Ministry of Education
SINGAPORE

ICT Masterplans in the Singapore Education System

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Educational Technology Division

Presentation Outline

- **Overview of Singapore Education System**
- **Masterplans for ICT in Education**

Singapore Education System has evolved

Phases of our economic development…

Industrialisation

Survival Driven
- **1959 – 1978**

Skills/Capital-Intensive

Efficiency Driven
- **1979 – 1996**

Knowledge-Based

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

Innovation-Driven

Student-centric, Values Driven
- **2012 onwards**

… and is reflective of some enduring truths.

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

Masterplan for ICT in Education

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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

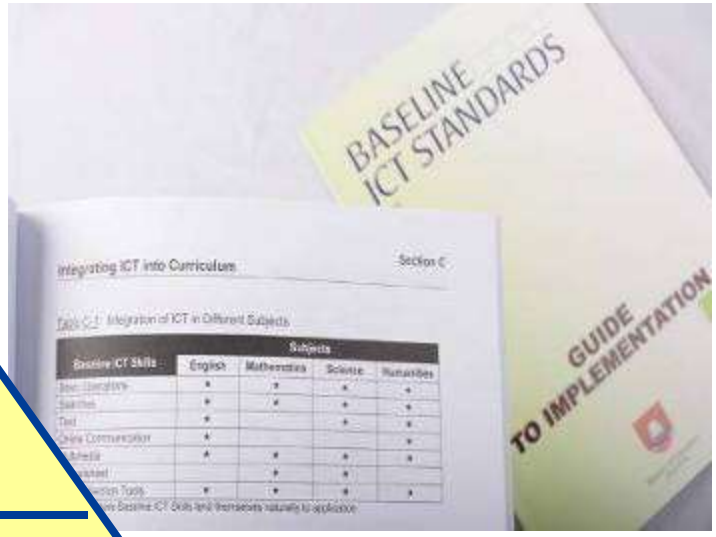
ICT as an accepted tool for learning & teaching

Gave autonomy through devolved ICT funds

FS@SG
5% schs

LEAD ICT Schools
15-20% schs

Remaining Schools



Established Baseline ICT Standards for Students

Generate innovative practices through schemes

2002: Masterplan 2

Seeding Innovation

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

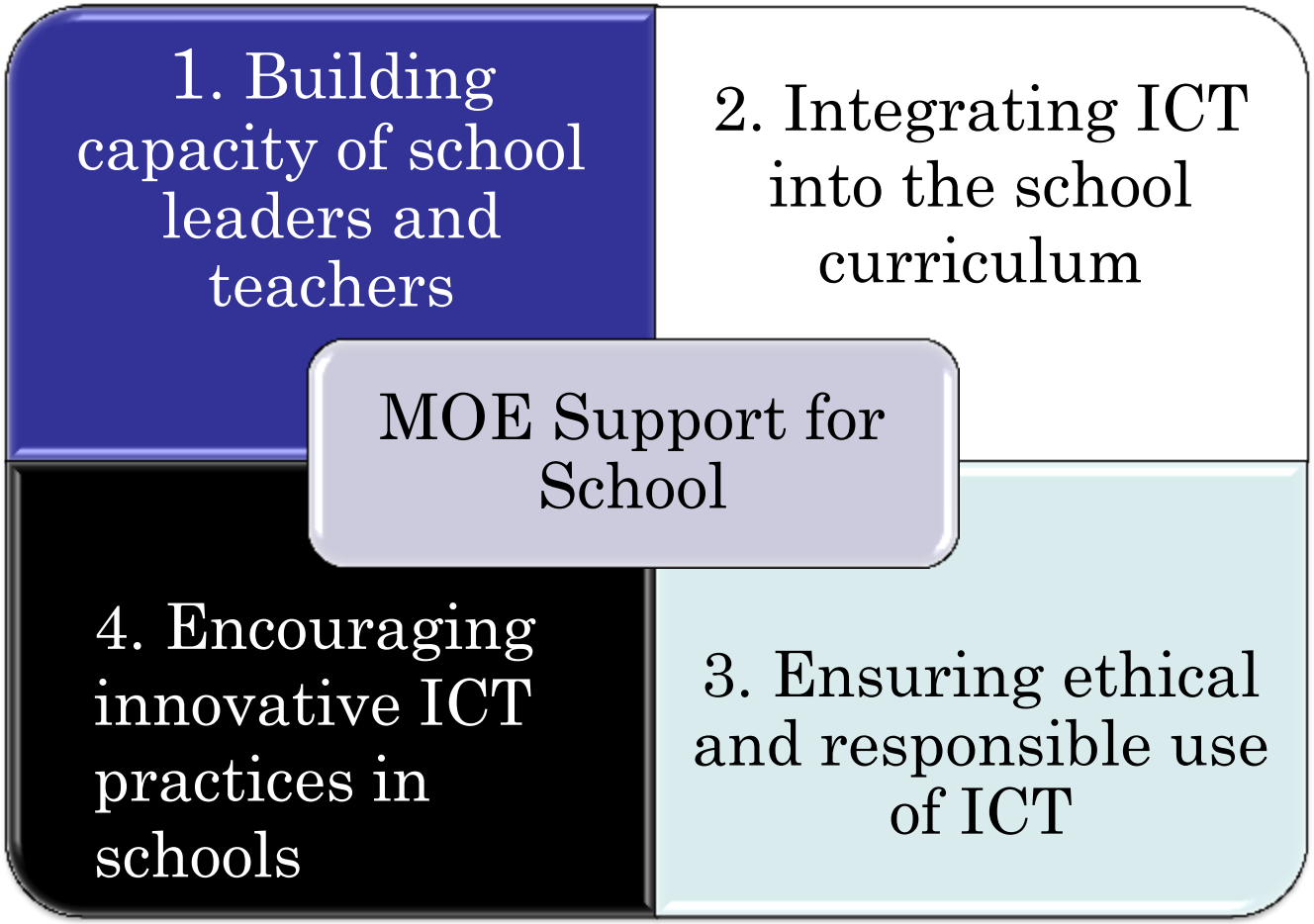
Students develop competencies for self-directed & collaborative learning through the effective use of ICT as well as become discerning & responsible ICT users

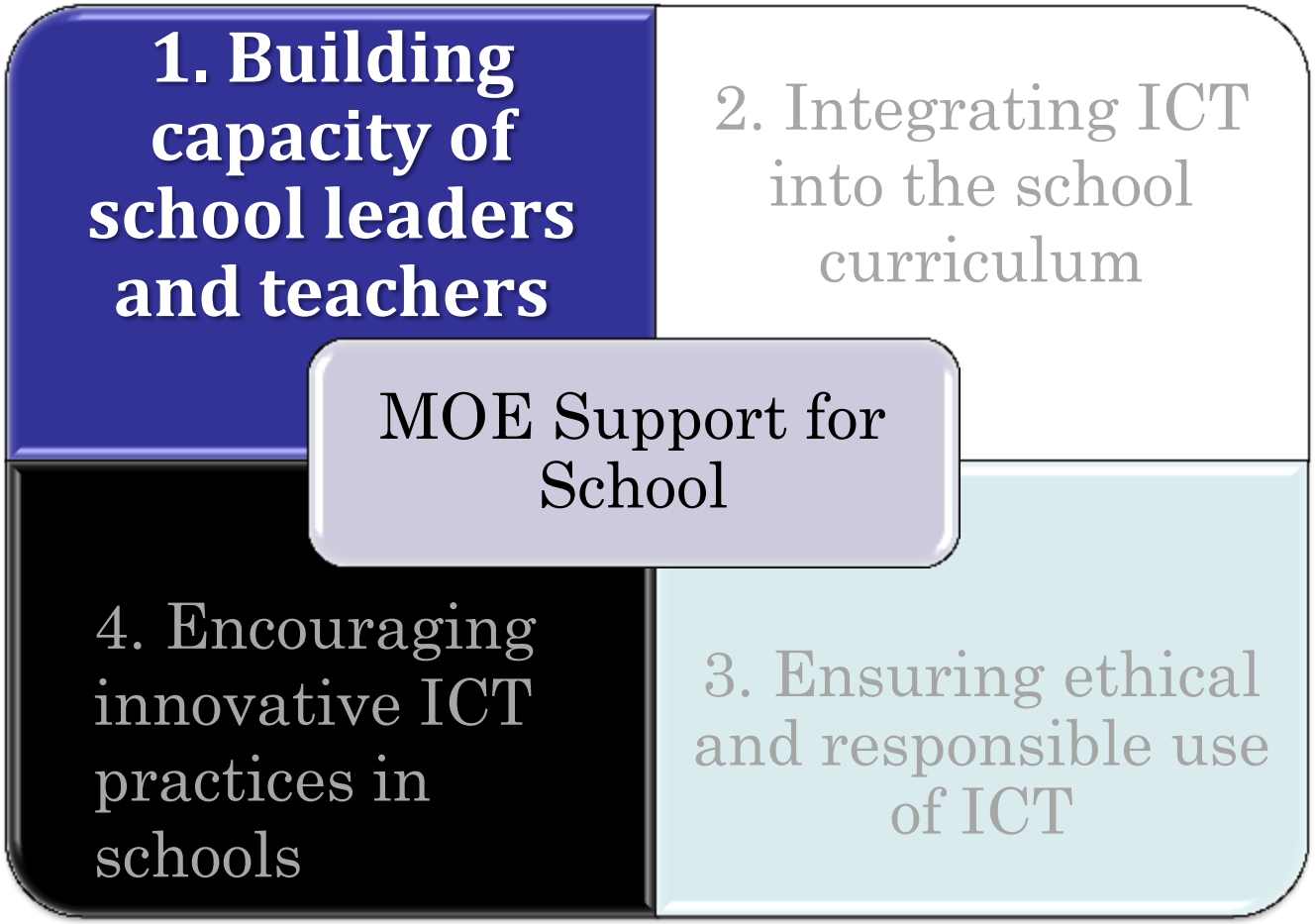
ICT Masterplan
Key Guiding Principle

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

- 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

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Resource Portal - OPAL

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

Lesson Ideas & Examples

THE ICT CONNECTION
By Teachers, For Teachers

http://ictconnection.moe.edu.sg

Lesson Ideas | EdTech Scan | MP3 | Learning Communities | EduTech Maker | ICT Mentors

The ICT Connection > Lesson Ideas

Lesson Ideas

Submit Lesson Examples

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Quick Search by Category

Subjects:

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AfL with AMT for Explicit Grammar Teaching
Marilyn Kumar / Pasir Ris Pr Sch
12-Sep-2014 (Fri)
Likes (0)
Viewed (28)

Use of Video To Teach Preposition
Mahalakshmi D/O Panneerselvam / Kranji Pr Sch
11-Sep-2014 (Thu)
Likes (0)
Viewed (18)

ICT in PE (SBJ)
Ngar Lee Cheng Mrs Sara Liyu Lee Cheng / St. Gabriel's Pr Sch
10-Sep-2014 (Wed)
Likes (0)
Viewed (14)

Museum Magic
Chua Cui Jing / St. Hilda's Pr Sch
10-Sep-2014 (Wed)
Likes (0)
Viewed (6)

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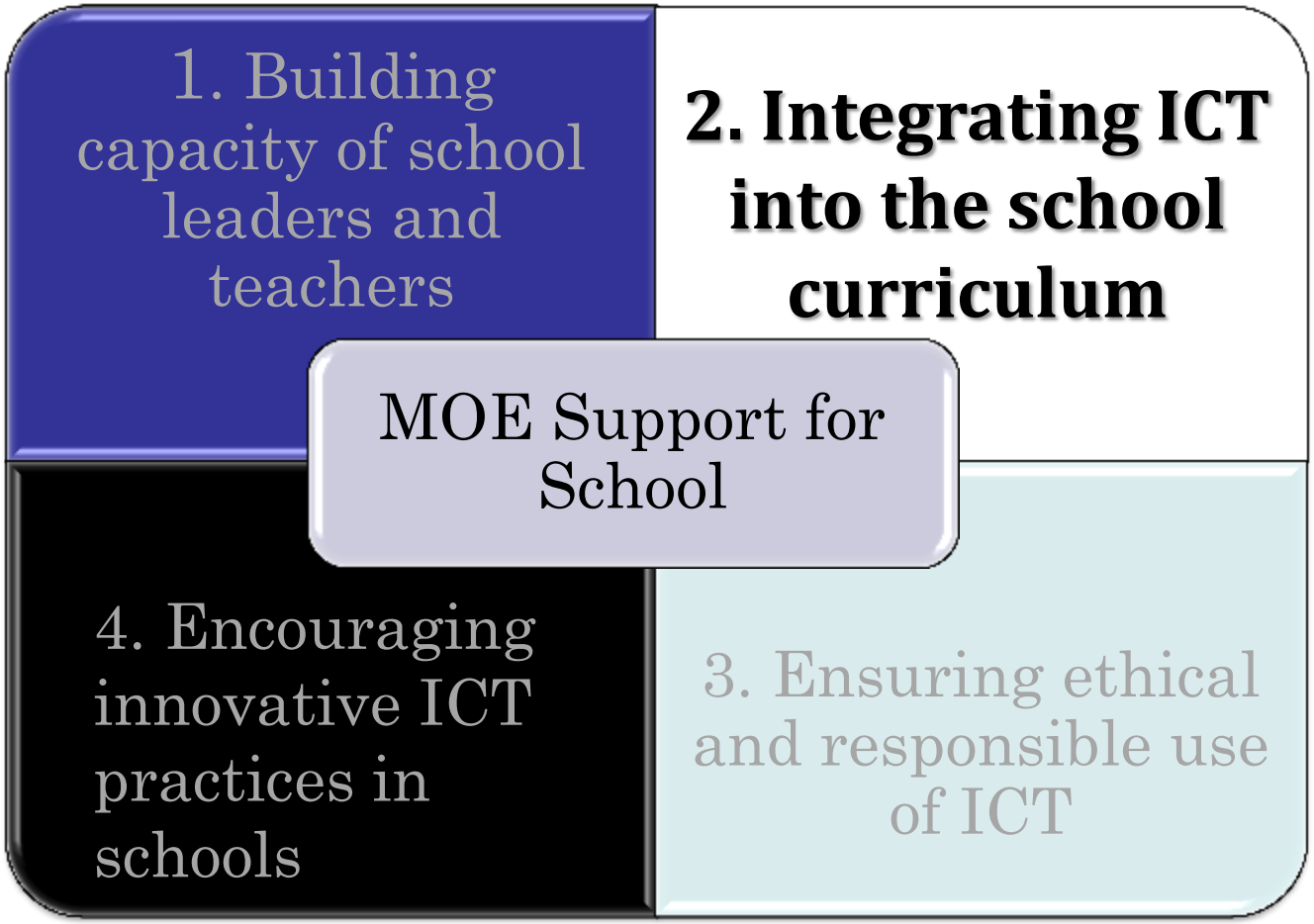
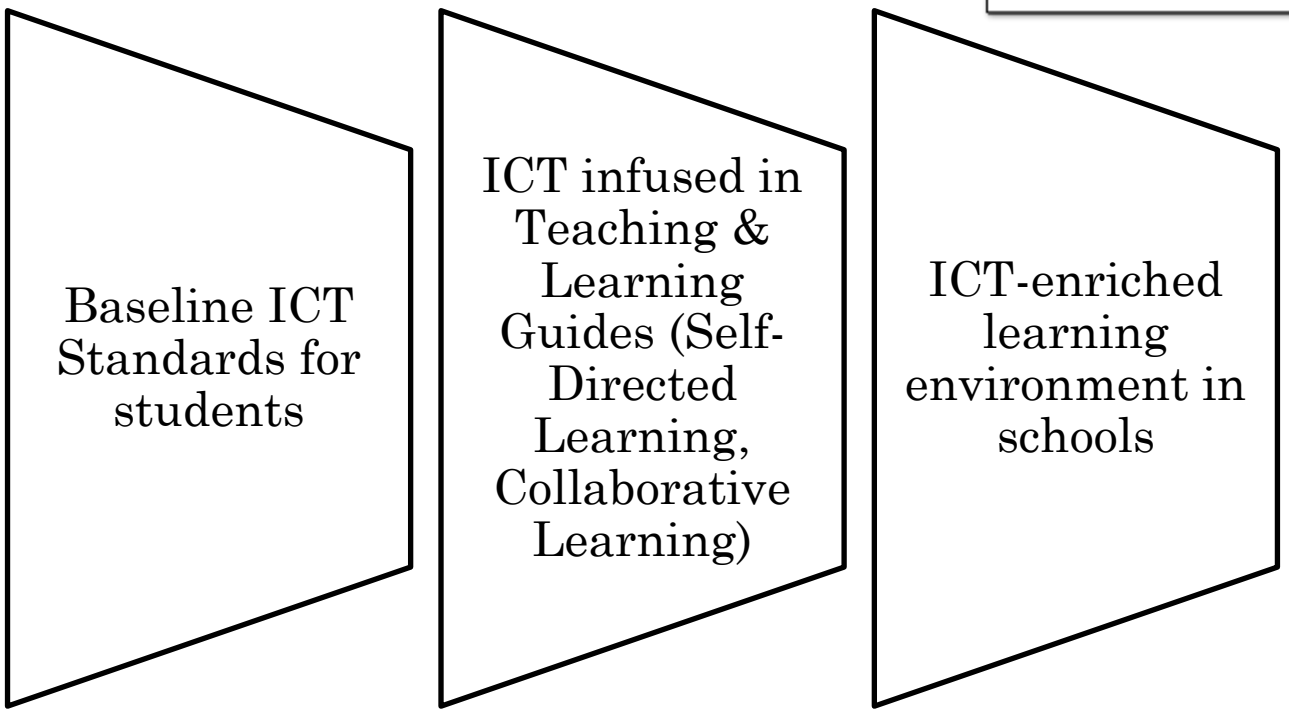


2. Integrating ICT into the school curriculum

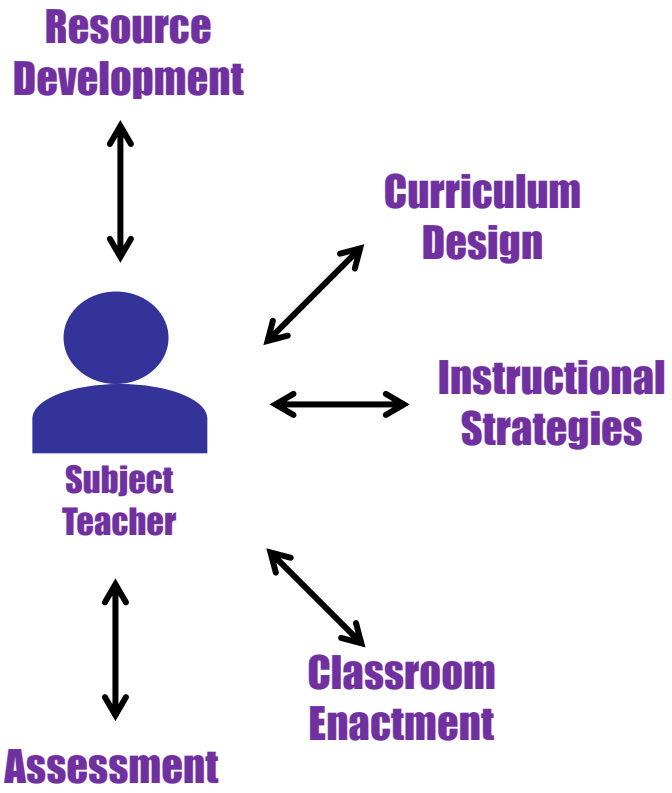


Baseline ICT Standards

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

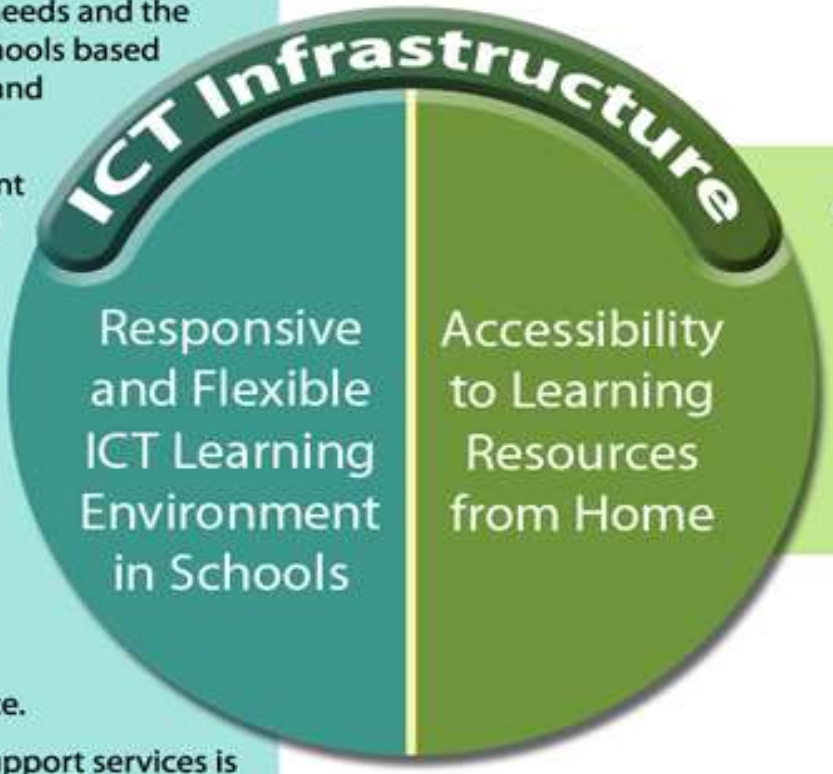
ICT-infused Curriculum



- Reference from syllabi, teaching & learning guides
- ICT to support more student-centric pedagogies & differentiated instruction

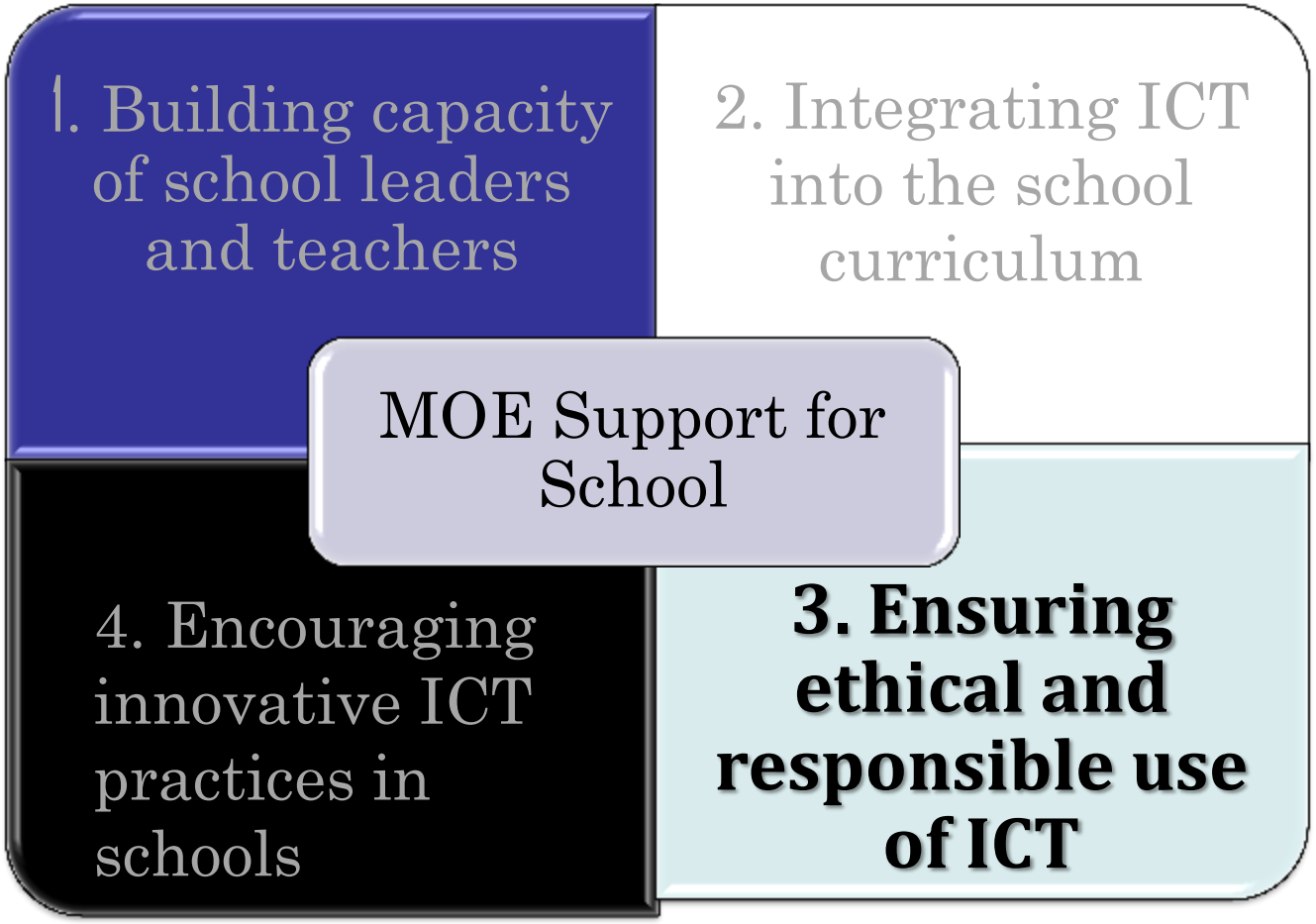
ICT Enriched Learning Environment

- 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]*



3. Ensuring ethical and responsible use of ICT

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

Cyber Wellness Framework

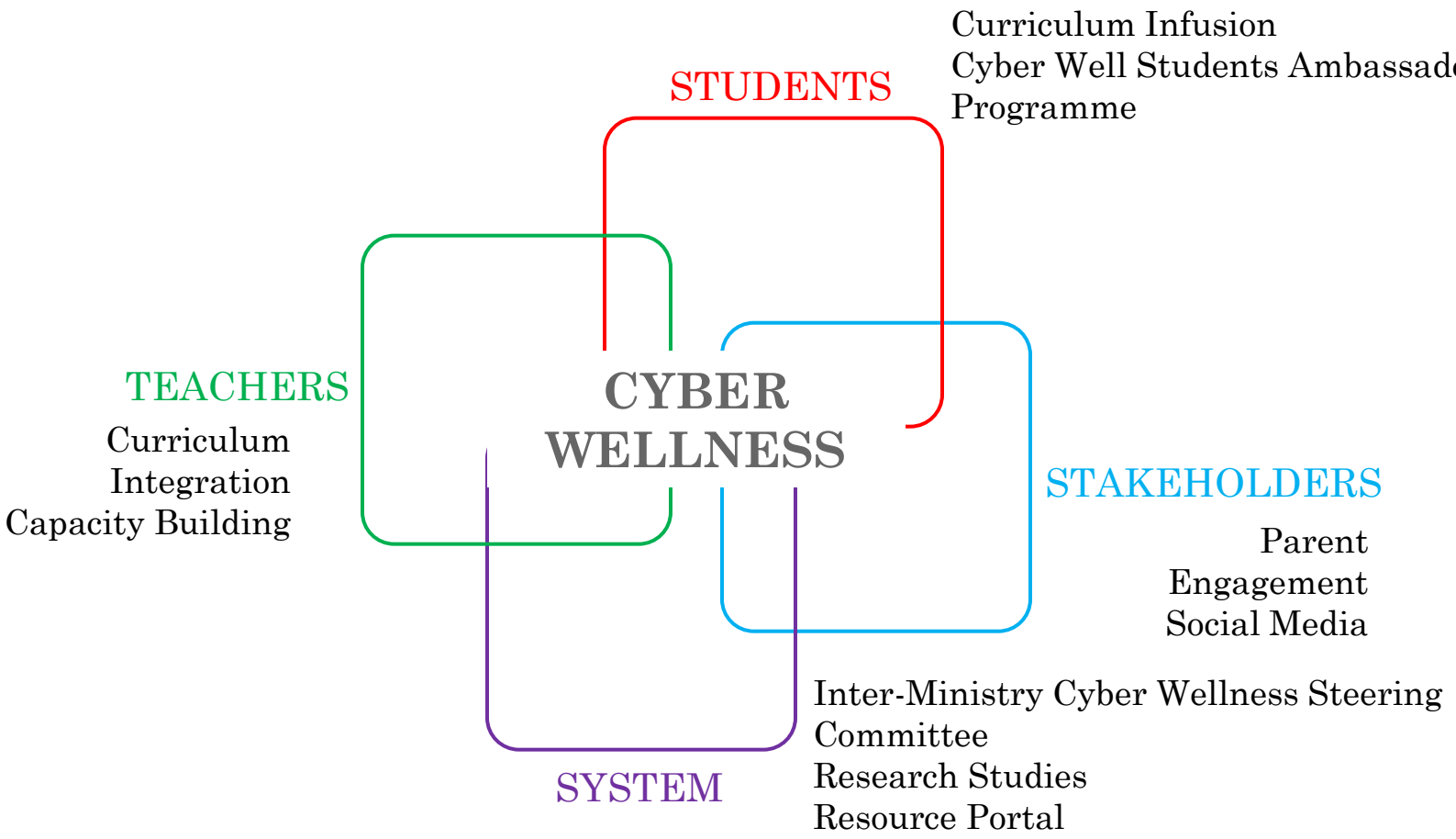
Cyber Wellness Principles

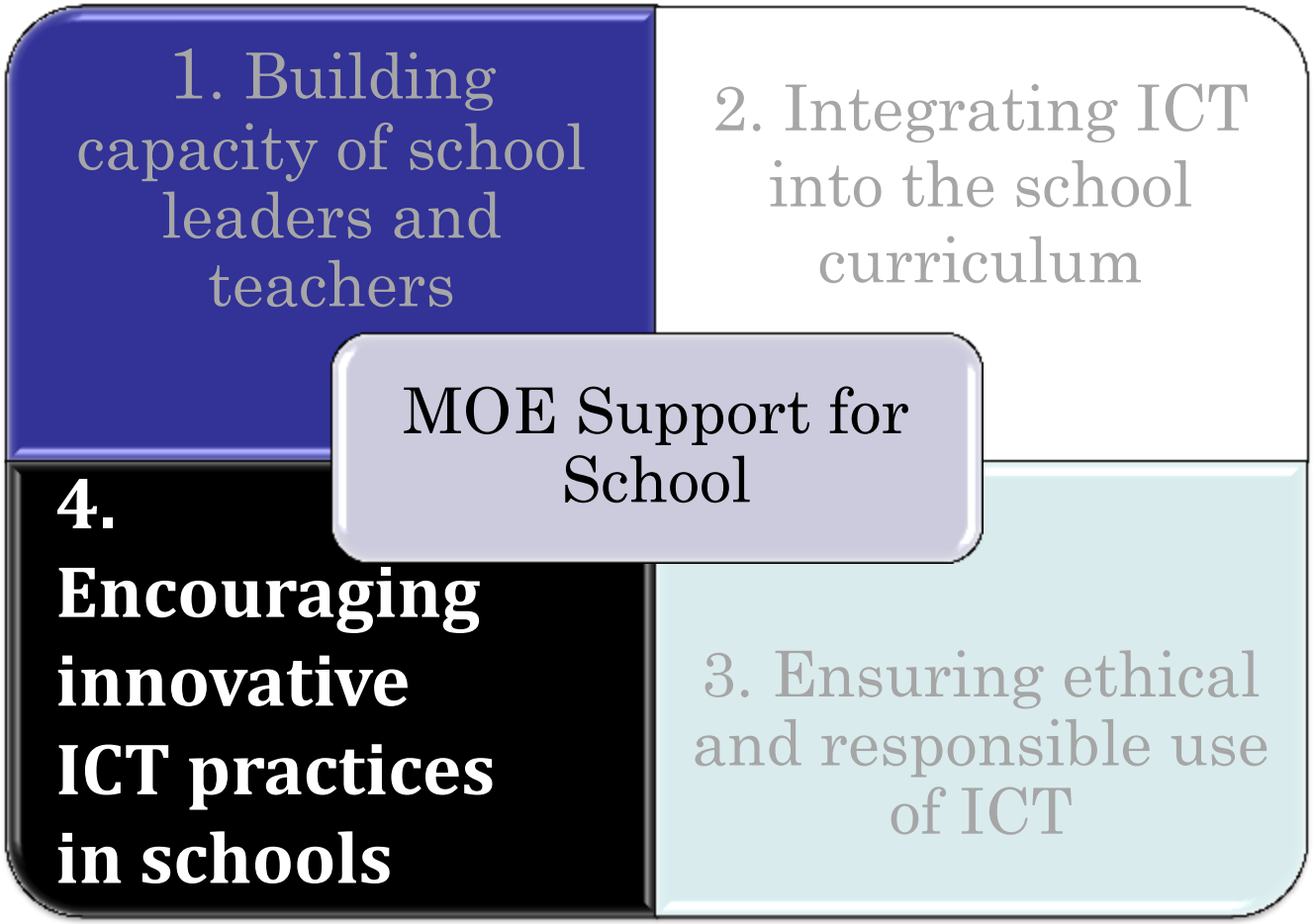
The two principles of "Respect for Self and Others" and "Safe and Responsible Use" are meant to emphasise the rules of personal conduct that all Internet users should adhere to while engaging with the Internet.

"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.

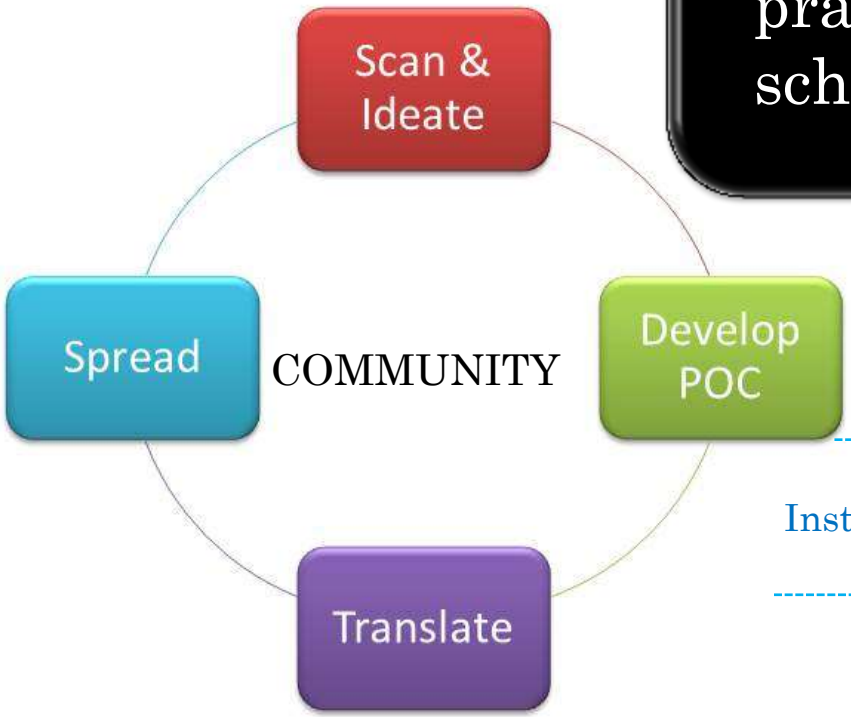
Cyber Wellness Implementation Strategy





Ideas to Pratice

4. Encouraging innovative ICT practices in schools



eduLab@AST
ICT Connection

Learning Communities
Curricular Integration
Online and f2f Platforms

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eduLab
FutureSchools

Innovation Projects
Institutes of Higher Learning
Collaborations

Encouraging Innovative ICT Practices in Schools

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FutureSchools@ Singapore

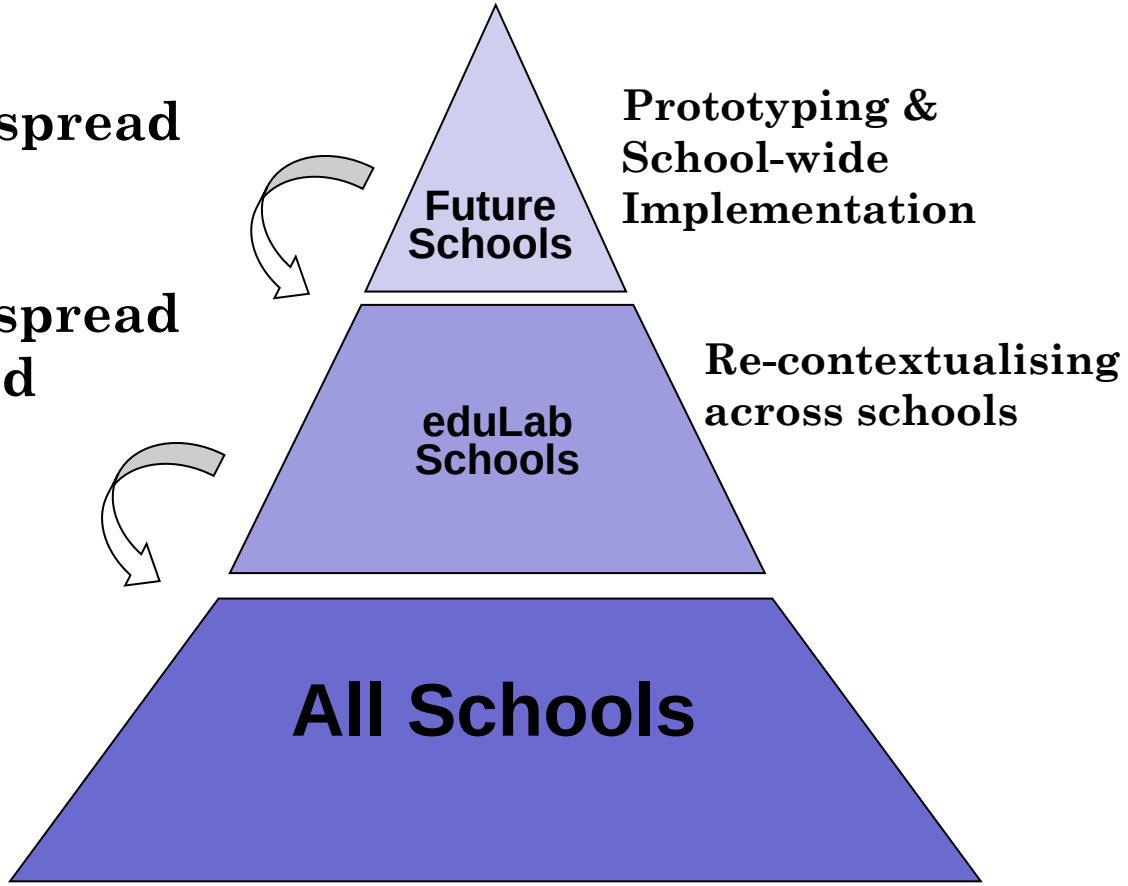
- Are not technology schools
- Have a vibrant & pervasive culture of innovation
- Focus on curriculum innovations built on pedagogical principles & are informed by practice & research
- Establish strong & mutually beneficial partnerships with researchers & industry
- Push frontiers of learning & teaching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

FUTURE SCHOOLS @SINGAPORE

FutureSchools@Singapore

Diffusion & Scaling

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



FUTURE SCHOOLS @SINGAPORE

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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

i in Practice Volume 1 2013	i in Practice Volume 2 2014	i in Practice Volume 3 2015
✓ 10 CMT ✓ Automated Marking Tool for English Essays ✓ Collaborative Science Inquiry ✓ Collaborative Thinking Routines for 1:1 Computing Environments ✓ Digital Game-Based Learning ✓ Digital Story-telling ✓ Mathematics PlaySpace (MaPs) ✓ Mobile Learning ✓ Multimodal Literacy ✓ Open Source Physics ✓ Participatory Learning in Mathematics	✓ Adaptive Learning and Diagnostic Assessment ✓ Critical Viewing ✓ Digital Inquiry-based Learning Trails for Science Field Investigations ✓ POGO: Creating Poets on the Go! ✓ Read & Share@My Bookshop ✓ Scientific Inquiry with Knowledge Building ✓ Students as Designers with Scratch	✓ Assessment For Learning With ICT ✓ Video Conferencing For Blended Learning ✓ Games For Learning ✓ Inductive Reasoning For Learning ✓ 3D Printing For Learning ✓ Multimedia For Learning ✓ Robotics For Learning ✓ Apps For Learning

- ✓ Ready **Lesson Resources**
- ✓ **Free** ICT Tools
- ✓ Dedicated **Support**

http://ictconnection.moe.edu.sg/mp3/i-in-practice

Providing each child with a broad and deep foundation for their lifelong journey

Thank you

Harnessing ICT * Transforming Learners