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# Trends and Development of ICT in Education Policy

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# Outline

- What is “ICT in Education Master Plan”?
- Failure cases vs. successful cases
- Key Factors
- Things to consider

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# What is ICT in Education Master Plan?

# ICT in Education Master Plan

- A comprehensive implementation plan that guides the rollout of the policy (usually 5-year long term plan)
- Should be closely aligned with national education vision and policy
- Based on assessment of the pressing educational issues

# Key components

- Shared vision
- Priority areas of the country (Literacy? Access? Skills Development?)
- Programmes and projects in
  - Infrastructure
  - Curriculum & contents
  - HR & Teacher development
  - Administration
- Multi stakeholder alignment / coordination strategies / special agency
- Timeline and cost projection (resource mobilization plan)
- Monitoring & evaluation plan (sustainability)

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# Failure Cases vs. Successful Cases

# Country A

- Project title: One Tablet per Child  (2012-2014)
- To distribute a table per student in Grade 1
- 32million USD for 400,000 tablets (unit cost: 70USD)
- Procured another 1.3 million tablets for secondary students after first 6 months.
- Only 729 schools out of 24,098 use the tablets.
- The government dropped the project altogether in 2014.

# Factors

- Unclear goals
- Digital learning resources developed after distribution
- Inappropriate devices
- Internet connection in schools had not been provided.
- No budget plan for
  - Teacher training
  - Technical support
  - Total Ownership Cost (TOC) projection needed

# District project in the US


Laptops locked inside a storage closet at Hoboken Junior Senior High School. School staff will inventory them and hire a recycling company to discard them.

http://hechingerreport.org/content/new-jersey-school-district-decided-giving-laptops-students-terrible-idea_16866/

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# Factors

# Comparative IDI values, Asia-Pacific, 2013

**IDI elements**:

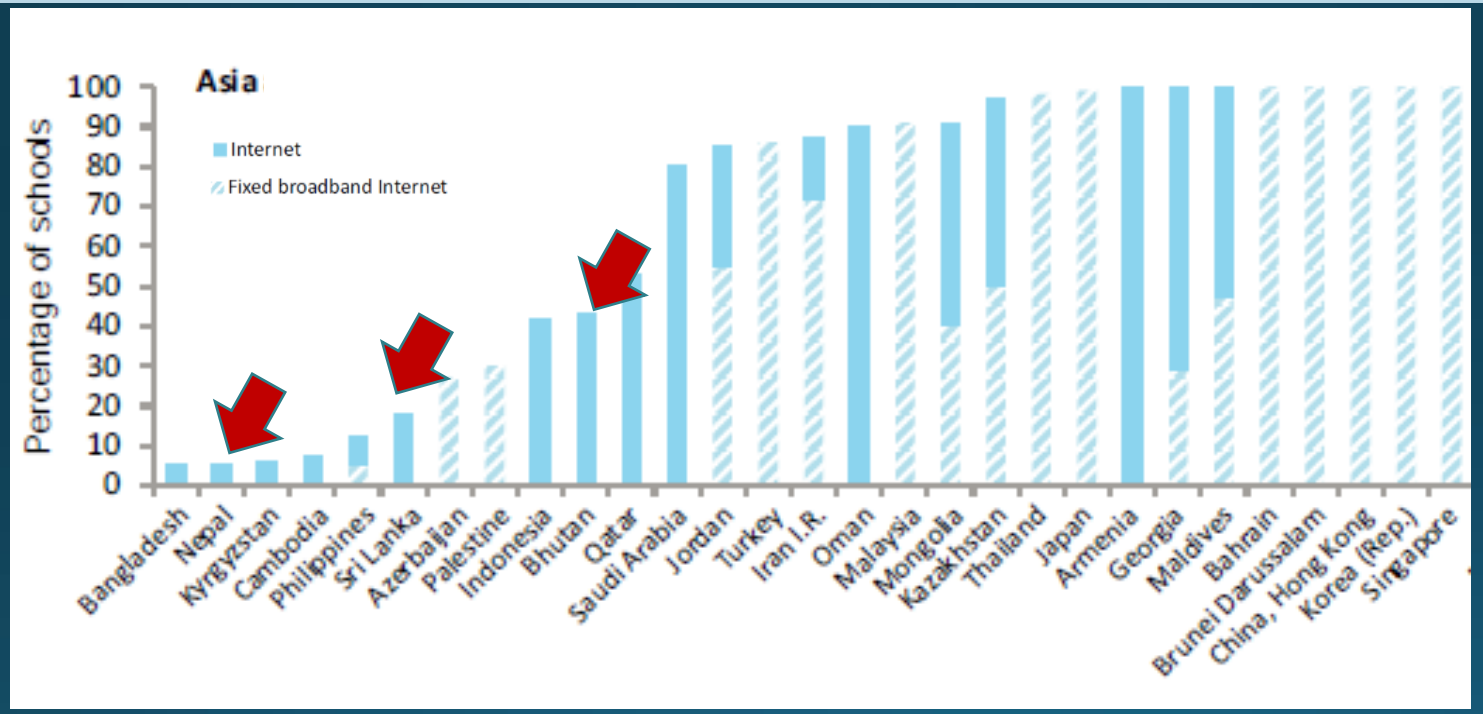
- ICT Readiness (access, infrastructure)
- ICT capacity (skills) & use (intensity)
- ICT Impact (reflecting result/outcome of efficient and effective ICT use)



Source: Measuring Information Society 2014, ITU.

# Access – ICT Infrastructure in Schools

Chart 1.22: Proportion of schools with Internet access (total and fixed-broadband), 2012 or latest year available




Source: UIS database, Partnership on Measuring ICT for Development WSIS Targets Questionnaire, 2013, as cited in Measuring Information Society 2014, ITU.

- Internet connectivity in many schools is not intended for teaching and learning and is instead used primarily for administration

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# Lack of access

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# Computers for display

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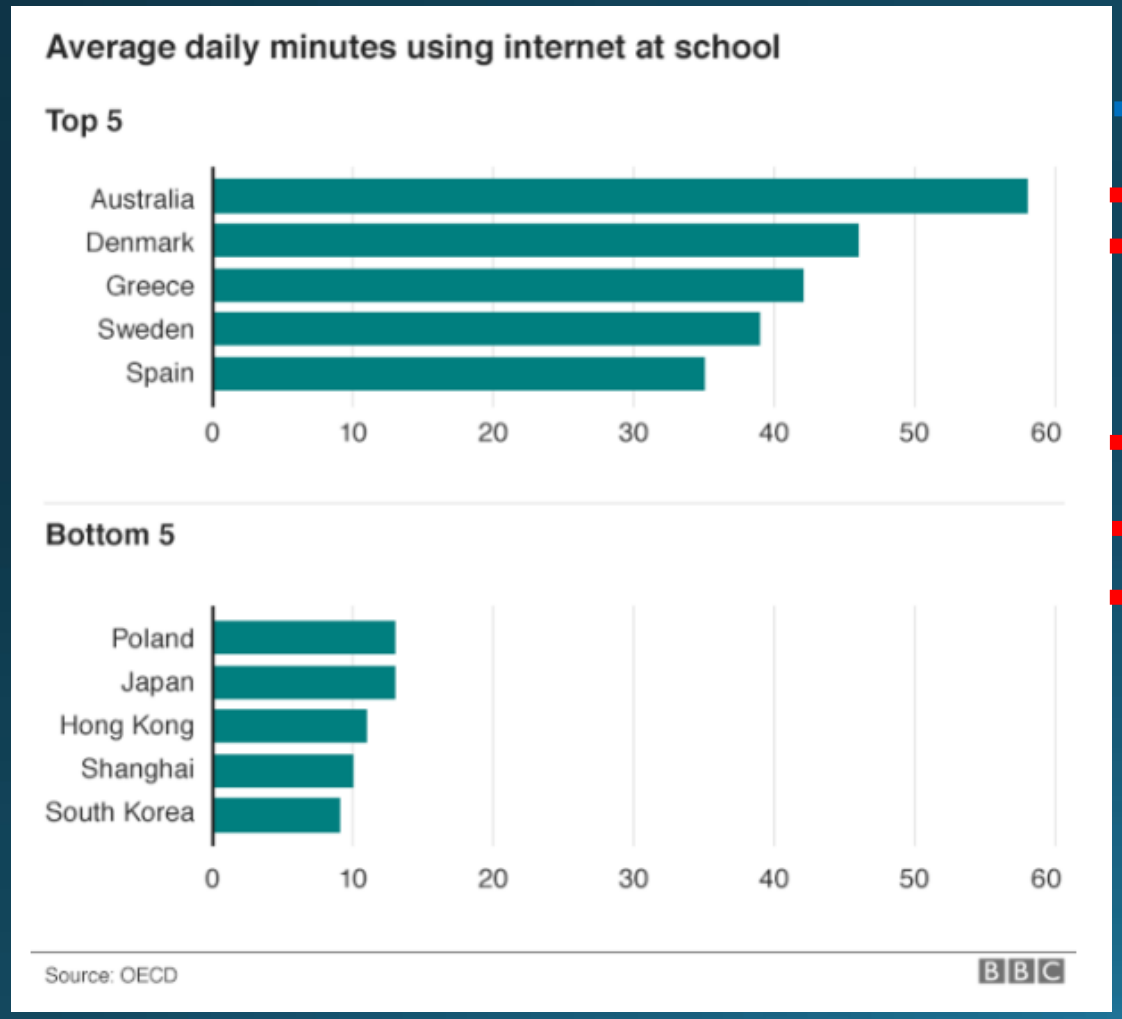
# Unintended effects

Digital Divides → Knowledge Divides

# Computers 'do not improve' pupil results, says OECD

By Sean Coughlan
Education correspondent

15 September 2015 | Education & Family | 409




| | Mathematics | | | | Reading | | Science | |
|---|---|---|---|---|---|---|---|---|
| | Mean score in PISA 2012 | Share of low achievers in mathematics (Below Level 2) | Share of top performers in mathematics (Level 5 or 6) | Annualised change in score points | Mean score in PISA 2012 | Annualised change in score points | Mean score in PISA 2012 | Annualised change in score points |
| OECD average | 494 | 23.0 | 12.6 | **-0.3** | 496 | **0.3** | 501 | **0.5** |
| Shanghai-China | 613 | 3.8 | 55.4 | **4.2** | 570 | **4.6** | 580 | 1.8 |
| Singapore | 573 | 8.3 | 40.0 | **3.8** | 542 | **5.4** | 551 | **3.3** |
| Hong Kong-China | 561 | 8.5 | 33.7 | **1.3** | 545 | **2.3** | 555 | **2.1** |
| Chinese Taipei | 560 | 12.8 | 37.2 | 1.7 | 523 | **4.5** | 523 | -1.5 |
| Korea | 554 | 9.1 | 30.9 | 1.1 | 536 | **0.9** | 538 | **2.6** |
| Macao-China | 538 | 10.8 | 24.3 | **1.0** | 509 | **0.8** | 521 | **1.6** |
| Japan | 536 | 11.1 | 23.7 | 0.4 | 538 | **1.5** | 547 | **2.6** |
| Liechtenstein | 535 | 14.1 | 24.8 | 0.3 | 516 | **1.3** | 525 | 0.4 |
| Switzerland | 531 | 12.4 | 21.4 | 0.6 | 509 | **1.0** | 515 | 0.6 |
| Netherlands | 523 | 14.8 | 19.3 | **-1.6** | 511 | -0.1 | 522 | -0.5 |
| Estonia | 521 | 10.5 | 14.6 | 0.9 | 516 | **2.4** | 541 | 1.5 |
| Finland | 519 | 12.3 | 15.3 | **-2.8** | 524 | **-1.7** | 545 | **-3.0** |
| Canada | 518 | 13.8 | 16.4 | **-1.4** | 523 | **-0.9** | 525 | **-1.5** |
| Poland | 518 | 14.4 | 16.7 | **2.6** | 518 | **2.8** | 526 | **4.6** |
| Belgium | 515 | 19.0 | 19.5 | **-1.6** | 509 | 0.1 | 505 | -0.9 |
| Germany | 514 | 17.7 | 17.5 | **1.4** | 508 | **1.8** | 524 | 1.4 |
| Viet Nam | 511 | 14.2 | 13.3 | m | 508 | m | 528 | m |
| Austria | 506 | 18.7 | 14.3 | 0.0 | 490 | -0.2 | 506 | -0.8 |
| Australia | 504 | 19.7 | 14.8 | **-2.2** | 512 | **-1.4** | 521 | -0.9 |
| Ireland | 501 | 16.9 | 10.7 | -0.6 | 523 | **-0.9** | 522 | **2.3** |
| Slovenia | 501 | 20.1 | 13.7 | -0.6 | 481 | **-2.2** | 514 | -0.8 |
| Denmark | 500 | 16.8 | 10.0 | **-1.8** | 496 | 0.1 | 498 | 0.4 |
| New Zealand | 500 | 22.6 | 15.0 | **-2.5** | 512 | **-1.1** | 516 | **-2.5** |
| Czech Republic | 499 | 21.0 | 12.9 | **-2.5** | 493 | -0.5 | 508 | -1.0 |
| France | 495 | 22.4 | 12.9 | **-1.5** | 505 | 0.0 | 499 | 0.6 |
| United Kingdom | 494 | 21.8 | 11.8 | -0.3 | 499 | 0.7 | 514 | -0.1 |
| Iceland | 493 | 21.5 | 11.2 | **-2.2** | 483 | **-1.3** | 478 | **-2.0** |
| Latvia | 491 | 19.9 | 8.0 | 0.5 | 489 | **1.9** | 502 | **2.0** |
| Luxembourg | 490 | 24.3 | 11.2 | -0.3 | 488 | **0.7** | 491 | 0.9 |
| Norway | 489 | 22.3 | 9.4 | -0.3 | 504 | 0.1 | 495 | 1.3 |
| Portugal | 487 | 24.9 | 10.6 | **2.8** | 488 | **1.6** | 489 | **2.5** |
| Italy | 485 | 24.7 | 9.9 | **2.7** | 490 | 0.5 | 494 | **3.0** |
| Spain | 484 | 23.6 | 8.0 | 0.1 | 488 | -0.3 | 496 | 1.3 |
| Russian Federation | 482 | 24.0 | 7.8 | 1.1 | 475 | **1.1** | 486 | 1.0 |
| Slovak Republic | 482 | 27.5 | 11.0 | **-1.4** | 463 | -0.1 | 471 | **-2.7** |
| United States | 481 | 25.8 | 8.8 | 0.3 | 498 | -0.3 | 497 | 1.4 |
| Lithuania | 479 | 26.0 | 8.1 | -1.4 | 477 | 1.1 | 496 | 1.3 |
| Sweden | 478 | 27.1 | 8.0 | **-3.3** | 483 | **-2.8** | 485 | **-3.1** |
| Hungary | 477 | 28.1 | 9.3 | **-1.3** | 488 | **1.0** | 494 | -1.6 |
| Croatia | 471 | 29.9 | 7.0 | 0.6 | 485 | 1.2 | 491 | -0.3 |
| Israel | 466 | 33.5 | 9.4 | **4.2** | 486 | **3.7** | 470 | **2.8** |
| Greece | 453 | 35.7 | 3.9 | **1.1** | 477 | 0.5 | 467 | -1.1 |
| Serbia | 449 | 38.9 | 4.6 | **2.2** | 446 | **7.6** | 445 | 1.5 |
| Turkey | 448 | 42.0 | 5.9 | **3.2** | 475 | **4.1** | 463 | **6.4** |
| Romania | 445 | 40.8 | 3.2 | **4.9** | 438 | 1.1 | 439 | **3.4** |
| Cyprus[1, 2] | 440 | 42.0 | 3.7 | m | 449 | m | 438 | m |
| Bulgaria | 439 | 43.8 | 4.1 | **4.2** | 436 | 0.4 | 446 | 2.0 |
| United Arab Emirates | 434 | 46.3 | 3.5 | m | 442 | m | 448 | m |
| Kazakhstan | 432 | 45.2 | 0.9 | **9.0** | 393 | 0.8 | 425 | **8.1** |
| Thailand | 427 | 49.7 | 2.6 | 1.0 | 441 | **1.1** | 444 | **3.9** |
| Chile | 423 | 51.5 | 1.6 | **1.9** | 441 | **3.1** | 445 | 1.1 |
| Malaysia | 421 | 51.8 | 1.3 | **8.1** | 398 | **-7.8** | 420 | -1.4 |
| Mexico | 413 | 54.7 | 0.6 | **3.1** | 424 | **1.1** | 415 | 0.9 |
| Montenegro | 410 | 56.6 | 1.0 | **1.7** | 422 | **5.0** | 410 | -0.3 |
| Uruguay | 409 | 55.8 | 1.4 | **-1.4** | 411 | **-1.8** | 416 | **-2.1** |
| Costa Rica | 407 | 59.9 | 0.6 | -1.2 | 441 | -1.0 | 429 | -0.6 |
| Albania | 394 | 60.7 | 0.8 | **5.6** | 394 | **4.1** | 397 | 2.2 |
| Brazil | 391 | 67.1 | 0.8 | **4.1** | 410 | **1.2** | 405 | **2.3** |
| Argentina | 388 | 66.5 | 0.3 | 1.2 | 396 | -1.6 | 406 | 2.4 |
| Tunisia | 388 | 67.7 | 0.8 | **3.1** | 404 | **3.8** | 398 | **2.2** |
| Jordan | 386 | 68.6 | 0.6 | 0.2 | 399 | -0.3 | 409 | **-2.1** |
| Colombia | 376 | 73.8 | 0.3 | 1.1 | 403 | **3.0** | 399 | 1.8 |
| Qatar | 376 | 69.6 | 2.0 | **9.2** | 388 | **12.0** | 384 | **5.4** |
| Indonesia | 375 | 75.7 | 0.3 | 0.7 | 396 | **2.3** | 382 | -1.9 |
| Peru | 368 | 74.6 | 0.6 | 1.0 | 384 | **5.2** | 373 | 1.3 |

Source: OECD (2014) PISA 2012 Results in Focus.

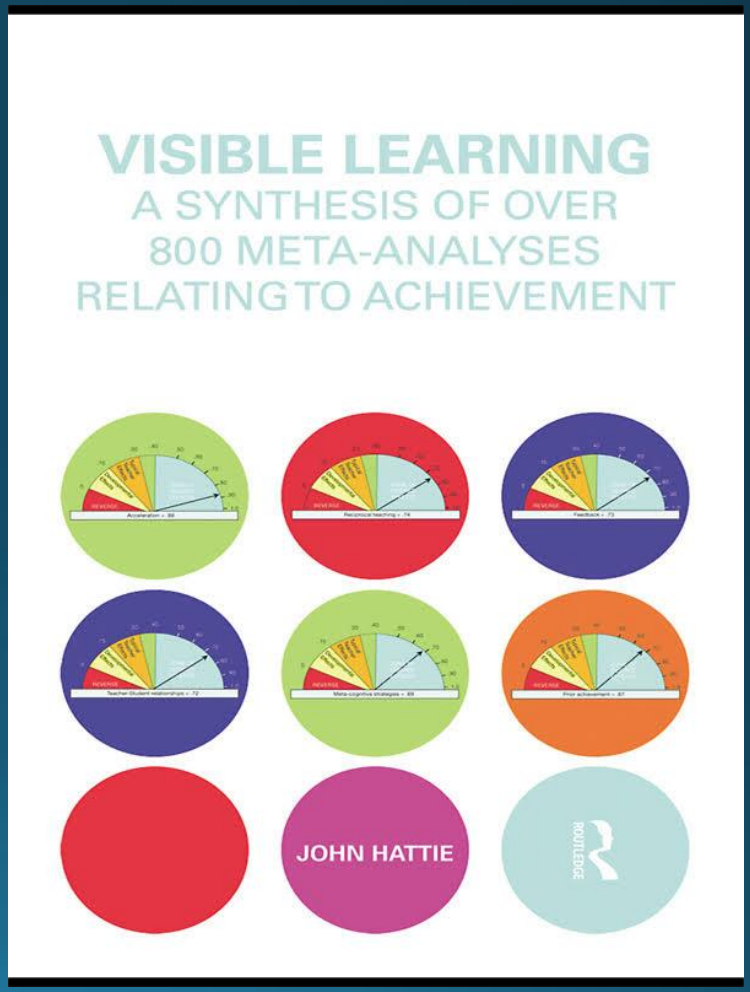
# To use or not to use?

"the findings of the report should not be used as an "excuse" not to use technology, but as a spur to finding a more effective approach."

- Andreas Schleicher, OECD

# 10 effects on learning (John Hattie, 2009)

| | |
|---|---|
| • Formative evaluation to teachers | .90 |
| • Teacher clarity | .75 |
| • Feedback to students | .73 |
| • Problem solving teaching | .61 |
| • Mastery learning | .58 |
| • Computer-assisted instruction | .37 |
| • Simulations | .33 |
| • Web-based learning | .18 |
| • Distance education | .09 |
| • Television | -.18 |



# In short…

- Technology does not influence learning directly. (chalk doesn't matter!)
- Technologies are vehicles for teaching methods that account for learning.
- Teaching and instructional methods are core agents regardless of the medium.

(Reeves, T. (2014). E-Learning: The Research We Have and the Research We Need. Presentation at eLearing Korea 2014)

# Example 1: Singapore

- Coherent Continuum


Building the Foundation


Seeding Innovation


Strengthening & Scaling

# Example 1: Singapore

**1997 Master Plan 1**

## Building the Foundation

- T&L Resources
- ICT Skills for Teachers
- ICT Infrastructure

**2003 Master Plan 2**

## Seeding Innovation

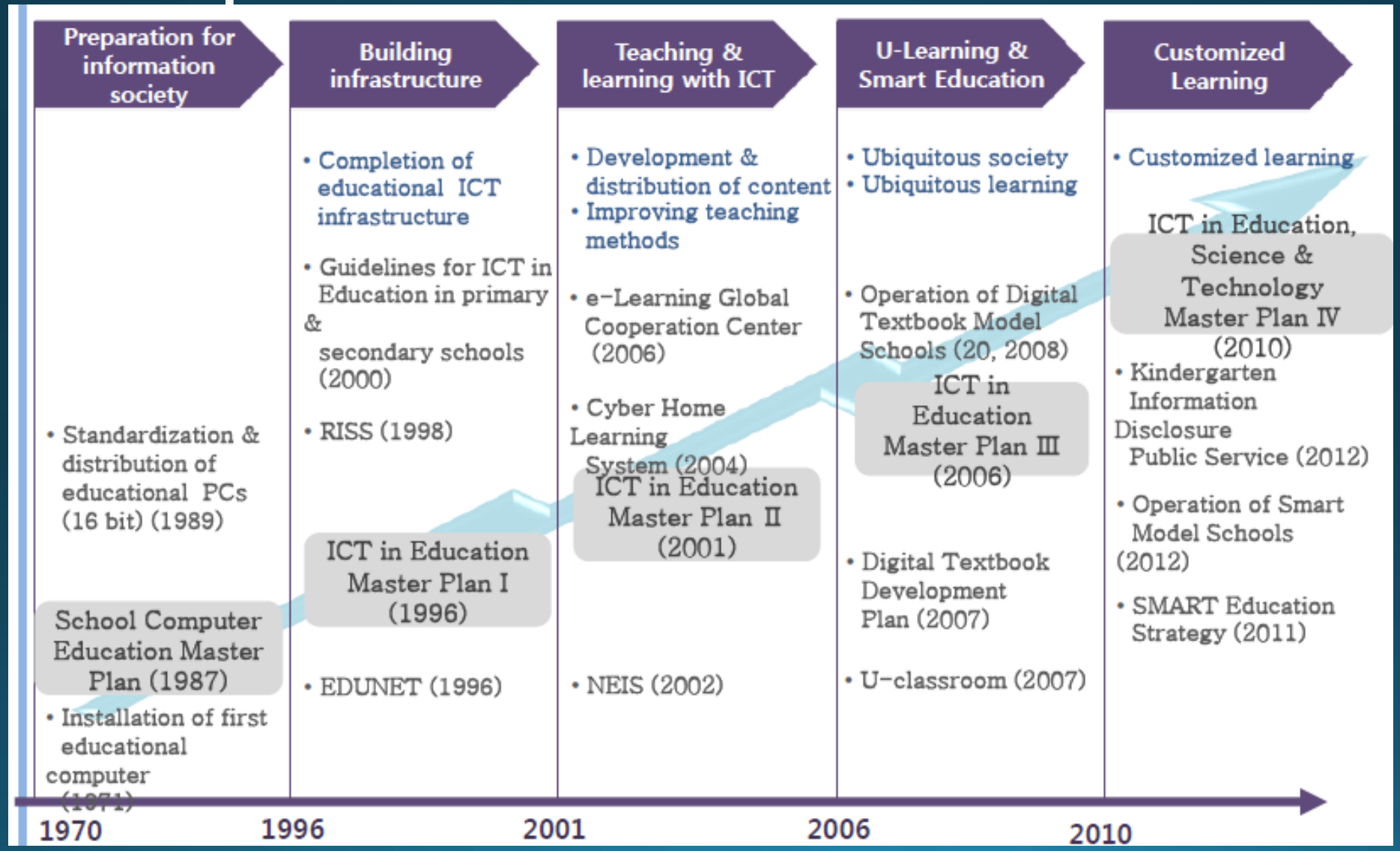
- Innovation push: FS & Lead ICT schools
- ICT Baseline tools
- School-based ICT Plan

**2009 Master Plan 3**

## Strengthening & Scaling

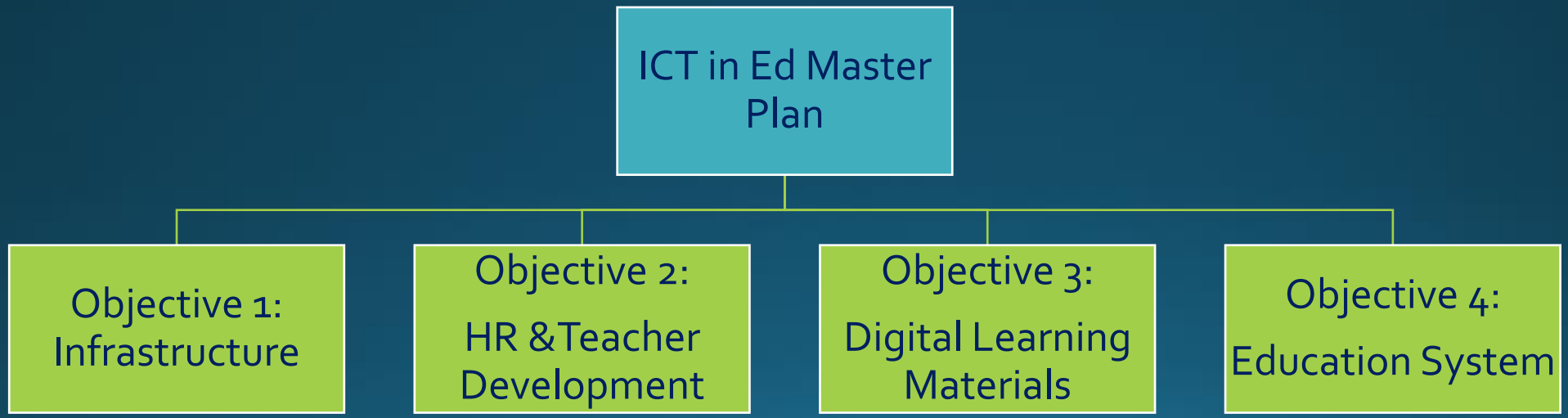
- Enriching and transforming the learning experiences through appropriate ICT integration
- Professional development of teachers
- Developing **discerning** and **responsible** ICT users

# Example 2: Korea



# Example 3: Nepal (2013-2017)

* **Vision:** to ensure quality education for all through the use of ICT in all aspects of education and create knowledge-base society through integrating Nepal into the global community



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# Key Factors

# Why do most ICT policies go nowhere?

- Wish list without implementation strategies and resource plan
- The policy focuses only on ICT hardware.
- Teachers and other ground level implementers resist policy-based changes.
- The policy does not have explicit connections with instructional practices at schools.
- The policy is organizationally isolated.
- The policy does not specify measurable goals.
- Current policies are replaced by the new government.

Kozma, R. (2011). *Transforming Education: The Power of ICT Policies*. UNESCO. http://www.unesco.org/new/en/education/resources/online-materials/single-view/news/transforming_education_the_power_of_ict_policies-1/

# Key factors

- Budget & resource plan
- Clear goals – what do you want to achieve through ICT?
- Shared goals  - should be part of school visions and plans.
- Digital tech should be an integral part of teaching, learning and assessment. – support and training for teachers
- Inter-departmental coordination
- Monitoring and evaluation

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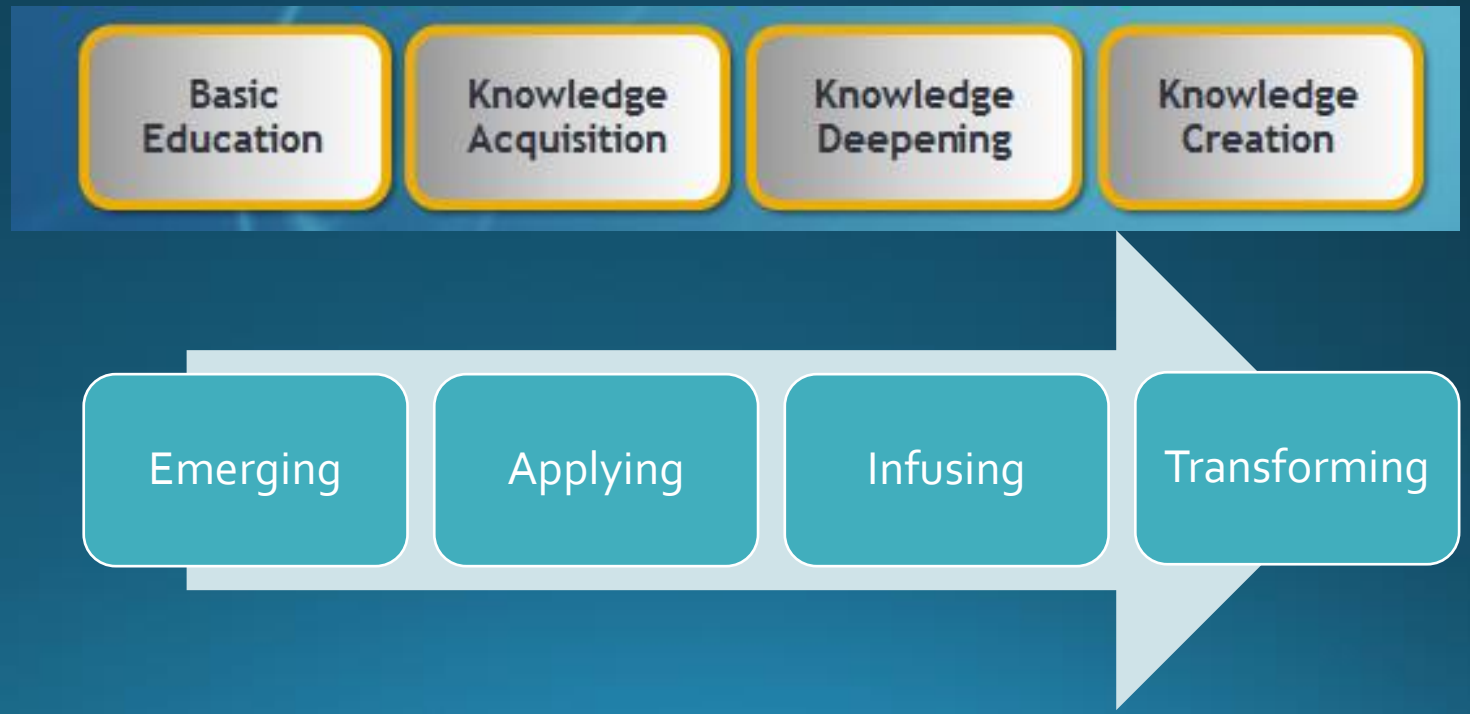
# Suggested Process of Master Plan Development

# Evolving process

- Where are you now and where do you want to go (with ICT in your education system)?
- Who are the stakeholders who should be involved in crafting the vision?



# Suggested Process

| | Activities | Main actors | Expected outputs | Duration |
|---|---|---|---|---|
| 1 | Prep – Needs assessment | DoE | Current issues in education (response to the guiding questions) | 2 weeks |
| 2 | Determining priority areas | DoE in consultation with UNESCO (online) | Agreed priority areas<br>List of concerned Depts and key stakeholders | 2 weeks |
| 3 | Master Plan Development Workshop | UNESCO<br>DoE<br>Key stakeholders of the priority areas | Skeleton of Master Plan | 1 week |
| 4 | Drafting Master Plan (with study visit?) | DoE in consultation with UNESCO (online) | Revised and refined drafts | 6 months |
| 5 | Public hearing | DoE | | ?? |
| 6 | Finalizing Master Plan and getting endorsement | DoE in consultation with UNESCO (online) | Final Master Plan | ?? |
| 7 | Implementation & Monitoring | DoE, ICT in Ed agency | Documentation | |

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# Policy Development Workshop Modules (4 days)

# Master Plan workshop: Day 1

| | Modules | Activities | Resource persons |
|---|---|---|---|
| 1 | Overview of Education Policy Cycle (1.5 hrs) | Presentations on<br>1) Overall National Education Sector Plan/National Education Policy<br>2) Cycle of ICT policy (Envisioning-Policy Dev't-Implementing Initiatives-Evaluation/adapt)<br>3) Coordination matters | UNESCO (Planning) |
| 2 | Positioning ICT in education in the education sector plan (2 hrs) | Presentations on<br>1) The importance of ICT in Ed policy<br>2) Best practices and international examples<br>3) Current status of ICT (e.g ICT-related issues and projects, expectation on ICT to address the education issues) | UNESCO (ICT)<br>DoE (for #3) |
| 3 | Envisioning ICT in Education Policy (2.5hrs) | Group work on<br>1) Identifying critical issues in education<br>2) Defining policy vision/goals<br>3) Aligning ICT policy goals with national education vision | UNESCO (ICT)<br>DoE |

# Master Plan workshop: Day 2

| | Modules | Activities | Resource persons |
|---|---|---|---|
| 4 | Determining priority programmes/projects (6hrs) | Presentations on<br>1) Good practices/examples<br>Group work on<br>1) Designing programme for each priority area<br>2) Develop projects for each programme (Time-bounded) | UNESCO (ICT)<br>DoE |

# Master Plan workshop: Day 3

| | Modules | Activities | Resource persons |
|---|---|---|---|
| 5 | Building policy and implementation strategies (3hrs) | 1) Bottlenecks of mainstreaming ICT policies into the education sector plans and policies<br>2) Presentation on Introduction to Planning Simulation<br>3) Building implementation strategies for each programme<br>- Costing<br>- Timeline<br>- Division of labor<br>- Sustainability efforts | UNESCO (Planning) |
| 6 | Partnership & resource mobilization plan (3hrs) | 1) Stakeholder analysis<br>2) Roles and responsibilities of stakeholders<br>3) Coordinating for domestic resources<br>4) Mobilizing additional resources from development partners | UNESCO (ICT)<br>DoE (group work) |

# Master Plan workshop: Day 4

| | Modules | Activities | Resource persons |
|---|---|---|---|
| 7 | Sustainability efforts<br>M&E strategies (2hrs) | 1) Governance for ICT in education policy implementation<br>2) Monitoring and evaluation framework for ICT in education<br>3) M&E indicators | UNESCO<br>DoE |
| 8 | Finalization of group work (2 hrs) | | |
| 9 | Group Presentations & Feedback (2.5 hrs) | Presentations of the rough draft of ICT in Ed Master Plan<br>Resource persons to provide feedback | |
| 10 | Closing & Next steps (.5hrs) | | |

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# Thank You.

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www.unescobkk.org/ict