

**ICTs in education**  
**Public Software Toolkit**

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Public Software Centre, IT for Change,

with support from UNESCO

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Produced for UNESCO

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## 1 Introduction

The Public software toolkit provides education policy makers, planners and practitioners with a systematic methodology to formulate, plan and adopt public software in their ICT in Education programmes. The toolkit is primarily in the area of 'ICTs in teacher education', though the principles and processes can be used in a wider manner for broader programs in school education as well.

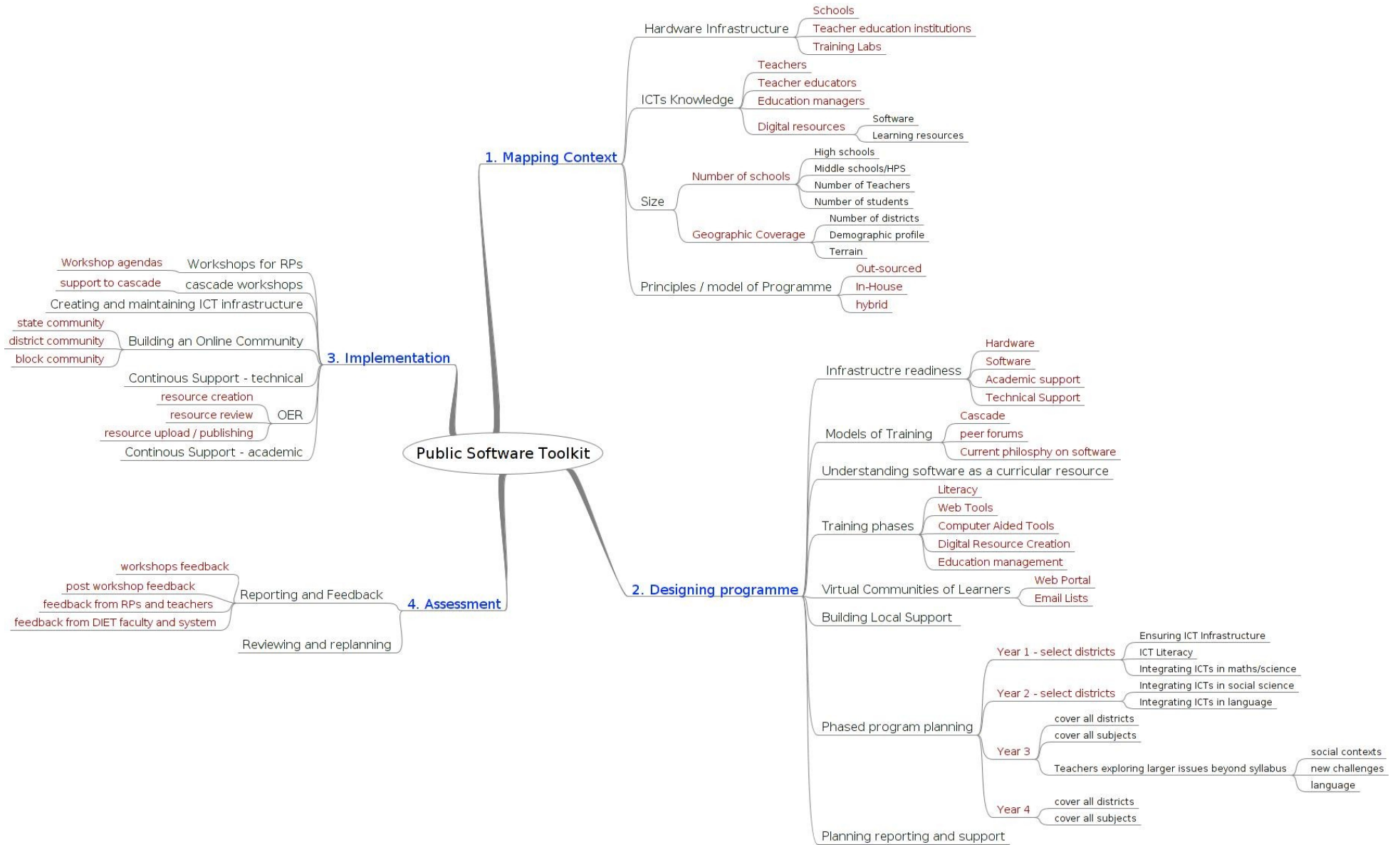
The Toolkit contains **five toolboxes**, totally containing - a total of **19 tools** - that provide interactive instruments and step-by-step guidelines which assist users to:

1. **Map the current situation** of status of ICT school programmes
2. **Design and plan** the ICT programme using public software, covering physical and human requirements, programme content, costs, methods of assessment etc.
3. **Implement** and monitor the programme
4. **Assess** effectiveness and impact and use this knowledge for re-planning for the next phase

The Toolkit can be read along with a [narrative](#) report that summarizes the principles, processes, experiences and learnings on the public software program for teacher education in the public education system in Karnataka, India, called the 'Subject Teacher Forum' program. The actual design and implementation of the 'Subject Teacher Forum' program provided the detailed knowledge and understanding for preparing this toolkit

All documents linked in this toolkit are available in [Annexure A](#)

A mindmap of the toolkit itself is provided, to provide an overview of the toolkit. The mindmap has been prepared using the public educational software – Freemind.



## 2 Mapping Context

### 2.1 Overview

The purpose of this tool is to provide a framework for reviewing the existing ICT programmes in the state/province/region. This is to enable detailed design and planning for a Education Department to adopt public software systemically.

The information obtained will

1. provide the current ICT infrastructure ([Tool 1.1](#))
2. provide current teacher's knowledge, use of ICTs and participation in ICT related programmes ([Tool 1.2](#))
3. provide information about the scale of operations of the system including number of schools, geographical coverage and administrative structures ([Tool 1.3](#))
4. provide existing educational principles and perspectives, approaches, practices and existing models of ICT interventions and programmes, through a review of existing policy and programme documents. ([Tool 1.4](#))

Use of tools 1.1 through 1.4 will contribute to the identification of the state of teacher preparation and support required for system wide adoption of public software in education.

The Toolbox focuses on four contexts:

1. Hardware Infrastructure
2. Computer Knowledge Levels of teaching and administrative faculty
3. Scale of operations and Geographical coverage
4. Existing ICT programmes

#### 2.1.1 Tool 1.1

Current Hardware Infrastructure – Check list

*This check list is filled out for every training institutes at the state/province, district and sub-district levels.*

Item	Description
Institute Name	State Province/ District Training Centres / Sub-district Training Centre
Computer Lab availability	Yes/No
Number of working computers	
RAM Capacity	
Set up	Example: Thin Client / Desktop /Networked computers
Operating System	
Number of of printers	

Printer Description	
Printer Condition	Working/Not Working
Number of of projectors	
Projector Description	
Projector Condition	Working/Not Working
Number of of Digital Cameras	
Camera Description	
Camera Condition	
Other ICT Devices	
Other ICT Devices Description	
Other ICT Devices Condition	
Internet Connection availability	Yes/No
Type of Internet Connection	Dial Up/ Broadband
Monthly download limit	
Service Provider	

This check list may be reused to assess status of school labs as well. Usually a group of schools may have the same hardware depending on the ICT programme they participate in. Hence information could be gathered at a programme level.

### 2.1.2 Tool 1.2

Each teacher/teacher educator/other participant will fill out this form and this information is collated by districts and subject.

Item	Description
Name	
Mobile	
Email	
District	
School/Institution	
Number of years in Service	
Which Subjects do you teach	
Describe major challenges in teaching your subjects	[ This information should be used in the design and planning of the programme ]
Have you attended any Computer Training ?	Yes/No

If Yes, describe the content/type of training	
Computer skills	Low – Have used computers but do not use regularly
	Medium – Use computers weekly/monthly
	High - Use computers more than once a week
Access to Computers	At Home
	At School
	Other Private Computer Centres
	No Access
Internet Access	At Home
	At School
	Other Private Computer Centres
	No Access
What new technologies have you learnt in the past 5 years	Example : ATM use, Internet shopping, online courses, usage of mobile banking
Any reason for not accessing computers in School/Institution	
List of other digital equipments in school/institution	





### 2.1.4 Tool 1.4

Details about the existing ICT programmes including the educational principles and perspectives that underlie the use and appropriation of ICTs

Item	Description
ICT Programme Name	
Status of Programme	Running/Closed
Model of the programme	Outsourced / In-House
Vendor – Hardware	Name
List of infrastructure provided	
Vendor – Technical Support/AMC	Name
Vendor – Training	Name
Does the vendor provide training Material	Yes/No
Description of training Material	
Description of Training Content	
Is a textbook available for the programme ?	
Is there Internet provision ?	Yes/No
Is Internet available ?	Yes/No <Give Reasons>
Number of of teachers trained in the programme	
Teachers role in the Programme	Example, participation in design, planning, implementation
Teachers role in school/institution lab	Example, access and usage
How is the computer period used ?	Building Computer Literacy skills/ Project work/ Teaching curricular subjects
What specific skills/applications are covered in the training programme ?	
Other related programme information	

## 2.2 Outputs

The outputs from this toolbox should summarise and collate information to create a document on the current status of ICT programmes.

### 3 Designing and Planning the Programme

#### 3.1 Overview

The purpose of this tool is to provide a framework for designing a programme and create a detailed plan for implementation for system wide adoption of public software in education.

The information obtained will

1. provide a model for infrastructure readiness. ([Tool 2.1](#))
2. provide underlying principles of adopting Public Software in Education ([Tool 2.2](#))
3. provide a fabric for teacher preparation including models of training, curriculum phases, building local support and a phased approach of the training programme. ([Tool 2.3](#))
4. provide structures, methods and tools for developing open educational resources ([Tool 2.4](#))
5. provide structures, methods and tools for developing a virtual teachers community of learners. ([Tool 2.5](#))
6. provide a plan for local and virtual academic and technical support. ([Tool 2.6](#))
7. provide a for reporting, capturing feedback and incorporating feedback during the implementation. ([Tool 2.7](#))

This will contribute towards a detailed plan covering all aspects of the programme.

The Toolbox focuses on six aspects:

1. Perspectives and core principles of public software in education.
2. Designing and planning programmes to prepare teachers, teacher educators and education administrators.
3. Creating a design for building local technical support for public software
4. Design for developing open educational resources.
5. Designing the platform for creating a virtual teacher community for learning.
6. Plans for reporting and feedback.

##### 3.1.1 Tool 2.1

#### Infrastructure Readiness

Item	Description
<b>Training Labs</b>	
Location of Lab	State Capital / District /Other
Lab Owner/Run By	Internal to system / External
Who runs/owns the lab ?	Department/Vendor/ College
If external , will you get permission to install Public Software ?	<Process for Permission >

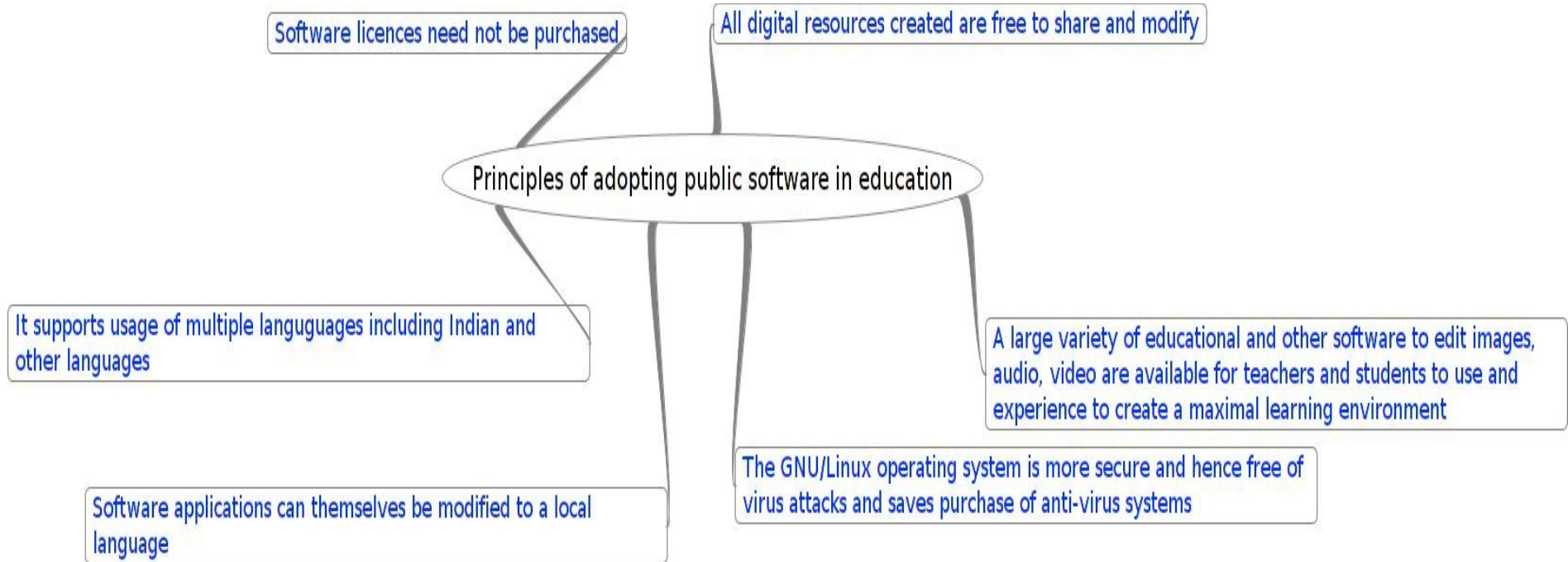
Number of of working computers in lab	
Hardware specifications of computers	RAM , Hard Disk Capacity, Current OS
Is internet connection available for all computers	Yes/No
If internet is not provided, select best broadband provider	Provider that works well in location, amount of download available.
Is the LAN wiring for internet ?	Yes/No
Prepare for LAN in Lab	Wiring, Broadband Router, creating one computer as a server
Is there Internet provision ?	Yes/No
Is Internet available ?	Yes/No
Is there a lab in-charge ?	Yes/No
If yes, what is the current role of Lab in-charge?	
Does the lab have power backup facilities ?	Yes/No

### **Lab in-charge roles and responsibilities**

1. Maintaining Hardware
2. First-level hardware and software trouble shooting
3. Coordinating with external agencies – AMC, Broadband etc...
4. Installing and Upgrading public software/s
5. Configuring printers and other devices , internet connectivity with public software
6. Providing on-going technical support to participants by email.

### 3.1.2 Tool 2.2

Principles of adopting public software in education.

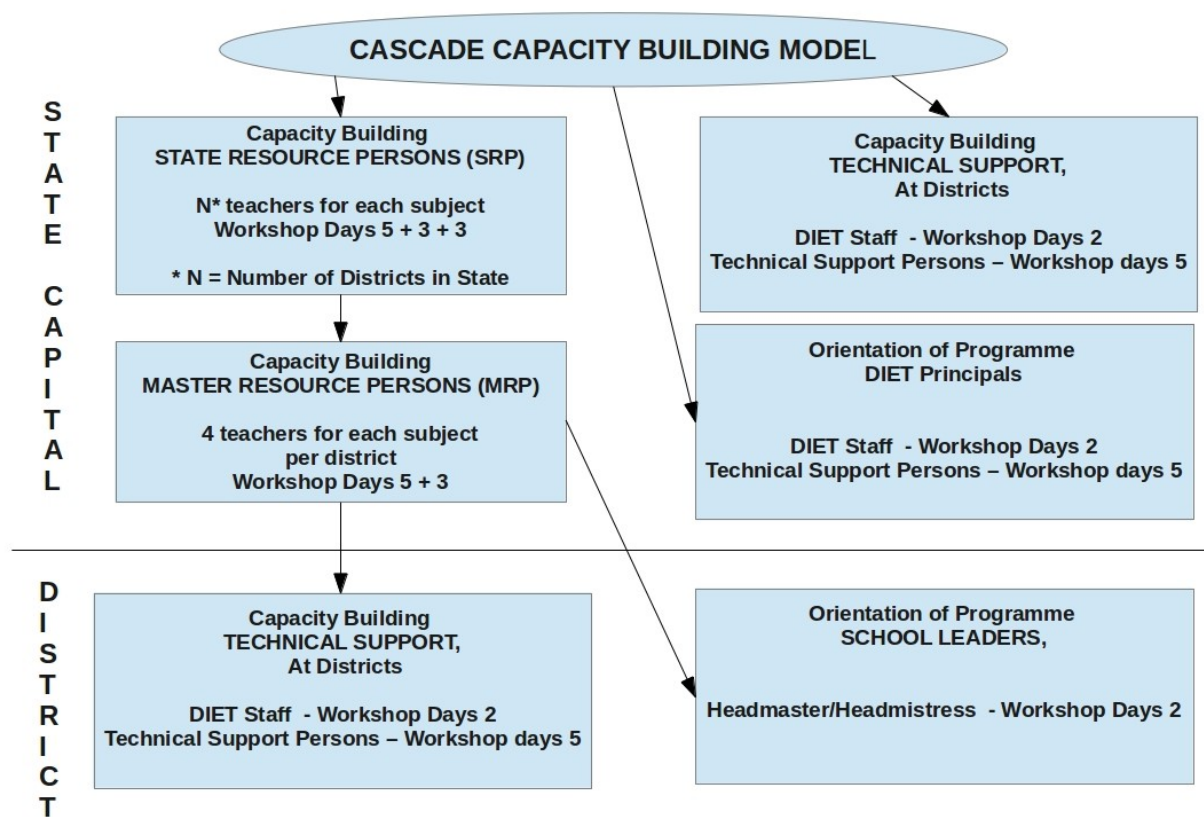


### 3.1.3 Tool 2.3

#### Models of training

While planning training and capacity building programmes in the public education system, especially attempting to cover a large geographical span, we inevitably have to follow a cascading model. This means we train teachers to be State Resource Persons (SRP), who then train teachers to be Master Resource Persons (MRP) for each district. This enables the teachers to reach out to all the teachers in each of their districts.

The chart below shows the complete cascade model. The initial capacity building is usually done in the state capital and the teachers training is done in the districts. The District TE<sup>1</sup> computer laboratory or other identified training laboratories are used to run the training programmes at the districts.



#### Curriculum Phases

The curriculum will cover the following aspects listed below. Course 1, all participants will compulsorily go through as part of the programme. Interested teachers and teacher-educators will do course 2. All teachers and teacher educators will do course 3. Select teachers who have good subject content grasp and are keen to create digital curricular resources and all teacher educators (pre-service & in-service) will do course 4. Teachers who are interested, heads of schools and academic support persons will do course 5. The courses are listed below:

<sup>1</sup> DIET (District Institute of Education and Training) in the case of Indian education system

## Courses :

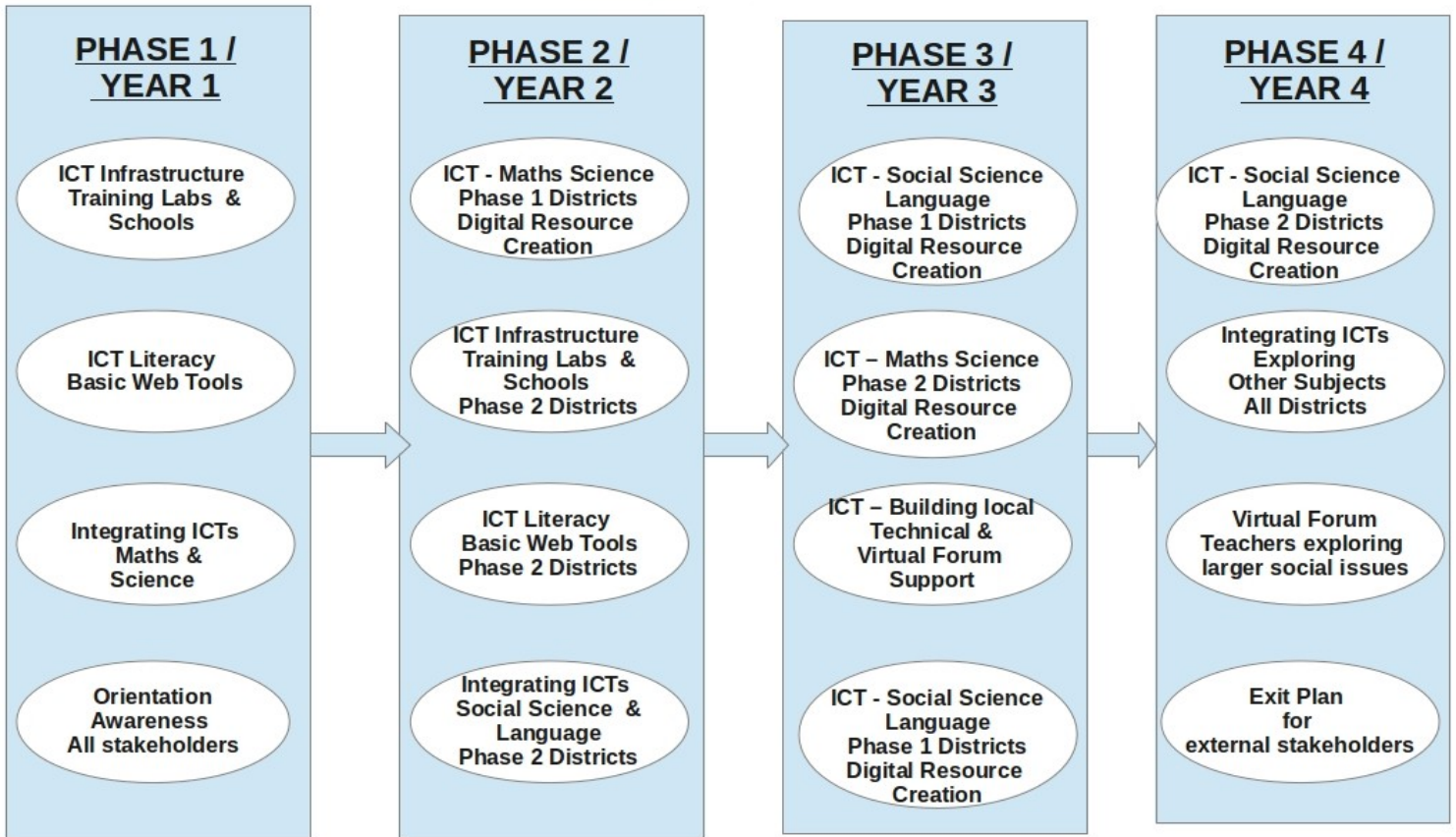
1. Basic ICT literacy
  1. Basic Computer Literacy
  2. Hardware and Software trouble shooting
  3. Advanced Office applications
  4. Concept Mapping /Mind mapping
  5. Certification<sup>2</sup> in public software tools (for India)
  6. Using email client for knowledge management and calendar management
  
2. Web Tools
  1. Blogging and Contributing to Discussion forums
  2. Website Creation / maintenance
  3. Maintaining Email Groups
  
3. Constructivist Learning through ICTs (Educational Tools)
  1. Maths, Science, Social Science and Language educational tools
  2. Digital resource creation workshops in different subjects
  3. Internet and web resources
  4. Digital Society and public software in education
  
4. Digital resource co-construction
  1. Photography as teaching-learning tool
  2. Audio editing and video editing
  3. Tutorial making (learning resources)
  4. Desktop publishing
  5. Wiki
  
5. Education Management
  1. Digital Society and public software in education
  2. Using email client for knowledge management and calendar management
  3. Video conferencing
  4. Advanced use of spreadsheets

## **Phased Approach of the Training Programme**

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<sup>2</sup> MHRD – Spoken Tutorial Project – IIT Mumbai

## PHASED APPROACH



**N** – Total number of education districts in state. Phase 1 = N/2 Districts. Phase 2 remaining N/2 Districts

### Face to face capacity building via workshops

#### Planning the schedule for a year

1. If an NGO is facilitating the programme , create and sign a memorandum of understanding with the concerned departments.
2. All workshops schedules must be planned in the summer vacation and included in the systems annual work plans.
3. Schedule must consider state holidays, school vacations and other special events that may prevent a teacher from attending the workshops
4. Establish single point contact person in the system for coordinating the programme.
5. Capacity building labs must be identified and permissions and access for using the facilities must be established.

## Workshop planning check list

Item	Description
<b>Pre Workshop</b>	
<b>Training Lab Readiness</b>	
Access to Lab	Permissions or letters required for access to lab. Booking process, notice time and access to keys.
Check Number of working computers	Ideally each participant must have individual access to a computer. This determines the batch size of each workshop.
Installation of Public Software	Plan on one/two technical support persons to check and if necessary install public software on all computers
Internet Connectivity	Ensure internet is available on all computers, if not, provide details on purchase of suitable plan, modem, LAN wiring with costs.
Power Back up	Ensure availability of power backup. If not available, provide options with costs.
Lab Staff	Is there a lab staff available while doing the workshops ? If not, plan for a technical support person to be available at least on the first and last day of the workshop.
<b>Participants</b>	
Selection of participants as resource persons for cascade model	<ol style="list-style-type: none"> <li>1. Interested to use and learn technologies</li> <li>2. Interested in becoming a trainer</li> <li>3. Basic computer literacy</li> <li>4. Access to computer with internet connectivity</li> </ol>
List of participants with mobile numbers & email addresses (if available)	Connect to all participants before an order is sent out confirming from them their interest to participate in the programme.
SMS Participants	<ol style="list-style-type: none"> <li>1. Brief Background</li> <li>2. To bring their laptops to the programme if they have one.</li> </ol>
<b>Curriculum</b>	
Participant information form	<ol style="list-style-type: none"> <li>1. Teacher personal information</li> <li>2. Qualifications</li> <li>3. Teaching experience</li> <li>4. Computer knowledge, usage</li> <li>5. Access to computer and Internet</li> <li>6. ICT Availability in school</li> <li>7. Type of ICT usage in school</li> <li>8. Expectations from the workshop</li> </ol>



Prepare workshop Agenda	<ol style="list-style-type: none"> <li>1. RP (5 days) capacity building</li> <li>2. RP (3 days) capacity building</li> <li>3. District level teacher (5 days) capacity building</li> </ol>
Workshop handout preparation	<ol style="list-style-type: none"> <li>1. Resource creation template</li> <li>2. Computer Literacy</li> <li>3. Web Tools</li> <li>4. Educational Tools</li> </ol>
Homework Assignment	Prepare assignments and tasks for post workshop
Custom Public Software DVD	The latest long term support Ubuntu operating system must be downloaded, customised with all the applications that will be used in the programme and a DVD must be burnt for each participant. The participant may pay a nominal fee which will cover the making costs and the hardware cost of the DVD.
Digital Resource	For each subject digital resource CDs are prepared which can include good quality freely available resources like the NCERT textbooks, research papers, magazine articles, activities, education films etc... The participant may pay a nominal fee which will cover the making costs and the hardware cost of the DVD.
<b>During Workshop</b>	
Emails	All teachers emails must be created if not available and added to the email groups
Photos	A digital camera needs to be available for every workshop. Individual photos of participating teachers must be taken and the labelled with their names.
Feedback	Open feedback session on the last day is compiled
<b>Post Workshop</b>	
Assignment Follow Up	All assignments are tracked and submitted by emails. Faculty need to review submitted assignments and provide feedback.
Workshop Report	A workshop report needs to be written.
Installation of public software in schools	Teachers must install the operating system and report on its success via email. Problems need to be raised by email or through calls
Continuous Support	Technical and academic support by phone and email must on going
Participant Information	List of all participants and their information is compiled

### 3.1.4 Tool 2.4

#### **Building Local Technical Support**

**Step 1:** Identify the people in the system who will provide the local support, for example, it could be teachers who are interested or other technical staff that are in the system. For example, a group of interested teachers in every sub-district should be identified and trained to play this role. This

group will be expected to troubleshoot technical issues that arise in schools. Support can be both on-site as well as virtual (phone and email)

**Step 2:** Provide training that will include :

1. Basic Computer
2. Hardware and Software trouble shooting
3. Ubuntu installation, troubleshooting , upgrading.
4. Internet connectivity

### 3.1.5 Tool 2.5

#### **Open Educational Resources**

##### **Creation of open education resources**

###### ***Design Principles***

1. Creation of resources for teaching-learning and make it available for the teachers and students. The resources will be shared on a web-portal for public access, as well as for continuing review and improvement. The resources would be collaboratively developed and peer reviewed, as well as expert-reviewed by educators.
2. Creation of resources in such a way as to be gender sensitive and to study how gender operates in the teaching fraternity and the impact for gender justice in the teaching fraternity
3. Building a virtual network of teachers and teacher educators to collaboratively create and peer review the OER.

###### ***Form and structure of the educational resources***

1. The overall objectives of science/mathematics/social science education,
2. The contextual validity and relevance of a syllabus topic
3. The nature of expected learning outcomes from introducing a topic in class, at any grade
4. The appropriate structuring across grade levels of learning spiral and sequence for each topic
5. The requirements of background material for teachers for understanding topics in greater detail
6. Availability of material that can be used directly by the students
7. A full description of the activities – including hands-on experimentation, observation, field visits, community interaction, computer simulations, audio visual content (both readily available and teacher made)
8. Inclusion of questions and ideas that will provoke the learners to go beyond the syllabus requirements and connect various subjects
9. Processes for evaluation of the learning outcomes
10. Interlinking of various aspects of the educational resources in a web-based format that will allow for multiple views of the resources, and consequently different ways of using it

The format of these educational resources will factor in these considerations. It would be entirely digital and appropriate linkages will be provided using digital tools. The objective is to not produce a one-size-fit-all encyclopedia. It is rather to produce resource compendiums that can be used by teacher-learners, in appropriate ways.

### ***Requirements for building such resources***

The above detailed scope of the required open educational resources means that educational practitioners will need to be closely and continually involved in the development of the resources. The process of development of these resources will include a concept map (mind map) of the specific topic that outlines all the ideas to be discussed in relation to the topic, and a framework that

1. maps the spiral of understanding and the levels of complexity that an idea will move through from classes 6 – 12 ; this will follow the age-wise curriculum structure contained in the NCF<sup>3</sup>
2. addresses the conceptual learning to be built, the facts to be learnt and the skills to be introduced
3. includes an index of classroom activities, additional resources that need to be used for completing a given lesson
4. provides teacher material for a comprehensive discussion of the topic being introduced, which can also be introduced as additional material for the students as decided by the teacher
5. contains evaluation related activities

Sample resource books are available online :

Science (Measurement & Light) - <http://rmsa.karnatakaeducation.org.in/?q=science>

Social Science(Bhakti Movement) - <http://rmsa.karnatakaeducation.org.in/?q=Social-Science-theme>

Mathematics (Fractions) - [http://rmsa.karnatakaeducation.org.in/?q=front&quicktabs\\_4=2Number of quicktabs-4](http://rmsa.karnatakaeducation.org.in/?q=front&quicktabs_4=2Number of quicktabs-4)

### **Educational Tool Resources**

Any tools that can build and save resources, such as GeoGebra, KTurtle, KTechLab may be uploaded on the web portal. See samples online at [http://rmsa.karnatakaeducation.org.in/?q=front&quicktabs\\_4=4Number of quicktabs-4](http://rmsa.karnatakaeducation.org.in/?q=front&quicktabs_4=4Number of quicktabs-4)

#### **3.1.6 Tool 2.6**

##### **Building the virtual community**

*Web Portal Creation:* To create a web portal the following aspects need to be planned.

1. Server for hosting the portal
2. Use a public software content management system like *Drupal*<sup>4</sup> to create the portal
3. The portal will include space for teachers to blog, discussion forum, links to available quality resources on the Internet organised meaningfully – by subject.

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3 National Curriculum Framework 2005, Government of India

4 Drupal has over 16000 modules which can be easily and freely customised for implementation

*Maintenance and management* : One person or a group of teachers will be in charge of keeping the portal current, updating and uploading information on a regular basis.

*Email Groups and Accounts for blogging/discussion forums and wikis*: Spaces for communication to build a virtual community should begin in phases. Initially teachers could begin by becoming members of email groups. Once the community is established with email groups, the portal should be used for blogging and also discussions through discussion forums. When teachers begin to peer review and curate resources wikis could be built into the forum.

While the programme may begin with one portal for the state, once virtual communities are established future possibilities would include:

1. teachers and teachers for a subject in a smaller defined geography (like districts or block)
2. teachers and teachers for a subject across state
3. teachers and teacher-educators
4. teacher-educators and student-teachers
5. teachers in schools and teachers in colleges and professors in universities
6. across subjects for larger issues in education

### 3.1.7 **Tool 2.7**

#### **Planning Reporting and feedback**

Workshop reports: After every workshop a narrative report is compiled which will include the highlights, issues and feedback received. These reports may be consolidated at the end of the year to create an annual narrative. Also periodically the reports are reviewed and issues and feedback addressed for subsequent workshops. The resource persons facilitating the workshops at the district level are required to email their reports within a week of workshop completion. These reports are also published on the teacher portal as a learning resource in themselves.

Post workshop feedback: A log of all feedback, issues raised by email or the phone should be logged. A system of tracking the issues and ensuring response either via email or phone is established.

Periodic Review All reports and feedback are collated and analysed under categories of programmatic and academic. Based on the results the programme should be altered accordingly.

Annual Feedback: A form to create feedback from all stakeholders and participants of the programme must be created. The form is uploaded on the portal, as well as sent by email for participants to fill out.

## 3.2 **Outputs**

The outputs from this toolbox should summarise and collate information to create a design and planning documents for implementation of public software in ICT programmes.

## 4 Implementation and monitoring

### 4.1 Overview

The purpose of this Tool is to provide tools needed for implementing and monitoring the programme.

The information obtained will

1. provide action items and check lists needed for capacity building workshops to create resource persons ([Tool 3.1](#))
2. provide action items and check lists needed for cascading the capacity building workshops including supporting the workshops virtually in a cascade model. ([Tool 3.2](#))
3. provide action items and check lists needed for monitoring lab infrastructure readiness and technical issues. ([Tool 3.3](#))
4. provide action items and check lists needed for maintaining the virtual community and web portal. ([Tool 3.4](#))
5. provide action items and check lists needed for managing open education resources created by the participants including review and publishing. ([Tool 3.5](#))

This will contribute towards tools needed to smoothly implement and monitor the programme.

The Tool focuses on four contexts:

1. Monitoring and support of face to face capacity building via workshops that happen in a cascade model
2. How to ensure infrastructure and lab readiness.
3. Maintenance of the virtual community.
4. Management of resources collected or created by teachers

#### 4.1.1 Tool 3.1

##### **Participant Information**

To assess the technology skills, understand teaching experiences and get information on access and usage of ICTs of participants, a participant information form is filled by each participant on the first day of the workshop.

A sample [participant form](#) is provided .

##### **Agenda for the workshops**

A detailed agenda must be made for every workshop. The agenda will include the curriculum, facilitators roles, handouts and other materials required and the structure of each session. A [sample agenda](#) is provided.

##### **Workshop Handouts**

A handout for the resource persons as well as teachers, prepared for use during and post workshops includes resource templates, basic literacy, web tools and education tool guides. The [sample](#) is available.

##### **Workshop tracker**

Activity	Things to do	Who is in Charge	Due Date	Notes
<b>Installation of Ubuntu in Schools</b>	Discuss with officials – permissions, coordination with vendors			
	Has the installation been tested in a few schools			
	Installation handout ready			
	Identify is external faculty are needed			
<b>Lab Readiness</b>	See detailed check list and follow up			
<b>Faculty</b>	Computer Literacy			
	Local Language Typing			
	Subject			
<b>Accommodation</b>	Faculty accommodation arrangements			
<b>Course Material Handout</b>	Handout – all parts of the curriculum covered			
	DVD – Public Software			
	DVD – Resource Material			
	Course Material – Installation			
	Other Material – NCERT Textbooks, Teacher Magazines, Journals			
<b>Agenda</b>	Preparation			
	Discussion with Officials			
<b>List of participants</b>	Send SMS			
	Create Group Email			
	Invite Guests			
<b>Stall</b>	NCF Position Papers			
	Pen Drive			
	Magazine Subscriptions			
	Sample laptops			

### Post Workshop follow up

Item	Description
Call active participants	Post workshop identify active participants who could be potential leaders for the programme and be in touch regularly by email and phone to establish relationships
Send circular for assignment submission	Send out assignment circular on email post workshop
Post at least two interesting emails per week	Keep the email group active
Send SMS at least once a week	Send SMS to the group encouraging them to check emails and participate actively.
Follow up emails	Send emails reminding of Ubuntu Installation and Assignment submissions
Review Assignments and post feedback	All assignments submitted must be acknowledged, reviewed. Feedback

	may be sent individually or back to the forum on a case by case basis.
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#### 4.1.2 Tool 3.2

##### District workshops facilitated by resource persons

Item	Description
All resources including trackers, handouts and resource material to be uploaded on the portal	See for sample
Districts share training schedule	
Resource persons submit participant information and report of workshop by email	

#### 4.1.3 Tool 3.3

##### Lab readiness check list

Tasks	Write Notes Here
Coordinate with Lab in charge before going on what needs to be taken/purchased.	
Give estimates, get appropriate permissions before purchasing any materials. Keep all bills	
Pilot first Installation, check then do the rest of the lab	
Install Ubuntu in all Machines in Lab	Number of Computers Installed and Working
While Installing please coordinate with lab support persons so they learn to install	
Check if HUB /Ethernet Cable is required	
Check internet availability	
Projector Availability	Is there space to project ?
Seating Arrangements	Is it a classroom set-up or a lab set-up ?
Mike and Speaker Availability	
Does a wireless router exist ?	
White Board / Marker Availability	
Tables to Set Up Stall	
Availability of Extension Chord	
<b>List Items to take</b>	
DVD with Ubuntu	
Hard Disk in case some data needs to be backed up	
Net books	
Pen drives	
<b>List items to Purchase</b>	
Wireless Router	
Hub	

## Technical Support Log

<b>Serial No</b>	
<b>Name of caller</b>	
<b>Designation</b>	
<b>Institution</b>	
<b>Contact details</b>	Email and mobile number
<b>Date of Call</b>	
<b>Name of caller</b>	
<b>Issue raised</b>	
<b>Solution suggested</b>	
<b>Status</b>	Date and status
<b>Issue Closed</b>	Resolved/ No solution found
<b>Date Closed</b>	

### 4.1.4 Tool 3.4

#### Maintenance of Web Portal

<b>Item</b>	<b>Description</b>
Web Service plan	Payments, upgrades and other technical aspects that arise
Keeping the portal current	Regularly updating the portal with resources, links
Maintaining the portals user information	Creation and access of login ids and permissions
Analysis of website	Example, use tools similar to google analytics to analyse number of visitors, popular pages etc...
Removal of dead links	Ensuring all links are working
Prevention of spam	Monitoring logins and security

### 4.1.5 Tool 3.5

#### Open Education Resources

1. The framework for resources will be in the form of a matrix that maps subject areas by grade level and complexity. This matrix will give the content as well as the learning outcomes (standards) that can be expected. The matrix is not a basis for student evaluation rather a roadmap for developing the conceptual understanding of a topic. The template will be developed in the workshops.
2. Resources will be developed for each of the elements in the matrix. These resources will be contributed to and developed in the form of a wiki.



3. Resources so contributed will be editorially and substantively reviewed by peers and experts.
4. Creation of a community of science educators (National Association of Science Teachers) that will create these resources as well as share best practices and feedback on how to use them for impacting teaching-learning processes in the classrooms.

#### 4.2 ***Outputs***

All the check lists from this toolbox will form a implementation and monitoring output document.

## 5 Assessment

### 5.1 Overview

The purpose of this Tool is to provide a framework for accessing the programme at periodic intervals .

The information obtained will

1. provide methods for continuous feedback and assessment. ([Tool 4.1](#))
2. provide methods for annual feedback and assessment. ([Tool 4.2](#))
3. periodic and annual review of the programme ([Tool 4.3](#))

The Tool focuses on the following context:

1. Continuous feedback and assessment.
2. Annual feedback and assessment.
3. Review and replanning.

#### 5.1.1 Tool 4.1

##### Workshop Reports

Feedback through open discussions are collected during the workshop. The report should be written within a week of the event taking place. It should be used to review and evaluate the programme.

A [sample workshop report](#) is provided.

##### Open Education Resources

1. Continuous refinement and feedback on the resources through use and adoption in classrooms by practising teachers.
2. Inclusion of classroom activities and links to textbooks
3. Feedback from teachers on use of resources.
4. Resource creation capacity building for teachers who are trained at the as resource persons only.

#### 5.1.2 Tool 4.2

A end of year feedback is taken from all participants and stake holders of the programme to use for the review and evaluation process.

A [sample feedback form](#) is provided here

#### 5.1.3 Tool 4.3

##### Review & Evaluation

Item	Description
Programmatic	

Access to computer with public software	
Internet connectivity	
Logging of technical issues	
Resolution of technical issues logged	
Travel, boarding and lodging during workshops	
<b>Academic</b>	
Curriculum of workshops	
Quality of Resource Material	
Quality of Resource persons	
Quality of transaction of curriculum	Sufficient time on the computer
<b>Virtual Community</b>	
Quantity of emails exchanged	
Nature of emails exchanged	
Usage of web portal	
Relevance and quality of web portal content	

## 5.2 ***Outputs***

An annual report on the status, impact and replanning of the programme.

## 6 Annexure A

<b>Document</b>	<b>File Name</b>
Narrative	Narrative Report on Public Software Centre project - UNESCO April 2012.pdf
Course List	Model for Teacher Professional Development using ICTs in Education for Schools, DIETs and other academic institutions.pdf
Participant Information	Participant Information.pdf
Workshop Agenda	Subject Teacher Forum - Agenda.pdf
Workshop Handout	Resource Book for MRP Cascade training - RMSA Subject Teachers Forum - IT for Change November 2011.pdf
Workshop Report	Workshop1 Mathematics STF RMSA.pdf
Annual Feedback Form	Annual Feedback Form – STF.pdf