ACCESS TO INTERNET CONNECTIVITY: THE MAJOR BOTTLENECK TO THE ADOPTION OF TECHNOLOGY-ENABLED EDUCATION

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Case Study

• KNUST has student-faculty ratio of 42:1

• KNUST desires to fully adopt a Technology-Enabled Education platform to supplement the traditional face-to-face session.

• But this is being impeded by the high cost of internet connectivity which is a critical requirement for e-Learning.

• This paper seeks to delve into the reasons for the high cost of internet connectivity in Ghana and its effects on the adoption of e-Learning platforms
eLearning @ KNUST

• To improve the efficiency and effectiveness of Education

• Desires to fully adopt eLearning platform to supplement face-to-face session.

• Full adoption is impeded by high cost of internet connectivity (both for the University & Learner)
Internet Connectivity

- Access to information is the “life-blood” of the world’s knowledge economy, but it is scarcest where it is most needed.

- Few universities in the developing world have access to the internet but its high cost makes it unsustainable.

- Africa’s most well-endowed centers of excellence have less bandwidth than a home broadband user in North America or Europe.

- 150Mbps at $22,500.00 per month
Why high cost of internet connectivity?

- Monopoly on Fixed Broadband.
- Vodafone Ghana Limited acquisition of 70% of shares in Ghana Telecommunication Company.
- Vodafone rather focuses on the lucrative mobile broadband connectivity.
- Vodafone has curtailed, for the time being, at least, the expansion of fixed line broadband.
- Infrastructure is hence concentrated in the urban areas and access to telephones are limited to a few elite.

Table 3-1 Fixed Broadband Internet Rates in Ghana 2013

<table>
<thead>
<tr>
<th>Monthly Internet Allowance</th>
<th>Monthly Cost in US $²</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Gigabytes</td>
<td>US $33.44</td>
</tr>
<tr>
<td>25 Gigabytes</td>
<td>US $51.45</td>
</tr>
<tr>
<td>Unlimited for personal use</td>
<td>US $92.62</td>
</tr>
<tr>
<td>Unlimited for Office use</td>
<td>US $180.10</td>
</tr>
</tbody>
</table>
Why high cost of internet connectivity?

• High Mobile Broadband Cost

• Majority of internet access is via Mobile Broadband by the MNOs

• Average cost is $0.10 per megabyte

• Most subscribers are in the middle or upper class

Table 3-2 Some of the mobile broadband internet rates by some MNOs in Ghana

<table>
<thead>
<tr>
<th>Mobile Network Operators</th>
<th>Monthly Internet Allowance</th>
<th>Monthly Cost in US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vodafone²</td>
<td>2.5 Gigabytes</td>
<td>US $15.43</td>
</tr>
<tr>
<td>MTN³</td>
<td>2.5 Gigabytes</td>
<td>US $20.58</td>
</tr>
<tr>
<td>tigo⁴</td>
<td>3.0 Gigabytes</td>
<td>US $11.57</td>
</tr>
</tbody>
</table>
Why high cost of internet connectivity?

- Less Competition in the submarine fiber-optic cable landing
- Lack of local Content
- High cost of connectivity to consumer’s location
- Frequent termination of fibre-optic cables due to improper blue prints used in road construction and sabotage by competition.
- Recovery of initial investments, administrative and maintenance costs by companies and ISPs.
- Frequent power outages, hence high cost of power via generator
The effect of Internet Connectivity on TEE

- Average mobile broadband cost in Ghana is $0.10 per megabyte of data and the average 10minutes video on YouTube is 20MB, bringing the total cost to $2.00 in a country where the minimum daily wage is $2.21

- 70% of students in KNUST do not reside on the University campus

- eLearning could be deployed via an intranet but for a comprehensive deployment, Internet Connectivity becomes the back bone for the delivery of seamless Technology-Enabled Education Platform.

- This high rates deter the academic and research community from accessing global resources. Hence, education becomes a reserved for the privileged in the society.
Conclusion

- Government will have to regulate the industry to make it more competitive.

- Bulk supplier and distributor of internet bandwidth need to split into smaller unrelated companies.

- Until such interventions are brought in, technology-enabled education with its advantages over traditional form of education would never fully be adopted in developing economies like Ghana.

- And access to education will be restrictive.
Recommendations

• Monopoly control of internet access as was done to AT&T by the US government, and licensing charges content.
• Liberalization of the telecom networks and internet service provision as well as lower tariffs on computer and telecom equipment.
• Negotiating for internet bandwidth through economy of scale by a consortium formed by HEIs in the country.
• Higher Educational Institutions need to build database of local contents on a nationwide intranet network so as to avoid the need for constant connectivity to the internet.
• Data centers should be setup within the country to host institutional websites and repositories.
• Content should be less multimedia as much as possible