



# **Cofimvaba Rural Education Development**

## **ICT Working Group**

### **Reportback and Scoping**

Merryl Ford  
CSIR Meraka  
18 Jan 2013



basic education  
Department:  
Basic Education  
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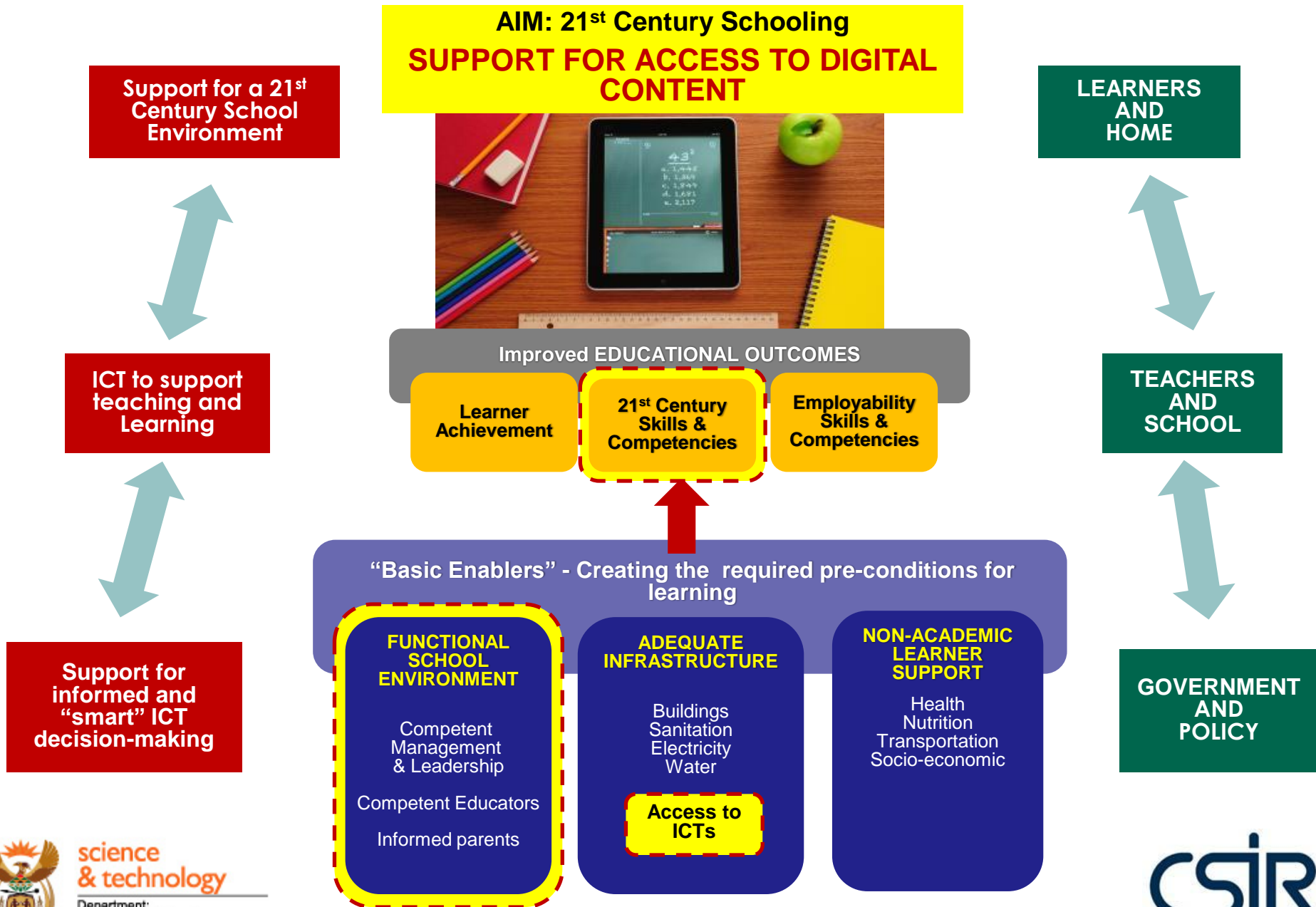


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# Working Group members

- Active (at the moment):
  - Merryl Ford (CSIR Meraka)
  - Isaac Maredi/Jeanette Morwane (DST)
  - Phil Mnisi (DBE)
  - Prof Werner Olivier (NMMU)
  - Prof Mary Metcalfe (DBSA)
  - Fiona Wallace (Coza Cares)
  - Mario Marais, Marlien Herselman, Adele Botha, Rasha Miri, (CSIR Meraka)
  - Wessel Wessels (Hive Holdings)
- Other (advisory/support):
  - Mpho Letlape (Sasol Inzalo)
  - Prof Veronica McKay (UNISA/DBE)
  - Prof Laura Czerniewicz (UCT)
  - Saretjie Mostert (UFS)
  - Dr Ronel Callaghan (UP)
  - Dr Jacqueline Batchelor (UJ)
  - Dylan Busa (Mindset)
  - John Thole (Edunova)
  - Kobus Roux (CSIR Meraka)
  - Shafika Isaacs (SchoolNet SA/independent consultant)
  - Others... (pulled in as needed)

# Cofimvaba eTextbook Priority Focus



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# Aim

To investigate the viability of providing **electronic textbooks** and other **educational digital content resources** to 25 schools in the **Nciba Circuit** of the Cofimvaba School District. This learning will **enable recommendations and models** for **scaling** these to other areas in the District and potentially

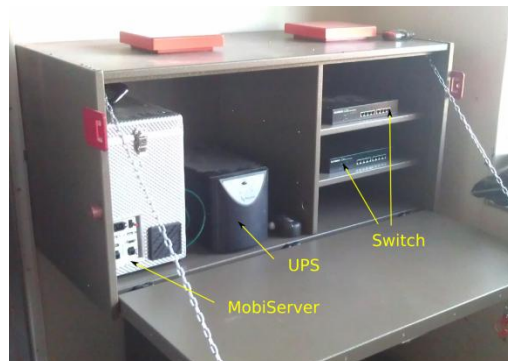
# Objectives

1. Design **approaches and models** to **present** by **learners** at poor and **schools** in South Africa;
2. **test and improve new and evolving technologies, mobile devices, platforms and** **technologies** that support the **use of digital content** for **rural school environments**;
3. **Measure** the effect on the **21<sup>st</sup> skills of learners**; and
4. Use the **evidence** from the research within this context to **inform policy** in an integrated and coherent manner.

**Recipe for Success**

# Arthur Mfebe SSS

- **MobiCHARGE** – Solar/Wind/other charging station (lockers) for schools (phones/laptops/tablets/netbooks)
- **2 x MobiKIT** – shared, portable tablet x 10 kit to be used as a resource in the classroom.
- **MobiHub** – Portable wifi hub and content server (Digital Doorway) with battery backup
- **MobiServer** – Server in a secure desk containing Digital Doorway + MIB content. Includes a UPS and switch.
- **Wifi network** in the school
- **Teacher-training** - have undergone 4 mini courses – focus on how to manage devices in a school and how to teach with tablets.
- **Dr Math** and **QuizMax** have been introduced to the school.
- Partnership with **NMMU** and their Maths and Science teaching system (Netbooks, projectors and tablets)





# Project Scope (3 – 5 years)

- Focus on 26 Nciba schools, 6 500 learners
- Test various models, in terms of
  - ✓ Devices (tablets)
  - ✓ Content
  - ✓ Infrastructure
  - ✓ Connectivity
  - ✓ Integration into the school
  - ✓ Costs (TCOs)
  - ✓ Sustainability
  - ✓ Logistics
  - ✓ Support & Maintenance
  - ✓ Operations
  - ✓ Change Management
  - ✓ Teacher training
- In parallel with existing paper-based textbooks
- CSIR Meraka will have overall project Management responsibility



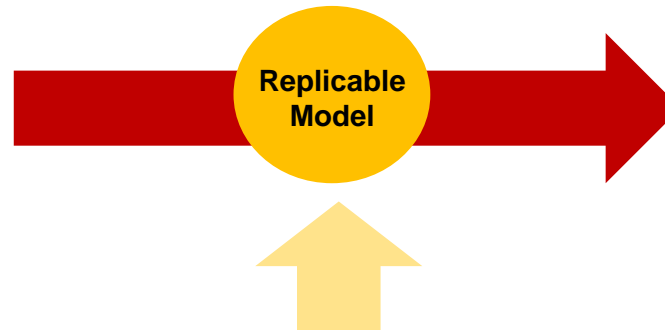
# “9 Component Model”

NOW

21<sup>st</sup> Century Schooling



**Learning and Teaching Support Material**  
consisting of paper-based textbooks, workbooks & readers

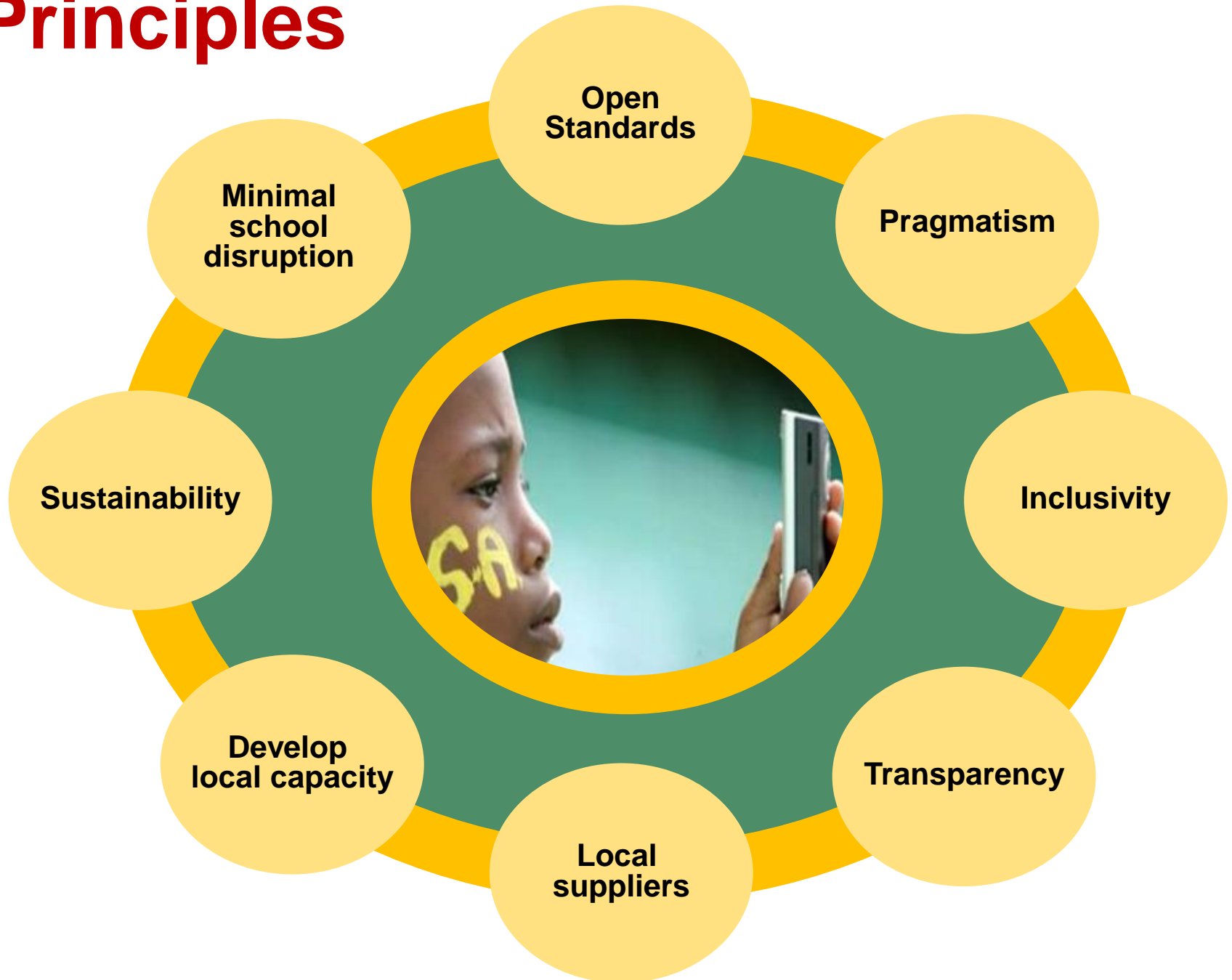


**Learning and Teaching Support Material** consisting of interactive multimedia learning resources

## Programme Management

|  |   |  |
|--|---|--|
| <b>CONTENT</b><br>Standards<br>Conversion<br>Creation & Customisation              | <b>SCHOOL INFRASTRUCTURE</b><br>Devices<br>Wireless LAN<br>Storage and Power                    | <b>NETWORK</b><br>WiFi Mesh<br>Backbone connectivity<br>Internet     |
| <b>CHANGE MANAGEMENT</b><br>People (District, SMT)<br>Technology<br>Process        | <b>PEDAGOGY</b><br>Training<br>Preparation<br>In the classroom                                  | <b>RESEARCH</b><br>Masters & PhD<br>Technology R&D<br>ICT4E R&D      |
| <b>OPERATIONS MANAGEMENT</b><br>Logistics<br>Support & Maintenance<br>Distribution | <b>KNOWLEDGE SHARING</b><br>Marketing strategy<br>Social Media Strategy<br>Knowledge management | <b>MONITORING &amp; EVALUATION</b><br>Learners<br>Teachers<br>School |

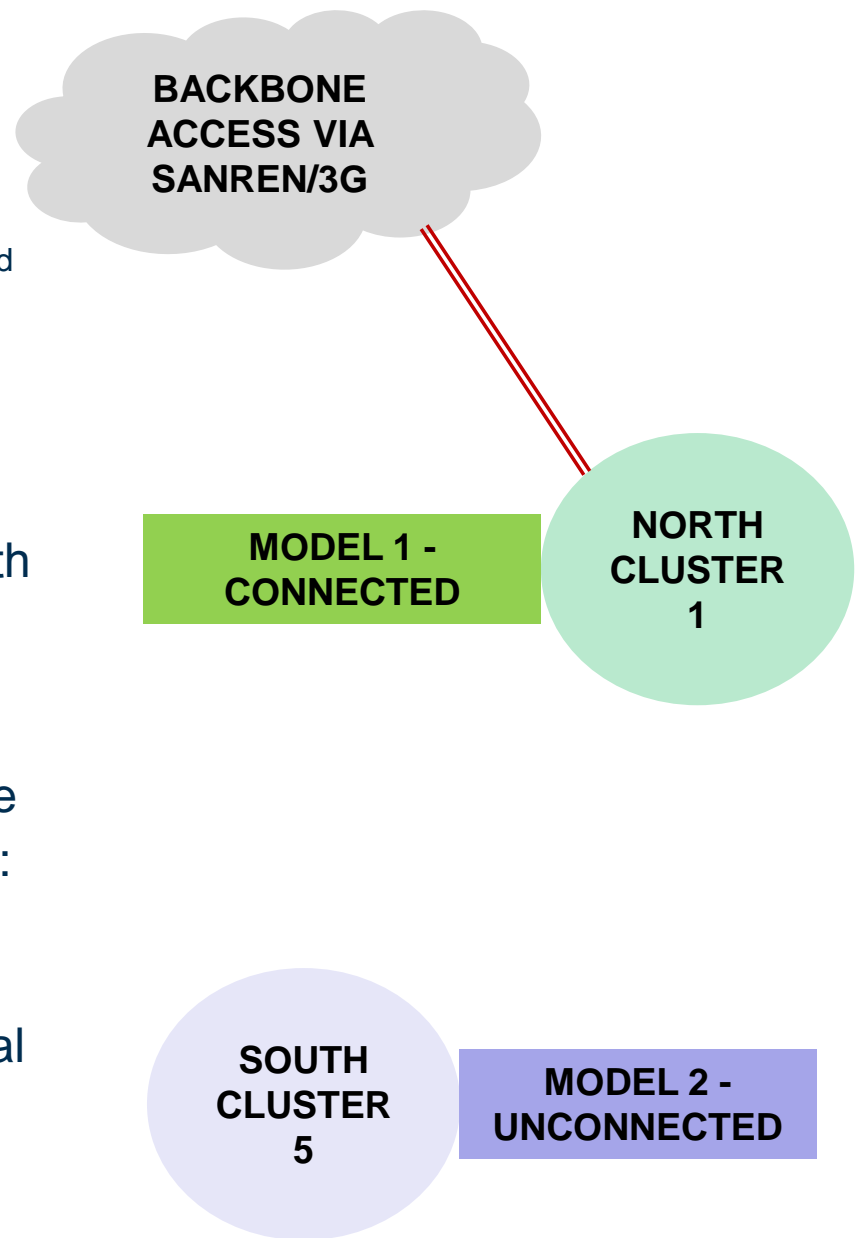
# Principles





# Concept – Phase 1

- 9 schools
  - 3 x Senior Secondary - Arthur Mfebe, Siyabalala and Kwahza
  - 6 x Junior - St Marks, Bangilizwe, Mvuzo, Gando, Mtimbini, Zamuxolo
- Local wifi network per school
- Schools physically close clustered in 2 groups – North (“connected”) and South (“unconnected”)
- Schools in each cluster linked to each other via wireless mesh
- Clusters linked to each other if possible
- Different models tested in each cluster:
  - ✓ Devices
  - ✓ Content management process
  - ✓ Device management
- Leverage early successes for additional funding and expansion into additional schools



# Process – Phase 1 (2013)

## STEP 1: Meeting with principals and deputies, and allocated ICT champion

- ✓ Hand out tablets
- ✓ Preparatory course – change management and how to manage technology in a school
- ✓ (Include district officials?)
- ✓ Homework to be completed before STEP 2

## STEP 2: Teacher training

- ✓ Tablet per teacher
- ✓ Model as per Arthur Mfebe – “Learn to Earn”
- ✓ Homework to be completed over 4 courses (until the researchers are sure that they are ready), then STEP 3

## STEP 3: MobiKits to Schools

- ✓ According to size of school
- ✓ Shared tablets in the classroom
- ✓ MobiHub installed (local wifi in the classroom, local content)
- ✓ Monitoring & evaluation as to usage and management of these devices
- ✓ Continuing training of the teachers (who continue to do their “homework”)
- ✓ Once happy that the school is ready, STEP 4

## STEP 4: Tablets to learners

- ✓ Continuing training of the teachers (who continue to do their “homework”)
- ✓ Wifi installed in school plus linked to other schools in cluster
- ✓ Tech support person appointed
- ✓ Pedagogy support person appointed

## STEP 5: Handover to management entity

- ✓ Ongoing ops management and support



## CONTENT

Standards  
Conversion  
Creation & Customisation

### • Status

- Meeting with Phil Mnisi on 17 Jan 2013
- Strategy being developed – collaboration between DBE, CSIR Meraka, BreadBin and Coza Cares
- Decentralised content hubs that synchronise with centralised content hub (in the cloud)
- FREE local access (wifi) via the school content hub
- Content and apps for Grades R to 12 (peer-reviewed and quality-controlled)
- One point of access for ALL curriculum-aligned educational content and applications
- Meraka to manage the process (potentially providing technology input)

### • Next Steps

- Proposal with costing being developed
- Meraka team to meet with BreadBin team in Cape Town asap
- RFP to be published for a “Content Champion”

### • Issues

- Funding strategy (DBE-funded? Private sector-funded?)



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## SCHOOL INFRASTRUCTURE

Devices  
Wireless LAN  
Storage and Power



### • Status

- Valuable lessons learned at Arthur Mfebe
- Developing an invitation to all interested parties to attend an information session re specs of teachers' and learners' tablets
- Aim is to get suppliers to donate 10 – 20 tablets to be part of MobiKit
- Developing detailed infrastructure plans per school, covering issues such as power/charging of devices; safe storage; access (internet/backbone)
- Appointed technical support champion

### • Next Steps

- Session with suppliers
- Detailed costing and rollout plan
- RFP to be published for a “Device specialist”

### • Issues

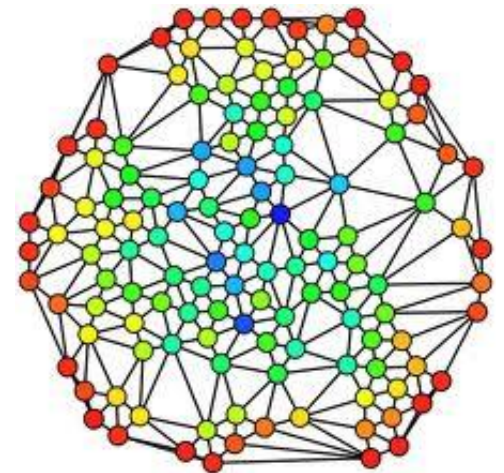
- Rollout dependant on secured funding

## NETWORK

WiFi Mesh

Backbone connectivity  
Internet

- **Status**
  - Valuable lessons learned at Arthur Mfebe
  - Appointed technical support champion
  - New post advertised (network specialist/architect)
- **Next Steps**
  - Network design (initial plus extended network)
  - Appointment of network specialist/architect
  - Detailed costing and rollout plan
  - Procurement of equipment
- **Issues**
  - Procurement/Rollout dependant on secured funding





## CHANGE MANAGEMENT

People (District, SMT)  
Technology  
Process

- **Status**
  - First session (Principal + Deputy + School ICT Champion) to be held end-Feb
  - Training of District officials the day before
- **Next Steps**
  - RFP to be published for a “Change Management specialist”
  - Procurement of tablets for the management teams
- **Issues**
  - Rollout dependant on secured funding



## PEDAGOGY

Training  
Preparation  
In the classroom

- **Status**
  - Arthur Mfebe training of teachers ongoing (6 sessions left)
- **Next Steps**
  - RFP to be published for a “Training company”
  - Training of teachers at the additional 8 schools to start
  - Procurement of teacher devices
- **Issues**
  - Rollout dependant on secured funding



## RESEARCH

Masters & PhD  
Technology R&D  
ICT4E R&D

- **Status**

- Dr Marlien Herselman (NRF-rated researcher) to drive research focus
- Development of a “Scholarship programme” for Masters and PhD studies of the Cofimvaba initiative – R40 000 Masters, R70 000 PhD (per year)
- “Unfunded” PhD study already underway (UNISA student) – study of eTextbook business models (joint supervision)
- Meetings with various universities underway

- **Next Steps**

- Allocation of scholarships (5x Masters, 5xPhD)

- **Issues**

- Funding secured for Year 1 (RAF)
- Need funding for Years 2 – 3 (5?)





- **Status**
  - Appointed technical support champion
- **Next Steps**
  - Development of operational management plan
  - RFP for Support and Maintenance training partner
  - Identification and training of youngsters from the area
- **Issues**
  - Funding for technical support champion secured for Year 1 (RAF)
  - Need secured funding for the rollout

## KNOWLEDGE SHARING

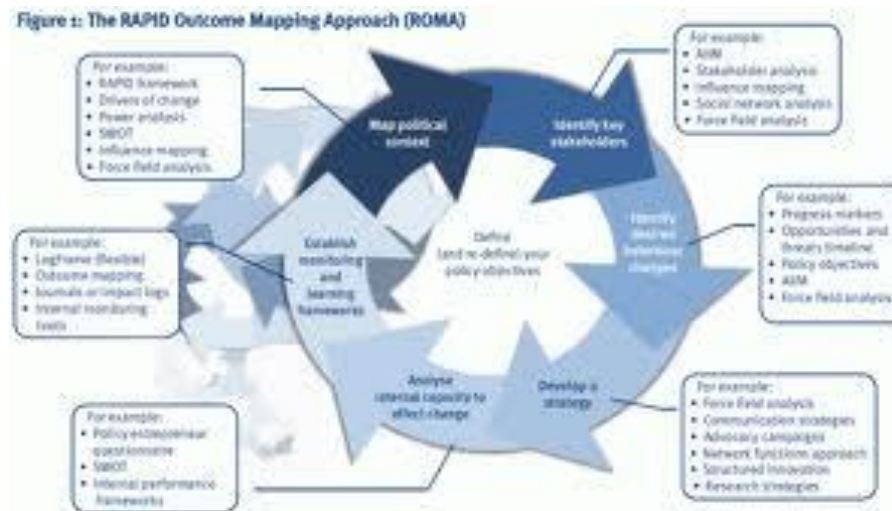
Marketing strategy  
Social Media Strategy  
Knowledge management

- **Status**
  - Putting together a marketing/information sharing web site
  - Registering on Twitter and Facebook
- **Next Steps**
  - Development of marketing strategy (with DST + DBE)
  - Development of a social media strategy
  - Identification of “knowledge management” champion
- **Issues**
  - Funding secured for Year 1 (RAF)
  - Need secured funding for additional years





- Status
  - Putting together an M&E Framework
- Next Steps
  - Implementation
  - Linkage with HSRC M&E framework
  - Linkage with Prof Mary Metcalfe's initiative and M&E activities
- Issues
  - Funding secured until April 2013 (RAF)
  - Need secured funding for additional years



# Programme Management

- Project Manager appointed for Year 1 (Rasha Miril)
- Networking and Funding activities:
  - Meetings with Altech Autopage – keen to fund
  - Meetings with MacMillan – will donate digital textbooks to all schools that are part of this initiative
  - Meetings with Coza Cares – will fund BreadBin at District Office
  - Meetings with ECDoE – to be arranged
  - Meetings with Shell – next week
  - Meetings in Cape Town to be arranged:
    - Siyavula textbooks (Mark Horner)
    - DG Murray Trust (Angela Biden)
    - Old Mutual
    - BreadBin
- Developing a detailed plan and project proposal for Phase 1 (9 schools) to be submitted to DST (R10 million) – will cover rollout in Year 1
- Developing a set of “packaged” interventions that can be funded by the private sector



# Thank you