Presentation Outline

- Overview of Singapore Education System
- Masterplans for ICT in Education
Singapore Education System has evolved

Phases of our economic development...

- **Survival Driven**
  - 1959 – 1978

- **Efficiency Driven**
  - 1979 – 1996

- **Ability-Based, Aspiration Driven**
  - 1997 – 2011

- **Knowledge-Based**

- **Skills/Capital-Intensive**

- **Innovation-Driven**

- **Student-centric, Values Driven**
  - 2012 onwards
A Key Role of Education is to Support our Economy…

– People are Singapore’s only natural resource
– Education prepares our children for joining the workforce in an increasingly uncertain and globalised world
– Close coordination to develop these connections
  ◦ Between Ministries and other government agencies
  ◦ Between our Post-Secondary Education Institutions and Industry

… While also Fulfilling the Aspirations of our Children
  – Helping Children be the best that they can be
  – Multiple Pathways for Success, Customised programmes from schools
Key Facts and Figures

• **Schools:**
  – 365 schools
  – 480,000 students, 33,000 teachers, 2,400 allied educators; 4,600 executive and administrative staff

• **Post-Secondary Education Institutions:**
  – 5 Autonomous Universities (AU), 5 Polytechnics, Institute of Technical Education (ITE)
  – 166,000 students, 13,000 teaching and 17,000 non-teaching staff
The Masterplan Journey

1997 Masterplan 1

Building the Foundation

2003 Masterplan 2

Seeding Innovation

2009 Masterplan 3

Strengthening & Scaling
Core ICT Training for all teachers

ICT Infrastructure & Support for all schools

Educational software & resources for relevant subjects

1997: Masterplan 1

Building the Foundation

ICT as an accepted tool for learning & teaching
Gave autonomy through devolved ICT funds

Established Baseline ICT Standards for Students

Generate innovative practices through schemes

2002: Masterplan 2
Seeding Innovation

FS@SG
5% schs

LEAD ICT Schools
15-20% schs

Remaining Schools

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3rd Masterplan in Education

**Enabler Goals**

- **School Leaders** provide direction & create conditions to harness ICT for learning and teaching.
- **Teachers** have capacity to plan & deliver ICT-enriched learning experiences.
- **ICT infrastructure** supports learning *anytime, anywhere*.

**Outcome Goals**

- **Students** develop competencies for self-directed & collaborative learning through the effective use of ICT as well as become discerning & responsible ICT users.
ICT Masterplan
Key Guiding Principle

Teaching and Learning is pedagogy-led, and can be supported by appropriate & judicious use of technology.
Nurturing Future-Ready Singaporeans

Developing 21st century competencies
1. Building capacity of school leaders and teachers

2. Integrating ICT into the school curriculum

3. Ensuring ethical and responsible use of ICT

4. Encouraging innovative ICT practices in schools

MOE Support for School
1. Building capacity of school leaders and teachers

2. Integrating ICT into the school curriculum

MOE Support for School

3. Ensuring ethical and responsible use of ICT

4. Encouraging innovative ICT practices in schools
1. Building capacity of school leaders and teachers

- School Leadership Programme
- ICT Mentor Programme
- Quality Resources
School Leadership Programme

- Online courses & discussion
- Learning Journeys
- Lectures by thought leaders
- School Leaders as facilitators & collaborators
- School Leaders’ reflection online & participation in social media
ICT Mentor Programme
- reflective practitioners
Resource Portal - OPAL

• One-Stop Resource Portal
  – for hosting all MOE HQ teaching and learning digital resources produced or procured by MOE HQ divisions
  – access to a comprehensive range of trusted curriculum-based educational resources online

• Stay Connected
  – Participate in learning & teaching discussions
  – Share personal reflections & interest
  – Be part of a learning community
1. Building capacity of school leaders and teachers

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MOE Support for School
2. Integrating ICT into the school curriculum

Baseline ICT Standards for students

ICT infused in Teaching & Learning Guides (Self-Directed Learning, Collaborative Learning)

ICT-enriched learning environment in schools
All students are to acquire the necessary ICT skills to support them in learning and preparing them for future needs.

All students to achieve the Baseline ICT Standards
• Reference from syllabi, teaching & learning guides
• ICT to support more student-centric pedagogies & differentiated instruction
ICT Enriched Learning Environment

- ICT Infrastructure has the capacity (e.g. equipment, bandwidth) to respond to changing curriculum needs and the needs of individual schools based on their programmes and curriculum needs.
- The school environment is multi-functional and ubiquitous which provides full ICT capabilities and easy access to computing devices to support a range of learning and teaching needs.
- ICT Infrastructure keeps pace with technological developments with minimum obsolescence.
- A range of technical support services is readily available to meet schools’ needs.

- Every student will have access to a computing device with the necessary software, Internet connection and learning resources to enable learning to take place from home.

Source: The ICT Connection [http://ictconnection.edumall.sg]
1. Building capacity of school leaders and teachers

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MOE Support for School
3. Ensuring ethical and responsible use of ICT

- MOE Cyber Wellness Framework
- Inter-Ministry Cyber Wellness Steering Committee
Cyber Wellness Principles

The two principles of “Respect for Self and Others” and “Safe and Responsible Use” are meant to emphasise the rules of personal conduct that all Internet users should adhere to while engaging with the Internet.

“Sense, Think & Act” Process

This process serves to highlight the stages that students should undergo in preparing themselves to self-manage their behaviour in cyberspace.
Cyber Wellness Implementation Strategy

STUDENTS
Curriculum Infusion
Cyber Well Students Ambassador Programme

TEACHERS
Curriculum Integration
Capacity Building

CYBER WELLNESS

STAKEHOLDERS
Parent Engagement
Social Media

SYSTEM
Inter-Ministry Cyber Wellness Steering Committee
Research Studies
Resource Portal
1. Building capacity of school leaders and teachers

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MOE Support for School
Ideas to Practice

4. Encouraging innovative ICT practices in schools

eduLab@AST
ICT Connection

eduLab
FutureSchools

Innovation Projects
Institutes of Higher Learning
Collaborations

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Learning Communities
Curricular Integration
Online and f2f Platforms

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Scan & Ideate

Develop POC

Translate

Spread

COMMUNITY

Review Efficacy

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Encouraging Innovative ICT Practices in Schools

From Ideas to Practice

FutureSchools@Singapore
eduLab & eduLab@AST
FutureSchools@ Singapore

- Are not technology schools
- Have a vibrant & pervasive culture of innovation
- Focus on curriculum innovations built on pedagogical principles & are informed by practice & research
- Establish strong & mutually beneficial partnerships with researchers & industry
- Push frontiers of learning & teaching practices at school-wide level
- Scale up evidence-based practices
FutureSchools@Singapore

Diffusion & Scaling
- Nurture communities & spread good practices
- Research to understand seeding, development & spread of innovative ICT-enabled pedagogical practices

Prototyping & School-wide Implementation
Re-contextualising across schools
eduLab

Build on teachers’ ideas to transform learning with technology

Provide strong support to develop ideas into lessons and product prototypes for scaling to the wider system

Translate research into classroom practice
eduLab Support for Schools

**eduLab Programme Management Office**
learning designers, translation & development advisors, project managers

**Professional Development**

**Community**
E.g. fellow teachers, Master Teachers, researchers

**Funding**
Supported by the National Research Foundation

**eduLab@AST**
space for discussions & hands-on experience

**Brokering for Industry Partnerships**
Supported by Infocomm Devt Authority (IDA) & Media Devt Authority (MDA)
# Evidence-based ICT Practices Developed

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<td><strong>2013</strong></td>
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<td>✓ 10 CMT</td>
<td>✓ Adaptive Learning and Diagnostic Assessment</td>
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<td>✓ Automated Marking Tool for English Essays</td>
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<td>✓ Collaborative Science Inquiry</td>
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<td>✓ Collaborative Thinking Routines for 1:1 Computing Environments</td>
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<td>✓ Participatory Learning in Mathematics</td>
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Providing each child with a broad and deep foundation for their lifelong journey
Thank you

Harnessing ICT * Transforming Learners