TCIL intends to submit a technical proposal for Establishment of Multimedia & Telemedicine System and Network to one of its clients. Following are the requirements of the client.

**SCOPE OF WORK:**

A. **Supply, Installation, Training, Operations and Commissioning of requisite equipments for the Telemedicine Platform and Maintenance for five years from the date of commissioning**

   The solution which is to be designed by respective agency should incorporate the following:

   1. Computer Hardware & Peripherals, Software, storage, Network solutions, Videoconference & Medical Diagnostic Equipments, Video & Still Camera, Editing cards. All the equipments are to be branded and of latest technology, particularly HD standard for A/V components, at the time of supply. All equipments and software have to confirm to global telemedicine and other standards relevant to the products.

   2. Licensed Copies of Operating systems and other required software.

   3. Integration software & updates during the empanelment period for integrating Medical Diagnostic equipments with Telemedicine Application software.

   4. Branded Furniture, wherever required.

   5. Assessment of space requirement and site preparation for setup of telemedicine facility, control room, editing room.

   6. Essential Site preparation work e.g. Power (including earthing) and Network cabling, securing appropriate power requirements as per existing standards for the ICT and Medical Equipments.

   7. Upgradation of diagnostic and interventional suites such as endoscopy, radiology etc with connectivity and communication for sharing, distribution and archival of medical contents.

   8. Setting up of integrated e-classrooms and board rooms which are able to communicate live 2 way with procedure rooms as well as remote locations outside Institute.
9. Latest technology at time of supply for IT, Video and Audio Production facility supporting this Integration.

10. Latest content at time of supply for processing facility capable of digitizing and editing surgical and other interventional procedures, lectures and Video conferences. This High End processing facility will also have the ability to surgical and other interventional procedures, lectures and Video conferences. This High End processing facility will also have the ability to make the content available for various media like DVD/Mobile/Internet. Content would include HIS, lab reports as well as PACS data.

B. Real-time medical imaging integration

i) Endoscopic Suites

Presently, Hospital has 08 endoscopic suites. These endoscopic suites are designed to carry surgical procedures using different type of equipments. Different Suites are Colonoscopy, ESWL, Endoscopic Ultrasound, ERCP, Capsule endoscopy, etc. Currently, signals from Endoscopic suites are connected to dedicated PC’s placed in centralized reporting room. Customized Patient Reporting software is used for entering the patient’s details like name, date of procedure etc. Images, procedure videos and reports are stored locally on the PC using foot control. Integration of this content to centrally located data center is in the scope of the project. Current available option of recording surgical procedure may be suggested so that video data can be recorded, streamed & archived using any Media Asset Management (MAM) software and thus should be included.

ii) Radiology

Institute has CT, MRI, ultrasound and Vascular Lab which are required to be integrated with Telemedicine Network having facility of real-time data transfer within hospital as well as for remote locations outside hospital. Facility of Reporting from off site locations is also required to be made available.

iii) Pathology/ Histopathology/ Biochemistry/ Immunopathology/ Research

Integration with existing equipments like deca-head microscope, flow cytometer, luminex etc. Creation of Virtual slide facility. The solution should include Real-time data transfer within hospital as well as for remote locations outside hospital. Facility of Reporting from off site locations is also required. WSI (Whole Slide Scanner) with inbuilt microscope along with compatible camera required for telepathology setup.
iv) Integration with OT

At present, Institute has 6 operation theatres located at third and fourth floor. Following equipments shall be required to be integrated with the OT’s such as Laproscopy, C-Arm, Intraoperative Ultrasound, In-light camera. Feeds can be transmitted real time within hospital as well as for remote locations outside hospital with provision to save for later viewing.

v) Integration with Cardiology

Solution shall be required to be integrated with equipments like Echo, ECG, TMT etc and feeds shall be transmitted real time to lecture theatre and/or remote location outside hospital with provision to save for later viewing.

C. Integration with Auditorium

300 seat auditorium is being setup in Phase-II of ILBS. Vendor shall be required to provide Audio-Visual as well as video-conferencing facility. Facility shall serve as high-tech lecture theatre as well, and should have connectivity with Procedure Rooms and remote locations.

D. Telemedicine Software

Telemedicine application software should be web based with the larger enterprise version with international standards needs to be installed. Its Supply, Installation, Training and Commissioning for a minimum 05 years are the responsibility of Vendor. The software has to be customized to integrate with the existing applications. The software has to be interoperable with other telemedicine software. Telemedicine software should integrate services like radiology, pathology, cardiology, endoscopy, surgery, and remote consultation.

Telemedicine software has to support:
- Consolidated Electronic Medical Record (EMR)
- Secured Authenticated access
- Optimal bandwidth utilization
- Direct data acquire from various devices
- Support latest version DICOM and HL7
- Software should support exporting of EMR/data in standard formats

E. Integration of HIS & PACS with Telemedicine

Hospital HIS and PACS need to be integrated with Telemedicine. **Integration shall be in the scope of work.**
F. **Creation of Central HUB and Creation of Disaster Recovery Site**

Existing Server Room is small and compact. Additional Racks cannot be accommodated in the existing server. Vendors has to carry out System Requirements Study and prepare the Bill of Material for the proposed new Central Data center in the Phase II building which will be equalized during Prebid Meeting. Design of Data Center, Network, Blade Servers with Backup Redundancy, storage, along with Precision AC is to be covered under Central Hub.

SGPGI, Lucknow shall be the DR site for ILBS. The vendors shall be required to study and propose the solution for implementation of the same through appropriate integration.

G. **Network**

The agency will provide solution to upgrade existing network and design network architecture for Phase-II building. Existing Hospital Network needs to be upgraded to 10G Fiber Network with redundancy from existing 1G backbone. Switches needs to upgraded on the basis of network design and bandwidth. Previous Switches where ever essential may be replaced with 10G compatible switches. Currently approx. 350 Computers are connected to the Hospital Network along with 50 laptops on WiFi connection. Single 10G network will cater to all type of hospital traffic i.e HIS Data, PACS Data, Telemedicine Data comprising of Live Video feed from various Operation Theatres and Procedure Rooms. The network cabling shall be calculated on unit cost.

H. **Network Security & Firewall**

Proper Security arrangement needs to be designed and configure as per the need of the institute’s enterprise 10G network traffic.

I. **Mobile Van**

Proposed solution has to integrate with Ambulance/ mobile van for providing remote diagnosis including remote connectivity to the main centre.

J. **Patient Relative Interaction**

It is required that patient & relative may interact through two-way Audio-visual from a centralized room. Functionality of remote monitoring of patients by physician. Proposed solution should be HD, secure and available on mobile devices as well.
K. Digital Library

The digital contents like ebooks, ejournals may be stored locally, and accessed remotely via secure internet network.

L. Medical Transcription Facility

Medical transcriptionist facility shall be required for converting audio notes as dictated by physicians and/or other healthcare professionals to create properly formatted medical record of a physician’s notes, medication and treatment records, examination and diagnostic reports, autopsies, and progress reports etc. The agency shall be required to setup this facility with required equipments like computer, software, foot control etc.

M. Integration with TV Channels

There should be provision of broadcasting any of the sessions using third party Television Broadcast system.

N. Services

i) Operation of the Telemedicine platform and Network for Distance medical education using all possible digital educational technologies such as: Virtual Class Room, Interactive Videoconference point to point/point to Multi point, Webcasting, Web streaming, Webinar with chat and moderator facility, Surgery and interventional procedure live data acquisition & streaming, on-line access to knowledge portals in the Digital Medical Library etc.

ii) Operation of Telemedicine platform for Tele-healthcare services

- Creation, exchange and maintenance of Electronic Medical Record (EMR) of patients. Archival of EMR from storage sites.
- Scheduling patient appointments with Specialists and facilitating Tele-healthcare process in co-ordination with remote technical and medical staff including SMS alert.
- Maintenance of daily log book record and periodic compilation of data

iii) Development of Medical Multimedia Educational Content

- Competent manpower having knowledge and skill for capture of still clinical photographs and surgical video graphs and editing for developing multimedia medical educational content, it’s storage and archival.

iv) FMS: Required manpower for providing FMS for 5 years from the date of commissioning. Sufficient manpower to run and operate the telemedicine
infrastructure from date of commissioning including helpdesk, NOC. Operation and maintenance of Endpoints, Data Centre at Central HUB and DR Site, Network monitoring etc. Appropriate manpower with required knowledge & skill should be deployed including reserve manpower for uninterrupted operations.

v) The agency shall be required to provide necessary training of entire facility to all the staff and faculty of the Institute.

vi) All the data including VC session, procedures, lectures etc should be available on web streaming, so that remote participants can join using platform independent web browsers.

vii) Maintenance of all equipments will be the responsibility of the empanelled agencies. In case of any of the equipment malfunction the system should be made operational within 24 hours at the locations connected with air and 48 hours at other locations.

viii) All equipments to have comprehensive warranty and support of 5 years directly from OEM

ix) All civil, electrical work in this project shall be responsibility of the vendor.

Interested agencies having similar experience in execution of similar projects may submit a technical proposal along with their company profile, details of similar project done, product brochures, skilled manpower available, details of local offices latest by 09/03/2012 by 15:00 Hrs at the following address:

Mr. M.K. Shrivastava
Advisor (TM)
2nd Floor, TCIL Bhawan,
Greater Kailash–I
New Delhi – 110 048
Ph: 011-26202204, 26242839
Fax: 011-26241422
Email: mkshrivastava@tcil-india.com

Ms. Rajmani Bhagat
Sr. Manager (TM)
6th Floor, TCIL Bhawan,
Greater Kailash–I
New Delhi – 110 048
Ph: 011-26202664
Fax: 011-26241422
Email: rajmani.bhagat@tcil-india.com