

Creating an Internet-Based Commons for Engineering Education in West Africa

Massachusetts Institute of Technology

Obafemi Awolowo University

Ghana Telecom University College

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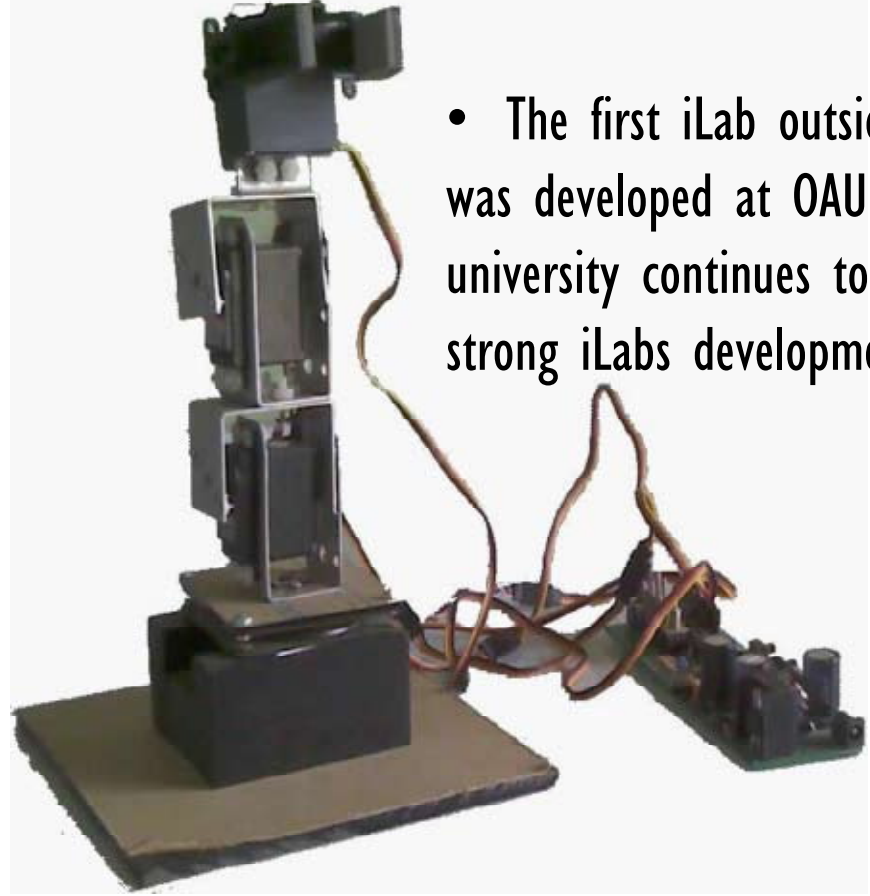


Progress to Date



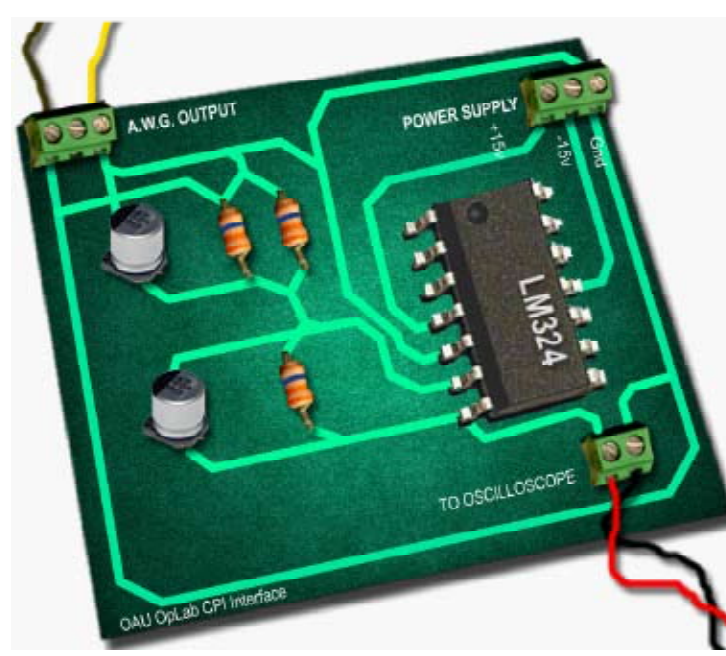
Obafemi Awolowo University

OAU has the largest academic network of computers in Nigeria with a campus-wide fiber optic backbone. As a leading member of the Bandwidth Consortium of the Nigerian Forum of Partnership Institutions, OAU's network is committed to a growth of 20% p.a.



The first iLab outside of MIT was developed at OAU and the university continues to have strong iLabs development drive

OAU has made significant progress in integrating iLabs into its curricula with around 1000 students having used iLabs



OAU has reached out to universities in Nigeria to use iLabs and around 10 universities are at different stages of iLabs adoption

Ghana Telecom University College

Milestones

- GTUC has the largest bandwidth among all the educational institutions in Ghana
- Commitment from Vodafone (Ghana) to make GTUC internet gateway for education in Ghana (an educational ISP) by running fiber to GTUC increasing its network bandwidth > 100 Mbs
- Commitment from Government to create a common model to include all Training Colleges
- Commitment from Government on a policy/framework for promoting and streamlining Virtual Education in Ghana
- Commitment from all the ten Polytechnics across the country to build a common platform
- Commitment by the private Universities in Ghana to the shared commons idea on Tertiary Education

Group Meetings



Massachusetts Institute of Technology

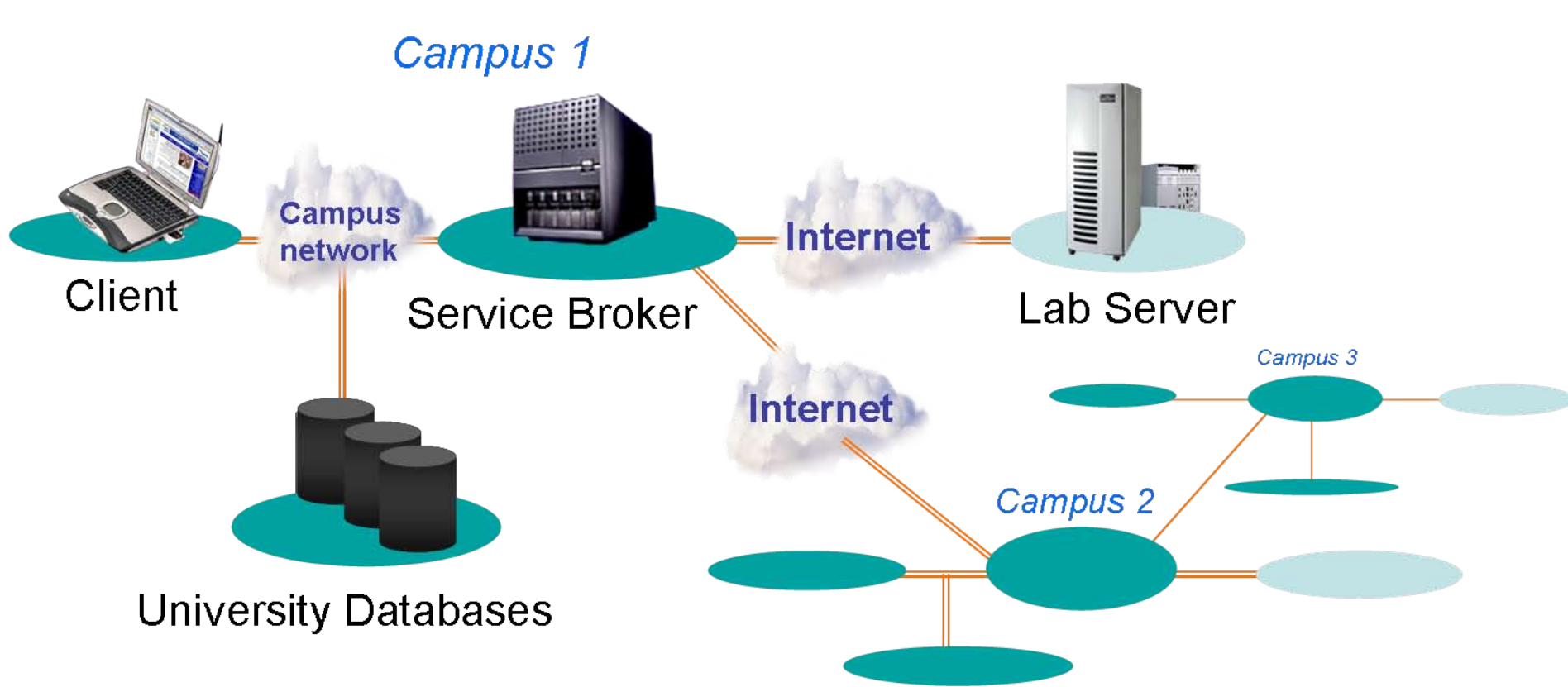
MIT continues to be at the cutting edge of global research and teaching by providing a coherent array of international opportunities due to its strengths in the sciences, management and engineering

A remarkably diverse set of mechanisms for applied international learning and international technology transfers have evolved at MIT. These include:

- MISTI – Currently the largest set of opportunities for students to combine global learning with on-campus activities, MISTI was created to ensure that MIT students and faculty have the necessary tools and background to identify, understand and acquire knowledge for technology leadership in all parts of the world through international internships and exchanges
- AITI – MIT's Africa Information Technology Initiative sends student instructors to Africa to hold courses at African universities on mobile technologies, transfer curriculum to permanent courses at these universities, and awaken African students to the commercial possibilities of the technologies
- The iLab Project provides technology and incentives to share laboratories between universities across the globe. iLabs have been implemented in the US, China, Australia, Europe, as well as in three sub-Saharan African universities
- MIT and the Singaporean government have established multiple joint research projects involving the exchange of faculty and graduate students in areas as diverse as infectious disease, environmental sensing and modeling, and planning for future urban mobility



iLab Shared Architecture



- iLabs are real laboratories that are accessed through the Internet from anywhere at any time
- The iLab architecture allows schools and universities to build out an extensible network of labs that can all be shared between institutions
- An institution can contribute labs, curriculum modules, visualizations, evaluations or best practices
- All software is available on an open source basis
- iLab Africa, sponsored by the Carnegie Corporation, is a partnership between MIT, OAU, Makerere University in Uganda, and the University of Dar es Salaam, to build and share iLabs together
 - Based on staff and student exchanges as well as shared iLabs
- The National University of Rwanda, Kigali Institute of Science and Technology, and GTUC are eager to join the iLab-Africa network

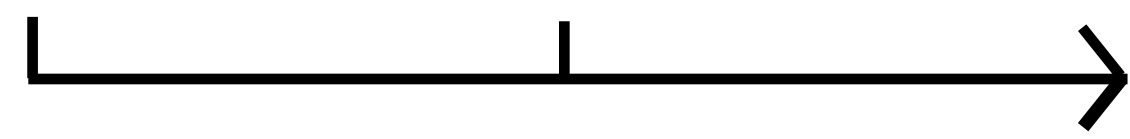
iLabs Around the World



Proposed Future Goals

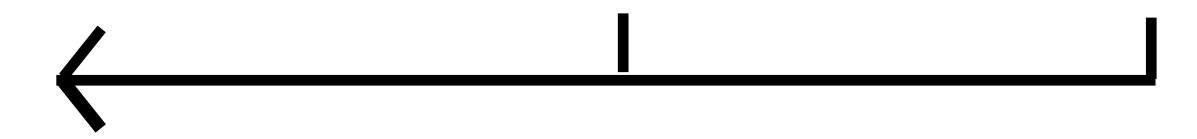
2010

2012



2012

2015



Cadre of Global Technologists



Education Technology Initiatives

- Since 1997, specially-trained MIT students have been working with rural universities and secondary schools in China on open courseware (OCW) projects in areas as diverse as: web design, programming, robotics, electrical engineering, development, civil engineering, biology, aerospace engineering, and more
- This model will be explored as a possible method of information transfer from MIT to OAU, GTUC, and under-served areas of West Africa
- As in the China model, MISTI students would work closely with African faculty to understand the relevant OCW/iLabs material, identify the sections of material that could be used in each teacher's course, and do a series of demonstration classes, assisting the African faculty in using the MIT resources to teach the material successfully

Africa Information Technology Initiative

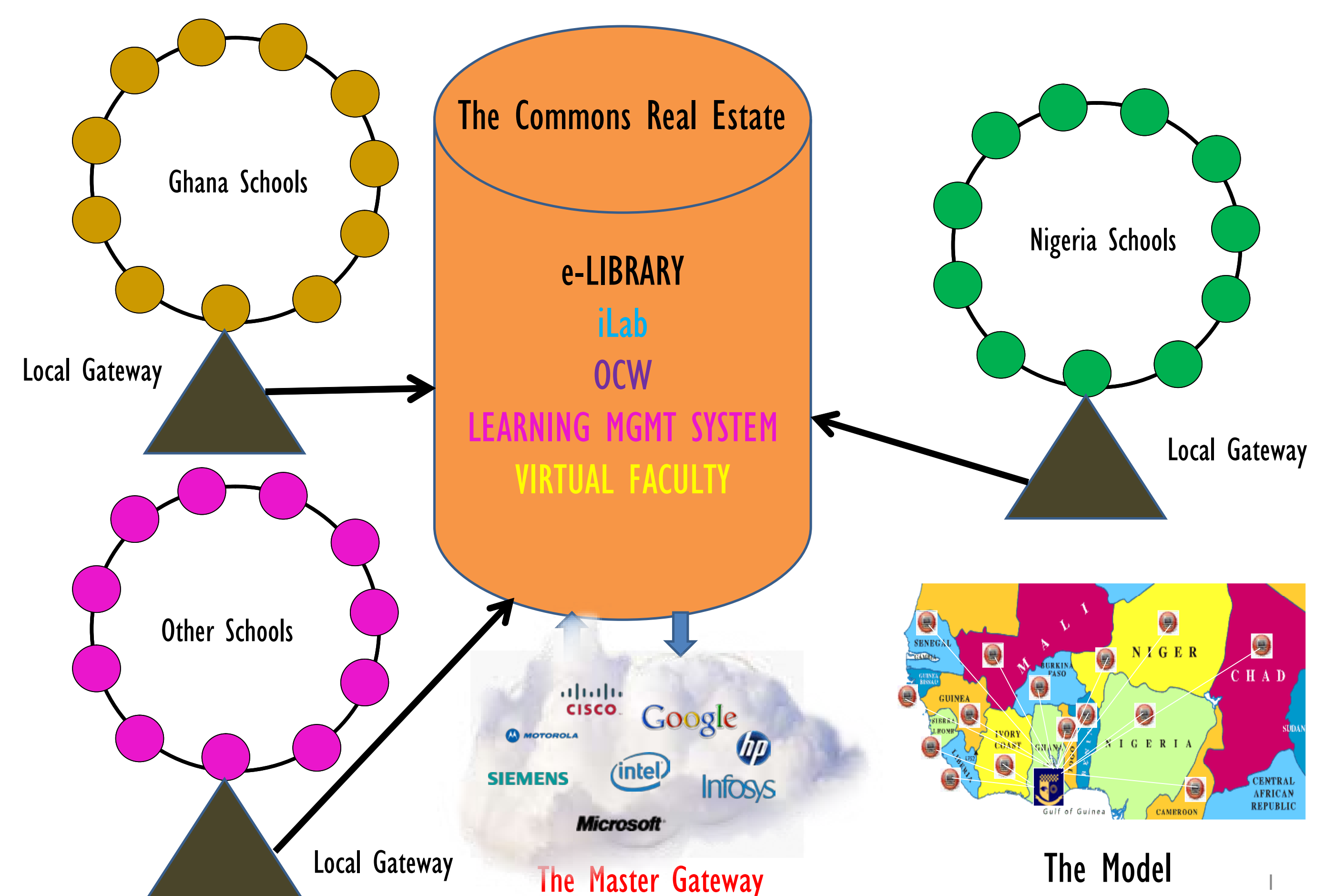
- AITI has ten years of experience promoting development in Africa by cultivating young technology entrepreneurs. AITI develops curriculum materials, software technologies, platforms, and networks that enable African undergraduate students to innovate in the area of information and communication technologies
- AITI transfers teaching expertise to African universities so that they infuse their curriculum with more modern computing technologies and entrepreneurship
- AITI offers mature expertise and materials; access to MIT's world-class engineering and science students, faculty, and researchers; and best practices for technical education and entrepreneurship

Seed Funds

- A vital part of the MIT strategy to internationalize research and education, seed funds are available to MIT faculty and researchers to support early-stage international projects and research collaboration
- Through the Global Seed Fund pool, MIT faculty and their international collaborators can receive up to \$30,000 per project for research proposals that focus on innovative research and equal collaboration across borders
- The program has received grants proposals from across the African continent and looks forward to increased proposal volume as MIT researchers' and their African university counterparts' interactions continue to grow and strengthen



The Shared Commons – Open University of West Africa



West Africa Shared Commons:

The West Africa Shared Commons project would create a framework that would allow institutions in the region to share resources and to give their students a better quality education

Similar to the traditional Open University in some ways, the Shared Commons would be unique in the sense that it would not be mounted by a single university or entity, but rather, made up of components from member institutions

2010-2011

Access to Remote Equipment
A number of iLabs would be developed to allow West African educational institutions to share resources and give their students access to expensive or rare equipment

2012-2015

Access to Courseware
A platform would be developed for managing a large repository of courseware to allow West African institutions to tap into the expertise of partner institutions while contributing in their areas of strength

2015...

Focus on Sustainability
The latter parts of the project would feature an aggressive drive to implement a sustainability framework incorporating public-private partnership and corporate sponsorship. Our partnership is already in discussions with IBM, Vodafone and National Instruments