MOOCs for Africa
Challenges & Opportunities

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EPFL - École Polytechnique Fédérale de Lausanne, Switzerland
Center for Digital Education
MOOCs @ EPFL – over 1.4 million registrations
MOOCs @ EPFL

MOOC registrations worldwide given internet users

1 Registration per 1,000 Internet Users
The African (un)employment paradox!

2.5 million engineering jobs to be filled in sub-Saharan Africa

Up to 5 jobs listing for every unemployed graduates in ICT & Engineering

Job-skills adequacy!
The full story of youth unemployment in Africa: Young people with higher education find it more difficult to find jobs.

Source: The World Bank

Source: SWTS data and Eurostat, the database of the European Labour Force Survey. EU Data 2013.
AFRICA REALITY

EMPLOYERS: 70% of graduate engineers do not have required technical skills at recruitment.
MOOCs for Africa - Capacity building

→ Network of universities
→ Development of contents
→ Access to MOOCs
→ Training of teachers
→ Certification of MOOCs
  (ECTS credits)
A network for spreading MOOCs in French

RESCIF: réseau d’excellence des sciences de l’ingénieur de la francophonie

Université catholique de Louvain
Ecole Polytechnique X, Paris
Institut polytechnique de Grenoble
Ecole Polytechnique de Montréal
Initiative du RESCIF en Haïti avec les Universités d’Etat et Quisqueya de Port au Prince
Ecole Mohammed d’ingénieurs affiliée à l’Université Mohammed V Agdal – Rabat – Maroc

Ecole supérieure polytechnique – Université Cheick Anta Diop – Dakar – Sénégal
Institut National Polytechnique de Yamoussoukro - Côte d’Ivoire

EPFL - Ecole polytechnique fédérale de Lausanne
Université St-Joseph – Beyrouth – Liban
Institut polytechnique d’Ho-Chi-Minh-Ville – Vietnam
Ecole Nationale Supérieure Polytechnique de Yaoundé – Cameroun
2IE Institut international d’ingénierie en Eau et Environnement – Ouagadougou – Burkina Faso
Local partnerships
MOOCs for Africa

3 main lines of action

- **CONTENT**  Develop or co-develop an offer of MOOCs for the Undergraduate, Graduate and Continuing education

- **USAGE**    Train African academics to the new ICT for education and in particular to MOOCs

- **ACCESS**   Provide Internet access to students on campus
Example of a (very) popular MOOC in Africa

« Comprendre les microcontrôleurs »

- Master and continuing education
- Content: 3 – 5 hours x 7 weeks, 3 ECTS
- Large network (>30) of local representatives in Central and Western Africa
- Practical Work based on a simple kit
- Large success (>30’000 students)

https://www.coursera.org/course/microcontroleurs
Online courses / Onsite training / Distant labs – ENSP
Yaoundé
Key message – specialized courses

- Access to world-class courses (& videos, demos, etc)
- Access to remote experimentation – onsite learning
- Continuing Education of instructors
Awareness & Training of teachers

- **Awareness of academics**
  (certification of MOOCs towards national regulations)

- **Teachers training** towards the use and creation of MOOCs

- **Technicians training** for local MOOCs production

- **Creation of collaborative MOOCs** with several partners
Collaborative MOOCs
## Collaborative MOOCs

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Legend:
- **Blue**: Institution coordinatrice
- **Blue**: Partenaires membres du RESCIF
- **Light Yellow**: Partenaires hors RESCIF
Key message – communities of teachers

• Highly motivational exercise

• Update and actualization of content

• Chance to promote new pedagogical paradigms
  • Blended learning
  • Flipped classroom
  • Project-oriented learning

• A chance to build a long, lasting collaboration!
Capacity building in Higher Education in Africa with MOOCs

- **ACCESS TO WORLD-CLASS COURSES**
  MOOCs form EPFL and academic partners

- **UPGRADE PEDAGOGY**
  Flipped Classrooms, Project-based, ...
  Pilot projects in 3 locations: Dakar, Yamoussoukro, Yaoundé

- **COMPETENCE CENTERS**
  Capacity Building in African Universities
  Digital content development and distribution
A new model of GLOBAL hybride education

- MOOCs from partners
- Integration into local curricula
- Capacity building
- Network of instructors

MOOCs Tutoring and Labs on site
Exams and local credits
Validation of learning objectives

Packaging and distribution of knowledge & competencies

Learning activities
Usage of MOOCs

● University students
  ● Complement to ex-cathedra courses (foundations)
  ● Flipped-classroom
  ● Stand-alone (advanced)

● Self-learners / Professionals
  ● Acquisition of specific skills (MOOC or part of a MOOC)
  ● Professional development (Short curricula + credits + certificates)
Improve employability
Proposal:
 Create new, demand-driven, forms of short curricula for quick skills acquisition
 Several MOOCs (10-12 ECTS) and a personal work under local supervision (6-8 ECTS)
 Proctored exams to validate MOOCs and obtain credits
 Social entrepreneurship with an engineering outlook
 Use blended learning (MOOCs & onsite training) in partnership with local universities

MOOCs
- Preparation with MOOCs
- Proctored Exam
- 3-Day Selection Bootcamp

Enterprise Immersion
- Hands-on practical training
- Enterprise mentorship
- Academic supervision

Job placement or Join Incubator

EPFL-COS
TRAIN BRILLIANT YOUNG AFRICAN graduates to BECOME WORLD-CLASS ENGINEERS and ENTREPRENEURS solving Africa’s toughest problems.

* ACCELERATED HANDS-ON TRAINING IN ICT, ENGINEERING AND ENTREPRENEURSHIP TO ADDRESS THE GRADUATE EMPLOYABILITY AND JOB PROBLEMS ACROSS AFRICA.
Improve employability

Issues:
• Mismatch between graduates output and demand for skilled workforce
• Exclusion of talented youths because of lack of capacity in HE

Proposal:
 Create new forms of short curricula for quick skills acquisition, in line with demand
 Fast-track ICT training for young adults
 Social entrepreneurship with an engineering outlook
 Use blended learning (MOOCs & onsite training) in partnership with local universities

Zero to automation specialist in 9 months
Zero to first-class developer in 9 months
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- **COMPETENCE CENTERS**
  Capacity Building in African Universities
  Digital content development and distribution

- **IMPROVE EMPLOYABILITY**
  Fast-track training in ICT, Eng. & Entrepreneurship.
  Work with local companies to develop internships
Des partenaires engagés pour des formations accessibles à tous