
ICT in Education:
Malaysian Experience
KEMENTERIAN PELAJARAN MALAYSIA

Point of View

From the educator's point of view, the function of ICT in schools is NOT primarily to promote computer literacy, or because technology is the 'wave of the future'. Rather, the function of technology is to enhance teaching and learning.

ICT as Enabler

State-of-the-art pedagogical practices

Changes in the theories and practices of pedagogy, that is the basic elements which are considered to make up 'good instruction'.

Technological trends

Tremendous developments in the capabilities of media technologies, both computer hardware and software, as well as the whole computer systems. These trends are likely to continue for the forseeable future.

Smart School Pilot Project

The Smart Schools initiative is one of the flagship applications that are part of Malaysia's Multimedia Super Corridor (MSC) project. The Government aims to capitalise on the presence of leading-edge technologies and the rapid development of the MSC infrastructure to jump start deployment of enabling technologies to schools.

Objectives of the Malaysian Smart School

To produce a thinking and technology literate workforce

To develop students physically, mentally, emotionally, and spiritually balanced

- To achieve the goals of the National Educational Philosophy
- To develop a workforce for the Information Age

To provide opportunities to improve individual strengths and abilities

To increase stakeholders' involvement

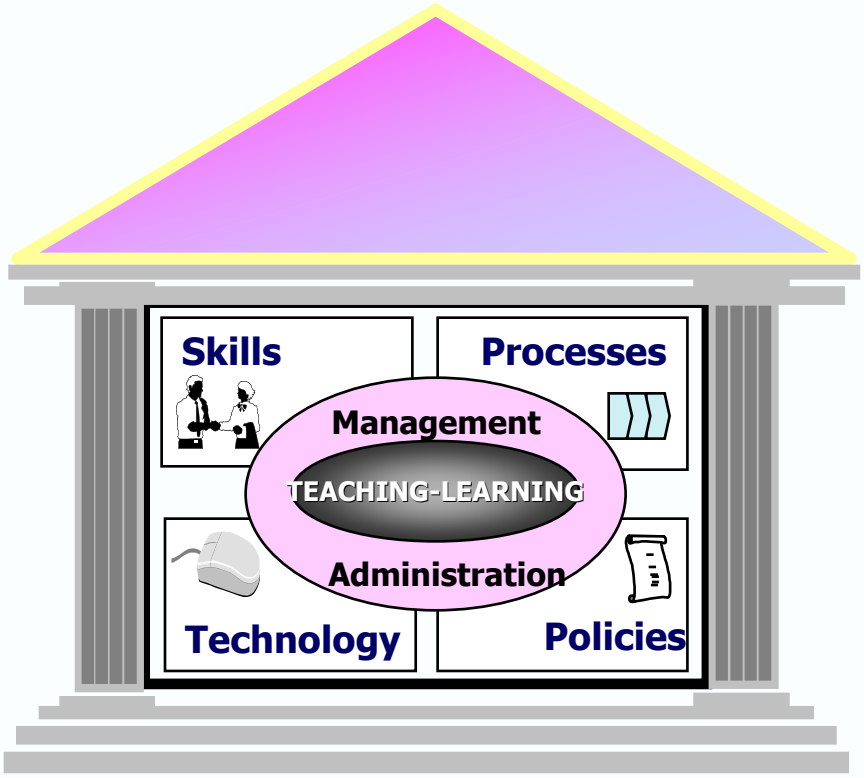
To democratise education

Definition and Main Components of the Malaysian Smart School

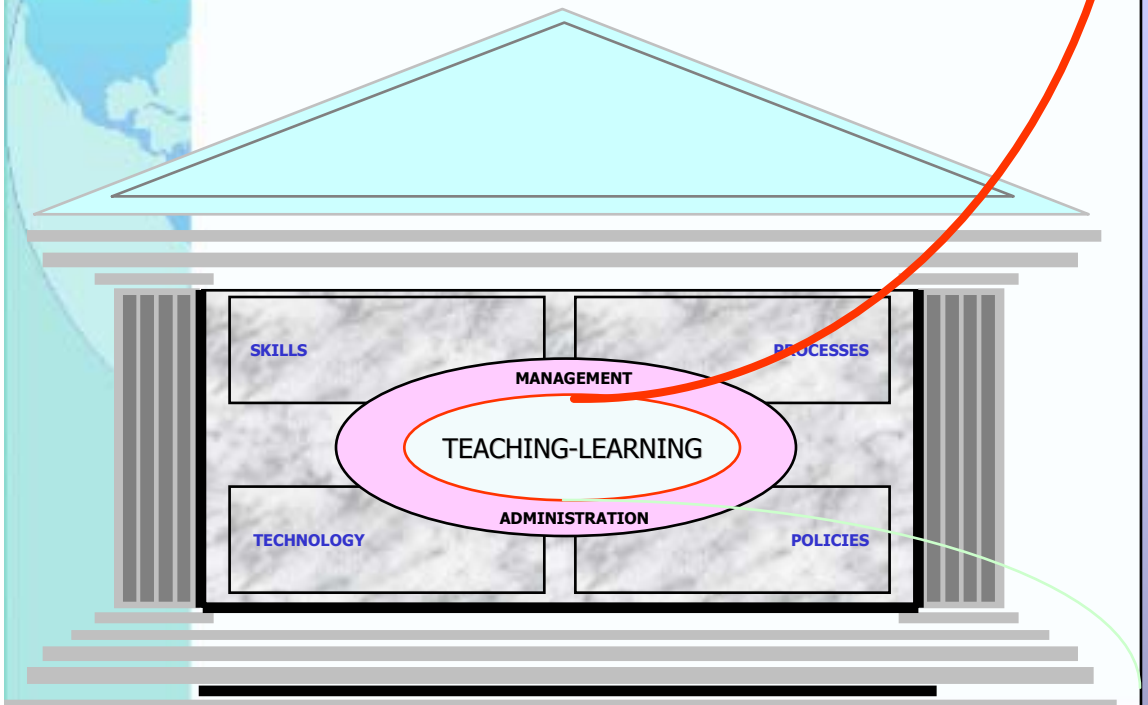
Definition

… a learning institution that has been **SYSTEMICALLY** reinvented in terms of teaching-learning practices and school management in order to prepare children for the Information Age

Main Components



The Smart School Teaching and Learning Components



Curriculum

Pedagogy

Assessment

Materials

Curriculum Features

1. Overall development
2. Knowledge, skills, values, and language across the curriculum
3. Explicit learning outcomes for different levels of ability
4. Integration of knowledge, skills, and values for the Information Age

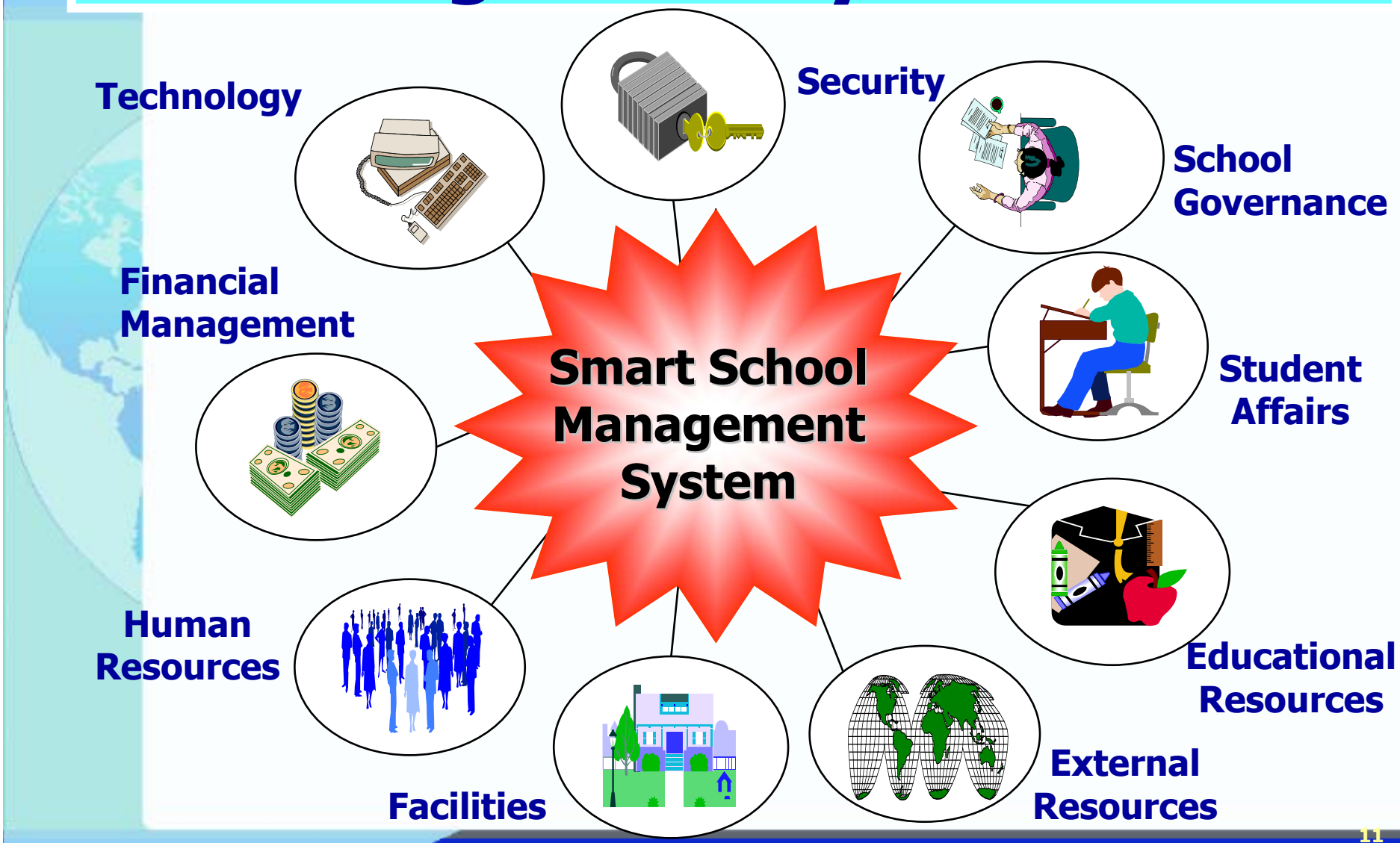
Pedagogy Features

1. Varied learning strategies to ensure basic competencies and overall development
2. Catering to different learning styles
3. School environment conducive for a variety of teaching-learning strategies

Features of Materials

1. Fulfil curriculum and teaching-learning needs
2. Challenge thinking, motivate learning, encourage active participation
3. Network-based, teacher-based, and materials-based
4. Conventional and electronic materials

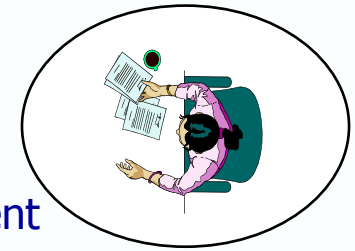
Components of the Smart School Management System . . 1



Smart School Management System ...2

School Governance

- Communications
- Public relations
- School policy making
- Curriculum management
- Community involvement

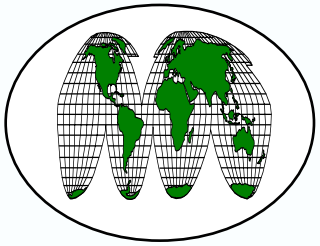


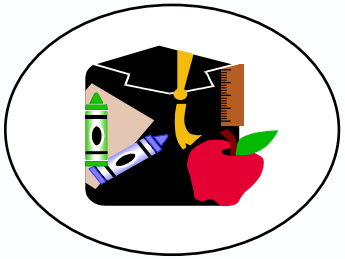
Student Affairs

- Student profiles
- Performance evaluation
- Test administration
- Counselling
- Health, insurance, etc.

External resources

- Database management
- Liaison with external resources



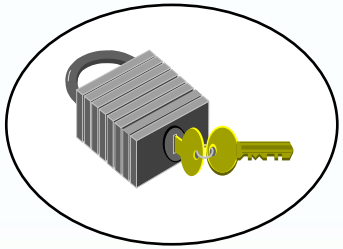


Educational Resources

- Resource database management
- Input to curriculum management

Security

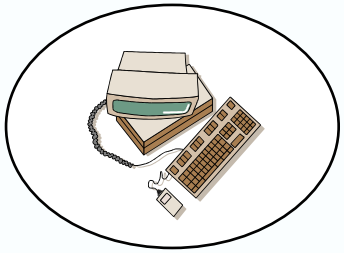
- Physical security
- IT security
- Student safety



Smart School Management System ...3

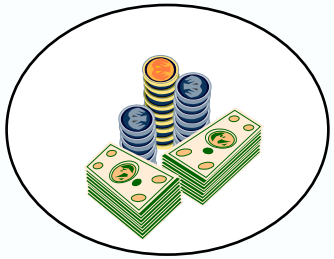
Technology

- Long-term planning
- System implementation
- System maintenance
- Training
- Field support management



Financial Management

- Budgeting
- Reporting
- Accounting
- Purchasing
- Project funding
- Long-term planning
- Audit and control



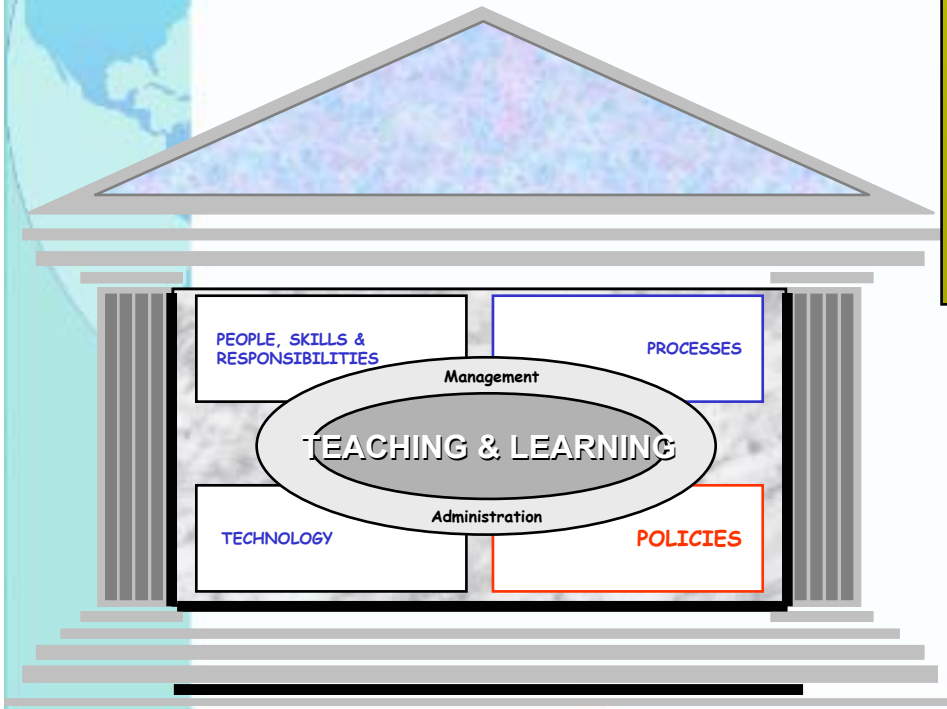
Human Resources

- Teacher scheduling
- Human resources skills management
- Hiring
- Promotion/transfer management
- Vacation/sickness management
- Staff training management

Facilities

- Facility scheduling
- Maintenance
- Asset management
- Alternative usage

Reinventing Policies



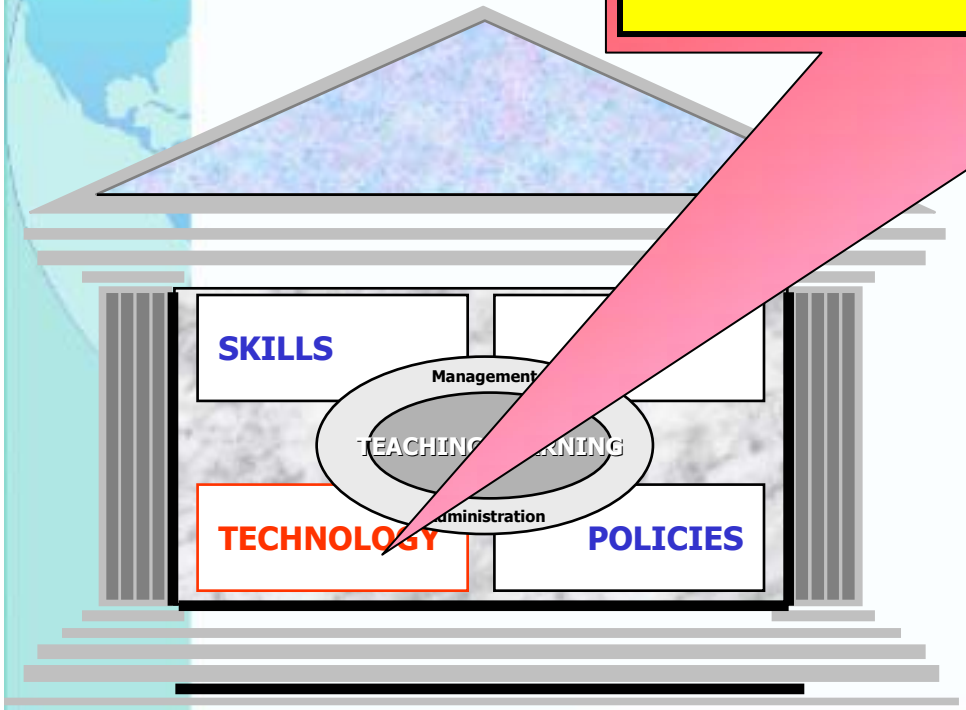
The policy implications for Smart Schools	To ensure successful implementation	Policy issues
• The goals of Smart Schools • The envisioned features of Smart Schools • The existing policies and regulations in education	Changes in existing • Policies • Regulations to make them in line with the goals of Smart Schools AND To formulate • New policies • New regulations that will enhance the chances of success of Smart Schools	• Teaching-learning processes • Management functions - of the overall Smart School system - within a Smart School • People, skills and responsibilities • Technology

Technology for the Smart School

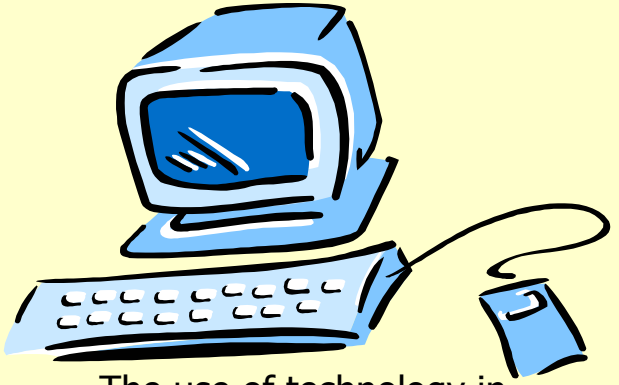
SS Practices
- Teaching-Learning
- Management system
- External constituencies

Technical Requirements
- Sample solution applications
- Network requirements

Technology solutions:
- school
- district
- state
- national



Technology in the school

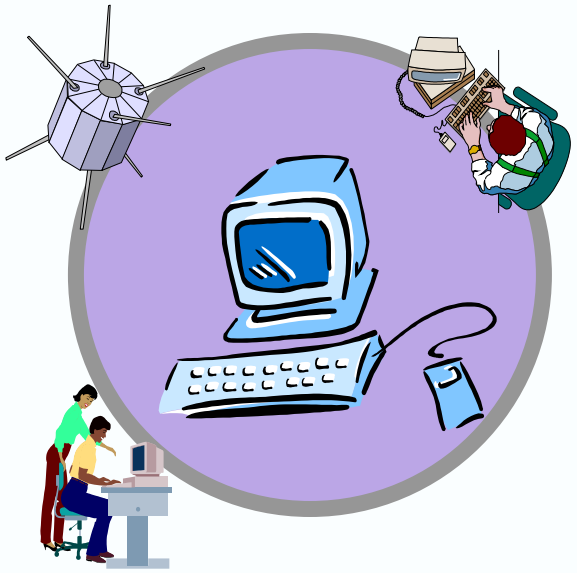


The use of technology in the school environment

The Use of Technology in the Smart School

Information processing and productivity tool

- word processors
- databases
- spreadsheets
- presentation progams
- multimedia authoring tools
- e-mail
- video production equipment
- digital reference materials
- electronic indices
- network search engines



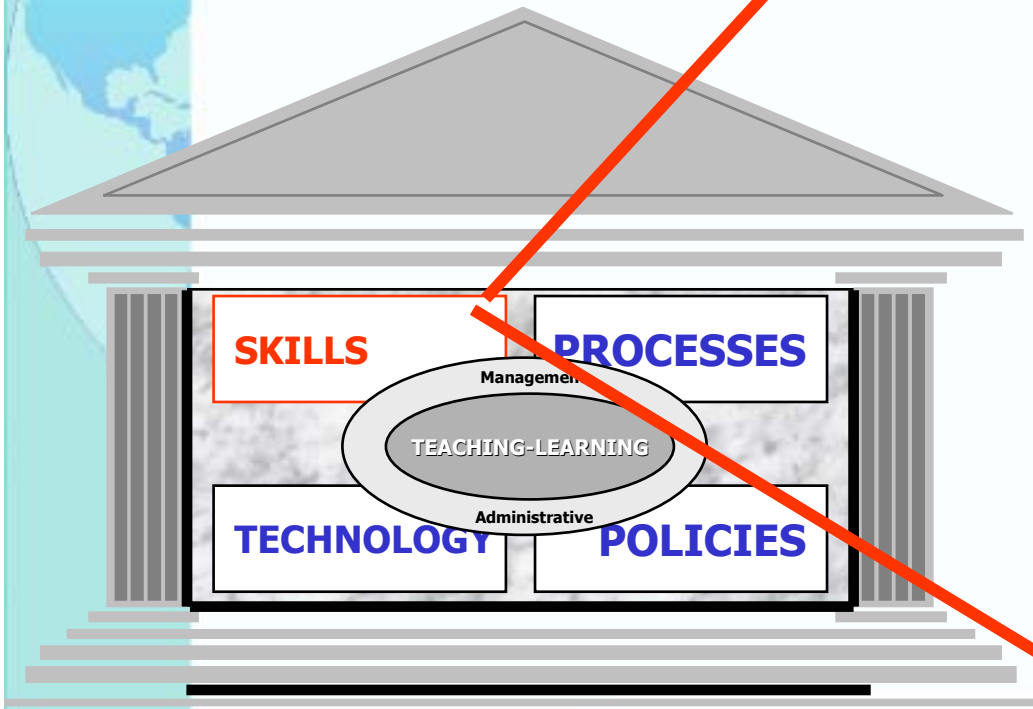
Enhance professional development

- administrative software packages
- e-mail and word processing
- specially designed teacher tools e.g. computerised gradebooks, test/worksheet generators, curriculum templates

Enhance instruction:

- drill and practice
- Integrated Learning Systems
- videotaped books
- computer-animated picture books
- trivia recall games
- problem-solving and simulation software

Stakeholders in the Smart School



- Teachers
- Principal
- Support Staff
- Other MOE Officers
- Parents and the Community

Roles and Responsibilities?

Knowledge, skills,and attitudes?

Training?

Implementation of the Smart School

Pilot Project:

- A Smart School Pilot Project for three years (1999 - 2002)
- 87 pilot schools throughout the country
- Three models of technology – computer lab model, limited classroom model, full classroom model
- Ended in December 2003

Broad Roll-out , 2006 - 2010

- The Government of Malaysia as architect and motivator
- The Ministry of Education prepares guidelines and provides basic amenities

The Pilot Project: A "Smart" Partnership

Government of Malaysia + **Telekom Smart School Sdn. Bhd.**

Ministry of Education

87 pilot smart schools throughout Malaysia

Local Companies:

Telekom Malaysia Sdn. Bhd.
Sapura Holdings Sdn. Bhd.
Educational Trend Sdn. Bhd.
DEMC Anzagain Sdn. Bhd.
Digital Technology Sdn. Bhd.
Multimedia Synergy Corporation Sdn. Bhd.
Custommedia Sdn. Bhd.

Multinational Companies:

BT Multimedia (Malaysia) Sdn. Bhd.
Electronic Data Systems IT Services (Malaysia) Sdn. Bhd.
NIIT Malaysia Sdn. Bhd.

Technology Infrastructure

Model B (Lab Model)	B+ Model (Limited Classroom Model)	Model A (Full Classroom Model)	Data Centre	Help Desk
37 computers	81 computers	520 computers	10 computers	13 computers
2 notebooks	2 notebooks	5 notebooks	-	-
3 servers	3 servers	6 servers	3 servers	5 servers
-	-	Videoconferencing equipment	-	-
COINS leased line (128/64 kbps)	COINS leased line (128/64 kbps)	COINS leased line (512/256 kbps)	COINS leased line (2 Mbps)	COINS leased line (2Mbps)

Pilot Project Achievements

High Quality Teaching-Learning Materials and Smart School Management System

Creation of world class local industry

- Smart partnership with Government
- Stimulating local entrepreneurial development

Smart School Management System
(9 modules)

- **Bahasa Melayu (Primary and Secondary School)**
  - 117 Courseware
  - 117 Teachers Guides
  - 117 Student Activity Books

- Engaged 81 Malaysian Small and Medium Enterprises
- Involved 1,000 skilled IT professionals

- **English Language (Primary and Secondary School)**
  - 408 Courseware
  - 408 Teachers Guides
  - 408 Student Activity Books
  - 400 Correlated Websites

- 68 full-time secondees from Ministry of Education

- **Mathematics (Primary and Secondary School)**
  - 561 Courseware
  - 561 Teachers Guides
  - 153 Student Activity Books
  - 5 Secondary Text Books

- 1,494 Teaching-Learning modules
- 180 gigabytes
- 87 schools nationwide

- **Science (Primary and Secondary School)**
  - 408 Courseware
  - 408 Teachers Guides
  - 408 Student Activity Books

Lessons Learnt

Viability of Smart School Integrated Solution

- Management modules scalable, and flexible for integration with on-going ICT initiatives
- Web enabled
- Learning Management System

Technology Infrastructure

- Student:computer ratio too high
- Connectivity
- Broadband access required

Change Management

- Holistic approach imperative
- On-going guided training required
- Create champions

Policy

- Alignment of objectives at all levels required, within the Ministry and between Ministries/agencies

The way forward

Smart enabled all the shools

2006 -2010

Strategies

Leveraging all ICT initiatives:

- **Computer Laboratory Project**
- **Teaching of Science and Mathematics in English**
- **Training of teachers to teach Mathematics and Science in English**
- **SchoolNet Project**
- **Educational TV**

Technology Infrastructure

- **Access Centre**
- **Upgrading computers in 88 Smart Schools**
- **Repository Centre In MoE**

Advancing E-Learning

Web based and International Open Standard (SCORM)

Online learning

SCHOOLNET IMPLEMENTATION TO PRIMARY AND SECONDARY SCHOOLS

TECHNOLOGIES	NO OF SCHOOLS	KIV - GENSET	KIV - OTHERS	TOTAL TO BE INSTALL	INSTALLATION IN PROGRESS	TOTAL COMPLETED	PERCENTAGE
ADSL	5,664	-	3	5,661	9	5,652	99.8%
WIRELESS	791	3	-	788	-	788	100.0%
VSAT	2,961	364	-	2,597	14	2,583	99.5%
USP*	220	-	-	220	-	220	100.0%
TOTAL	**9,636**	**367**	**3**	**9,266**	**23**	**9,243**	**99.8%**

USP – Universal Service Provider

Strategies

Smart Partnership

- **Prestariang Technology Sdn Bhd**

Teacher Continuing Professional Development in ICT

- **Time Engineering Bhd**

Supplying computers and peripherals for PPSMI

UEM Group Primary Literature Program

Innovative Teachers Network Program

- **Microsoft (Malaysia Sdn. Bhd.)**

Partners in Learning

- **INTEL Technology Sdn. Bhd.**

Intel Teach to the Future Program

Terima Kasih

Thank You