An Education Grid Driven Approach for Capacity Building in Sarva Siksha Abhiyan

Arriving at Future IT Requirements in Education and R&D

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FICCI Seminar on Government Flagship Schemes: ICT A Key Enabler

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India's Challenge

Prime Minister Dr. Manmohan Singh (Aug. 2008): "We are one of the youngest nations and, according to observers, India has the potential to create over 500 million trained people by 2022 which is over a fourth of the global workforce. The big opportunity for India would come from an education revolution that we must undertake as our most important national endeavor."

- Present Indian Education system is barely catering to one-fourth of the potential learners in the country.
- → How do we leverage on modern ICT - *Datacentre and Cloud Computing for e-Learning, web-resources, collaborations, etc. to reach quality education to all, independent of geography*?

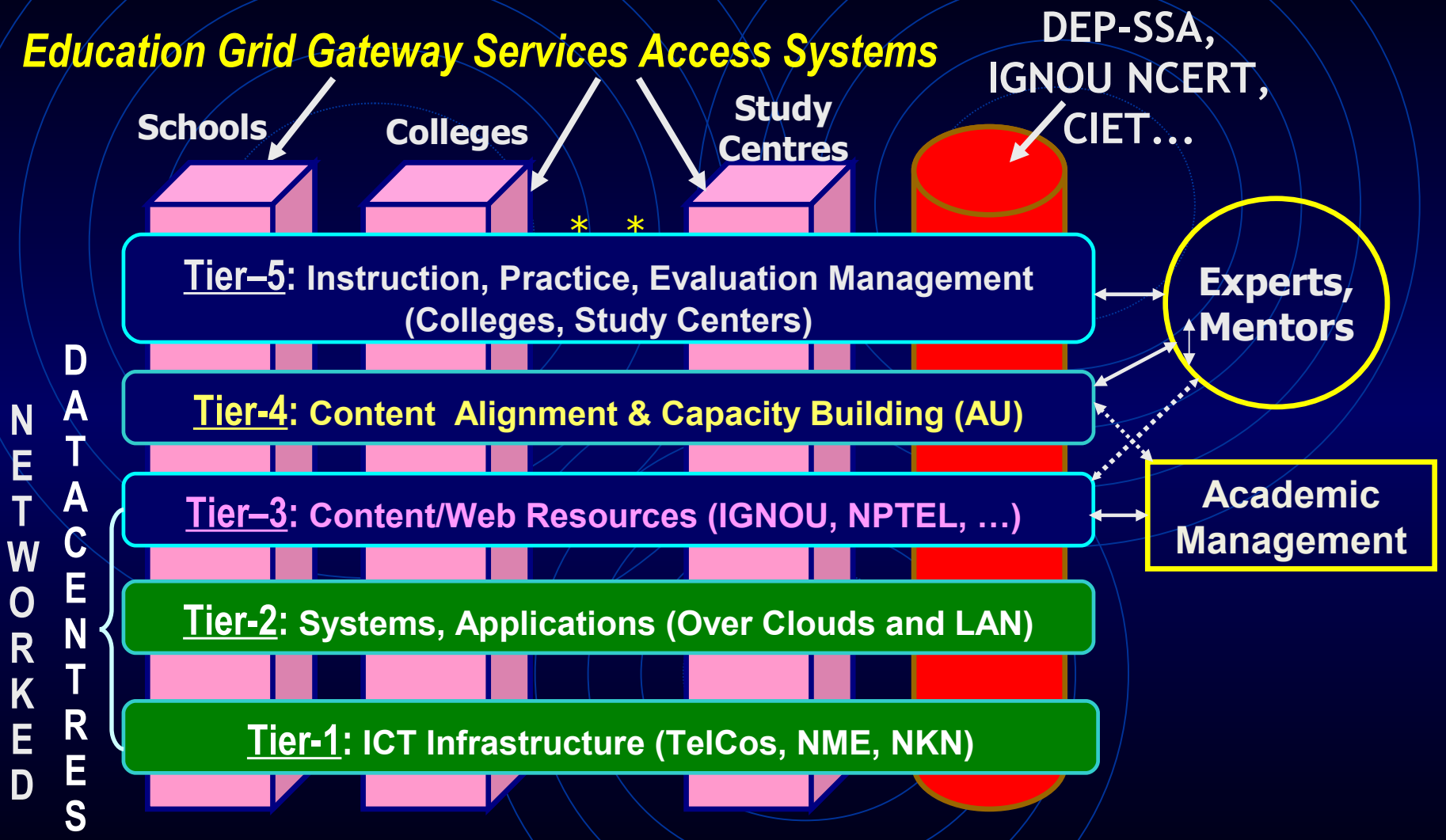
Teacher-Education Needs

- SSA has been a qualified success and has ensured the growth in the supply of trained teachers for school education. GER improved in many states.
- Severe regional imbalance: Bihar, Jharkhand, Chattisgarh, J&K, NE Region way behind national average.
- With RTE, RMSA added, need for massive increase in capacity and quality. Add continuing education needs
- Plan funds utilization in elementary, primary, upper primary and secondary education way behind targets.
- Just adding to present approaches of NCERT, SSA, IGNOU, SCERTs, etc. just do not scale up to meet needs.
- ***How do we leverage on ICT to meet the shortfall in capacity, quality and continuing education needs?***

Indian Educational Issues

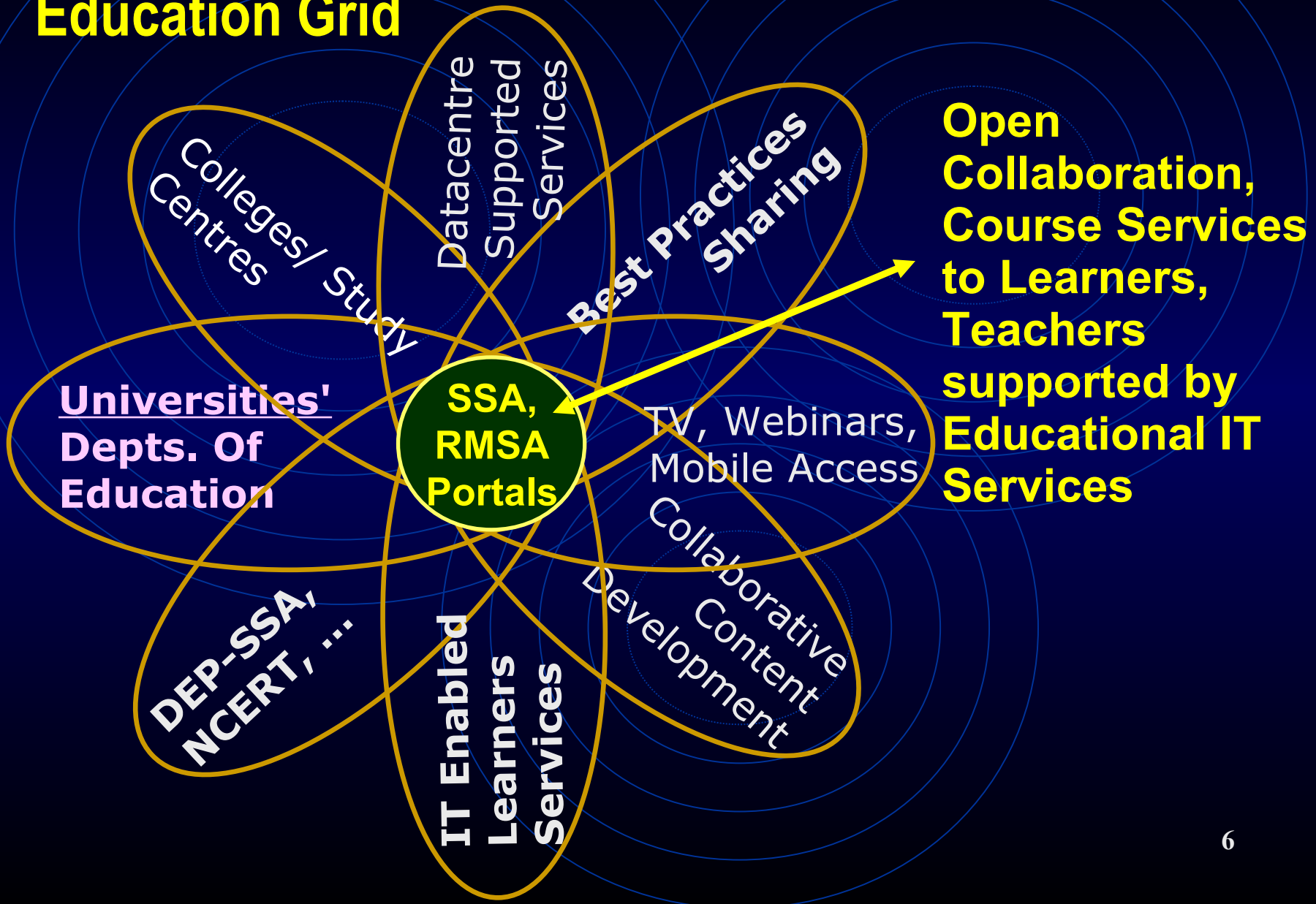
- Numbers and targets staggering: Almost doubling the enrolment of students in higher education in the next 12 years ▫ from ~13 Mn. to 26 Mn.; Meeting the 'Right to Education Bill' of compulsory education to boys and girls up to 14 years of age (200 Mn), Continuing education to half of the 1100 Mn. Population.
- Diversities of languages, culture, income variations mindboggling: 14 Languages, several different major cultural variations.
- *How do we create content, collaborate, share knowledge and experiences across geography, culture and languages?*
- ➔ To be managed with programs and services constituting the *NATIONAL EDUCATION GRID (NEG)* connecting vast numbers of colleges, universities, schools, vocational education institutions

What is Education Grid?

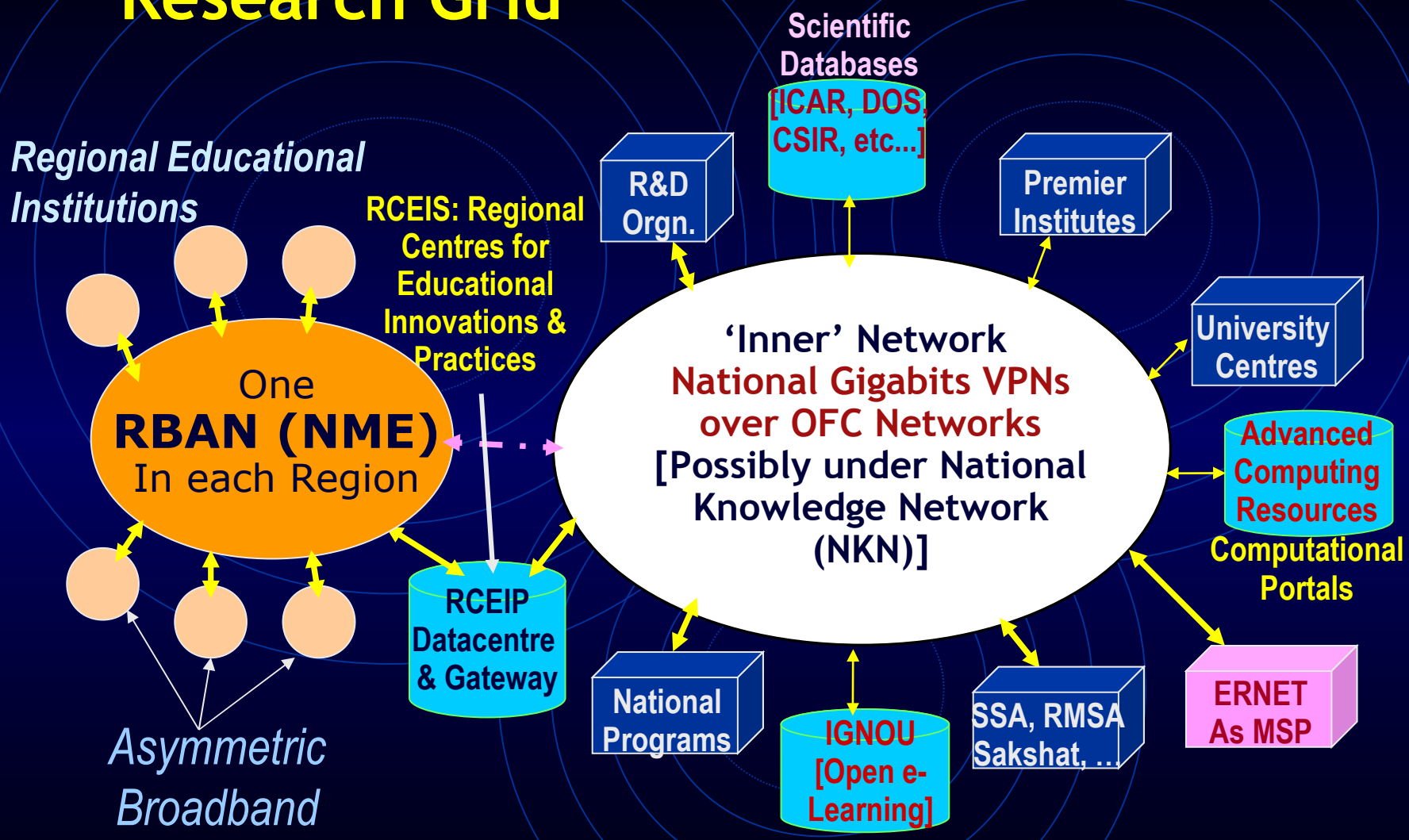


➔ Supported by Managed Services over a Network of Datacentres

Collaborative Education Management over Education Grid

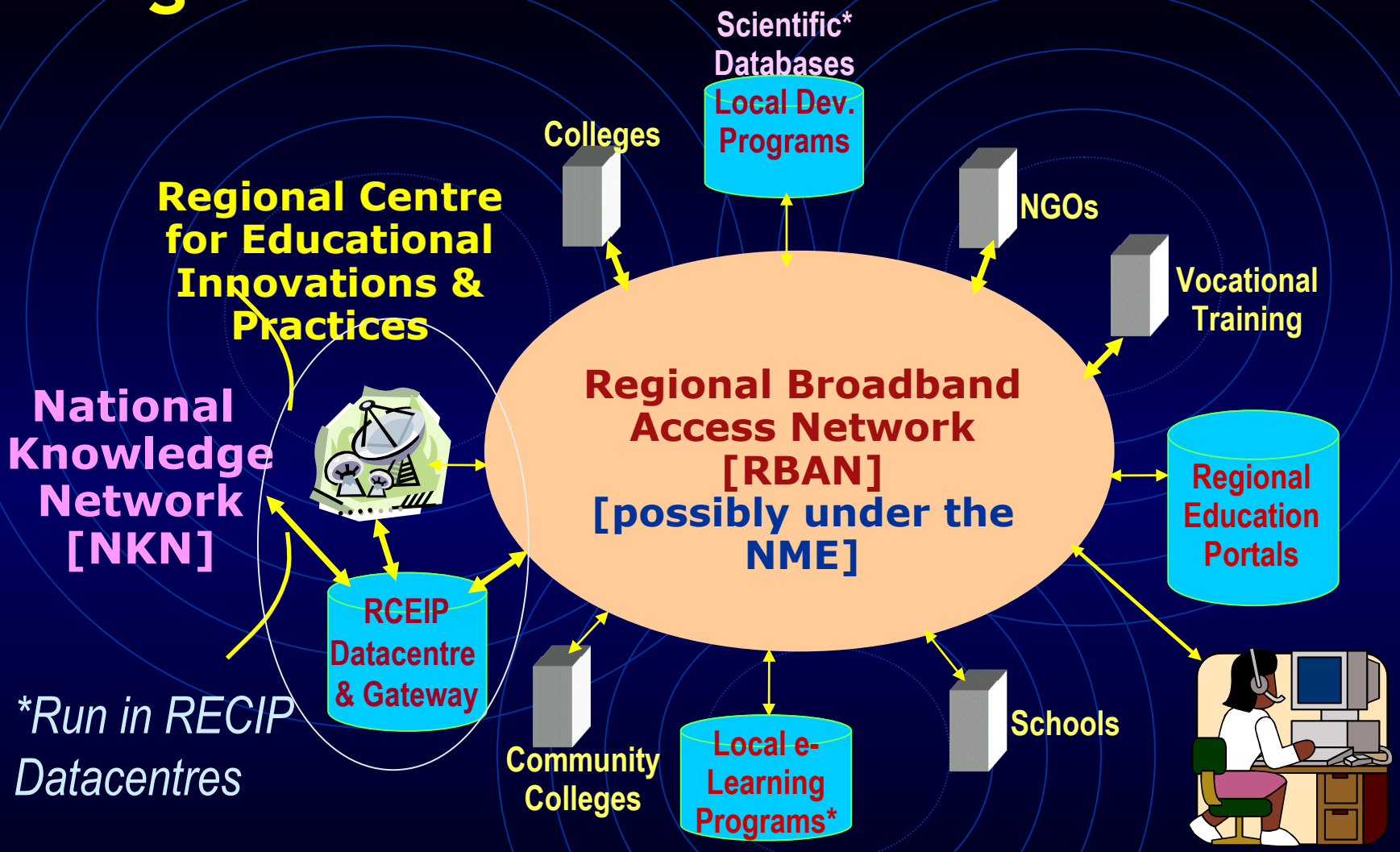


Networking for the National Education & Research Grid



- RBAN: Regional Broadband Access Network supported under NME.
- NME: National Mission on Education through ICT.

Regional Broadband Access Networks



- Each College, program Office to get Asymmetric Broadband.
- Their portals in the cloud facility at the RCEIS.
- *Results in lower cost per leaf node with assured quality of services*

Using the Railways OFC Network

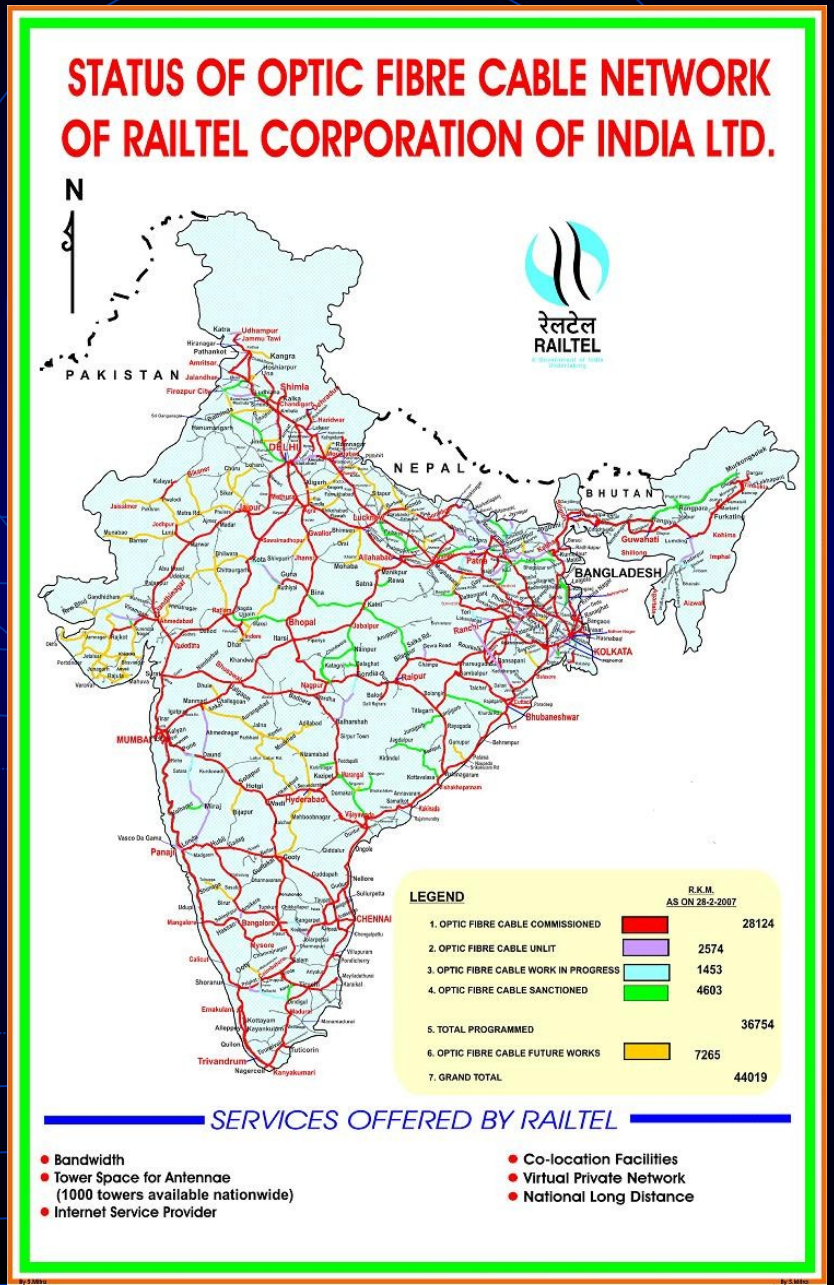
Every Railway Station with Education Telecentres?

Root Data Centre in IGNOU Delhi

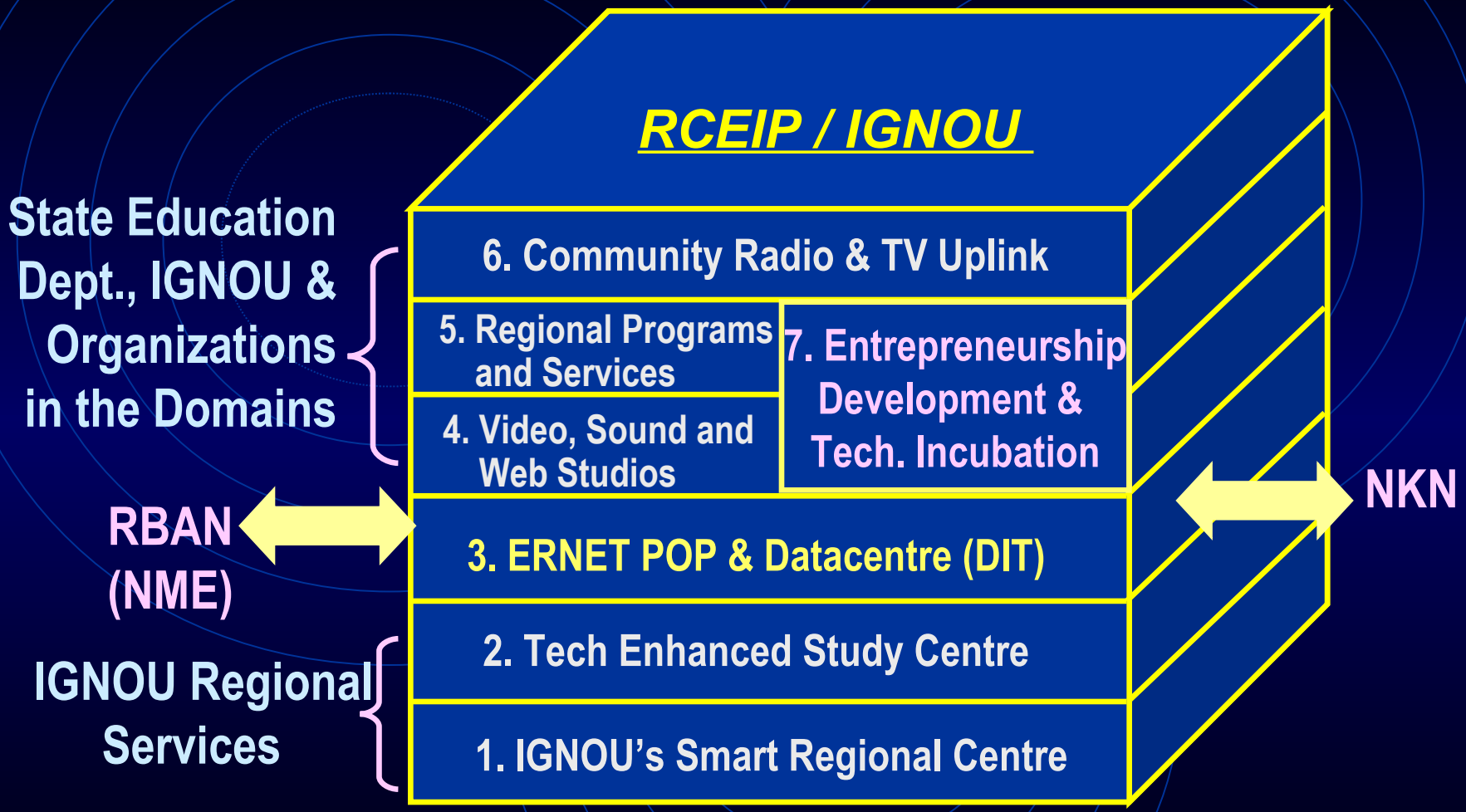
RCEIPs and Premier Institutions connected on the

Study Centres and Partner Institutions to be linked over Web Services.

Selected Regional Centres Strengthened to service State Open Universities.



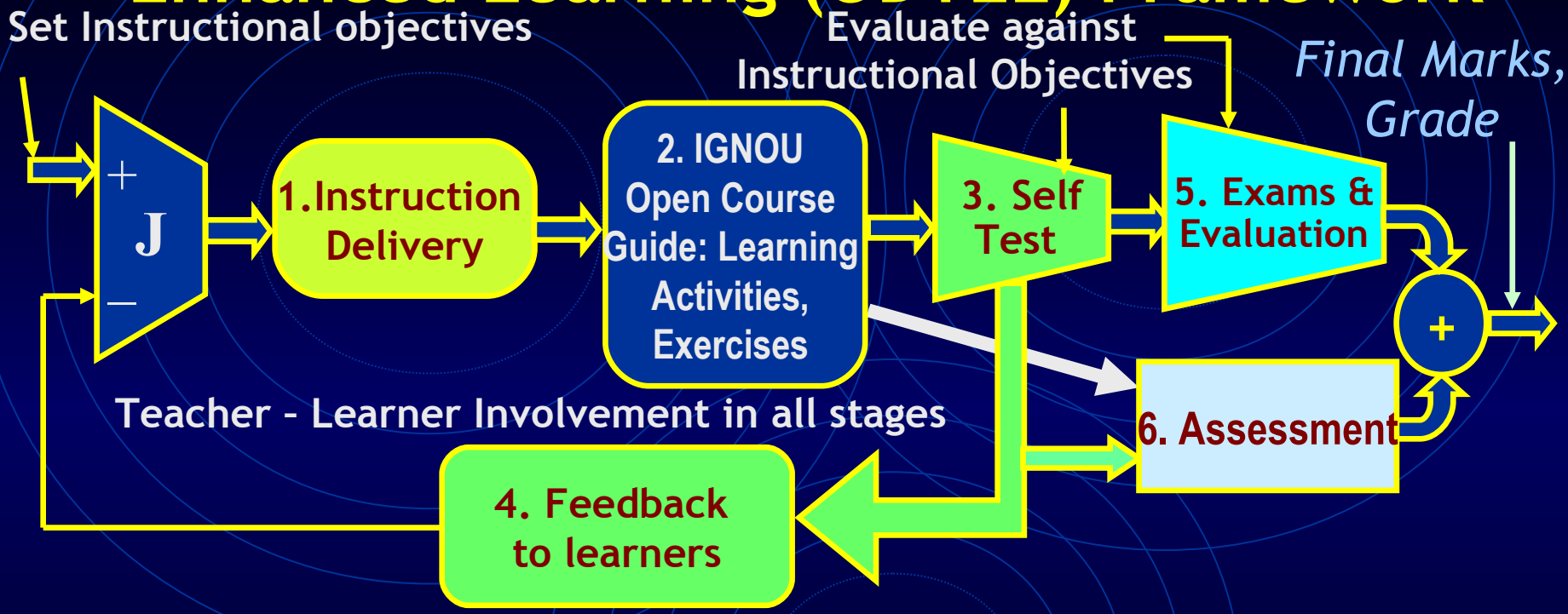
RCEIP – The Regional Hubs



NME: National Mission on Education Through ICT

NKN: National Knowledge Network

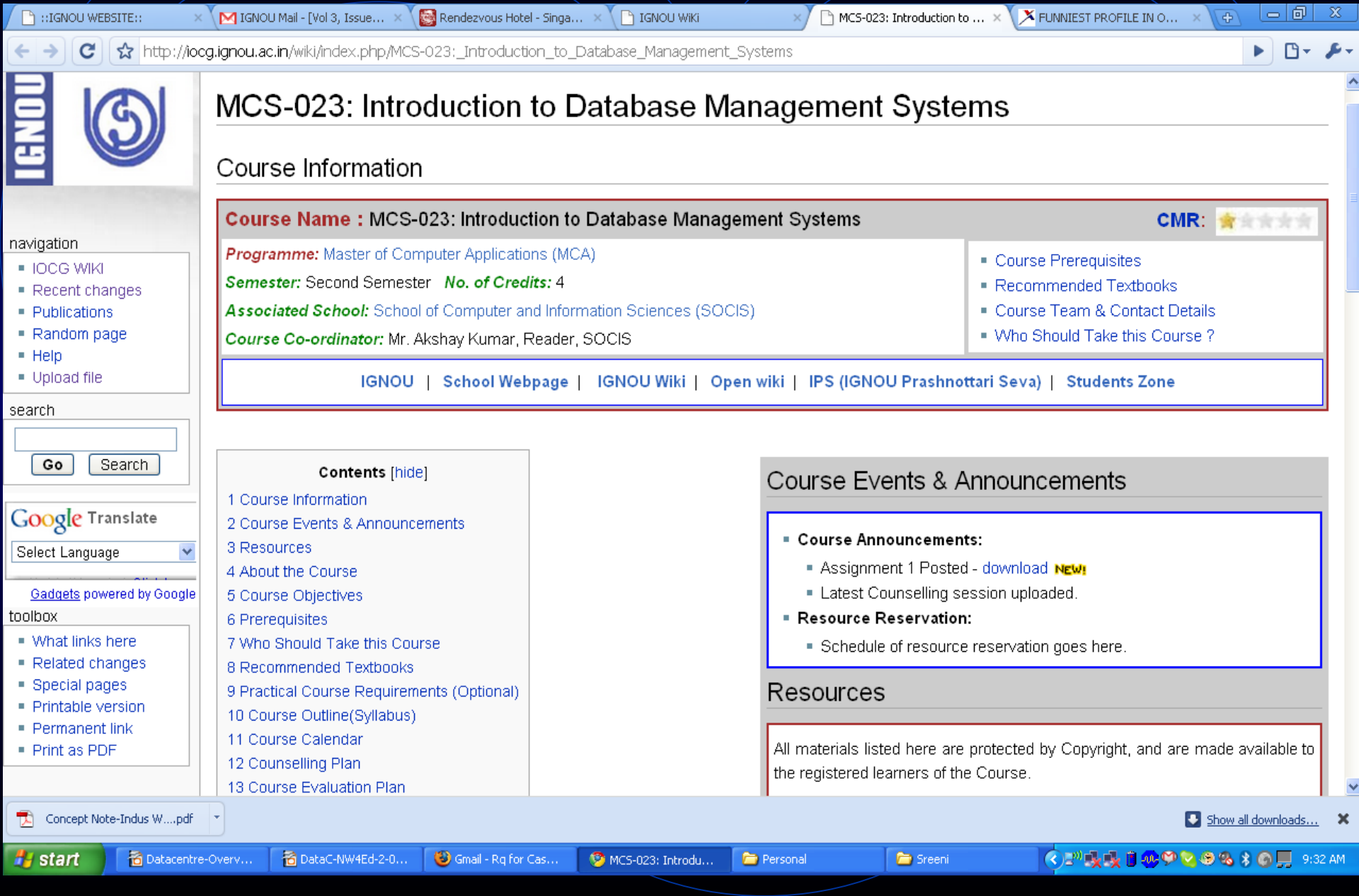
IGNOU's Open Distributed Technology Enhanced Learning (ODTEL) Framework



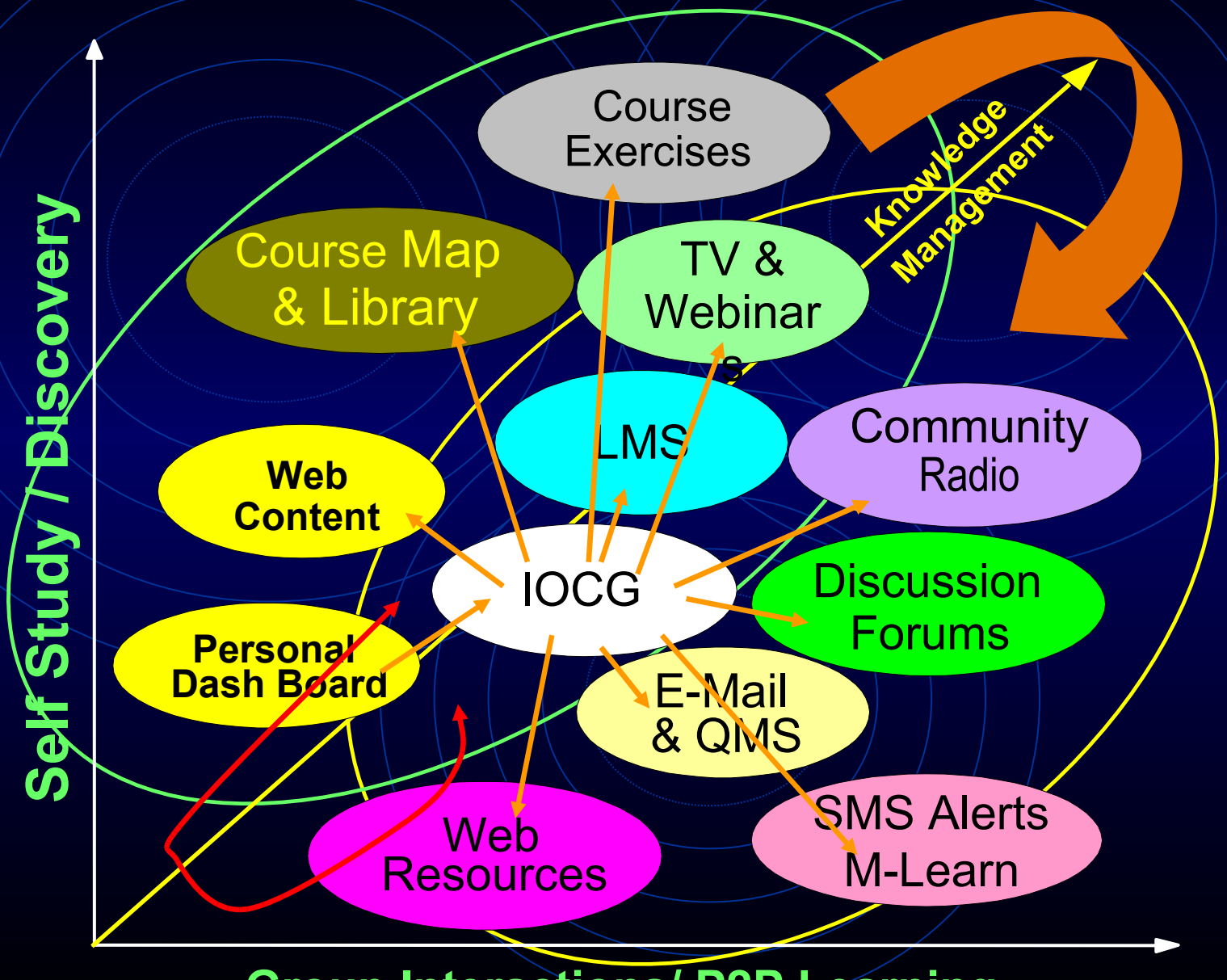
- *May be adapted for Teacher Education Programs under SSA, NCERT, B.Ed. Programs, etc.*

➔ *ODTEL is a unified Open e-Learning Framework for both Open Learning and conventional education.*

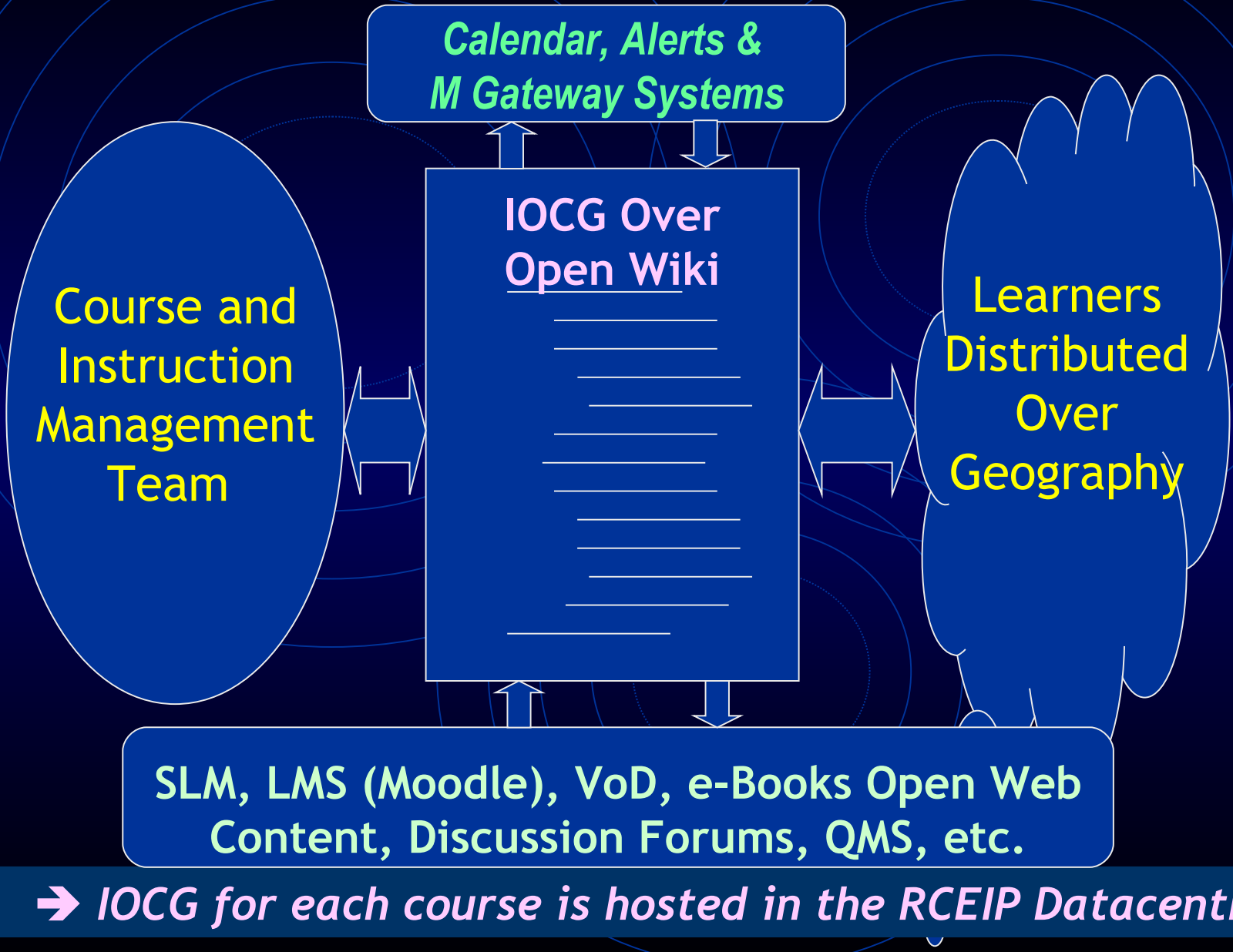
IGNOU OPEN COURSE GUIDE



IOCG reaches out to learners through diverse modes: .

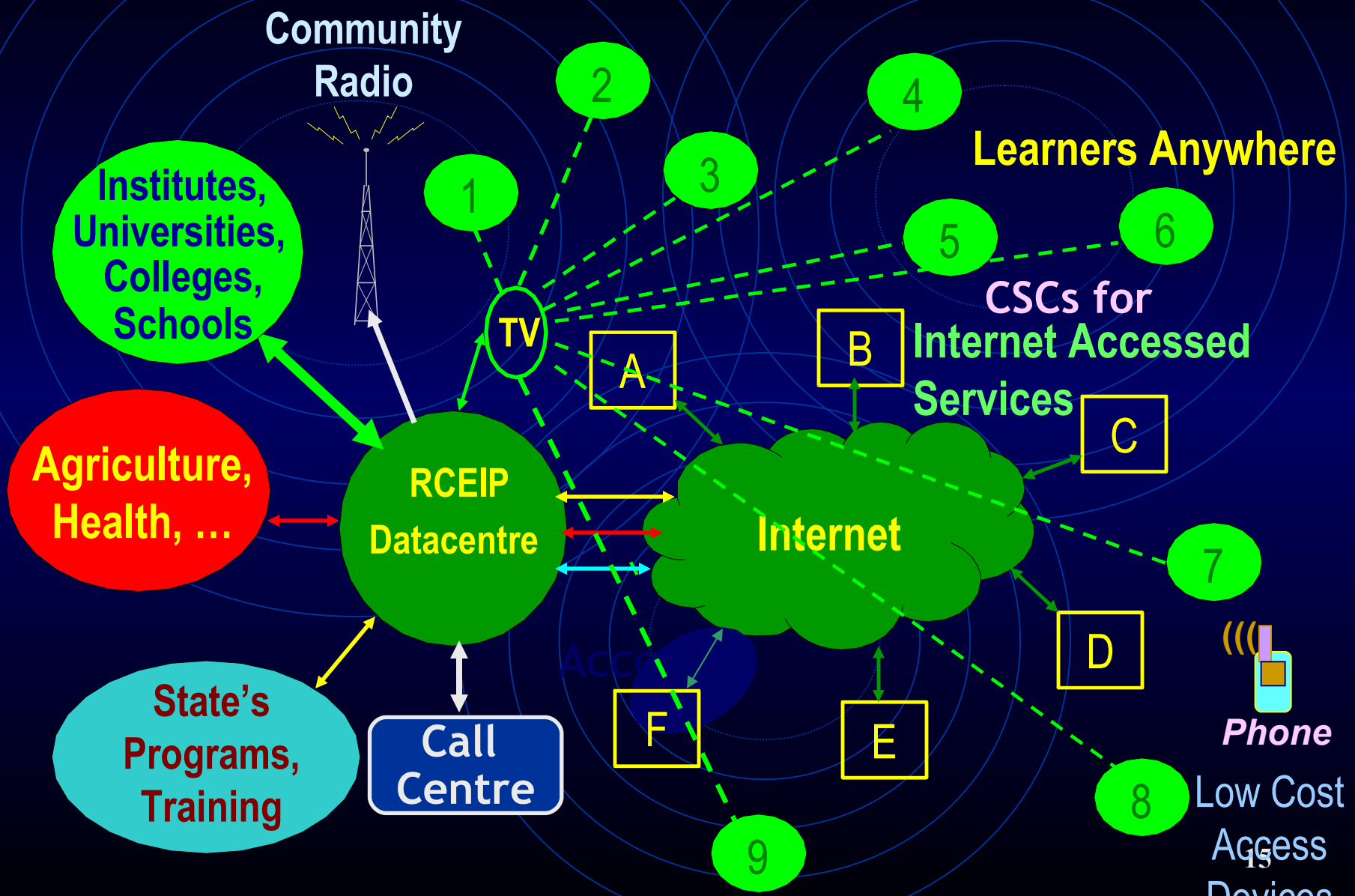


IOCG: The 4-Way Bridge

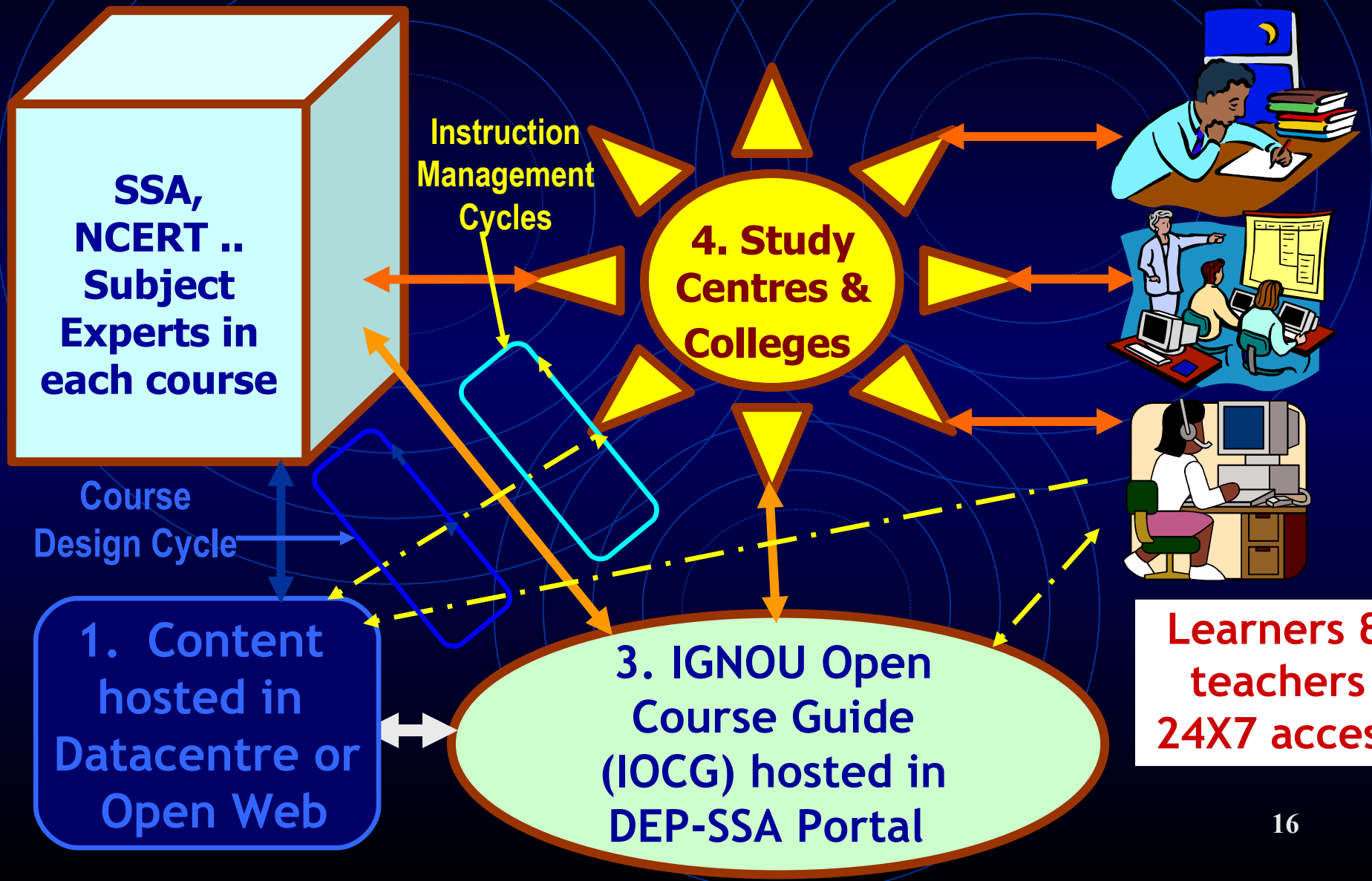


➔ *IOCG for each course is hosted in the RCEIP Datacentre.*

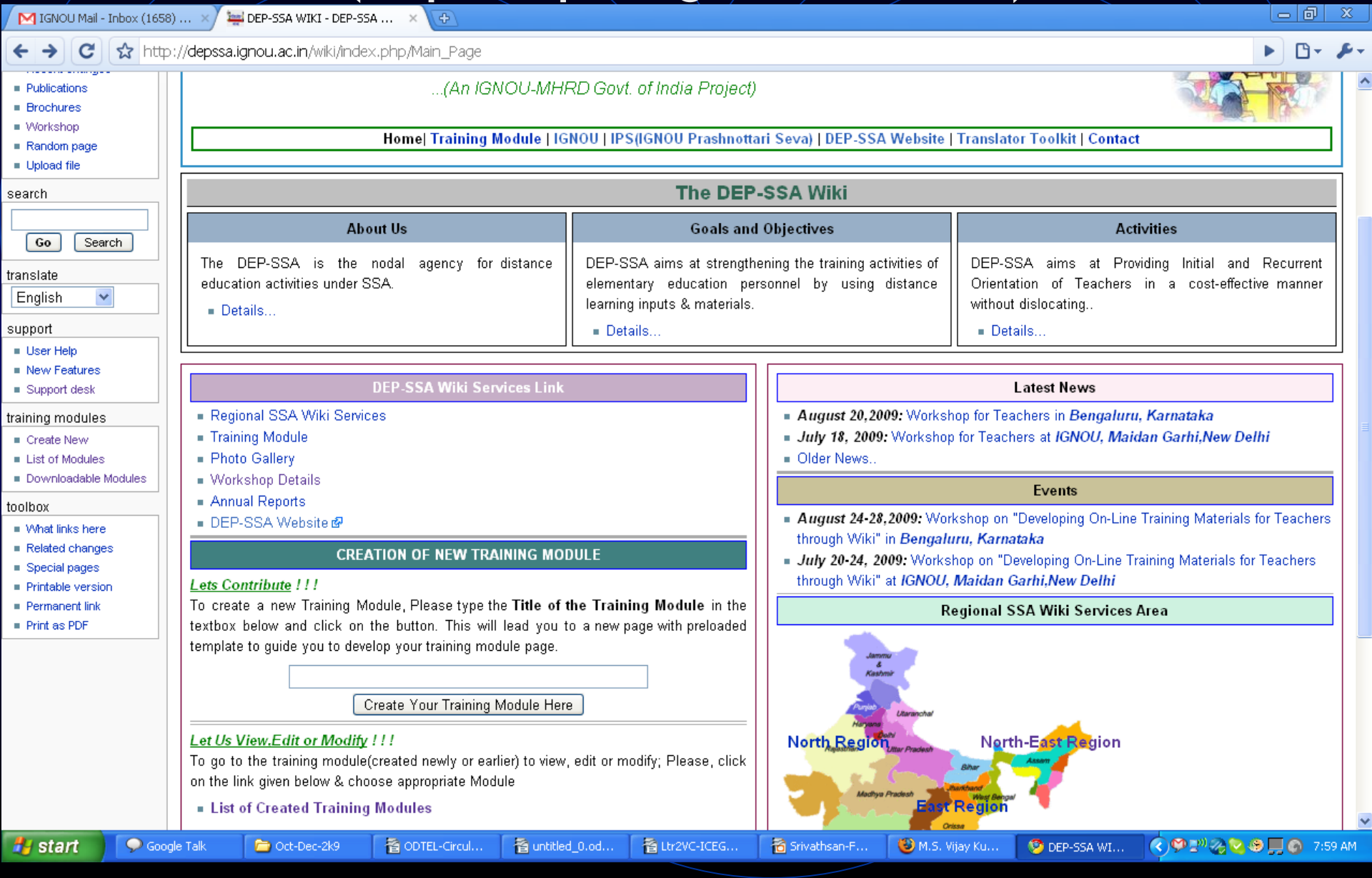
RCEIP Datacentre supported multimodal Services



Course Management through Multimodal Engagement Of Learners through IOCG



IGNOU's DEP-SSA Portal
(http://depssa.ignou.ac.in/wiki)



Sample Content created by Teachers in DEP-SSA Workshop

IGNOU Mail - Inbox (1658) ... | Simple Science Experiment ...

http://depssa.ignou.ac.in/wiki/index.php/Simple_Science_Experiment_for_Primary_Classes

- **Assessment for learning Science**

MODEL EVALUATION SCHEDULE FOR EXPERIMENT

While providing activity for your kids.....Check Yourself

- **Is the activity linked to the children'sexperience**
- **Was the activity accssible to them?**
- **Could the children interact with material?**
- **Could theydevelop theire scientific ideas?**
- **Could they develop process skill?**
- **Could theydevelop theire scientific attitudes?**
- **Could they work in group- Coperatively and share the ideas in supportive classroom climate?**

- **Kids Products and Materials**
- The following format will help you to develop recording of Kids products and materials. You can modify the format based on the activity you provide them.

Action points	ch-1	ch-2	Ch-3	Ch-4	Ch-5	Ch-6	Ch-7	Ch-8	....
I Have experimented to find out about some differences between ice,water,and steam									
I know what happen when water disappears									
I have found out how other liquids evaporate									
I have investigated different conditions.....									
I know.....									
I know how to make.....									
I can write clear accounts and explain my results...									
I suggest what might happen and explain why.									

Activity based learning in science

- **Process skills in elementary science students**
  - Questioning,predicting and planning
  - Gathering,evidence by observing and using information sources
  - Interpreting Evidences and drawing conclusion
  - Communicating and reflecting

How can you develop Process skills of Gathering Information by observing and using sources ?

- Provide informal opportunities for using senses for gathering information

start | Google Talk | Oct-Dec-2k9 | ODTEL-Circul... | untitled_0.od... | Ltr2VC-ICEG... | Srivathsan-F... | M.S. Vijay Ku... | Simple Scienc... | 8:08 AM

Features of DEP-SSA Portal

- ***Based Upon Mediawiki with IGNOU Extension and IOCG support systems. Supports ODTEL framework for courses and training programs.***
- Multilingual – almost all common Indian fonts supported.
- Multimedia: Video clips, animation, audio, rich content support.
- Language Translation support. English to Hindi Machine translation assistance available.
- Mash-ups with Google Calendar, translation and CMS services.
- Enables wikipedia type collaboration of people uploading content directly (backed by DEPSSA services).
- Discussion forums support.

Adopting Course Maturity Rating

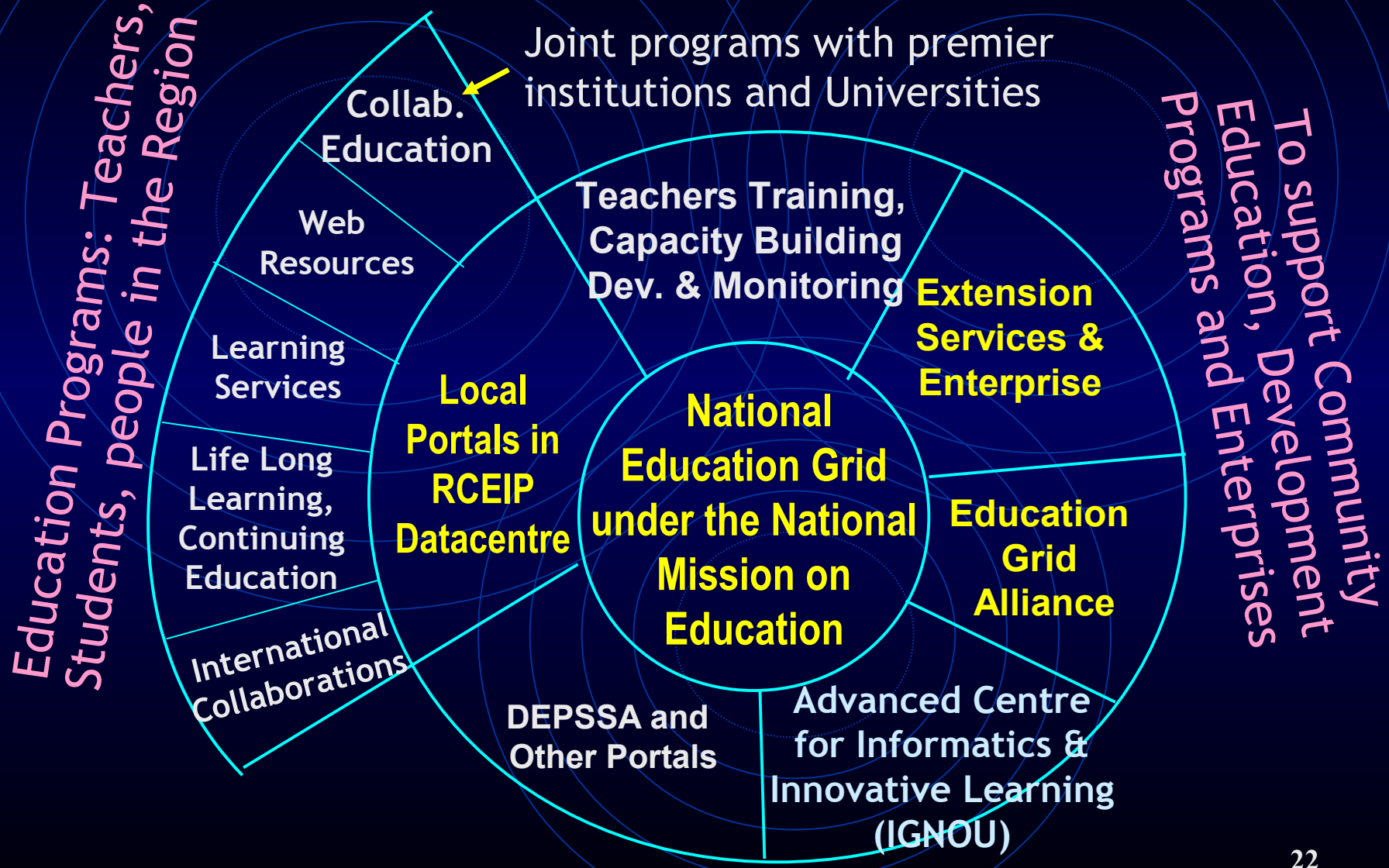
Rating	Course Maturity Rating (CMR) Helps in assuring learners on the quality of education they get
★☆☆☆☆	IOCG with course home page & open Wiki/ Discussion Forums.
★★☆☆☆	1* + description of blocks, units & links to approved resources.
★★★☆☆	2* + Counseling Plan, Calendar of Course Events, Seminars (TV, Webinar) Self-Test monitoring.
★★★★☆	3* + Assured engagement in at least 70% of modules + active learning support and learner feedback.
★★★★★	4* + Assured *outcome* assessed engagement in at least 70% of modules + individual/group feedback.

ODTEL Framework with IOCG assures CMR compliance.

Propose 3-Tier Hierarchy for Teacher Education

- Massive scale capacity building needs manageable and quality assured framework. Propose 3-Tier hierarchy of Institutionalization.
- TIER-1: NCERT, IGNOU, NCET, etc. at central level hosting Multilingual SSA/RMSA/Programs Portals and manage networked programs with *Centre-State Interface Institutions hosted at the respective RCEIP.*
- TIER-2: Interface Institutions in the RCEIP support capacity building through the DIETs, BRC, CRC under the districts.
- TIER-3: All teachers in a block are associated with the local BRC, CRC and relevant NGOs and PPP programs in the area.
- *Adopt ODTEL framework for B.Ed., DPE and CPE programs.*
- *RCEIPs host local language portals for the DPE, CPE Programs.*

National Education Grid & Services



In summary

- *Induction of formally structured collaborations and ODTEL framework driving over Education Portals will assure scaling and quality assurance.*
- *A National Education Grid over a network of Datacentres overcomes technology gaps in supporting Technology Enhanced learning and collaborations.*
- *CMR driven approach assures quality education delivery at the 'doorstep' level of District and Block levels.*
- *Allows collaborations across various program driving institutions like the NCERT, SSA, IGNOU, etc.*

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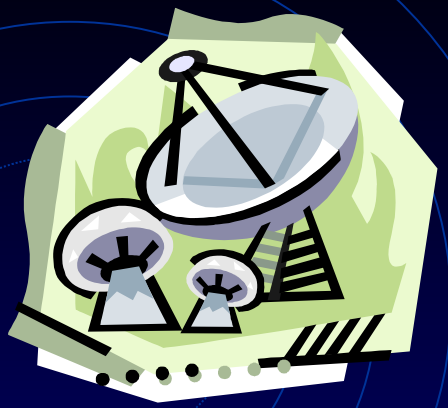

Thank You