1. RFP Specifications

1.1. Objective

The College is looking for a reputable service provider that has an experience in higher education ICT infrastructure to assist with conducting an assessment on the current ICT infrastructure and develop a comprehensive suitable modern ICT solution for the college.

The incumbent will also be involved in the appraising/ technical evaluation of the RFQ and act as a project manager on an as and when required bases throughout the project.

2. Taletso ICT Assessment – July 2020

2.1. Background

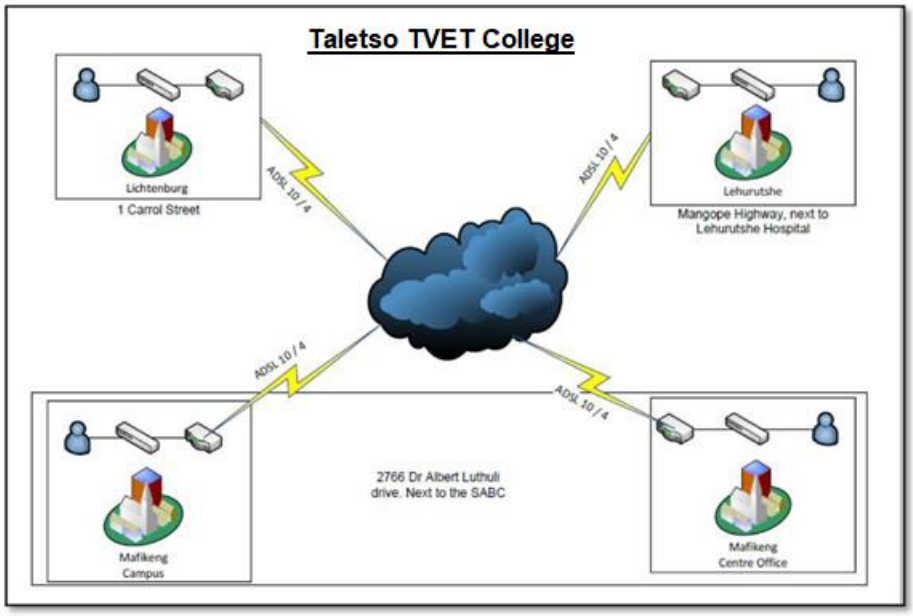
Taletso TVET College is the result of a merger between Lehurutshe College of Education, Mafikeng College and Lichtenburg College. The three campuses are situated in the Ngaka Modiri Molema District Municipality of the North West Province and are ±80km from each other, with the Central Office situated in the same yard as Mafikeng Campus.

2.2. Connectivity

What is the method used for network connectivity between the 3 campuses of Taletso?

There is a standard Telkom ADSL (4 MBps) line for internet connectivity. There is no LAN/WAN connectivity between the campuses and central office. Each site has their own network. There is a project underway to install Fibre by the Department of Higher Education. This is expected by September 2020.

Provide an updated Network Architecture diagram of the Taletso network layout.



Who is the Network service provider?

Mweb for central office – Internet (ADSL)
Afrihost for Mafikeng, Lehurutshe, Lichtenburg Campuses– Internet(ADSL)

How is the overall availability of systems connectivity? Are there often network outages?

The network availability is consistent. The only issue is the speed due to the bandwidth constraints of the ADSL line (4MBps).

2.3. Infrastructure

Obtain the IT Asset Register of Taletso and determine whether it has been updated recently and is complete.

There is an IT Asset Register for Taletso. There has not been any IT Asset Verification done for 2019 year end as yet. There has been many movements on IT equipment. There is currently an IT asset verification being done. Extract of the IT Asset Register to include only Network Infrastructure:

ICT Asset Register_Network in

Description	Fair	Good	Poor	Grand Total
Switches	**42**	**14**	**13**	**69**
Central Corporate Office	**12**	**4**	**6**	**22**
2010	3		3	6
2013	1			1
2016	8	4	3	15
Lehurutshe Campus	**6**	**3**	**4**	**13**
2010	3	1	3	7
2016	2	2	1	5
2018	1			1
Lichtenburg Campus	**11**	**4**	**1**	**16**

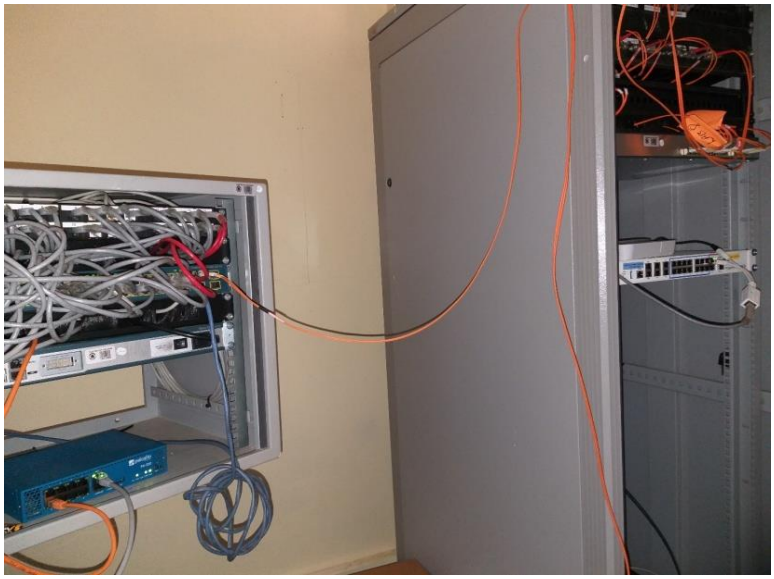
Description	Fair	Good	Poor	Grand Total
2010	3	1	1	5
2016	5	1		6
2018	3	2		5
Mafikeng Campus	**13**	**3**	**2**	**18**
2010		2		2
2014	1			1
2016	12		1	13
2018		1	1	2
Server Cabinet	**32**	**6**		**38**
Central Corporate Office	**3**	**1**		**4**
2010	1	1		2
2016	2			2
Lehurutshe Campus	**13**	**1**		**14**
2010	4	1		5
2016	9			9
Lichtenburg Campus	**5**	**1**		**6**
2010	3			3
2016	2	1		3
Mafikeng Campus	**11**	**3**		**14**
2010	4	3		7
2016	7			7
Router	**8**	**2**		**10**
Lehurutshe Campus	**2**			**2**
2016	2			2
Lichtenburg Campus	**5**	**1**		**6**
2010	1	1		2
2016	4			4
Mafikeng Campus	**1**	**1**		**2**
2016	1			1
2017		1		1
Server	**5**	**1**	**1**	**7**
Central Corporate Office	**1**	**1**	**1**	**3**
2010			1	1
2016	1	1		2
Lehurutshe Campus	**2**			**2**
2016	2			2
Lichtenburg Campus	**1**			**1**
2013	1			1
Mafikeng Campus	**1**			**1**
2010	1			1
Print Server	**1**			**1**
Lichtenburg Campus	**1**			**1**
2016	1			1
Grand Total	**89**	**23**	**14**	**126**

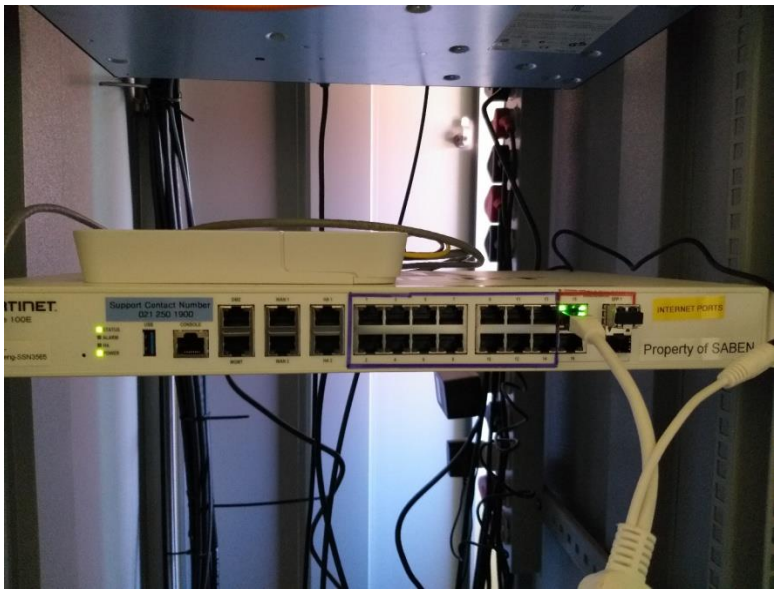
Determine whether IT Assets are managed using the IT Asset Lifecycle Management processes from procurement to disposal.

IT Assets are not managed using the IT Asset Lifecycle Management process. There is a reactive approach to replace infrastructure as and when the need arises.

Inspect the IT computer room where servers, routers are housed and evaluate the overall cleanliness, layout, possible hazards.

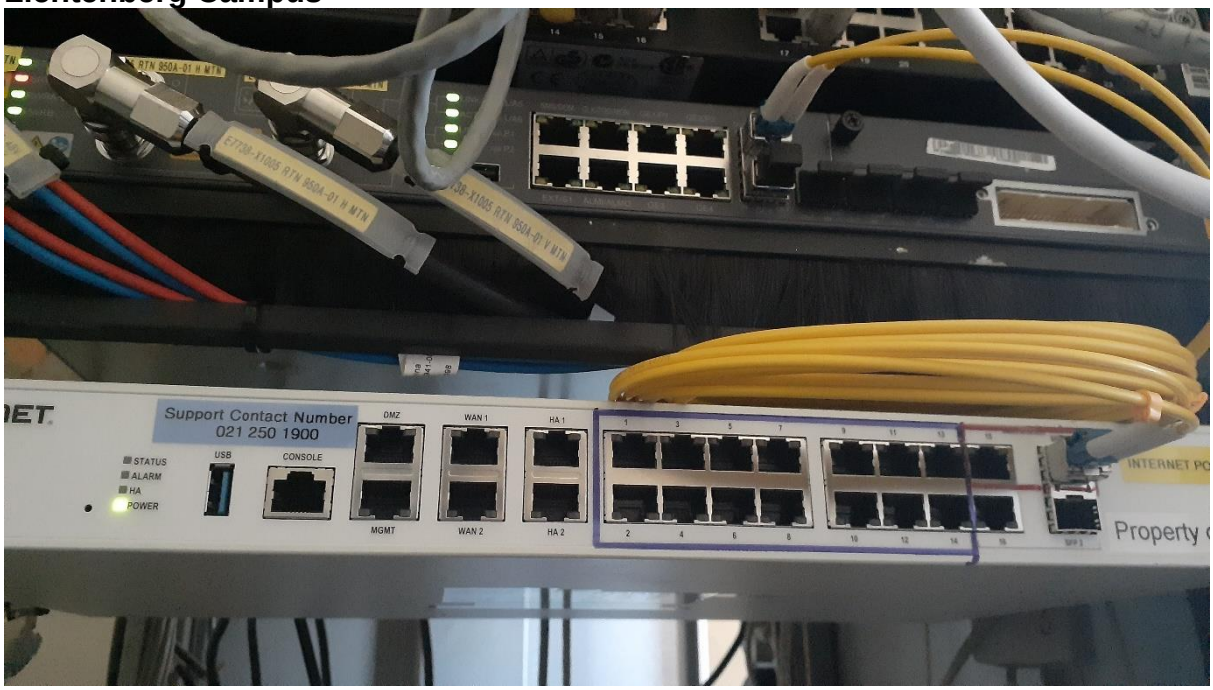
Central Office





Lehurutshe Campus

Lichtenberg Campus



2.4. Applications

Obtain the register of approved IT software and licenses.

There is no register of approved IT software for Taletso. The following software is used:

Integrator

Oracle database web-based application system used for students registration and fees payment management. This system is hosted and managed by AdaptIT. Access to this system is gained through a static IP address to a VPN. Thereafter the user's unique username and password to gain access to the web application. There are 32 users (10 users at each campus and 2 users at Central Office)

Sage Pastel Evolution

Financial accounting system. The sage evolution application and the associated SQL database is hosted on the same server. It is onsite at the central office in the financial manager's office. There are 10 users at Central Office.

Sage Pastel Partner

Financial accounting system for students learning. This system is hosted on the desktop machines within the campuses. There are 450 student users.

Sage VIP – Payroll system

The sage VIP application and associated SQL database is hosted on the same server. It is onsite at the central office in the finance manager's office. There are 3 users at Central Office.

AST Tutor

An application learning system used for Mathematics learning by students. There are 3 de-commissioned application servers situated at each of the campuses. 2 750 users (1100 users at Mafikeng, 900 users at Lehurutshe and 750 at Lichtenberg). *This application has been de-commissioned and not being used by Taletso.*

Determine whether the software application licenses are up-to date?

Software licences are paid annually for Integrator, SAGE software (Pastel Partner, Evolution and VIP Payroll) and AST Tutor (decommissioned application).

Who are the key application service providers?

- Adapt IT – Integrator (Student registration and fees management)
- SAGE - Pastel Evolution, Pastel Partner, VIP Payroll (Finance)
- IronTree - Backup Management Service (Backup)
- Academic Support Technologies (AST) – AST Tutor (Mathematics Learning system application for students)

Are there contracts/SLA's between the organisation and the software service providers?

There is a contract in place between Taletso and AdaptIT for the Integrator system which is hosted and managed by AdaptIT. There are no other contracts/SLA's for the other service providers, there is an annual license fee paid to the service providers for the software.

What processes are involved for application software upgrades/patches?

Integrator – Adapt IT hosts and manages this web-based system on its VPN. This system is accessed by staff at Central Office and Campuses. Access is gained to Adapt IT's VPN via the web once they have their IP address on their terminal changed to a unique value depending on their region. Thereafter they log onto the VPN using their unique username and password to access the Integrator system.

Adapt IT will notify the users via email when the system will be upgraded, usually during nights.
SAGE (Pastel Evolution and VIP Payroll) – Only users at Central Office use this software. They are responsible to ensure that the system upgrades/patches are installed. There is no monitoring to ensure that the most recent version is being used.
There are 2 SAGE application servers at Central Office, one is for Evolution and the other is for VIP Payroll.

These servers are not listed on the IT Asset Register. There was a fire during April 2019 which resulted in the movement of hardware. These servers are now in the financial manager's office and not in the server room, however they are not listed on the IT Asset register.

What processes are followed for backups of application software?

IronTree is a software vendor responsible for backing up SAGE Evolution and VIP system data. Data is automatically backed up at 17:00 every day to the cloud, the backup logs are sent to the system administrators each day. There is no restoration testing done. The daily backups are simply uploaded to the cloud for access by Taletso.

3. Proposal Overview

- **Project overview**

In addition to life-cycling equipment components at end-of-life (EOL), the project is expected to upgrade the College's network topology from separate flat networks to a hub and spoke topology. Proposals and the associated installation sequence/timeline shall be structured to provide the College with the most favourable pricing and least amount of disruption to services while maintaining adequate security.

A successful vendor proposal will include:

- All ordering, delivery, and warehousing of equipment.
- Furnishing, installation, testing, and configuration of selected network components. The vendor should describe the test data it will supply to Taletso prior to acceptance of the equipment and configuration. This description should include adherence to the security, VLAN, QoS, diagram, and logistics standards.
- Strict inter-VLAN access rules to improve network and data security (identification, isolation and control of illegitimate traffic or system anomalies).
- QoS controls to guarantee bandwidth allocation and prioritization for mission critical application traffic, de-prioritization of less critical network traffic, and VoIP capability.
- Necessary, scalable network capacity to support future technologies.
- Network resilience with 99.99999% uptime.
- Detailed Build of Materials (BOM) of equipment and services to upgrade the entire network system of all required buildings and locations.
- Spare parts inventory that supports an appropriate balance of downtime risk, investment cost, and procurement latency of warranty replacement components.
- A specification and quote for the emergency maintenance, repair or replacement of the network equipment. This can be included in the warranty maintenance section of the equipment proposal.
- Diagrams, in printed and electronic formats, of physical network interconnections.
- Diagrams, in printed and electronic formats, of logical network interconnections.

3.2. Work Description

The successful Vendor must take note that the college intends to implement the project using the following approach:

3.2.1 Phase 1 will be the preparation phase for implementation of the new network. This phase will include a well-defined process for decommissioning of the current network and transition to the new network. All decommissioning work should describe the transition of equipment and services (including voice, firewall, and other security) from the previous network environment to the new network environment.

3.2.2 Phase 2 will be engineering, design, and construction of the new network transport medium.

3.2.3 Phase 3 will involve ordering, receiving, preparing and deploying distribution switches and devices, including support for a VoIP phone system, preparing and deploying the access layer devices and performing server and workstation cutover to new network infrastructure, and training Taletso personnel to manage and maintain new network infrastructure.

4. Proposal Preparation

The proposal must provide a summary of the firm's qualifications to perform the duties outlined in the requested services section. A complete proposal should include the following sections and statements:

1. *Cover Letter*

a. Proposal may be released in total as public information in accordance with the requirements of the laws covering same. (Proprietary information must be clearly marked)

b. Proposal and cost schedule shall be valid and binding for one hundred and twenty (120) days following proposal due date and will become part of the project that is negotiated with Taletso TVET College."

c. Name, title, address, email address, and telephone numbers of the person or persons to contact who are authorised to represent the firm and to whom correspondence should be directed.

d. Proposals must state proposer's tax and company registration numbers.

2. *Proposal Summary*
3. *General Supplier Information*
4. *Scope of Services. The scope of services should include the following:*

a. The scope should include development and design objectives for the network upgrade design. The objectives must be defined sufficiently to direct network designs for 10 to 15 years and will include such objectives as increased reliability of administrative computing functions and data storage, increased protection against cyber security threats, increased accessibility, flexibility, and expansion, increase use of cloud-based services and enhanced network security for both business and restricted networks.

b. A detailed view of the tasks included in the current network assessment; the new network design. Network construction, and network equipment acquisition/provisioning

   i) A timeline for the current network assessment
   ii) A timeline for the new network design
   iii) A timeline for test and eventual turnover for the infrastructure/transport medium to Taletso college.

c. The transport medium fiber/fixed wireless or other transport medium proposed to service each Taletso College location.

d. The terms and conditions of access to the transport medium used to serve each location, namely will the transport medium be;

   i) Built for and owned by Taletso College
   ii) Built for and owned by a third party service provider and leased to Taletso College

e. The timeline for order, receipt, test, and installation of the equipment necessary to provision the new Taletso college Network

f. The scope of work included in the ongoing maintenance and operation of the transport medium.

g. The scope of work included in the ongoing technical support of the network equipment.

5. *Price Proposal*
6. *Customer Reference*
7. *Examples of prior work*
8. *Key Project Staff Background Information*

NOTE: In addition to the included forms, Vendor must provide at least one example report from previous similar work. Sensitive customer information may be redacted if necessary.

4.1. Proposal Preparation Costs

The vendor is responsible for all costs incurred be the vendor or their subcontractors in responding to this request for proposal.

4.2. Right to Request Additional Information

Taletso College reserves the right to request any additional information, which might be deemed necessary after the completion of this document.

4.3. Ownership of responses

All materials submitted, included but not limited to proposals, attachments, and supporting documents shall become the property of Taletso College and will not be returned.

5. General

- In the event of any conflict between this scope of work and the contract document, the contract document supersedes the language in this scope of work.
- Company reserves the right to assess additional change charges to the Customer for indirect expenses due to missed appointments. This includes the absence of an authorized Customer representative during on-site work.
- These may also include the associated standby time for Field Engineers, travel time/costs for return visit, and/or additional equipment shipping costs.
- It is the responsibility of the Customer to maintain current backups of all stored data. Company assumes no responsibility and/or liability for the loss of any Customer data.
- All changes to this Statement of Work, whether requested by the Company or the Customer will be via a formal and approved Change Request form.
- All work associated with this project will be performed to minimize impact to daily operations of the Customer's business. The costs associated with non-business hours systems cutovers are incorporated under the professional services included on the proposals.

KPI Basis of Measurement Minimum Service Levels	**KPI Basis of Measurement Minimum Service Levels**	**KPI Basis of Measurement Minimum Service Levels**
AVAILABILITY	Availability must measure the "reachability" of one measurement point from another measurement point along the network (for example, using ICMP ping). Availability should be measured as overall network availability expressed as a percentage of time that the network was available for use per month. $\boldsymbol{Availability}$ (%) = $\boldsymbol{Total\ time - Outage\ time\ Total\ time * 100}$ $\boldsymbol{Total\ time = hours\ in\ a\ day * days\ in\ a\ month}$	≥ 99.9% (meaning downtime per year should not exceed 8.76 hours or 21.56 minutes per month)
SUB-NETWORK AVAILABILITY	Sub-network availability should be expressed as a percentage of time that the network was available for use per month $\boldsymbol{Sub - network\ Availability}$ (%) = $\boldsymbol{Sub - network\ Outage\ time}$ [$\boldsymbol{(hours\ in\ a\ day)\ x\ (days\ in\ a\ month)\ x\ number\ of\ sites}$] $* \mathbf{100}$	≥ 99.9% (meaning downtime per year should not exceed 8.76 hours or 21.56 minutes per month).
LATENCY	Latency must measure the time it takes for some data to get to its destination across the network and often referred to as the frame delay. It must be measured as a round trip delay (RTD) - the time taken for information to get to its destination and back again. $\boldsymbol{Latency\ (RTD) = Cumulative\ samples\ of\ end\ to\ end, roundtrip\ delay\ Number\ of\ samples}$	≤ 20ms
PACKET LOSS	Packet loss refers to the amount of data (number of packets) that fails to arrive at its intended destination or often referred to as the frame loss ratio. $\boldsymbol{Packet\ Loss = Number\ of\ lost\ packets\ Number\ of\ received\ packets}$	≤ 0.5%
JITTER	Jitter, or network jitter, is the variance in time delay in milliseconds (ms) between data packets over a network or often referred to as the frame delay variation. It is a disruption in the normal sequence of sending data packets. $\boldsymbol{Jitter = Difference\ between\ samples\ Number\ of\ samples - 1}$	≤ 15ms
MEAN TIME TO RESPOND	Average time between ticket logged time and confirmation of ticket logged over all tickets logged	1 hour
MEAN TIME BETWEEN REPAIR	Average time between ticket logged time and ticket resolved over all tickets logged	4 hours