UNIVERSITY OF NAIROBI
University ICT Centre

ICT Developments at the University of Nairobi for the Period 2004-2009

A HIGH LEVEL SUMMARY REPORT DEPICTING STATUS OF AUTOMATION

University of Nairobi, December 18 2009

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SUMMARY OF ICT DEVELOPMENTS

INTRODUCTION

In the Higher Education sector, the adoption and use of ICT services is realised through the extent to which ICT supports and fosters innovative research learning and teaching in addition to supporting administrative processes in these institutions.

The University of Nairobi realised the strategic importance of ICT, and created a fully fledge ICT function, the ICT Centre in 2002, with the head of the centre, the Director ICT reporting to the Vice Chancellor.

To support the function, the university has over 65 highly qualified professional ICT staff to plan, implement and support her ICT infrastructure and services. Over 50% of the professional staff have Masters Degrees and above while the rest have B.Sc. or Higher Diploma in relevant areas. **Half of these have been hired within the last five years.**

In this brief, we outline major developments that have been carried out in the past five years, covering the period 2004-2008. This is achieved by reviewing the milestones achieved and ongoing projects in the core services that the ICT Centre provides.

Investment Type	**Total KSH. Spent in 2004-2008 period**
Data Centre Infrastructure (Servers and switching)	14Million
Campus Network Infrastructure	64 Million
Computers and workstations	188Million
Management Information Systems	102Million
Total	**368Million**

Table-Summary of Investment 2004-2008

1 Data Centre Services

The University data centre provides the requisite computing infrastructure platform for various ICT services offered to the University community. This is the nerve centre for all computing functions of the University

The table below summarises key projects covered to enhance our data centre and its facilities.

PROJECT NAME	PURPOSE	PERIOD	COST (Ksh)
ICT NETWORK SECURITY PROJECT (UPGRADE OF FIREWALL)	Improve the Wide Area Network Security	2005-06	0.8M
ICT BACKUP POWER SUPPLY at JKML	Protect network and communications equipment from power surges located at JKML	2006	1M
ICT DATA CENTRE EXPANSION UPGRADE – Avoir Project	Improve Data Centre facilities by addition educational servers	2007-2008	6.728 M
ICT DATA CENTRE FACILITIES UPGRADE-AC	Replace the AC facilities in the primary data centre cite at Chiromo .	2008	477,500
ICT DATA CENTRE FACILITIES UPGRADE-UPS	Replace the UPS facilities in the primary data centre cite at Chiromo .	2008-09	3.5 M (Funded by VLIR)
Total Investment on Data Centre 2004-2008			**14Million**

2 Network Infrastructure & Communication Services

The university recognizes the importance of having a sound computing backbone infrastructure as the basis of efficient ICT services. This has seen the implementation of campus based fibre networks that facilitate students and staff to gain access to the university wide ICT services, with speeds of 100Mbps to the desktop as the standard.

All campuses have over 70% network infrastructure coverage and continuous expansions are done periodically in line with the University development plans.

Network Infrastructural developments carried out within the period are as in the tables below:

PROJECT NAME	COLLEGE	PERIOD	COST (Ksh)
ICT NETWORK- CHS Phase I	CHS	2004-05	7.2 M
ICT NETWORK- CAVS Phase II	CAVS	2004-05	7 M
ICT NETWORK- UHS		2004-05	3M
ICT NETWORK- CEES & 5 Extra Mural Centres	CEES	2004-07	8.9 M
WIRELESS LINKS	ALL COLLEGES	2005	3.2 M
ICT NETWORK- CHIROMO LIBRARY	CBPS	2006-07	0.4 M
ICT NETWORK- PRECLINICALS-HUMAN ANATOMY	CBPS	2006-07	0.46 M
ICT NETWORK- ICT CORPORATE TRAINING LAB	CBPS	2006-07	0.46 M
ICT NETWORK-CHS Phase II	CHS	2006-07	9.9 M
ICT NETWORK -8-4-4 building ICT NETWORK –INS	MAIN CAMPUS	2007-08 2007-08	0.767 M 1.05 M
ICT NETWORK INFRASTRUCTURE UPGRADE – Huawei Project	CORE BACKBONE	2007-08	7M (Donated by Huawei)

			50Million
ICT NETWORK- CHEMISTRY & ZOOLOGT	CBPS	2008-09	0.4 M
ICT NETWORK- PRECLINICALS-VETERINARY ANATOMY	CBPS	2008-09	0.3 M
ICT NETWORK- PRECLINICALS- MEDICAL PHYSIOLOGY	CBPS	2008-09	0.9 M
CAMPUS NETWORK FIBRE PROJECT (VLIR funding)	ALL COLLEGES	2008-09	12M
Total Investment on Campus Networks in 2004-2008			**64Million**

Ongoing Networking Projects

PROJECT NAME	**COLLEGE**	**COST (Ksh)**
ICT NETWORK-CHS Phase III	CHS	6M
ICT NETWORK-KENYA SCIENCE	CEES/CBPS	11 M
ICT NETWORK- PARKLANDS CAMPUS	CHS	6.5M
ICT NETWORK-CAVS Phase III	CAVS	15M
Total Expected to be spent		**38.5M**

2.1 Internet Services

The university provides corporate Internet services on all networked computers for the benefit of staff and students. Current total purchased Internet access bandwidth is 15Mbps sourced from two providers, one supplying 14.5 Mb/s (2 Mbps uplink, 12.5 Mbps downlink) dedicated and the other supplying 1Mbps both ways.

Downlink	**Uplink**	**Period**
1.92 Mbps burstable to 3.84 Mbps	500 Kbps	2004- July 2005
4 Mbps burstable to 8 Mbps	1 Mbps	August 2005- October 2007
12.5 Mbps	2 Mbps	November 2007- May 09
41Mbs	**20Mbs**	**May 1 09 to-date**

Table - Growth in Internet Bandwidth

Through an ongoing infrastructure expansion project (KTCIP) that is spearheaded by the Kenya ICT board (under ministry of information and communications), and funded by the World Bank we expect this bandwidth to double in the coming months.

2.2 *Other Services*

Email – The university has installed student email system that is powered by Google Mail, in addition to the staff email system that has been in use since 1998.

Integrated Communication Services: To enhance communication within the university, in addition to effective use of the network infrastructure, several integrated services have been implemented. These include the VOIP and data messaging services installed at a cost of **Ksh. 28M,** which included training abroad for three (3) personnel and supply of 175 VOIP phones

Messaging: In tandem with global developments, the ICT centre through messaging service has enabled innovative services to the students and the public. Access to student records and admission information are made through the system by sending text from their mobile phones.

3 Computers - Workstation Access

There are over **5,100** PCs at the University; about **2,400 dedicated to staff** and close to **2,700 dedicated to student laboratories**. This gives approximate ratios of 1:2 for staff and 1:14 for students. The plan is to achieve a ratio of 1:1 for Teaching and Senior Administrative staff and 1:10 for students in general by the year 2012 when the current strategic period ends.

Period	**Total No .of PCs at end of Period**
2004-05	2800
2005-06	3500
2006-07	4015
2007-08	4425
As at Dec 09	5100
Total Investment	**188Million**

Table- No of PCs distributed through the ICT Centre 2004-2009 December**

**Note : The number does not include personally-owned PCs and Laptops on the University network and those directly acquired through grants/donations.

4 Management Information Systems

The university has continued to automate its functions to increase productivity and enhance efficiency in its operations. The ICT centre has a portfolio of computer based Information systems that support administrative services, teaching, research and learning, with a vast majority being developed in-housed.

Project	Module/Sub Systems	Period Commissioned / Implemented	Market Value	Remark
Student Management Information System (SMIS)	• Self-Sponsored Student Application Processing • Student Fees Collection (both Govt. Sponsored and Self- sponsored) • Postgraduate Nominal Roll • Course Registration and Examination Processing • Student Web Portal (for course registration and access to student information)	• 2006 • 2004-2006 • 2006 • 2004-2007 • 2008	20 M	Inhouse developed by ICT Centre
Human resource Management Information System (HRMIS)	• Payroll • Personnel • Tax Returns • Budgetary	• 2001 • 2004 • 2004 • 2006	15M	Inhouse developed by ICT Centre
University System of Websites	The new-look version of the website has been designed, developed and deployed	2006, and 2008	12M	Inhouse developed by ICT Centre
Financial Management Information System (FIMS)	This is a financial management system that computerizes the financial/accounting function of the University. It has several modules including General Ledger, Inventory Control, Accounts Receivable and payable	2007-2008	22M	Externally sourced but customised by ICT
University Health Service Management Information System (UHSMIS)	This system covers the drug store, patient booking, triage, laboratory, pharmacy, and treatment functions of the University Health Services.	2006-2008	8M	Inhouse developed by ICT Centre
Student Archiving System	Scanning, indexing, retrieval and processing of records	2007	6M	Sourced externally
Student Clearance System	This system covers registration of the intention to clear, liability/debt entry, station clearance	2007	4M	Inhouse developed by ICT Centre

Project	Module/Sub Systems	Period Commissioned / Implemented	Market Value	Remark
	and certificate issuance			
Library Information system (VUBIS smart)	Cataloguing; Circulation; Acquisitions; Serial Management and Database Search	2003-04	15M	Sourced externally
Performance Management Information System	The system aims at computerizing the process of preparation, monitoring and evaluation of Performance Contracts. This will result in efficiency in analysing unit based performance contracts	2008-09	6M	Developed Inhouse by ICT Centre
Total Investment			**108M**	

Table - Implemented MIS Projects

4.1 Ongoing MIS Projects

Project	Brief Description	Market Value	Remark
Performance Appraisal Management Information System	This project aims at computerizing the process of Staff Appraisal within the University and analysis of the data collected.	5M	Being developed Inhouse by ICT Centre
Transport Management Information System	Once complete this system will computerize the transport operations within the University of Nairobi and enhance fleet management.	4M	Being developed Inhouse by ICT Centre
Inventory System	This is a system developed to assist with tracking equipment acquisition, dispatch and maintenance within ICT Centre.	4M	Being developed Inhouse by ICT Centre
Total Value		**13M**	

Table- Ongoing MIS Projects

5 ICT services Quality Assurance

In line with the university's adoption of the ISO Quality Management Systems, the ICT Centre has documented its procedures in accordance with ISO QMS, and continues to implement and improve its services. This has resulted in the development and implementation of ICT related Standards and Policies in the university.

6 Level of Automation

The automation status of the university is a dynamic function of many variables. New requirements and needs come up each day but there is a status that we want to achieve. The status in which we have empowered staff and students in their ability to use the ICT resources effectively for academic and administrative purposes; to use the resources to facilitate their research effort; faster access to information; and a flexible means of hosting of their own content. Raising the level of their ICT skills is key to achieving this productive status. It must become a lifestyle for all of the University community.

This matrix helps us to measure our status:

Attribute	Measure	Indicators
ICT Skills	Numbers trained	-No. who use email service -No. who type own documents -No. Using Power Point presentations
Access to ICT resources	Number of Computers	-Staff : PC ratio -Students : PC ratio
Infrastructure	Networked campus	-No. of data Points -No. of wireless hot-sports -Type of network and speeds
Support	Number and type	-No. of online support services -Staff dedicated to support
Innovation	Number, type and expansiveness	-Communication -Software tools -Others

Taking into consideration the values of the above indicators and subjecting them to a moderation process, overall, on aggregate as at December 2009, we are about 62% automated.