	Scope of Work	**NTCSA/Business Unit/ Department/Section** Telecommunication

Title: **Telecommunications Work Management, Network Analysis and Activity Log System/s**

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1. Introduction

NTCSA (Telecommunications) has various databases that perform the following function: Workflow Management System, Telecomms Circuits and Links Inventory Database and Performance Management System, and a Network Management Activity Logging System for NMC shift workers. These databases are integrated with each other, with data inputs via manual user inputs plus automated data imports from the telecommunications network elements that reside on the OT network of the telecommunications network.

A system is required that will cater for these different integrated systems and produce the required data and reports to ensure effective management of the NTCSA telecommunications network.

2. Supporting Clauses

2.1 Scope

The Scope of work details the terms and requirements for the Telecommunications Work Management, Network Circuit and Link Analysis and Activity Log System/s

2.1.1 Purpose

The purpose of this document is to assess the market for available databases or solutions that can be used for the current and future Telecommunications business requirements.

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

[1] ISO 9001 Quality Management Systems

2.2.2 Informative

a) 23-727: Safety, Health, Environment, and Quality Policy

2.3 Abbreviations

Abbreviation	Explanation
NTCSA	National Transmission Company South Africa
OT	Operational Traffic
BSS	Business Support System
NMC	Network Management Centre

2.4   Process for Monitoring

As per the NEC Term Service Contract

2.5   Related/Supporting Documents

None

3.   Telecommunications Work Management, Network Circuit and Link Analysis and Activity Log System/s:

3.1   Current Systems in Place:

3.1.1   Work Management System

This system consists of the following, but not limited to, "modules" that integrate with the different modules within the system itself, but also with the Network Analysis System and Activity Logging System.

Modules within the system include:

- Personnel Module – captures all relevant details of the personnel with the business. Fields include but not limited to: Person Unique ID, Surname, First Name, all Contact Details, Skills and Skills Levels etc

- User Module – captures the security levels and log in requirements and details of each of the personnel listed in the personnel module.

- Organisational Structure – captures the organisational structure (hierarchy) of cost centre, business units and regions and links into the Personnel Module.

- Company details – captures the customers details of the business and provides a unique identifier for each company. Gets linked to Task (Work Order) for billing of services provided to customers that need to be billed.

- Contact Persons details – captures details of persons within a company. Used against Tasks (Work Orders) where requests for work are done from a person within a company.

- Task (Work Order) Module – captures work requirements of various work-related activities and integrates with the Network Analysis System. Work Orders can be captured against different Circuits and Links that integrate from the Network Analysis System. Completion details such as the cause, actions and on which equipment the work was performed integrates back into the Network Analysis System to indicate the reasons and actions taken against circuit and link failures on a specific date and time.

- Configuration Module – captures details of all the different radios sites and substations within Eskom. It captures data at two levels 1) the site level and 2) equipment level i.e. only the equipment that is installed at that specific site. This data integrates back into the Task (Work Order) Module where activities are captured against a site and/or equipment. Integration further takes place with the Network Analysis System as the completed date from the Task (Work Order) Module provides additional information to circuit and link performance as to which site and which equipment was the reason for the unavailability of the network. Specific site level information e.g. the AC Account details for a site, Pole or Structure number for AC installations at the site, AC Service Provider for the site and contact details is integrated to the Activity Logging System. Co-ordinates of the site are used to integrate to the Network Analysis System to determine distances between sites. Specific equipment level data e.g. Battery Capacity, Battery Standby Times is integrated to the Activity Logging System. The configuration module has Attributes for the site or position which is customisable from the system administrator level to create additional and unique attributes as required by the business without having to do database changes and upgrades.

- Timesheet Module – captures time booked by staff on their timesheet and/or to Tasks (Work Orders) which integrates with the Personnel Module and various other areas where costing, time analysis or data is required.

- Vehicles Modules – captures details of company owned vehicles and vehicles owned by personnel but used for business purposes.

- Trip Sheet Module – captures distance travelled against vehicles which are used on Tasks (Work Orders) or without tasks which integrates with the Vehicles Module and other areas where kilometres travelled, and costing is required.

- Equipment Module – captures equipment such as test instruments that can get used and inked to Task (Work Orders)

3.1.2 Network Analysis System

This system consists of the following "modules" that integrate with the different modules within the system itself but also with the Work Management System.

Modules within the system include:

- Personnel Module – interfaces back to the Work Management System for all relevant details of the personnel with the business. Not all the fields as per Work Management System are interfaced but only the required ones.

- User Module – captures the security levels and log in requirements and details of each of the personnel listed in the personnel module.

- Circuits Module – captures details of all the Circuits used on the telecommunications OT network. Each circuit has a unique numbering format used within Eskom.

- Links Module – captures details of all the Links on the telecommunications OT network. Each link has a unique numbering format used within Eskom.

- Circuit Number Numbering Wizard – this wizard interfaces with the Work Management System that will source data from a Task (Work Order) when an application is done for a new circuit number to be created and creates the next number in the numbering sequence dependant on various criteria specified on the Task (Work Order). The circuit numbering format is as per Eskom circuit numbering formats depending on the bandwidth and use of the circuit.

- Link Number Numbering Wizard - this wizard interfaces with the Work Management System that will source data from a Task (Work Order) when an application is done for a new link number to be created and creates the next number in the numbering sequence dependant on various criteria specified on the Task (Work Order). The link numbering format is as per Eskom link numbering formats depending on the bandwidth and application of the link.

- Circuit Performance Module – this module will automatically import circuit performance data daily from the various bandwidth management systems on the telecommunications OT network. All circuits unavailability seconds per day and availability seconds per day is imported.

- Link Performance Module - this module will automatically import link performance data daily from the various bandwidth management systems on the telecommunications OT network. All link downtime seconds per day is imported.

- Circuit Fault Module – this module will integrate with the Work Management System Task (Work Order) module where faults that are linked to specific circuit numbers in the Work Management System will automatically create an equivalent fault within the system so that circuit unavailability data is linked to a specific fault that has been captured in the Work Management System. Where unavailability is due to approved planned outages, the unavailability is reversed.

- Link Fault Module – this module will integrate with the Work Management System Task (Work Order) module where faults that are linked to specific link numbers in the Work Management System will automatically create an equivalent fault within the system so that link downtime data is linked to a specific fault that has been captured in the Work Management System. Where downtime is due to approved planned outages, the unavailability is reversed.

- Morning Report Module – this module will generate an analysis report for links for the previous day based on the unavailability data as imported plus the Task (Work Order) details that are Open and Closed for the past 14 days for a link that has performed below specific target criteria. The module counts for how many continuous days the specific link has been down for and allocates a M number with the number of continuous days it has failed e.g. M12 will mean it has been failing for 12 continuous days.

- Organisational Structure – this module integrates from the Work Management System Organisational Structure so that circuits and/or links can get allocated to specific areas within the business for reporting purposes.

- Company Details – this module integrates from the Work Management System Company Details but only integrates to companies that hire circuits from NTCSA and not all the companies in the database. This is required for billing purposes of circuits that the customers use.

- Plant Details – this module integrates from the Work Management System Configuration Module for the co-ordinates of the plant to determine the straight-line distance between the two end sites of the circuit. This distance is used in the billing process and criteria for the billing of circuits.

- Reporting - various performance analysis reports based on specific user requirements can be drawn from within the system.

3.1.3 Activity Logging System

This system consists of the following "modules" that integrate with the different modules within the system itself but also with the Work Management System.

Modules within the system include:

- Personnel Module – interfaces back to the Work Management System for all relevant details of the personnel with the business. Not all the fields as per Work Management System are interfaced but only the required ones.

- User Module – captures the security levels and log in requirements and details of each of the personnel listed in the personnel module.

- Activity Log Module – this module allows the NMC person on shift to create any activity or incident on the network and provide a unique reference number.

- Site Access Reference number within the Activity Module - The module is used to provide a unique access reference number to sites when staff require access to sites. Details of activities to take place and who is requiring access is captured and expected duration of work on site. The staff details are sourced from the Personnel Module from the Work Management System and Task (Work Order) details that the staff are working on and requiring a access reference is sourced from the Work Management System.

- Reporting of AC Failures to authorities within the Activity Module – The module is used to capture when ac failures are reported to the supply authorities. Details from the Configuration Module in the Work Management is sourced for the site where the ac failure has occurred e.g. ac installation number, account number and supply authority details. These details are then captured against the activity and is easy information access for the person on shift to provide the correct informtion to the supply authority.

- Shift Change Over Details – The module is used to hand over shifts by capturing specific details on equipment specified that the incoming shift must be aware of and continue to monitor or follow up if not resolved. The hand over process also automatically logs the outgoing person on shift out of the system and logs the new incoming shift worker into the system when the shift change over details are inputted.

3.1.4 System Requirements

The following requirements are required for all the systems of specific to individual system as specified.

- SQL Databases
- Separate databases but linked to each other.

- Security module requirements in each database for password requirements as per Security and database logging in requirements i.e. Password lengths, Password strength, Password expiry etc

- Open access to database tables and views for extraction of data to be used in other systems such as a billing system.

- Various Reporting requirements taking data from the various systems and combining into consolidated report/s.

- Automation Requirements for all the systems whereby administrator customised automation can take place to email or sms user of specific details.

- The Work Management System must be able to send sms to staff on specific types of Tasks (Work Orders)

4. Acceptance

This document has been seen and accepted by:

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5. Revisions

Date	Rev.	Compiler	Remarks
October 2025	0	Dennis Ehlers	First Issue

6. Development Team

The following people were involved in the development of this document:

- Dennis Ehlers

7.   Acknowledgements