

Promoting African Research & Education Networking: ATICS 2006 Survey

AAU Regional Workshop on NRENs

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for the IDRC

Overview

- Objective was to build on the initial African Tertiary Institutions Connectivity survey (ATICS) carried out in 2004
 - Bandwidth availability, cost, quality, utilization, management, requirements, and regulations affecting access
- Current survey:
 - Examine the current situation and review what has changed
 - Information from 54 institutions, representing 27 African countries
 - Additional resource as African institutions form own consortia and support systems
 - Provide critical information to interested development agencies who are also stakeholders in facilitating initiatives aimed at increasing connectivity in tertiary institutions

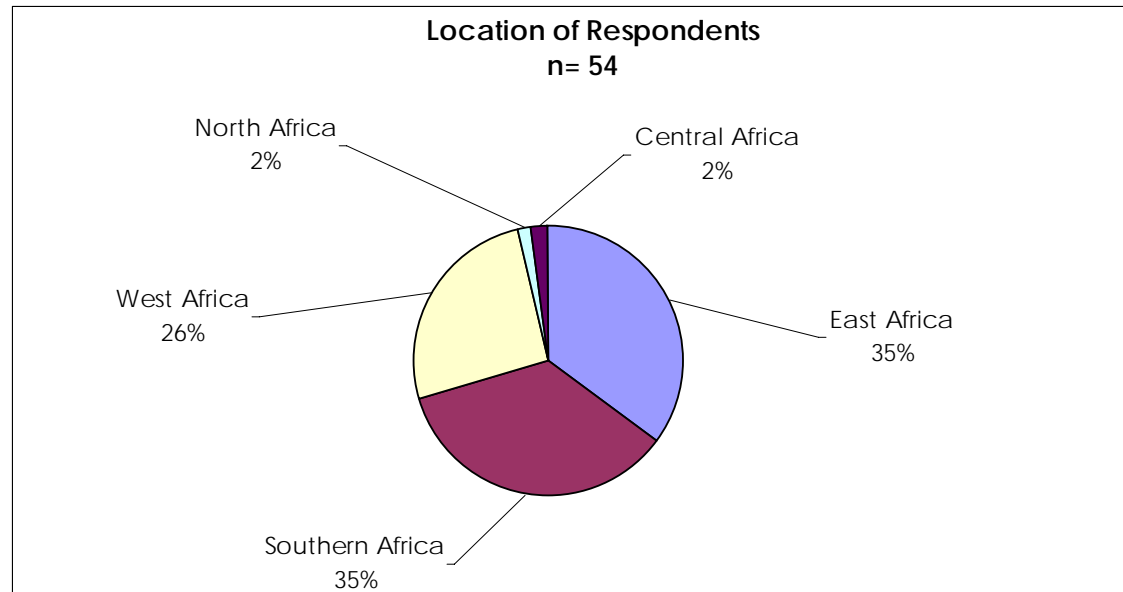
Findings

- Recommendations of ATICS 2004 remain valid, including:
 - formation of bandwidth buying consortia
 - improved bandwidth management, centralised network management and technical capacity
 - improved regulatory policies regarding educational bandwidth

Overview

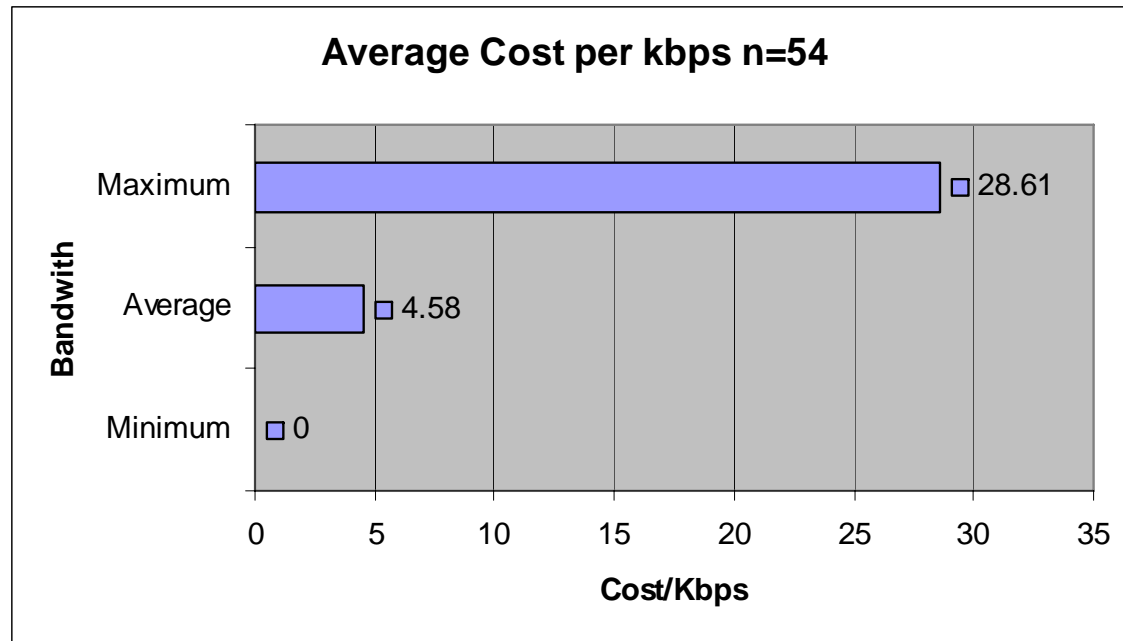
- As was the case in 2004, Internet connectivity in tertiary institutions in Africa can be characterized as too little, too expensive and poorly managed.

Location of Respondents



- Equal participation from all regions except North and Central Africa
- Current survey had improved participation from East Africa (19% - 2004) at the expense of West Africa (37% - 2004)
- Poor participation from Central Africa as in 2004

Bandwidth Cost

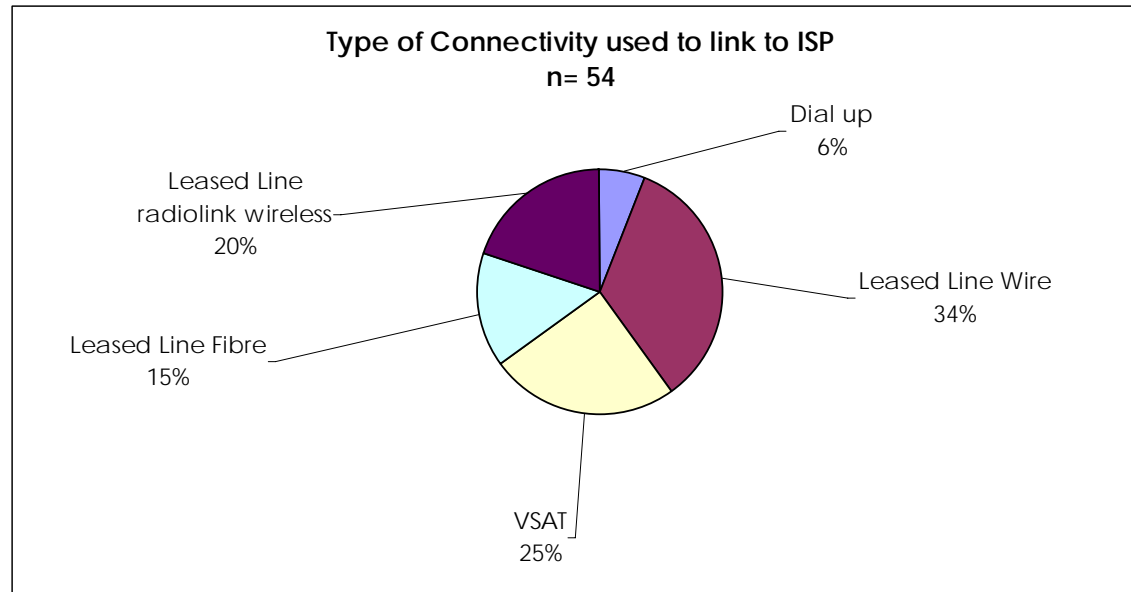


- Average cost has declined 16% from \$5.46 in 2004, but is still about 20 times higher than the amount paid by US universities
- Maximum cost has also declined 25% from \$36.33 reported in 2004
- There's truly a wide range of bandwidth costs

Cost

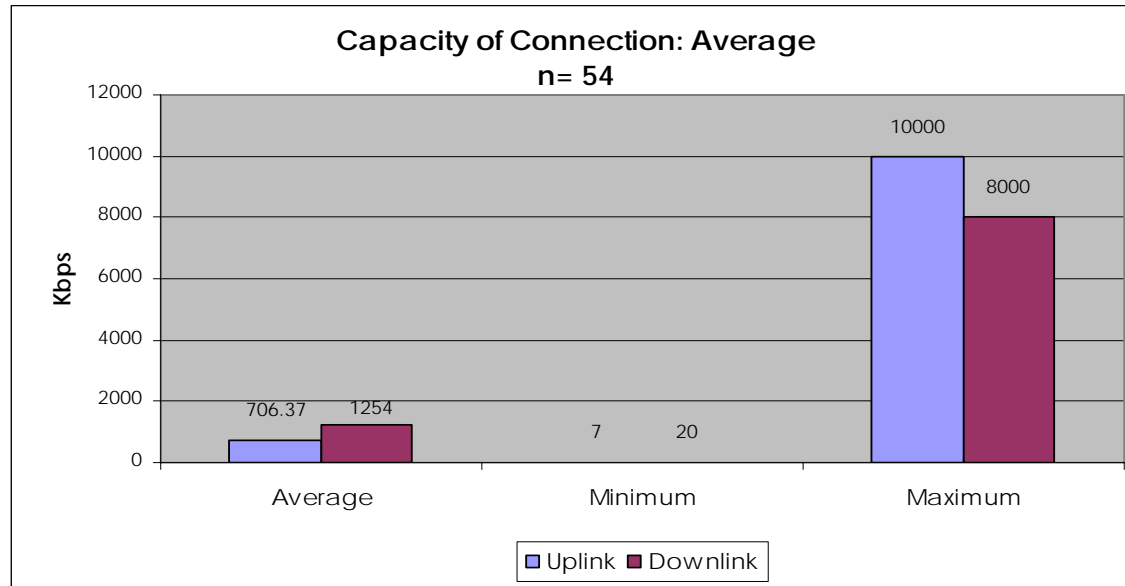
- Institutions with the most expensive bandwidth:
 - \$28.61: Africa University, Zimbabwe
 - \$16.78: University de Yaounde I, Cameroon
 - \$15.26: University of Gambia, Gambia
 - \$10.17: University of Eritrea, Eritrea
 - \$7.63: Sokoine University of Agriculture, Tanzania
 - \$7.43: University of Swaziland, Swaziland
 - \$6.98: University of Botswana, Botswana
 - \$6.78: Botswana College of Agriculture, Botswana
 - \$6.10: Universite de Burundi, Burundi
 - \$4.58: Average

Type of Connectivity



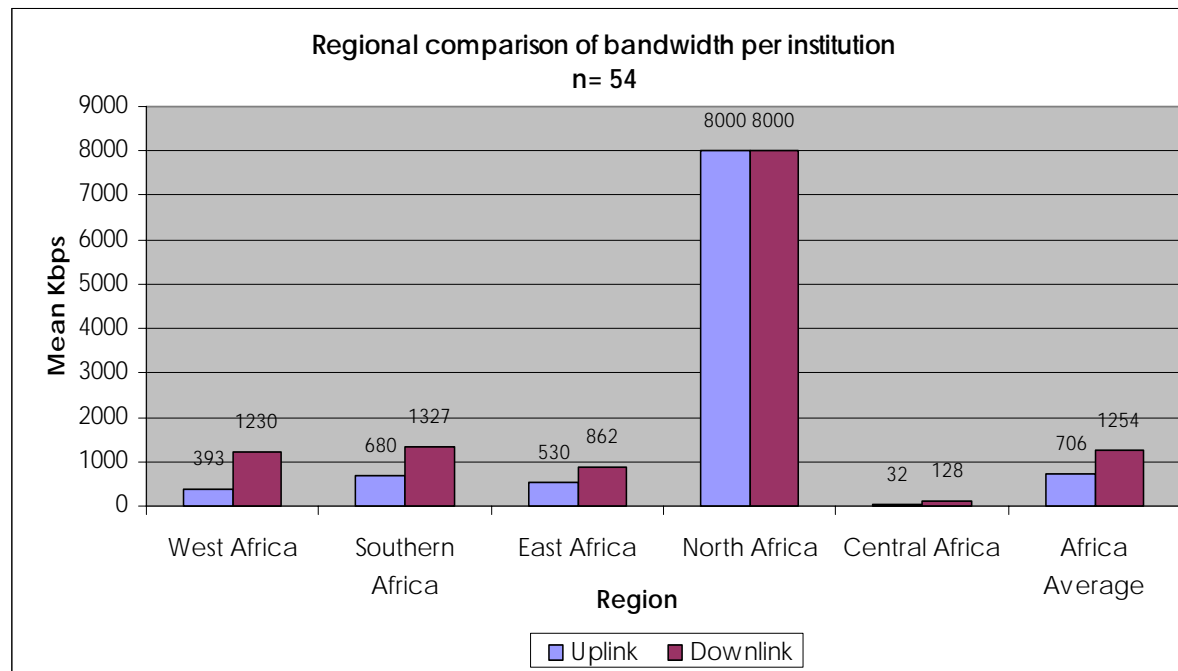
- Situation not much changed:
 - Terrestrial leased lines continue to dominate WAN connectivity (32% in 2004)
 - VSAT links are next most important (29% in 2004)
 - A few (7% in 2004) continue to use Dialup services

Capacity of Connection



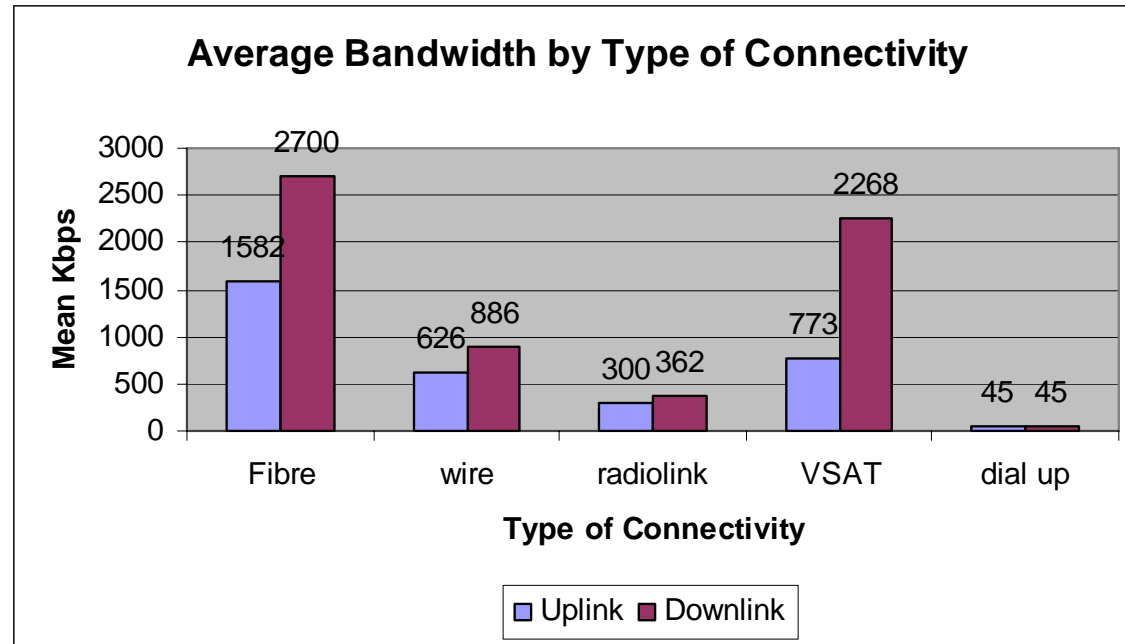
- Capacity has improved:
 - Average uplink and downlink have increased by 30% and 60% (from 537.41/769.17 in 2004)
 - Maximum reported bandwidth also increased, by about 40%

Bandwidth by Region



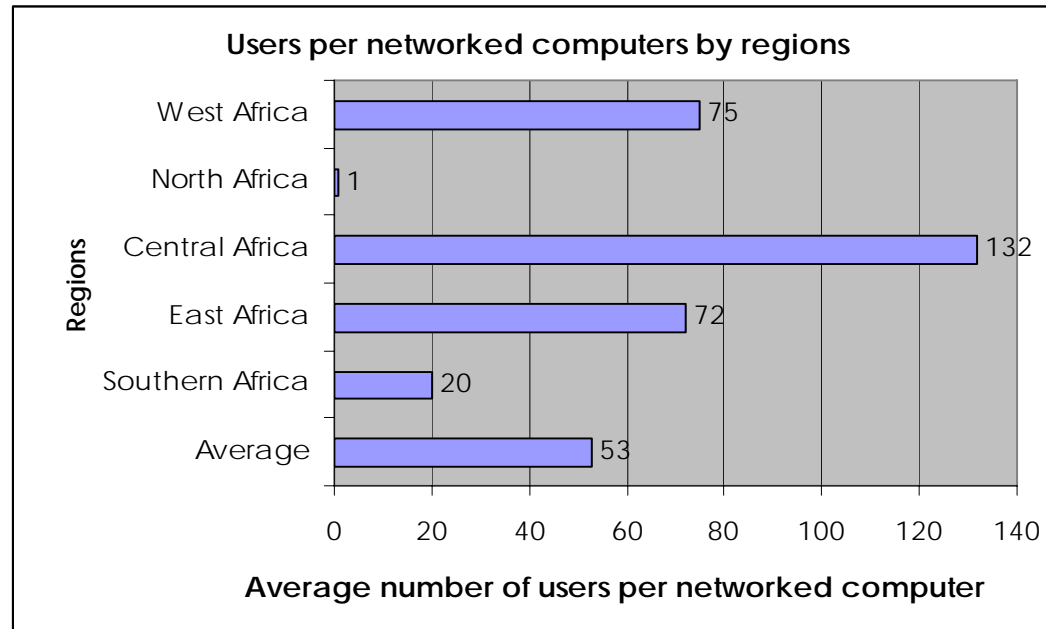
- North African institutions continue to lead in capacity – national backbones and undersea fibre connections to the Internet are a factor
- Almost all regions have registered growth in bandwidth per institution

Bandwidth by Connectivity Type



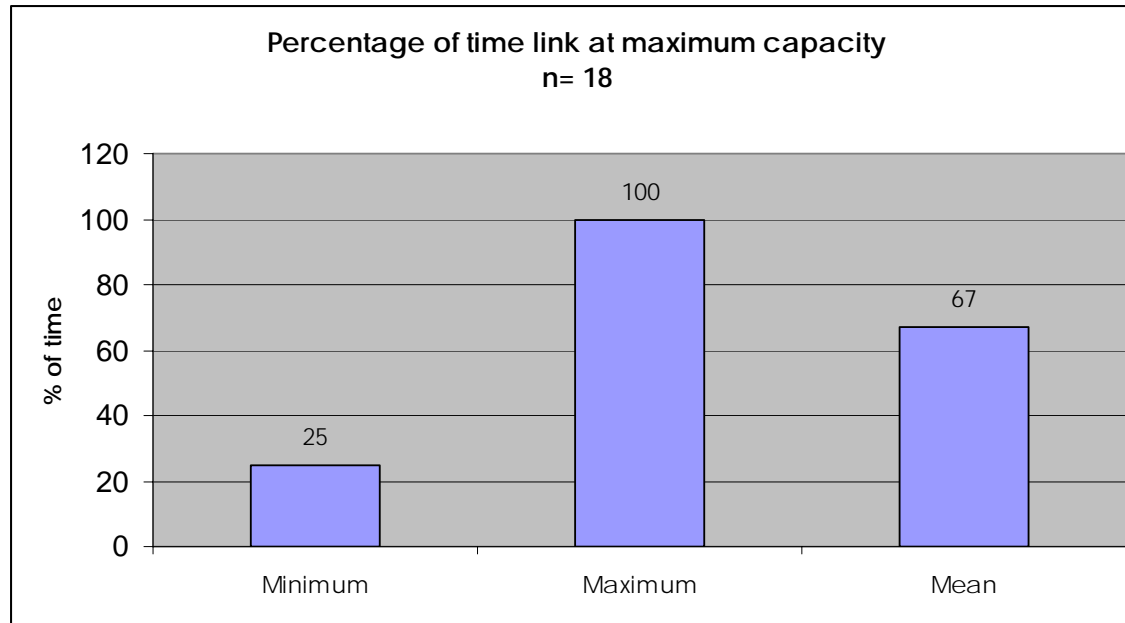
- An apparent shift to VSAT?
 - Institutions with fibre connections to their providers continue to have higher bandwidth, but average capacity declined 25% (2066/2178 in 2004)
 - VSAT links have become more important as average capacity has quadrupled (208/517 in 2004)

Users per Networked Computer



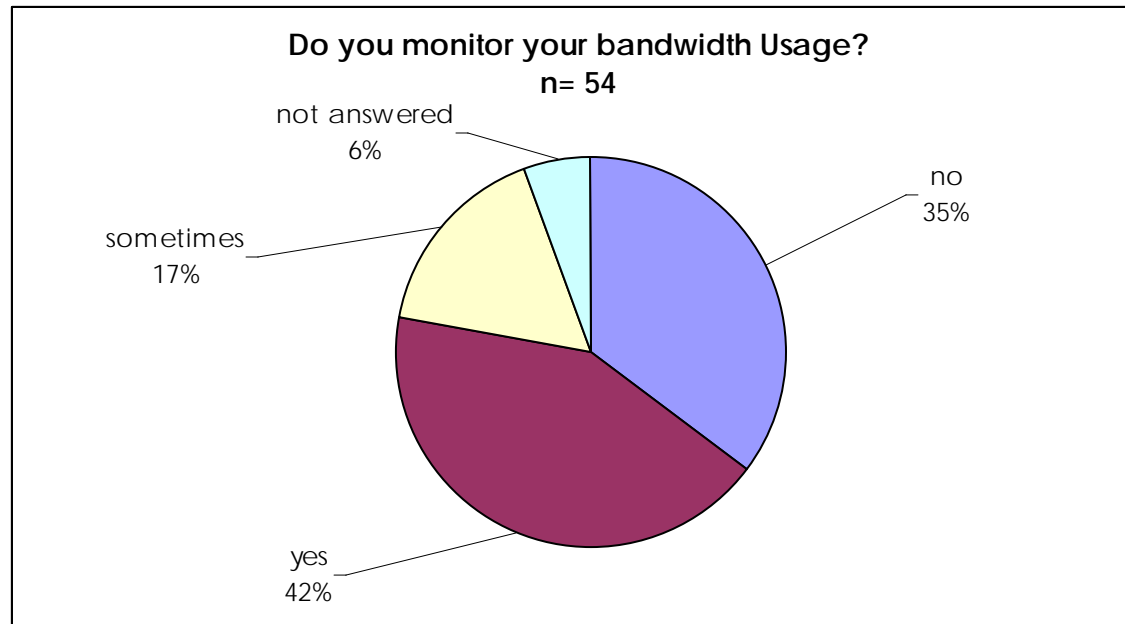
- Wide variations:
 - Average remains unchanged (55 in 2004)
 - Central Africa continues to have highest contention (171 in 2004) followed by West Africa.
 - Compare with US institutions at about 5 users per networked computer

Utilization of Links



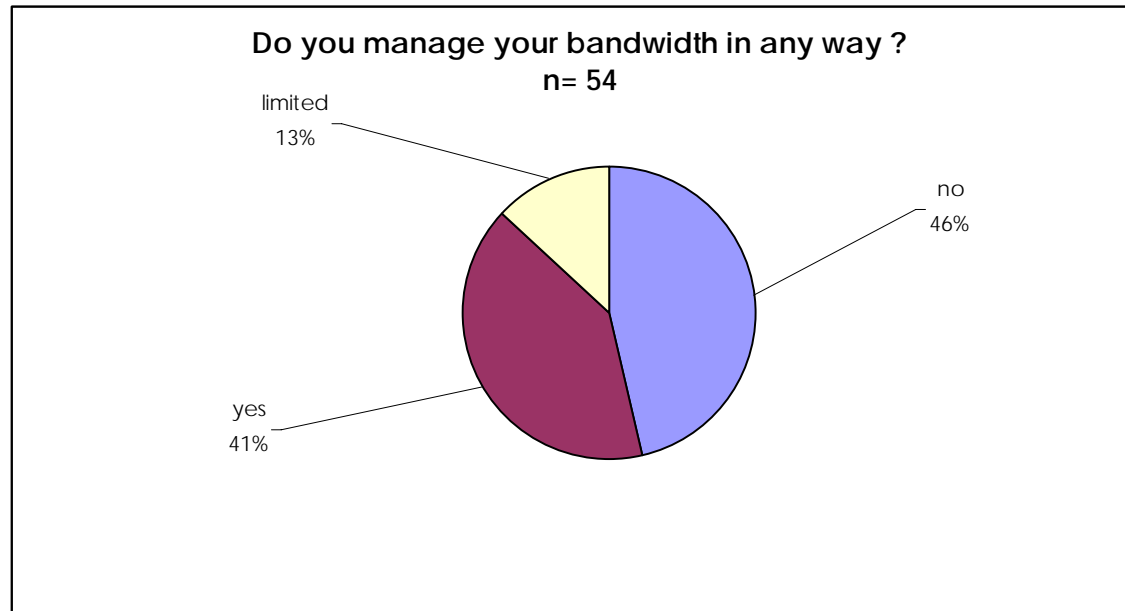
- Congestion remains a critical issue (68% in 2004)
 - On average, Internet links fully maxed out for 2/3rd of the day
 - Bandwidth management imperative

Monitoring Bandwidth Usage



- Majority (58%) of institutions essentially do not monitor their bandwidth (49% in 2004)
- Most of those who reported monitoring their bandwidth could not provide basic information about utilization

Managing Bandwidth

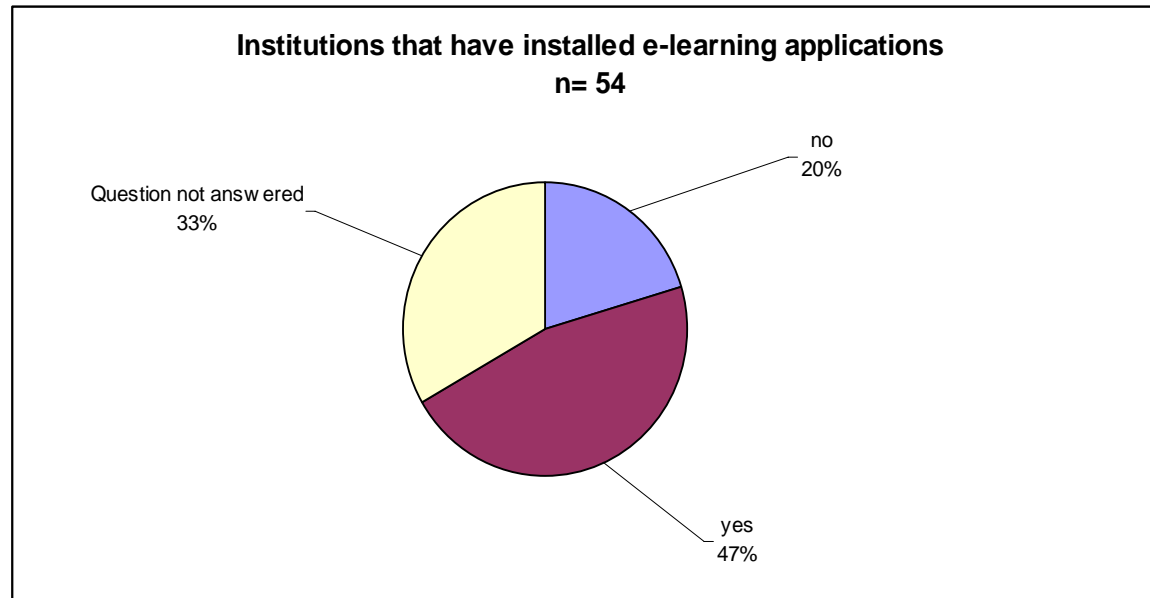


- Bandwidth management promotes maximum utilization of a scarce resource by minimizing non-productive traffic
- Majority (59%) of institutions essentially do not manage their bandwidth (59% in 2004)
- Ongoing critical need for skills training in this area

Planned ICT Initiatives

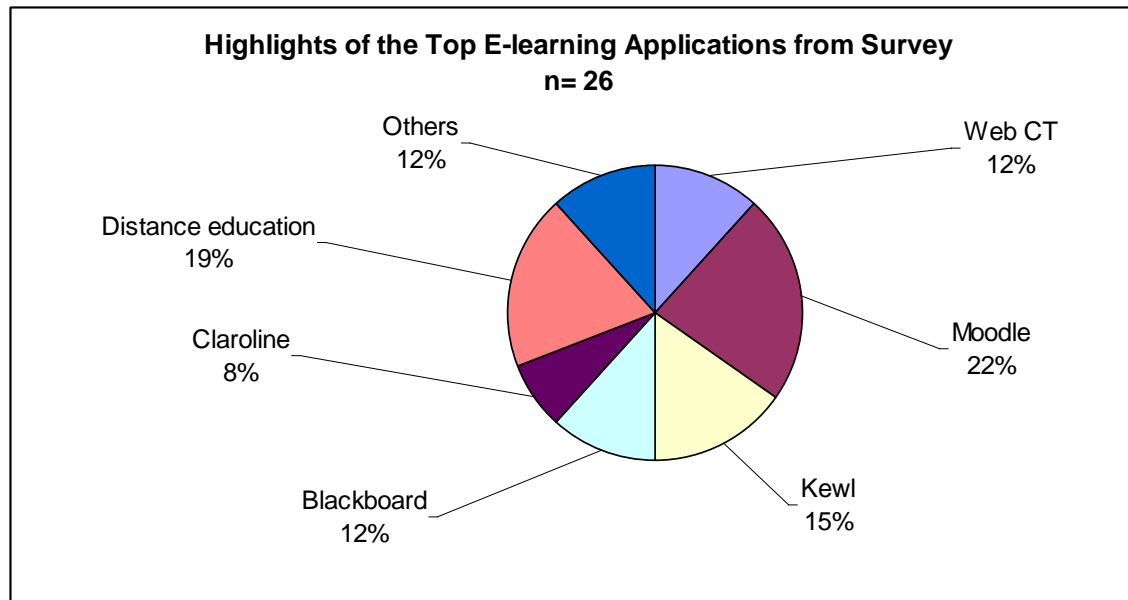
- Focus of planned ICT initiatives continue to revolve around bandwidth and connectivity:
 - Upgrade connectivity
 - Install Wi-Fi connections
 - Overhaul and expand bandwidth capacity

Institutions with E-learning Applications



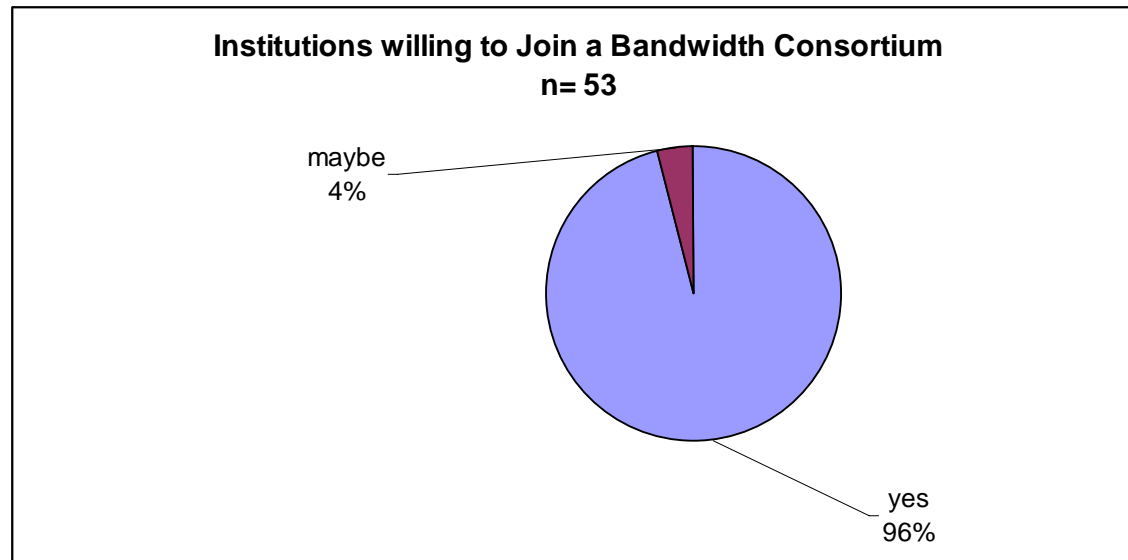
- A half of the institutions (unchanged) have installed some form of e-learning applications

Institutions with E-learning Applications



- Kewl: Open Source learning management system – did not feature in responses in 2004
- Moodle: Open Source course management system – allows educators to create online courses
- Blackboard & WebCT are commercial packages

Willingness to join Bandwidth Consortium



- Opinion has coalesced. In 2004, there were 16% maybe's

Overall Findings

- The 2004 and 2006 survey results are very similar:
 - Too little bandwidth
 - Too expensive
 - Poorly managed
- Ongoing need to develop initiatives to improve bandwidth capacity and connectivity for these institutions.
- Institutions struggling to understand how to use ICTs effectively for their research and educational mission

Thank you!

The full ATICS 2006 report will be made
available on the AAU website

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