CURRICULUM MANAGEMENT & DELIVERY

Philosophy, Concepts and Development Processes

presented to the

PROVINCIAL HRD TECHNICAL TASK TEAM

by the

MST & ICT DIRECTORATE
Wednesday, 20th June 2017

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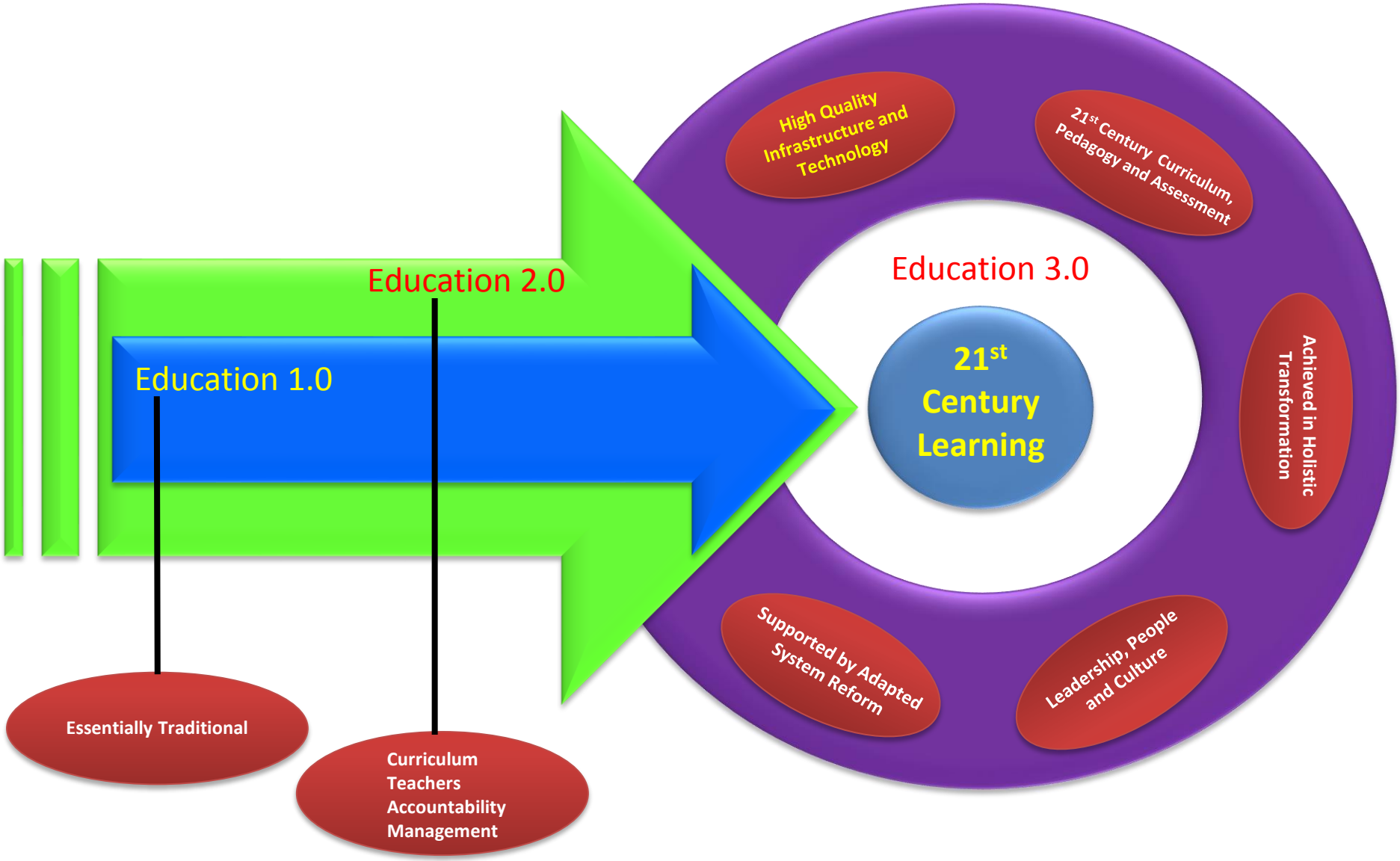
Summary of the presentation…

- The evolution of education systems
- Implementation of the Maths, Science and Strategy
- Operation Phakisa – ICT in Education
- ICT in Education in KwaZulu-Natal
- KwaZulu-Natal Schools' Digital Network (KZN SDN)
- Educational challenges – local and global
- The digital evolution and/or revolution
- Learning spaces in the 21ST Century
- What **EVERY** school needs
- Discussion/Questions

Towards 21ST Century Learning…



Source: Cisco 2008

The future of Education…

The Evolution of Learning

Personalised Learning for Every learner

Self-organised Learning Environments

Cognitive Collaboration in the Classroom

Project-based Learning and Collaboration

The Classroom of the Future

Virtual Laboratories

Schoolwork is Game-based

3D Printing- Builder classroom

Digital Desks and Tablets

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The future of Education…

The Next Generation Teachers

Teachers Deliver Personalised Lessons

Classroom Robots to Assist Learners

Face-coding Identifies Struggling Learners in Real Time

Hybrid Teachers – Combining Self-learning and Instruction

Tomorrow's Curriculum

Augmented Reality Spaces

New Definitions of Literacy in Line with the Digital World

3D Printing- Builder classroom

Digital Desks and Tablets

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Vision 2030 – The National Development Plan…

- Eradication of poverty, unemployment and inequality
- Use education, training and innovation to:
  - improve literacy, numeracy/mathematics and science outcomes
  - increase the number of learners eligible to study Maths and Science-based degrees at university
  - retain learners i.e. decreasing the drop-out rate
- The use of information and communication technologies (ICT) infrastructure to support social and economic development, including teaching and learning

Maths, Science & Technology Interventions …

- School-based support in MST subjects includes:
  - Grade 7 Mathematics in the 51 identified feeder primary schools;
  - Grade 8 to 12 Mathematics in the 88 identified MST Focus Schools;
  - Grade 8 to 12 Mathematical Literacy in the 88 identified MST Focus Schools;
  - Grade 10 to 12 Physical Sciences in the 88 identified MST Focus Schools;
  - Grade 10 to 12 English for Mathematics and Physical Sciences in the 88 MST Focus Schools

Maths, Science & Technology Interventions …

- Support for large enrolment secondary schools in the Ilembe District:
  - Mathematics clinic for **1000** learners:
    - 04 April 2017 – **500** learners expected, **470** learners and **11** teachers attend
    - 05 April 2017 – **500** learners expected, **470** learners and **11** teachers attend
    - 25 June 2017 – **500** learners expected **480** learners and **12** teachers attend
    - 26 June 2017 – **500** learners expected **480** learners and **12** teachers attend

Maths, Science & Technology Interventions …

- Support for large enrolment secondary schools in the Ilembe District:
  - Mathematical Literacy clinic for **1000** learners:
    - 05 June 2017 – **510** learners expected, **449** learners and **12** teachers attend
    - 06 June 2017 – **510** learners expected, **386** learners and **13** teachers attend
    - 08 June 2017 – **520** learners expected, **501** learners and **14** teachers attend
    - 09 June 2017 – **520** learners expected, **328** learners and **11** teachers attend

Operation Phakisa – ICT in Education…

- Education Summit 2011 and 2015
- KZN DoE e-Education Strategy
- Operation Phakisa – ICT in Education

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Operation Phakisa – ICT in Education…

- The founding tenets of Operation Phakisa – ICT in Education are:
  - Digital Content and Curriculum
  - Teacher Professional Development and Support
  - e-Administration leveraging on the implementation of the South African Schools Administration and Management System (SASAMS)
  - Information Technology Lifecycle Management
  - Broadband connectivity – reliable, robust and affordable

The state of ICT in Education in the Province…

- Provision of ICT infrastructure and resources to schools for administration
- Registration of a domain name – **kznschools.co.za**
- Harry Gwala audit – a provincial baseline
- Provision of ICT infrastructure and resources to schools for teaching and learning

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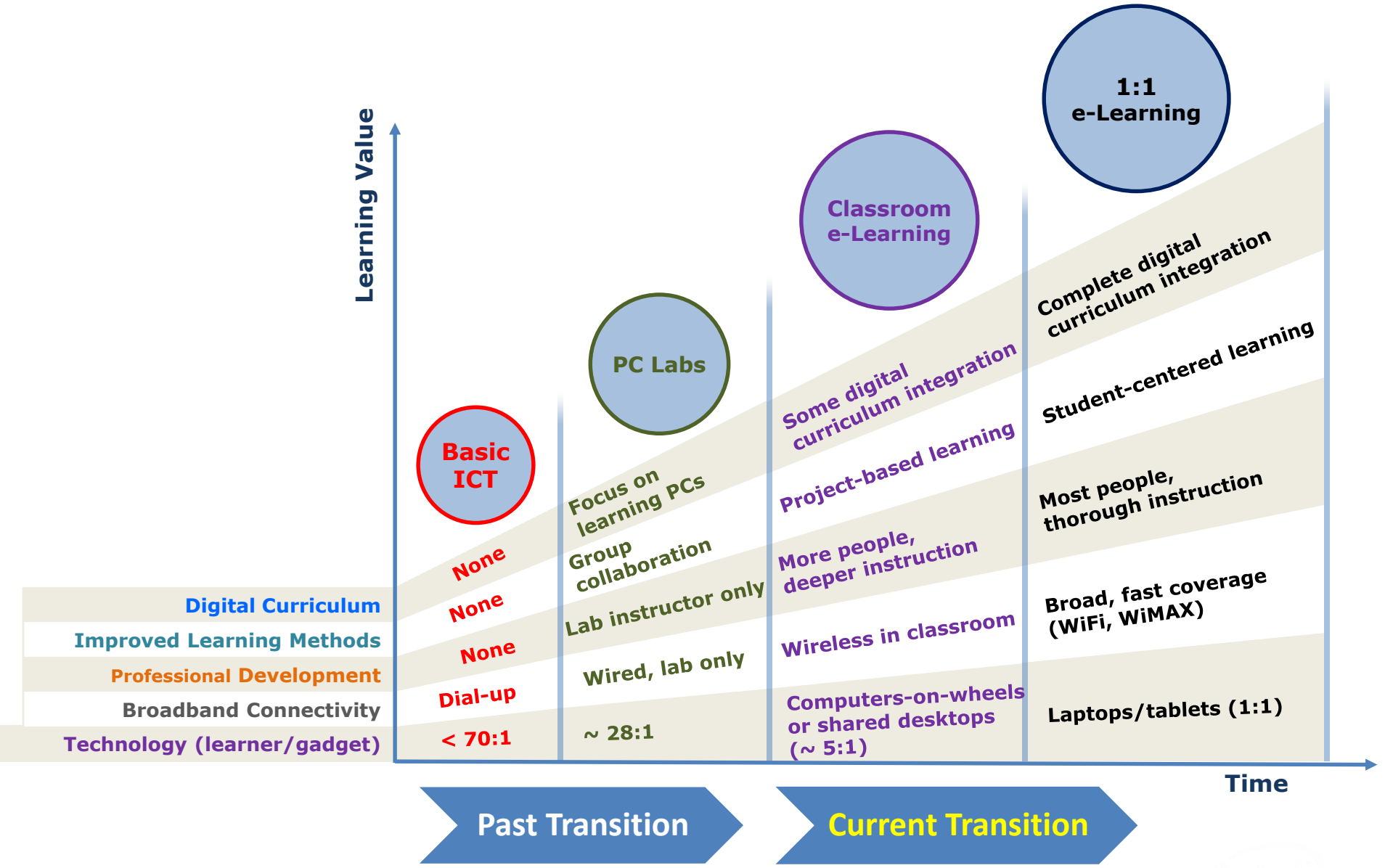
The state of ICT in Education in the Province…

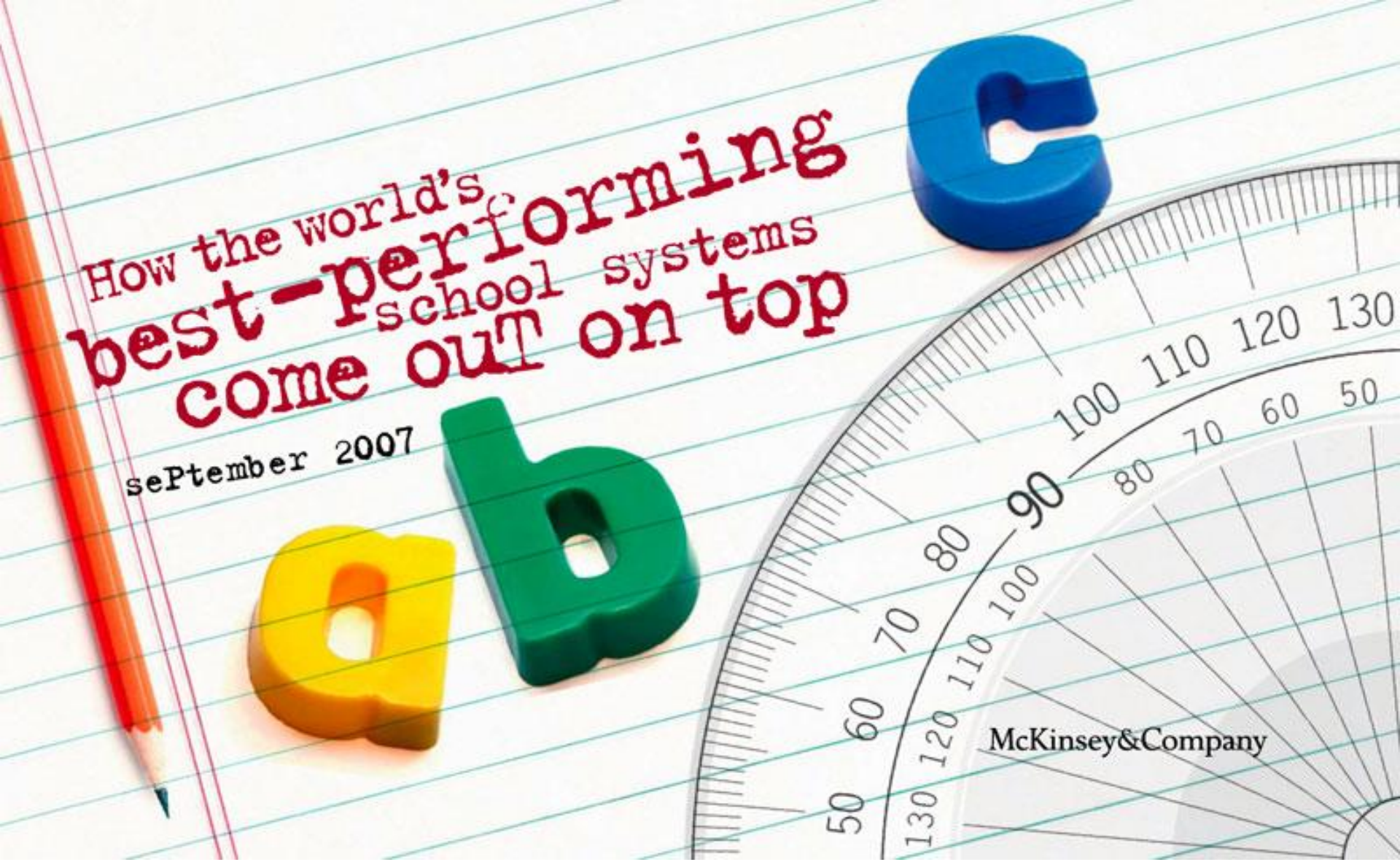
- Teacher Professional Development and Support:
  - Integration of ICT with curriculum in Maths, Science and Technology
  - Technical support and maintenance of ICT resources and infrastructure
  - Integration of ICT with Curriculum in other subjects
- School-based training on the integration of ICT with curriculum
- Interactive Telematics at the Provincial Teacher Development Institute
- The KwaZulu-Natal Schools Digital Network (KZN SDN)

The evolution of e-Learning spaces…



21st Century learning spaces

… a learner-centred learning experience *vis-â-vis* teaching to a group



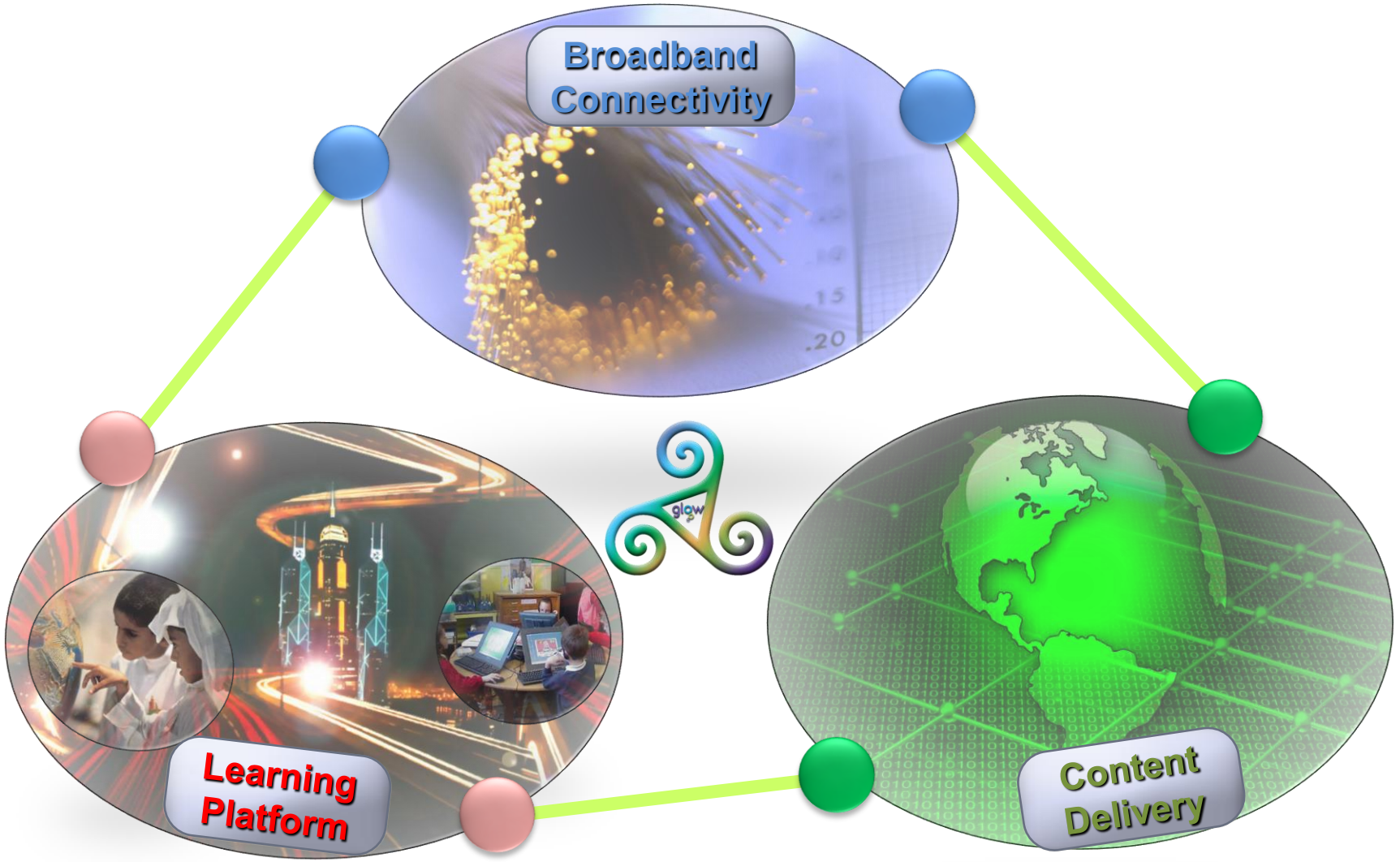
The BEST Education Systems...

….have the Best Teachers!

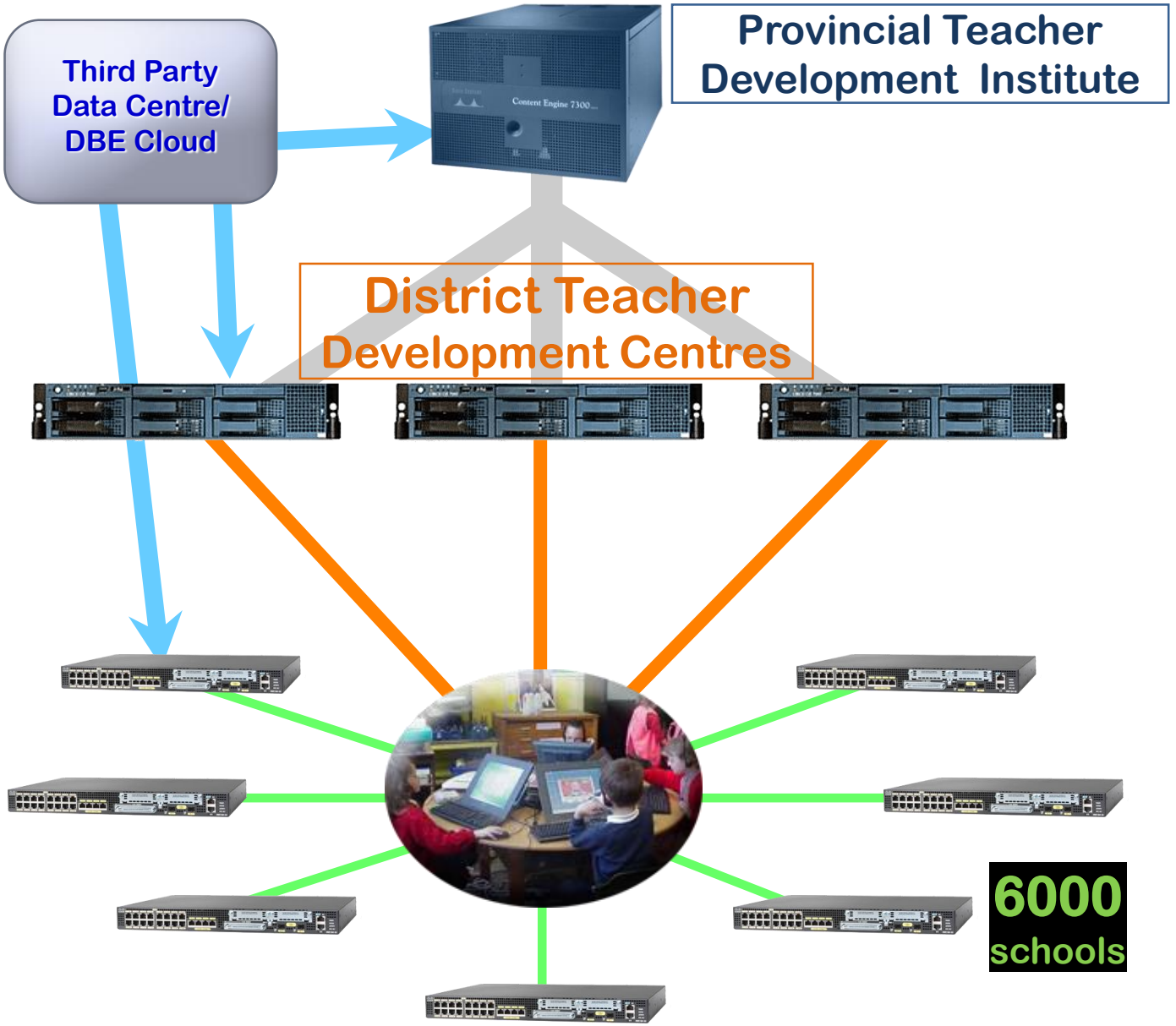
Principles of the proposed KZN SDN…

- To serve teaching and learning primarily
- Universal access – every teacher and every learner
- Fully accessible any place, anytime – i.e. neither facilitated by urbanity nor constrained by rurality
- An agnostic network – i.e. technology and platform independent
- Open standards – i.e. extendable and not locked into a proprietary platform and technology
- Safe and secure – has a firewall to protect young learners from improper content, viruses and other cyber threats
- Has a simple single log on access for all accounts and applications
- Web-delivered and browser-based – accessible anytime, anywhere

Key components of the KZN SDN…

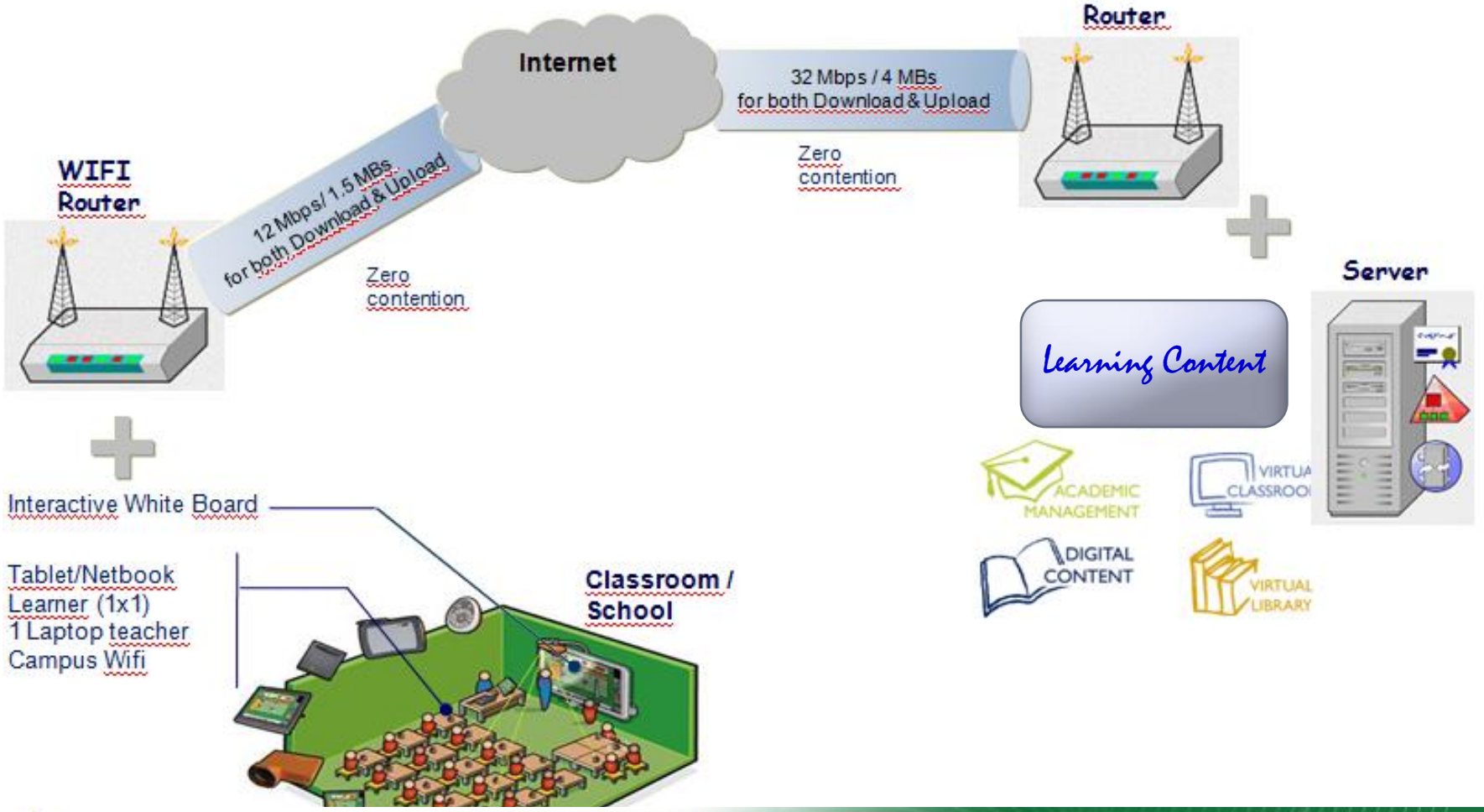


Content delivery…



21st Century Schools…

RECOMMENDED ICT ARCHITECTURE



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rything is awesome
London
United Kingdom
airport William
tour Big Ben huge
clock
Double
decker bus Piccadilly Circus
Buckingham Palace
weather very cold
warm clothes
money pounds
CATCALL

CHALLENGES …


The Flattening World
…global competitive teachers and learners


Efficiencies…
Doing More with Less

RETURN ON INVESTMENT…

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1st Technology Challenge

The Digital Divide and/or Digital Exclusion

2nd Technology Challenge

…keeping pace with the rate of technological development

THE DIGITAL REVOLUTION

1990

- **21,4 million** cell phone subscribers — **0,25%** of the global population
- **2,8 million** Internet users — **0,05%** of the global population

2002

- **1,174 billion** cell phone subscribers — **19%** of the global population
- **631 million** Internet users — **11%** of the global population

2010

- **4 billion** cell phone subscribers — **67%** of the global population
- **1 802 330 457** Internet users — **26,6%** of the global population

2017

- **5 billion** cell phone subscribers — **67%** of the global population
- **3 200 000 000** Internet users — **42,6%** of the global population

INTERNET PENETRATION IN SOUTH AFRICA

YEAR	Users	Population	Percentage	Usage Source
2000	2,400,000	43,690,000	5.5 %	ITU
2001	2,750,000	44,409,700	6.2 %	IWS
2002	3,100,000	45,129,400	6.8 %	ITU
2003	3,283,000	45,919,200	7.1 %	Wide World Worx
2004	3,523,000	47,556,900	7.4 %	Wide World Worx
2005	3,600,000	48,861,805	7.4 %	Wide World Worx
2008	4,590,000	43,786,115	10.5 %	Wide World Worx
2009	5,300,000	49,052,489	10.8 %	Wide World Worx
2012	8,500,000	52,000,000	16.3%	Wide World Worx
2016	**28,291,419**	**55,299,251**	**51.9%**	**Wikipedia**

Global Average = 47,0%

Shifting nature of Education

Changing definition of the school and consequently the classroom

"Technology is changing the way we live, communicate and learn. It also enables educators to re-frame schooling in order to meet the needs of twenty-first century learners."

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WHAT ALL SCHOOLS NEED …

- **Fast, reliable and always-on Internet connections that**
  - Boost teacher confidence through online support;
  - Provides for ;
  - Embed Internet use in the learning and teaching enterprise;
  - Allow learners to achieve more in the time available; and
  - Help deal with the threat of viruses through regular updates.
- **Potential to make use of value-add services e.g.**
  - Voice over Internet Protocol (VoIP);
  - Video-conferencing;
  - Content delivery;
  - Sharing resources developed by other schools; subject advisors; innovation enthusiasts etc..


DISCUSSION QUESTIONS …
classroom rules
CATCALL
corrections
amazing
fantastic
friendly
intelligent