Sustainable@EDU
Sustainable Education
millenniumedu.org
Sustainable@EDU PROGRAM

INTRODUCTION – Sustainable@EDU Challenge

I - Sustainable@EDU CONCEPT
II - Sustainable@EDU VALUE CHAIN
III - Sustainable@EDU PROGRAM
IV - Sustainable@EDU SOLUTION
  - PROJECT
  - CAMPUS
  - CLASSROOM
V - EMPOWERMENT FORCES
VI - FLAGSHIP INITIATIVES
VII - FLAGSHIP PROJECTS

CONCLUSION - Learning Society & Education Generation
Sustainable@EDU Challenge
The Challenge

250 MILLION Out of School

330 MILLION In School but not Learning
The Challenge

$3 \text{T}\nTRILLION
Annual Investment

$ 89 \text{B}\nBILLION
Annual International Funding
I. Sustainable@EDU CONCEPT
Sustainable Development

People
End poverty and hunger in all forms and ensure dignity and equality

Planet
Protect our planet's natural resources and climate for future generations

Partnership
Implement the agenda through a solid global partnership

Peace
Foster peaceful, just and inclusive societies

Prosperity
Ensure prosperous and fulfilling lives in harmony with nature

Making a difference for 15 million students
Improving access and quality in Education
http://www.un.org/sustainabledevelopment

info@millenniumedu.org
4E's of Sustainable@EDU

- Educational
- Equity (Social)
- Environmental
- Economic
II. Sustainable@EDU VALUE CHAIN
SUSTAINABLE@EDU VALUE CHAIN

Data@EDU
Information@EDU
Knowledge@EDU
Learning@EDU
Wisdom@EDU

Planning, Management, Evaluation
III. Sustainable@EDU PROGRAM
Sustainable@EDU PROGRAM

Sustainable@EDU VALUE CHAIN
- DATA
- INFORMATION
- KNOWLEDGE
- LEARNING
- WISDOM

Sustainable@EDU SOLUTION
- Project Model
- CAMPUS and SCHOOL
- Classrooms

Sustainable@EDU FLAGSHIP INITIATIVES
- Education for Sustainable Development
- World Classroom
- Others

Sustainable@EDU FLAGSHIP PROJECTS
- Arab@EDU
- Africa@EDU
- Asia@EDU
- Americas@EDU

Sustainable@EDU 4 - DIMENSIONS
- EDUCATIONAL
- ECONOMIC
- EQUITY (SOCIAL)
- ENVIRONMENTAL

Value Chain:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Economic:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Education for Sustainable Development:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

World Classroom:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Others:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Learning:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Knowledge:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Wisdom:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Environment:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Technology:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Data:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Information:
- Sustainable@EDU
- Americas@EDU
- Asia@EDU
- Africa@EDU
- Arab@EDU

Sustainable@EDU FLAGSHIP PROJECTS:
- Arab@EDU
- Africa@EDU
- Asia@EDU
- Americas@EDU
IV. Sustainable@EDU SOLUTION
Sustainable@EDU SOLUTION

Sustainable@EDU Project Model
Framework to plan, implement and evaluate education sustainable projects based in four dimensions, and in line with United Nations Sustainable Development Goals (SDGs)

Sustainable@EDU CAMPUS & School
Rebuild the Learning Place supported by Technological Infrastructure

Sustainable@EDU Classroom
Will provide a comprehensive “Solution Pack”, including computer device, to enable every student and teacher in the program access to ICSTs including computing devices, content, software and applications.

Sustainable@EDU VALUE CHAIN
DATA > INFORMATION > KNOWLEDGE > LEARNING > WISDOM
Dimensions and Operations

**OPERATIONS WORKFLOW**

**Sustainable@EDU VALUE CHAIN**

DATA > INFORMATION > KNOWLEDGE > LEARNING > WISDOM
Sustainable@EDU CAMPUS AND SCHOOL

Sustainable@EDU 4 DIMENSIONS

EDUCATIONAL

- Improve process and method of teaching and learning
- Improve student results and success
- Improving students employability

ECONOMIC

- Ensure economic sustainability
- Reducing School Operational Costs
- Decrease Average Cost per student through Efficiency

EQUITY (SOCIAL)

- Improve School access to all
- Make school access more inclusive
- Make access timing more flexible
- Access to CAMPUS 24/24

ENVIRONMENTAL

- Improve School Energy efficiency
- Reducing the Carbon Footprint
- Reducing Energy costs

Sustainable@EDU VALUE CHAIN

DATA > INFORMATION > KNOWLEDGE > LEARNING > WISDOM
V - EMPOWERMENT FORCES
take
7 Challenges to change the World.
Empower Forces
1. Rebuilding the Learning Space (Educational)
1. Rebuilding the Learning Space (Educational)
The Solution Approach

❖ Integration of all different components
❖ Interoperability
❖ Better Management
❖ Tested Integration
❖ Piloting
❖ Procurement Best Practices and Training
Procurement & Piloting

An Operational Framework

Based on our review of the literature and perspectives gained during data collection for this study, we present an operational framework that depicts five key Action Points of typical procurement processes in school districts. These Action Points are interactive and often overlapping rather than an invariant linear sequence. For present purposes, however, they provide an operational framework for relating results to key procurement needs that occur at one time or another along the pathway from the allotment of funding to the acquisition of selected products.

- **Action Point I:** Allotment of funding for ed-tech product acquisitions. The amount of funding available to purchase ed-tech products directly influences the degree of participant involvement in subsequent phases.

- **Action Point II:** Assessment of needs for ed-tech products. By knowing where and how ed-tech support is needed, school districts aptly put the horse before the cart, so that the search for products (Action Point III) has direction and purpose.

- **Action Point III:** Discovery of ed-tech products that address priority needs. This phase exposes school districts to a variety of ed-tech products that perform different educational functions, thus, creating opportunity to further investigate those appearing to offer the best fit.

- **Action Point IV:** Evaluation of product quality and effectiveness: Here, by examining evidence about the product, obtaining peer recommendations, observing demonstrations, and conducting “pilots” (quick-turnaround try-outs), school districts obtain information to guide selection of the product(s) likely to most reliably and effectively support instructional needs and goals.

- **Action Point V:** Acquisition of selected products. In this culminating activity, the products selected are acquired through completed purchasing agreements with the vendors. The processes involved may be quite straightforward and rapidly completed, or complicated and slowed by district (e.g., school board) or external (state or municipal) policies.
2. Provide Devices (Equity)

UNESCO Qingdao Declaration
Seize Digital Opportunities, Lead Education Transformation

"We Commit to ensure that all girls and boys have access to connected digital devices and a relevant and responsive digital learning environment by 2030, irrespective of their disabilities, social or economic status or geographic location."
2. Provide Devices (Equity)
3. Empower Local Services (Economic)
4. Training Teachers and Education Agents

UNESCO framework(s) for ICT integration in Education
4. Training Teachers and Education Agents

**MILLENNIUM@EDU SUSTAINABLE EDUCATION TRAINING**

<table>
<thead>
<tr>
<th>Pedagogic Innovation and Transformation</th>
<th>Training Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be able to recognize and manipulate available technological tools and software...</td>
<td>New learning scenarios with ICT</td>
</tr>
<tr>
<td></td>
<td>Empowering learning ecosystems with ICT</td>
</tr>
<tr>
<td>Establishing and modifying pedagogic practices...</td>
<td></td>
</tr>
<tr>
<td>Establishing and transforming learning environments...</td>
<td></td>
</tr>
</tbody>
</table>

**Training Courses**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital classroom setup and maintenance, and Classroom Management Software basic operation</td>
<td>10</td>
</tr>
<tr>
<td>Technological tools and software in the digital classroom</td>
<td>10</td>
</tr>
<tr>
<td>Classroom Management Software</td>
<td>10</td>
</tr>
<tr>
<td>Resources for artistic and project-based learning activities: Sketchbook, Pixlr</td>
<td>8</td>
</tr>
<tr>
<td>Scientific and project-based resources: LabCam and Sparkvue</td>
<td>8</td>
</tr>
<tr>
<td>New learning approaches with ICT</td>
<td>8</td>
</tr>
<tr>
<td>Curricular infusion</td>
<td>8</td>
</tr>
<tr>
<td>Sustainable Development Goals (SDG) in learning</td>
<td>8</td>
</tr>
<tr>
<td>Frameworks to ICT educational integration</td>
<td>10</td>
</tr>
<tr>
<td>Integrated and life cycle approach to ICT educational projects</td>
<td>30</td>
</tr>
<tr>
<td>New learning scenarios with ICT</td>
<td>30</td>
</tr>
<tr>
<td>Empowering learning ecosystems with ICT</td>
<td>30</td>
</tr>
</tbody>
</table>

Making a difference for 15 million students; Improving access and quality in education.
Universal Declaration of Human Rights

Article 26.

“(2) Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.”
5. Collaboration – Between Stakeholders

Ecosystem & Partnerships

MULTI-STAKEHOLDER INITIATIVE LED BY THE PRIVATE SECTOR

ESTABLISHMENT OF NATIONAL PROJECTS LED BY LOCAL PROMOTERS

BOOST THE LOCAL TECH INDUSTRY WHERE THE MILLENNIUM@EDU PROJECTS ARE DEVELOPED
6. Engage the Community (Socio-economic)

PROJECT CONCEPT

“It takes a village to raise a child”...

... It takes the world to educate a child
Commitment to UNESCO Global Action Programme on Education for Sustainable Development

Our Commitment World Classroom for Sustainable Development aims to connect students and teachers through Model Classrooms in different countries under a comprehensive education plan, based on scientific experiments and Sustainable Development Issues, like water, food and environment, among others, improving the quality of Education for Sustainable Development.

https://unesco4esd.crowdmap.com/reports/view/311
The Commitment to change the World

Millennium@EDU Commitment to “Education First”

Partnership to Empower Education and Learning

The Commitment to change the World

Targets and Goals

- Sustainable Development Goals (MDGs)
- WSIS & SDGs Targets
- 21st Century Skills
- Global citizenship
- Improving access and quality in education
- Socio-economic development

info@millenniumedu.org
7. XXI Century Literacies & Skills

21st Century Skills

- Critical Thinking
- Creativity
- Problem Solving
- Communication
- Collaboration
# Sustainable Education

**Millennium@EDU – Sustainable Development Goals Matrix**

<table>
<thead>
<tr>
<th>Sustainable Development Goals Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. Partnerships for the Goals</td>
</tr>
</tbody>
</table>

Learning Objectives

- Education for Sustainable Development Goals
- Making a difference for 15 million students
VI. Sustainable@EDU FLAGSHIP INITIATIVES
The Literacies of XXI Century

Energy@EDU

Code@EDU

Water@EDU

Climate@EDU

Entrepreneurship@EDU
Reference Exercises

<table>
<thead>
<tr>
<th>Learning how a Solar Panel works:</th>
<th>Learning how a Wind Turbine works:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The effect of Shade</td>
<td>The effect of Blade Quantity</td>
</tr>
<tr>
<td>The effect of Heat</td>
<td>The effect of Blade Pitch</td>
</tr>
<tr>
<td>The effect of Tilt</td>
<td>The effect of Blade Length</td>
</tr>
</tbody>
</table>
Reference Exercises

Air Pollution and Acid Rain
Use a pH sensor to determine the effect air pollutants (CO2, SO2, and NO2) have on the pH of water.

Acid Rain and Plant Growth
Using the pH sensor and simulated rainwater from different sources, the students determine the effect of acid rain on the germination of bean seeds.
Reference Exercises

**Greenhouse Gases**
Use temperature probe to determine the different increases in temperature between vessels with air and with Greenhouse gases, and take conclusions related to global warming.

**Heating Land and Water**
Use a temperature sensor to determine a property of materials that allows some to heat up faster than other materials and then draw conclusions about water's influence on a region's climate.
Code@EDU - CODE FOR SDG’s

SDGs Content
CS-K12 Curriculum

Sustainable Bootcamps

- Personalized Learning Platform
- K12 Computer Science Curriculum
- SDG’s Content
- Coding exercises and games
- Accredited Training
- Teacher Empowerment

- Convert Unemployed People Into Software Developers
- 14- week Coding Bootcamps
- Job Placement
- 96% Employment Rate
**ENTREPRENEURSHIP EDUCATION ACCELERATOR**

**Millennium@EDU Sustainable Education** aims to create an Innovative Network of Entrepreneurs, Start Up’s and Micro Enterprises (ESMEs), as well as of Clusters and HUBs, working in the area of Information, Communication and Scientific Technologies in Education.

These entities in partnership work as **Laboratories** for the development of new **Products** and **Services** which may be integrated in the **Sustainable@EDU Solutions and Projects**.
VII. Sustainable@EDU FLAGSHIP PROJECTS
PORTUGAL
eSchool Impact on Portuguese Society

1,7 Million Beneficiaries with access to laptops and broadband internet DIRECTLY

*42% of the Portuguese population benefited DIRECTLY and INDIRECTLY from the Program

17% of the Portuguese population benefited DIRECTLY

* Estimated value, considering the average size of Portuguese households 2,6 - INE 2011

Source: http://www.ine.pt/scripts/flex_provisoria/Main.html
The total estimated investment of the e.School Program since its beginning until up-to-date is distributed according to the one presented in the following graph:

- **State Contribution**: 27%
- **Beneficiaries Contribution**: 31%
- **Telecom Operators Contribution**: 42%

**Total Investment**: 1.045 Million €
Overview of the e.School Program Impact

- **State Contribution**: 286 M €
- **Telecom Operators Contribution**: TMN; VDF; NOS 434 M €
- **Total Investment**: 1,042 Billion €
- **Beneficiaries Contribution**: 31%
- **Number of e.School Beneficiaries**: 321 M €
  - e.School Initiative: 472 K
  - e.Opportunity Initiative: 401 K
  - e.Little School Initiative: 417 K
  - e.Youth Initiative: 179

Making a difference for 15 million students. Improving access and quality in Education.
http://www.millenniumedu.org
“Portugal was the only one that improved in all three PISA assessment areas”, PISA 2009 results: Learning Trends - Volume V (page 69)

In the PISA 2012, Portugal stabilized its results.
CASE STUDIES - PHILIPPINES

DOST-ASTI

650 Students
1 Classroom
CASE STUDIES - MEXICO

Chihuahua
6,663 Students
11 Classrooms
CASE STUDIES - EGYPT

Cairo and Giza
11,000 Students
200 Classrooms
20 Schools
CASE STUDIES - LITHUANIA

93 Schools located around the whole country
200 teachers trained
CASE STUDIES - ITALY

Peruggia

15 Classrooms
CASE STUDIES - MOROCCO

Douar Dekhla Morocco – Fondation Zakoura
Sustainable@EDU CONCLUSION

millenniumedu.org
Sense of Urgency

From now, until...

SDGs: 2030

Create a Learning Society
Education Generation