planning by the tenderer with internal and/or external stakeholders.
- Delays due to poor communication by the tenderer with internal and/or external stakeholders and/or through not involving the correct stakeholders from beginning of the project and/or not getting stakeholder buy in upfront & throughout.
- Delays due to requirements not being understood and incorrectly implemented.
- Delays due to tenderer created rework (for example rework caused by poor quality reviews, and potentially creating a delay)
- Delays created by tenderer by not troubleshooting, not identifying root causes and not fixing.
- Delays due to non-availability of Eskom key staff as a result of poor tenderer planning.
- Delays due to rework because of poor quality or not delivering on all requirements.
- Delays to inadequate staffing or non-productive staffing by the tenderer
- Delays due to not having segregated development and testing teams.

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### **Project Schedule:**

A Project schedule in MS Project format and pdf for both Phase 1 (Core functionality) and Phase 2 implementation. The top-level work breakdown in the schedule must reflect the Software Delivery Life Cycle stages (e.g., Analysis; Design; Build, Test, Train, Deploy and Stabilise)

- The schedule must be comprehensive and cater for core baseline and phased agile approach and indicate where parallel streams/initiatives can happen. A hybrid approach is preferred where an agile methodology is accommodated as far as possible to optimize the time delivery of the project. It must be noted that the Eskom governance is centralised with regard to the stage gate governances. There is IT governance to be followed for amongst others:
  - Physical Application Designs and Pre-transfer approvals (weekly EAAB meetings available)
  - Integration (SOA approvals)
  - Go-live approvals.
- Azure DevOps - Currently Eskom has an end-to-end software development platform that offers an assortment of capabilities intended to organize and accelerate development efforts across the entire application lifecycle. The tenderer will be responsible for the Agile approach, Product backlog, Sprint planning, Iterative development & continuous feedback.
- Provision must be made on the project schedule to cater for the on-boarding of tenderer resources onto Eskom systems (e.g. emails, VPN access to applications/environments required by the project).

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### 2.1.8 Change Management

Prepare all internal stakeholders and employees for the adoption of the new solution.

- Develop the change/communications management strategy & plan and share with key project stakeholders.
- Empower and capacitate the change champions & the divisional technical workgroups (change network) with adequate information to successfully drive alignment on the expectations of the project.
- Develop communication material (e.g. roadmap; stakeholder engagement presentations; training communications; quick reference guides; go-live communications). Should include security awareness training on NIS stated under the Security Scope of work.
- Assess the effectiveness of the change/communications management strategy and respond to the issues being raised.

### 2.1.9 Other Responsibilities


- Assumptions, dependencies and pre-requisites on Eskom must be clearly stipulated.
- All deliverables produced on this contract shall become the property of Eskom with Eskom holding sole rights to it. All deliverables shall be provided in maintainable format for each evaluation (i.e., editable documents)
- Tenderer resources on this contract that require access to Eskom facilities, network and systems must complete an annual Declaration of Interest (DOI)
- Tenderer resources will be required to complete Eskom's Ethics course (2-3 hours)
- During execution, deliverables will be evaluated by Eskom and a deliverable acceptance certificate will be issued on approval. Approved deliverables can then be invoiced.
- Eskom to retain the ownership of all the data that business stores, transmits, and creates.
- Solution must have the option for data to be exported and migrated to other solutions.
- The tenderer must ensure the third-party sign-on process are completed timeously and ideally before resources commence work to avoid unnecessary delays. The sign on process takes 3 weeks from the time the forms are submitted. The tenderer must ensure sign on forms are completed properly upfront and are available at the same time as task orders are placed with successful Vendor. The forms will be supplied when the contract is placed.
- Please note that, all scope items mentioned on this scope document and all the requirements stated on Technical Evaluation Criteria documents must be accepted.

### 2.1.10 Hardware

Provide the specifications and quote of the hardware that is required by the project.

- Nonproduction: development (sandbox), testing (QA), pre-production (sized as production), disaster recovery
- Production: production environments.

Eskom reserves the right to use the hardware provisioned by its Group IT infrastructure team, if available.

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## 2.2. Licence Management for Maintenance and Support:

Provision the necessary software licences with maintenance & support for a 5-year period.


The estimated volumes of users are as below:

	<b>Distribution</b>	<b>Transmission</b>	<b>Eskom Telecommunications (Transmission)</b>
Registered Users	750-800	600-650	160-180
View Users	1200-1500	700-1000	400-500

Support will commence post the stabilization period of the first “go-live”. All requirements stated under the “Manage System Support” use case must be implemented in Phase 1 of the project.


The pricing schedule must cater for a phased license management and support of the solution.

Provision must be made for user support/data maintenance services (i.e. ongoing data verification & corrections & on-going schematics verification) & system enhancements/change requests post-project.

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Division	Response	Functionality Grouping	Sub Functionality Grouping (Combined)	BRS Number	Functionality	Business Rule (note)	Rating	Project Phase	Source BRS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Licenses	BRS13 A1	System administrator to be able to manage available system licences via a licence management portal.	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Licenses	BRS13 A2	Provide a report on the licences due to expire within a period predefined by the system administrator.	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Licenses	BRS13 A3	System administrator to be able to manage licences. Examples of allocations include licences based on different	No business rule defined	Very Important	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Licenses	BRS13 A4	Provide a report on the number of licences allocated vs the number of licences used.	No business rule defined	Very Important	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Licenses	BRS13 A5	System administrator to be able to customise System Utilisation Alert settings e.g. % of utilisation reached, method	No business rule defined	Very Important	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Licenses	BRS13 A6	System to track and display the users connected to the system and the system administrator to have the ability to	No business rule defined	Very Important	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Licenses	BRS13 A7	Provide a report on system utilisation and include session information such as:	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Licenses	BRS13 A8	System administrator to be able to set parameters to archive the utilisation history data.	No business rule defined	Very Important	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Licenses	BRS13 A9	System compatibility should comply with Eskom standards such as the supported Operating System, Security Standards,	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Synchronise System Data	BRS13 B1	System to be configured to automatically synchronise data between different database instances. System administrator	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Synchronise System Data	BRS13 B2	System administrator and super user to be able to manually synchronise data between different database instances.	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Patches	BRS13 C1	Provide version numbering of all changes and updates made to the system. [Applicable if perpetual licence model]	No business rule defined	Important	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Patches	BRS13 C2	System administrator to be able to install system updates, changes, and patches. [Applicable if perpetual licence model]	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Patches	BRS13 C3	Provide release notes on the modules and files affected by the system updates, changes, and patches.	No business rule defined	Very Important	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage Database Changes	BRS13 D1	System administrator to be able to perform database upgrades and changes. [Applicable if perpetual licence model]	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage Database Changes	BRS13 D2	The system to provide configurable fields to allow the system administrator to add new data fields to the NIS database.	No business rule defined	Show stopper	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage Database Changes	BRS13 D3	System administrators to be able to configure all the additional data fields while super users should be able to configure	No business rule defined	Show stopper	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Performance	BRS13 E1	Provide capabilities to monitor system performance and identify problematic areas.	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Performance	BRS13 E2	System administrator to be able to configure and control database level elements to improve system performance e.g.	No business rule defined	Show stopper	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Performance	BRS13 E3	System administrator to be able to remotely monitor actions performed by the user and the resulting system responses for	No business rule defined	Very Important	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Performance	BRS13 E4	System to detect when a session stops functioning or responding and automatically apply recovery actions e.g.	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Performance	BRS13 E5	System administrator to be able to establish and configure elements such as number of network connections, server	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage System Performance	BRS13 E6	Standardised reporting and monitoring of system performance and notification of performance issues	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage Database Backups	BRS13 F1	System to automatically back up data in the database(s) and issue a report including the backup date, database included in	No business rule defined	Very Important	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage Database Backups	BRS13 F2	System administrator to be able to manually start a database backup as well.	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS
Tx & Dx	Group IT Applicatio	Manage System Support	Manage Database Backups	BRS13 F3	System administrator to be able to restore and configure the environment.	No business rule defined	Critical	Phase 1	Dx NIS & Tx NIS

Figure 4: Manage System Support Use Case Requirements

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### 2.3. Training/Transfer of skills:

The tenderer must provide training during project implementation phase to all the users of the system and also provision for train the trainer training.

#### 2.3.1 Training Material

Training material must also be provisioned as part of this transaction. Partner with the Eskom Academy of Learning (EAL) to design the training framework. Develop Train-the-Trainer training material (i.e. learner guide; facilitator guide; assessment guide and PowerPoint presentation) and obtain approval of the training material as per the EAL quality assurance processes. The training material must be kept up to date for the duration of the contract.

#### 2.3.2 Training Rollout

- Train the trainers to deliver training.
- Provision for both online and physical/virtual (MS Teams) classroom training of Eskom business users. On-site classroom training is preferred. Training must be structured as per access roles defined on the system.


The estimated user numbers are as below:

**Note:** Some users may attend more than 1 application/module training, e.g. all superusers will attend the user and the view user groups training. 5% of the super users must also be trained as trainers.

Role	Distribution (Dx)	Transmission (Tx)	Eskom Telecommunications (Tx)	Group IT
System Administrator	-	-	-	12-15
Application/module Administrator	40-50	10-20	-	12-15
Super users	120-180	80-130	40-50	12-15
User	750- 800	600-650	160-180	12-15
View users	1200 – 1500	700-1000	400 -500	12-15
Train the trainer	9-10	5-6	3-5	-

The tenderer is also requested to provide Eskom with a sliding scale training cost estimate as per the pricing schedule. This will be used for further training for Eskom users. This sliding scale will be used to train users during project implementation and will be used again post project implementation should the need arise. No payment will be made if training services were not used. The tenderer must also quote for travelling requirements for site training. The users are based in all the provinces of the country.

Training videos, manuals, access to self-paced e-learning modules that are available with the product are to be provided.

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### 2.3.2 Technical Training/Transfer of skills

Train Eskom Group IT support teams and ensure sufficient knowledge transfer. The vendor will be required to sign-off knowledge transfer acceptance certificate as part of every deliverable to ensure knowledge is transferred throughout the process and not wait until the end of the project. The requirement for training will be at all 3 Eskom levels of functional application support, 1st line support, 2nd line, and 3rd line of support, including the application technical support and database support.

Provide training and support material. Application certifications (if any) should be made available to the Group IT support team (estimated total of 12 - 15 people)

The tenderer is also requested to provide Eskom with a sliding scale training cost estimate as per the pricing schedule. This will be used for further training to Eskom Group IT support team post project implementation should the need arise. No payment will be made if training services are not used.

### 3. Service Level Agreement requirements

Eskom will provide 1st line and 2nd line support however, 3rd line development and functional configuration, and 4th line support will be required from the tenderer even though they will be training Eskom support resources. The Service Level Agreement (SLA) will kick in during the stabilisation period and will entail an escalation process.

Both the Dx NIS and Tx NIS has been classified as Mission Critical (i.e. vital to the functioning of the organization and the accomplishment of its mission; time loss/RTO <24 hrs and data loss =0). Due to the solution being mission critical, the tenderer must have a service desk/ call logging system through which Eskom can log ticket and track them.

#### Service Performance Management:


Priority	Mean time to respond (hours)	Mean time to resolve (Hrs)	Target (%)
P1	1	4	95%
P2	1	8	95%
P3	2	16	95%
P4	4	40	95%

#### Escalation Procedure:

Escalation level	Eskom	Tenderer
First level	Application Support Manager	Operations Manager
Second level	Middle Manager solution support	Senior Manager
Third level	Senior manager	Managing Director

Contract will be drawn up with penalties for not meeting SLA agreements. SLA to be drawn up such that Eskom reserves the right to terminate the contract and/or apply penalties if service quality levels are repeatedly not met and if issues encountered induce long term service disruptions.



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#### 4. Abbreviations

Abbreviation	Description
AD	Active Directory
BRS	Business Requirements Specification
COTS	Commercial off the shelf
DR	Disaster Recovery
Dx	Distribution
ENS	Engineering Network Schematics
ET	Eskom Telecommunications
GDC	Geographic Data Capturing
IaaS	Infrastructure as a Service
IT	Information Technology
N/A	Not Applicable
NIS	Network Information System
SLA	Service Level Agreement
Tx	Transmission
TIPS	The Integrated Planning System
TxSIS	Transmission Spatial Information System