

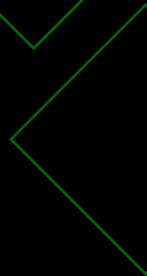
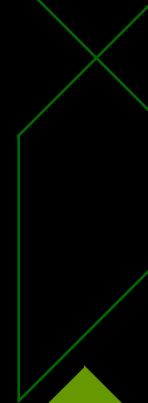
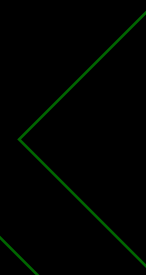
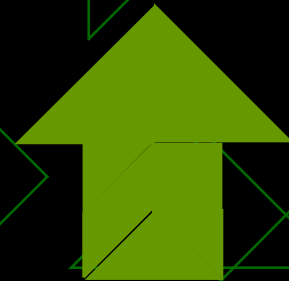
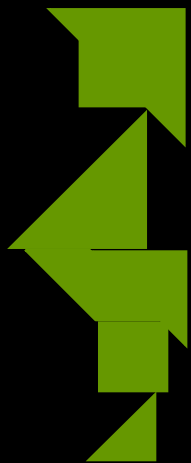
Telemedicine -

Planning, Execution and Future

Murali Vasudevan

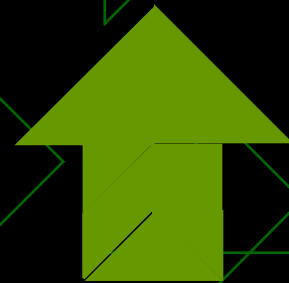
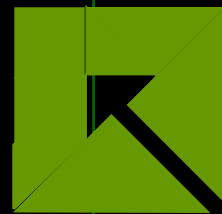
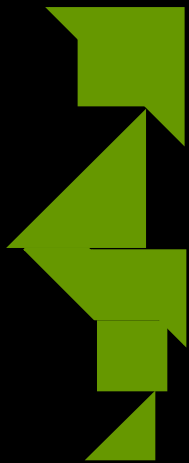
Sankara Nethralaya

WHY MOST TELEMEDICINE SYSTEMS FAIL ?



THE PRIMARY REASON IS
THAT THE SYSTEMS WERE
NOT DESIGNED TO MEET A

VALID NEED



Planning

- ◆ Strategy
 - ◆ Goals and Objectivities
- ◆ Program Organization
 - ◆ Relationship to Specialist and clinicians
 - ◆ Hierarchy
- ◆ Nature and Scope of Services
 - ◆ Clinical / Education and Training / Awareness
- ◆ Impact of Services
 - ◆ Level of usage and impact on the Programme
- ◆ Financial Plan

Telemedicine



Planning

- ◆ Legal Issues
- ◆ Time Line
- ◆ Future plans (Near and Long term)
 - ◆ Improve service and equipment
 - ◆ Plans to expand type of services offered

Telemedicine



Scope of Services

- ◆ Patient Care
- ◆ Education
- ◆ Awareness
- ◆ Research collaboration

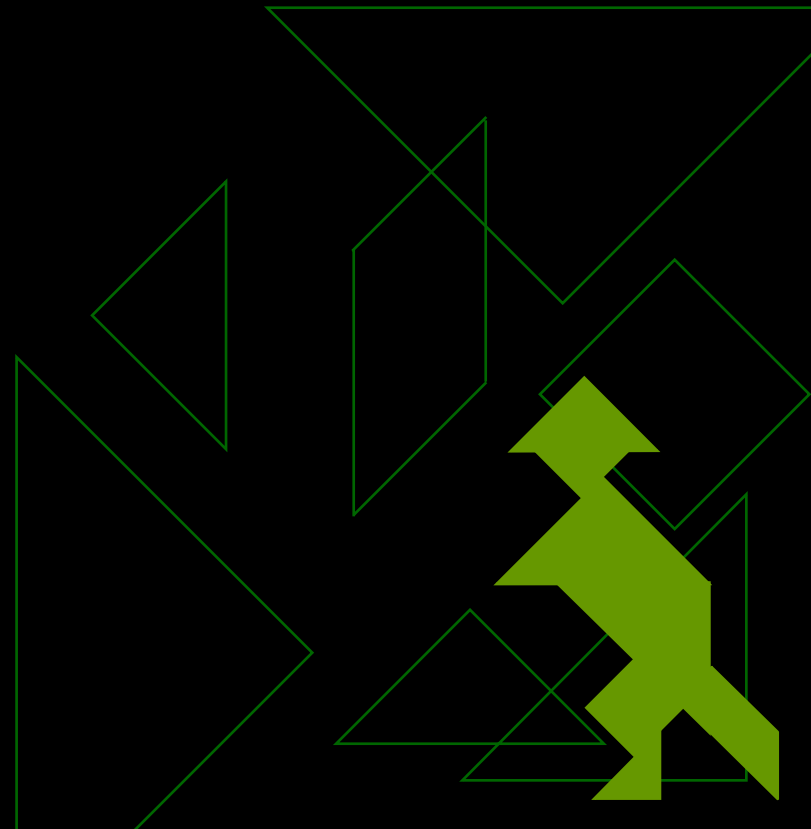
Planning



Patient Care

- ◆ Home care
- ◆ Community care
- ◆ Primary care
- ◆ Screening
- ◆ Secondary care
- ◆ Tertiary care

Planning



Education

- ◆ CME for Physicians, Specialists and Paramedics
- ◆ Training for Technicians
- ◆ Higher education - International and National Connectivity
- ◆ Surgery broadcasting

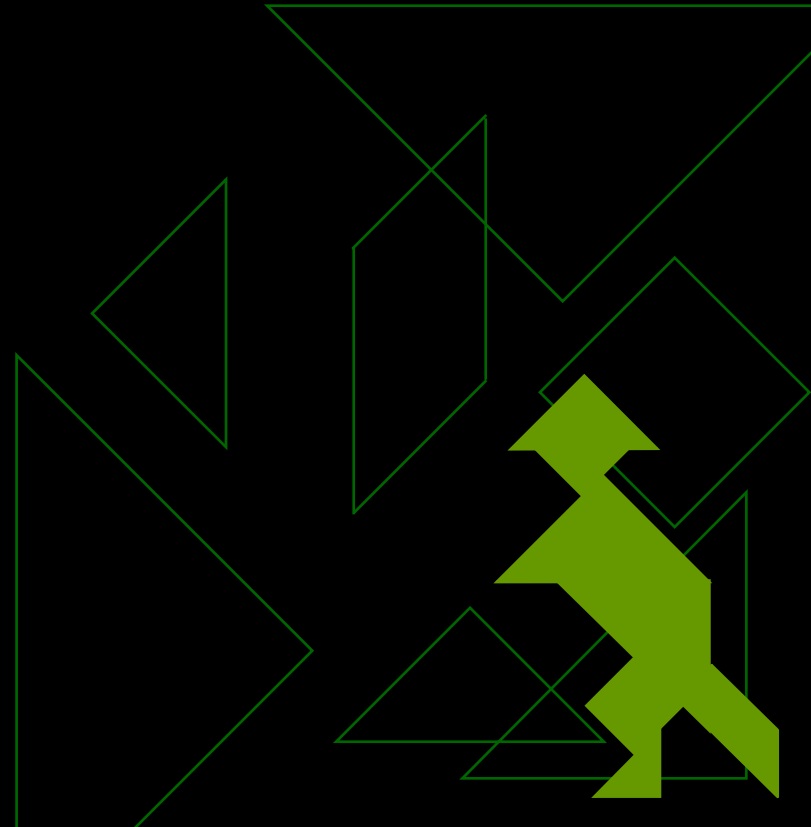
Planning



Awareness

- ◆ Patients
- ◆ General Public

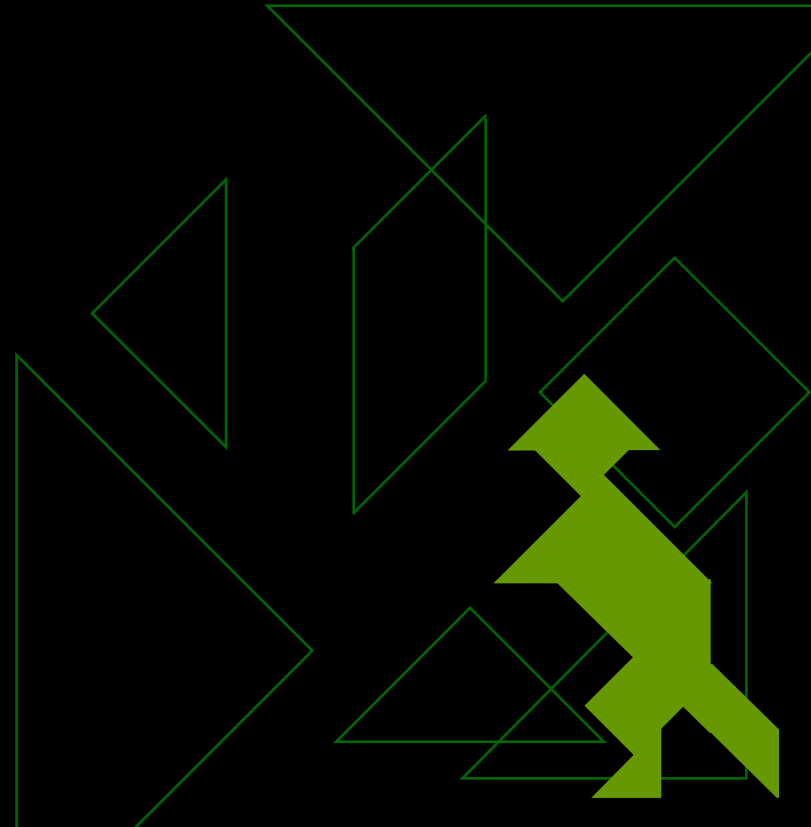
Planning



Research Collaboration

- ◆ Connectivity among Research Centers

Planning



Future Plans

- Future plans (Near and Long term)
 - ◆ Improve service and equipment
 - ◆ Plans to expand type of services offered
 - ◆ Miniature of Equipments
 - ◆ Creating HL7 and DICOM Standard software (Low Cost)
 - ◆ Tele-mentoring

Planning



Execution

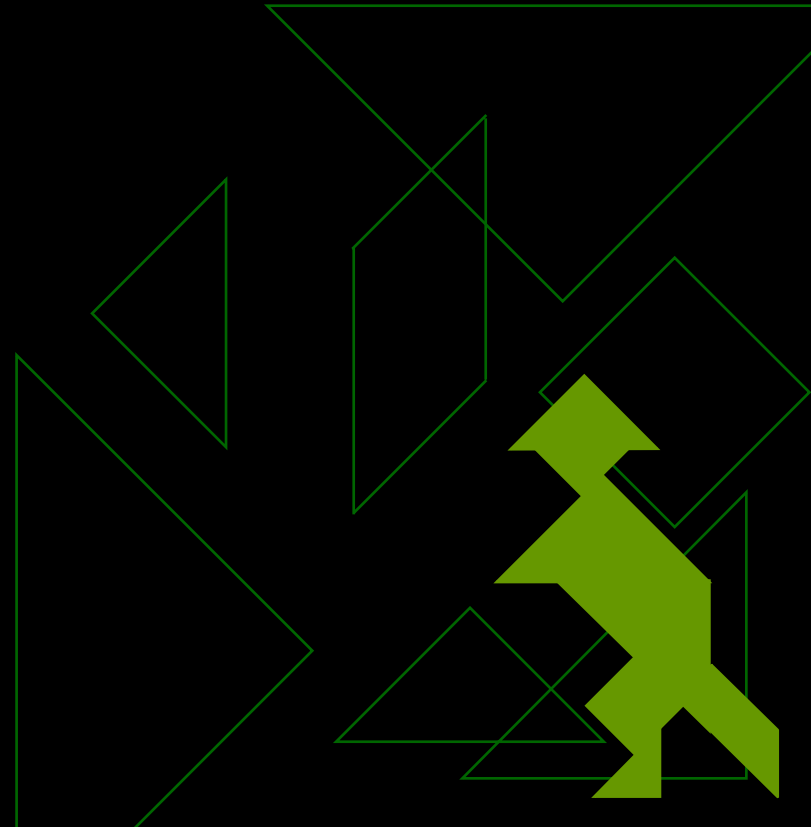
- ◆ Finance and Grants
- ◆ Site preparation and vehicle design
- ◆ Connectivity and Network Protocol
- ◆ Software and Standards (DICOM & HL 7)
- ◆ Computer Hardware
- ◆ Selection of Equipments and Instruments
- ◆ System products and its standards
- ◆ Personnel and Training
- ◆ Management Information systems
- ◆ National & International Collaboration



Finance

- ◆ Budget for the Project
- ◆ Self Sustainance of Project
 - Capital Purchase
 - ◆ Grants ?
 - Revenue Expenditure
 - Income ?
 - Plan for next five years

Execution



Site Preparation

- ◆ Size and type of the Room
- ◆ Lighting
- ◆ Electricity and back-up with required safety
- ◆ Background and Audio Engineering
- ◆ Air Condition
- ◆ General Ambience

Execution



Vehicle Design

- ◆ What do you need to do with the Mobile unit
- ◆ Selection of Chassis and body works
- ◆ Air Condition and Dust proof
- ◆ Vibration due to Road conditions
- ◆ Power Back-up facilities (Dual System)
- ◆ Teleconsultation - Connectivity options –
VSAT / ISDN / Wireless ?

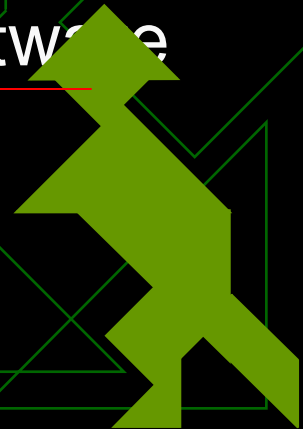
Execution



Connectivity and Network Protocol

- ◆ Available bandwidth in your area
- ◆ Estimate the general quality /frequency of information transmission required
- ◆ Remember, determine what you need to do from your available bandwidth. Then and only then, start researching hardware and software to meet those needs.

Execution



Software and Standards

◆ Software

- Internet or Server and client
- Chatting Utility
- Desktop video Collaboration
- Picture Acquiring
- Electronic Medical Records
- In-house development or Select the vendor
- Standards (DICOM & HL7)

Execution



Computer Hardware

◆ Computer Hardware

- Servers
- Clients (Desktop)
- Grabbing Cards for Audio and Video

Execution



Equipment and Instruments

◆ Equipments and Instruments

- Analog to Digital output
- Digital output
- Video Camera
- Digital Still Camera
- Support from the Vendor

Execution



System Products

◆ Video Collaboration

- Desk top
- Personal Systems
- Small – to – medium Group Conference
- Medium – to – Group Conference
- Support from the Vendor
- Standards

Execution



Personnel and Training

- ◆ The key person of the Project is “Telemedicine Administrator”
- ◆ Training for the doctors is very important
- ◆ Personnel in the Vehicle must be multi-skilled.
- ◆ Provide for short-term replacements necessitated due to leave / sickness

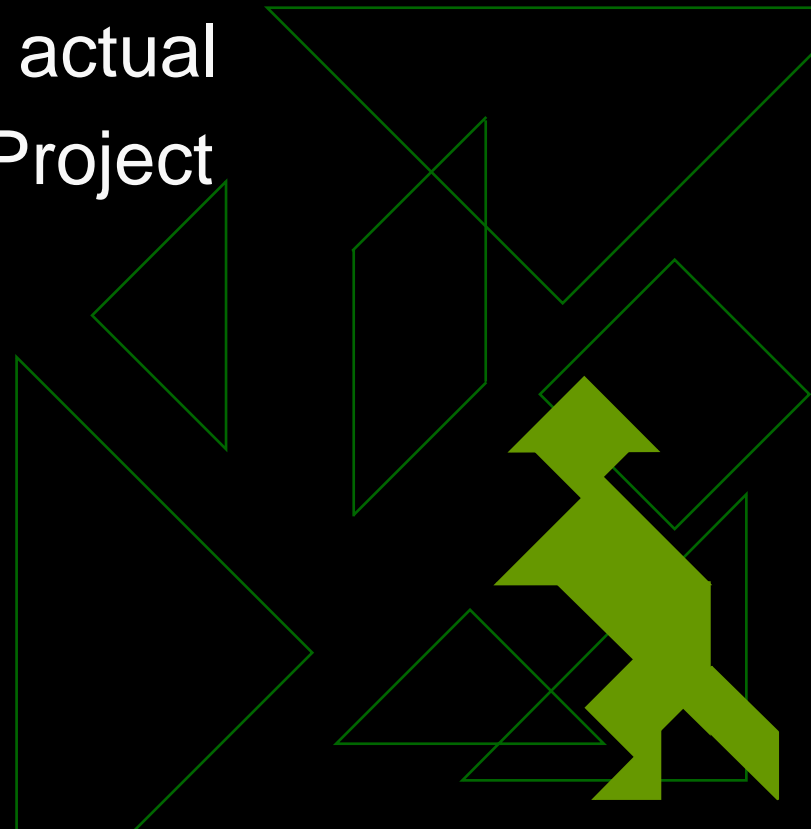
Execution



Information systems

- ◆ Management Information systems
 - Financial details
 - Monthly - Projected and actual
 - Periodic reviews of the Project

Execution



Future

- ◆ Internet2
- ◆ EDUSAT
- ◆ Newer Instruments and Equipments
- ◆ Higher bandwidth (OFC)
- ◆ Faster Computers
- ◆ Price ↓
- ◆ More jobs in Telemedicine

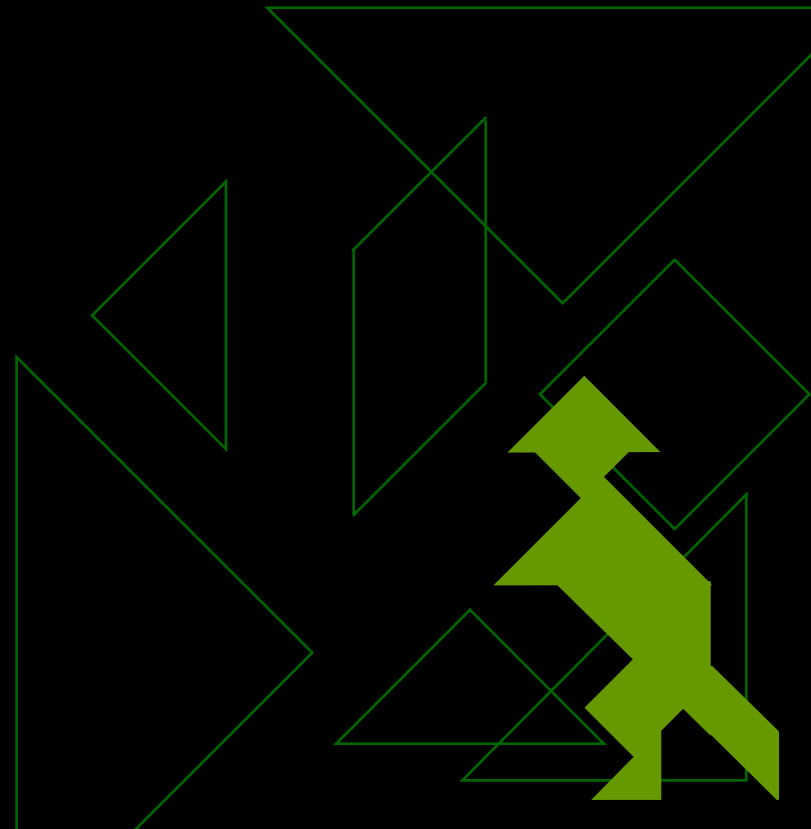
Telemedicine



Related Areas

- ◆ Virtual Reality
- ◆ Robotic Surgery
- ◆ Virtual Class Room

Telemedicine



FUTURE OF
TELEMEDICINE
IN INDIA IS BRIGHT

*AND WE CAN MAKE
IT BRIGHTER*



My grateful thanks to

Dr S S Badrinath,

Chairman, Sankara Nethralaya

for his guidance in developing this concept





Thanks

Telemedicine –

Planning, Execution and Future