



University of Medical sciences, Ondo

Staff Orientation Workshop

February 5, 2016

“Benchmarking as a Tool for Ranking World-Class Universities”

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Secretary-General,

**Committee of Vice Chancellors of Nigerian Universities, &
Immediate Past Vice Chancellor, Obafemi Awolowo University**



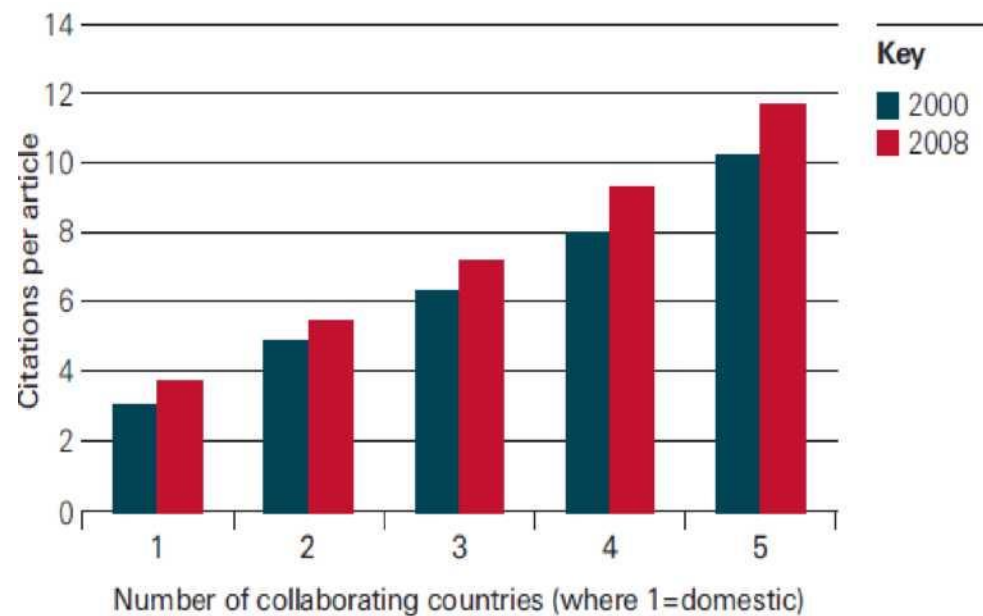
NIGERIA VISION 2020:

Factors Inhibiting effectiveness of STI in driving technological advancement

- Spend on STI is only 0.11% of GDP (UNESCOs say should be 1%)
- No Nigerian university in the Top 500 Global University Rankings, not even Top 1000.
- Low level of inter-researcher collaboration, 41.4% of Nigerian researchers unattached to any research group
- Few patents and weak link between research output and patents

Collaboration is critical

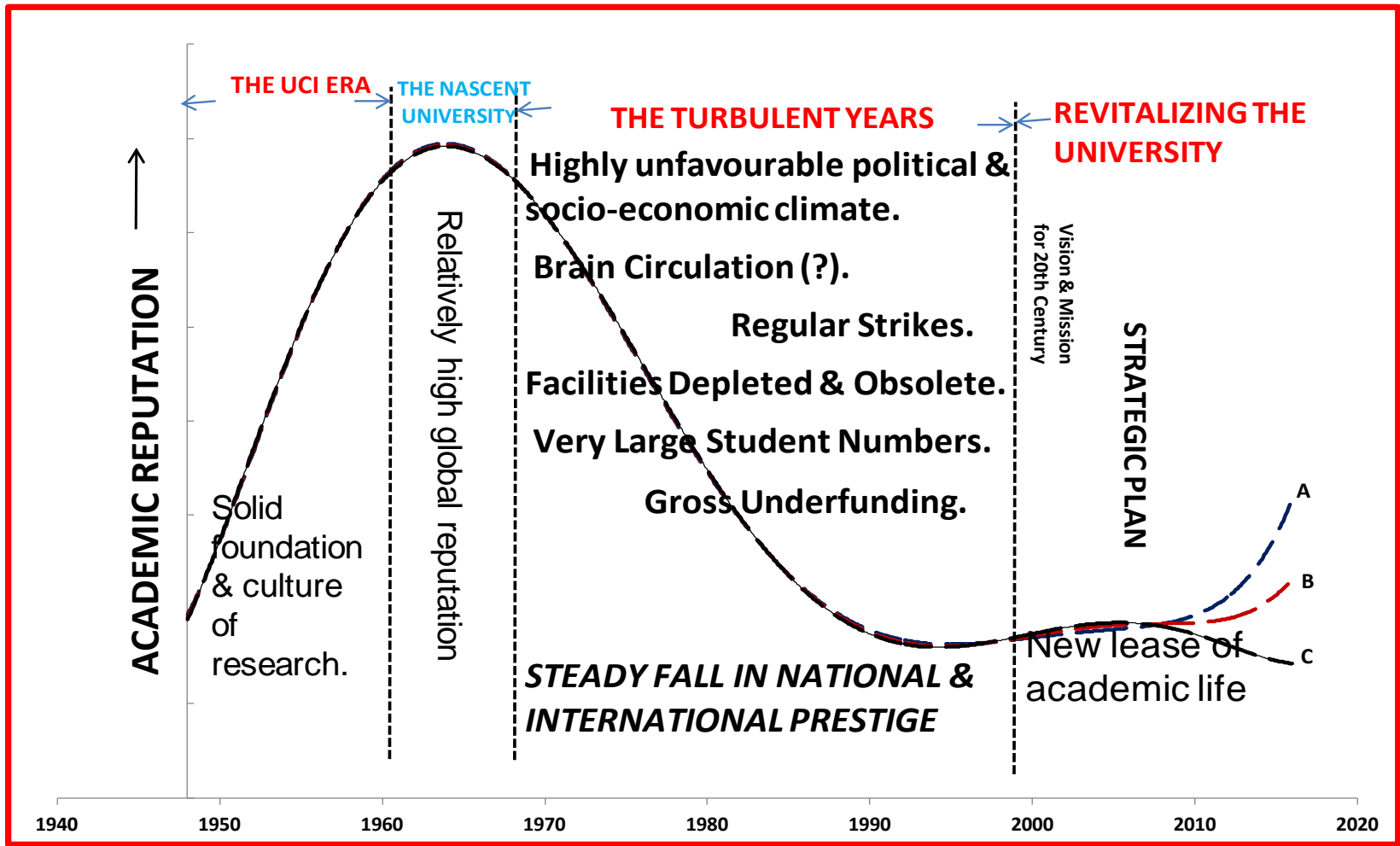
"For each international author on an article, there is a corresponding increase in the impact of that paper." - See Slide 47



World class universities will contribute to the goal of Vision 2020

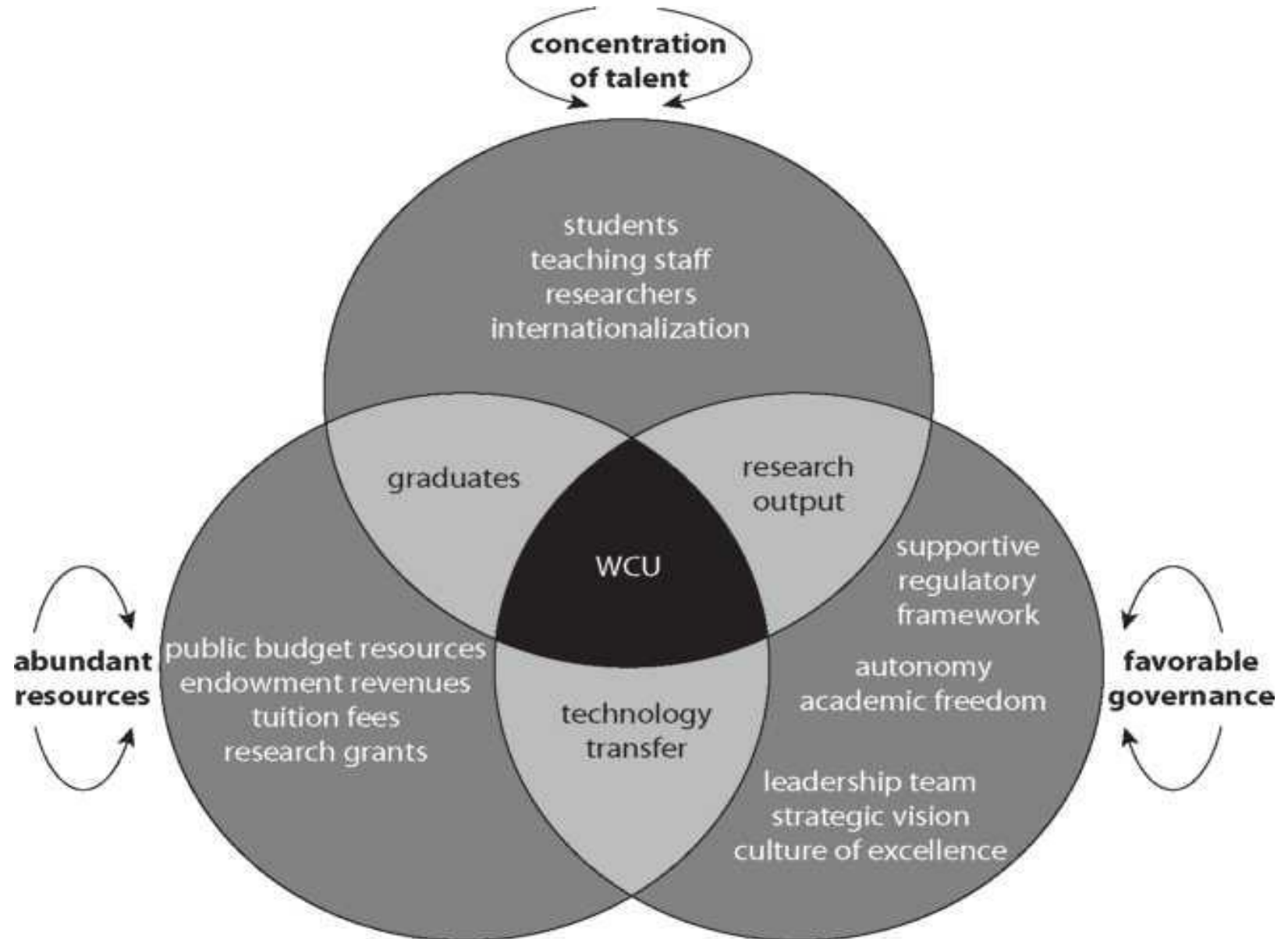


UNIVERSITY OF IBADAN ACADEMIC REPUTATION (1948 – DATE)





Characteristics of a World-Class University (WCU): Alignment of Key Factors





Technology transfer classification of WCU

**Attribute 1: Knowledge Creation and Knowledge
Dissemination**

Attribute 2: Knowledge Infrastructure

Attribute 3: Centre of Inventive Activities

**Attribute 4: Facilitation of Knowledge Convergent
System**



Fields of Application of Convergent Technologies

Healthcare	ICT Infrastructure
<ul style="list-style-type: none">•Nanoscale machines for medical intervention•New imaging techniques•Biochips•Biosensors•Biomaterials•Pharmaceutical genomics•Regenerative medicine•Targeted drug delivery and release	<ul style="list-style-type: none">• Environmental monitoring through ambient devices (e.g hazard alert, alert of pollutants, etc)•Mobile devices with integrated medical services•Software for multiphenomena and multiscale simulations
Environment and Energy	Robotics
<ul style="list-style-type: none">• Addressing problems at a systems level•Development of new technologies for the generation, storage, transport and use of energy	<ul style="list-style-type: none">• Neuro-prosthetics – e.g bionic hand or an adaptive retina implant•Emotional-intelligent agent technology•Homecare robots

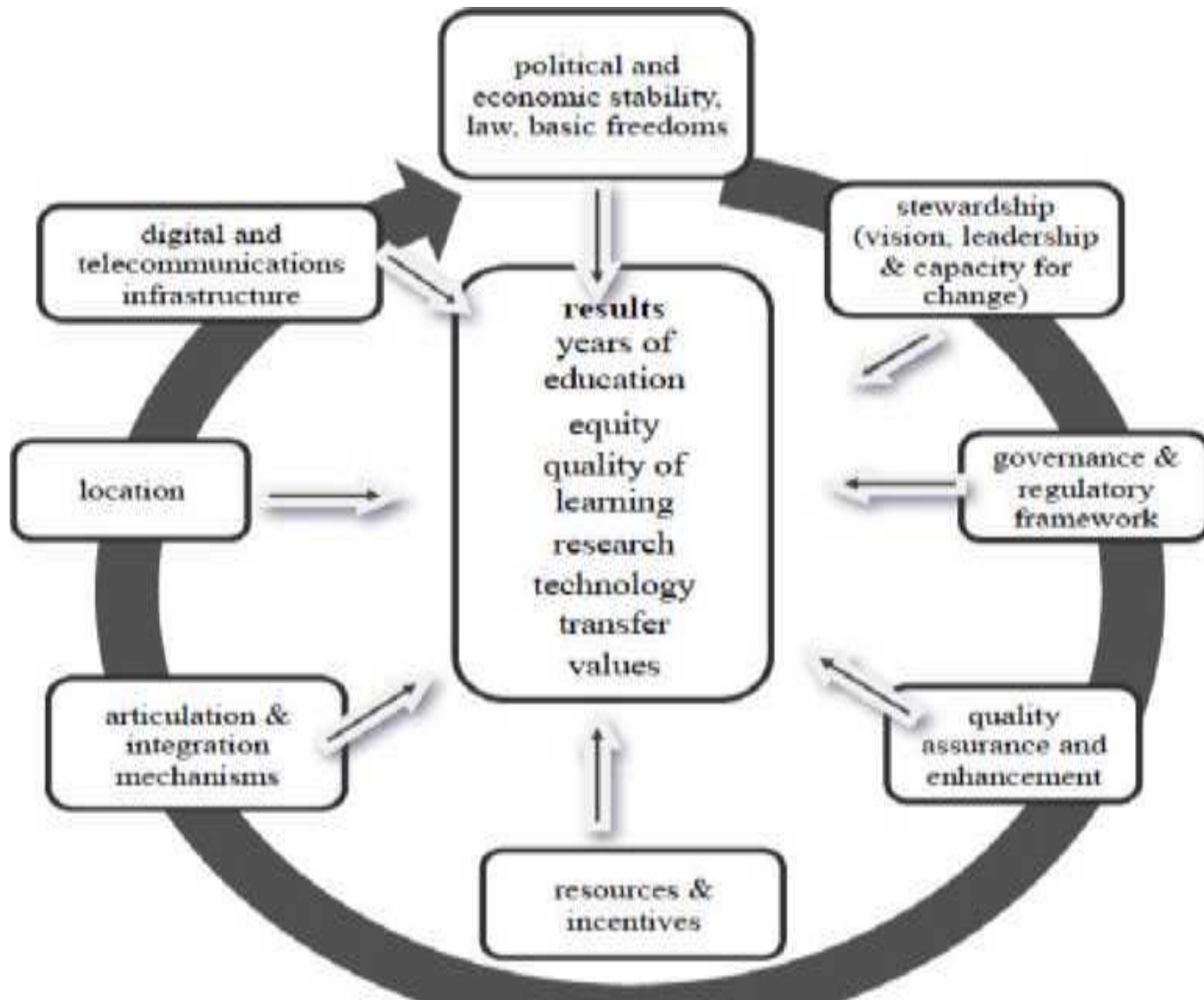


Excellence Accelerating Factors

- Use of Diaspora resources
- Concentration on Niche Areas
- Benchmarking
- Curriculum and Pedagogical Innovations



Ecosystems Factors Determining University Performance





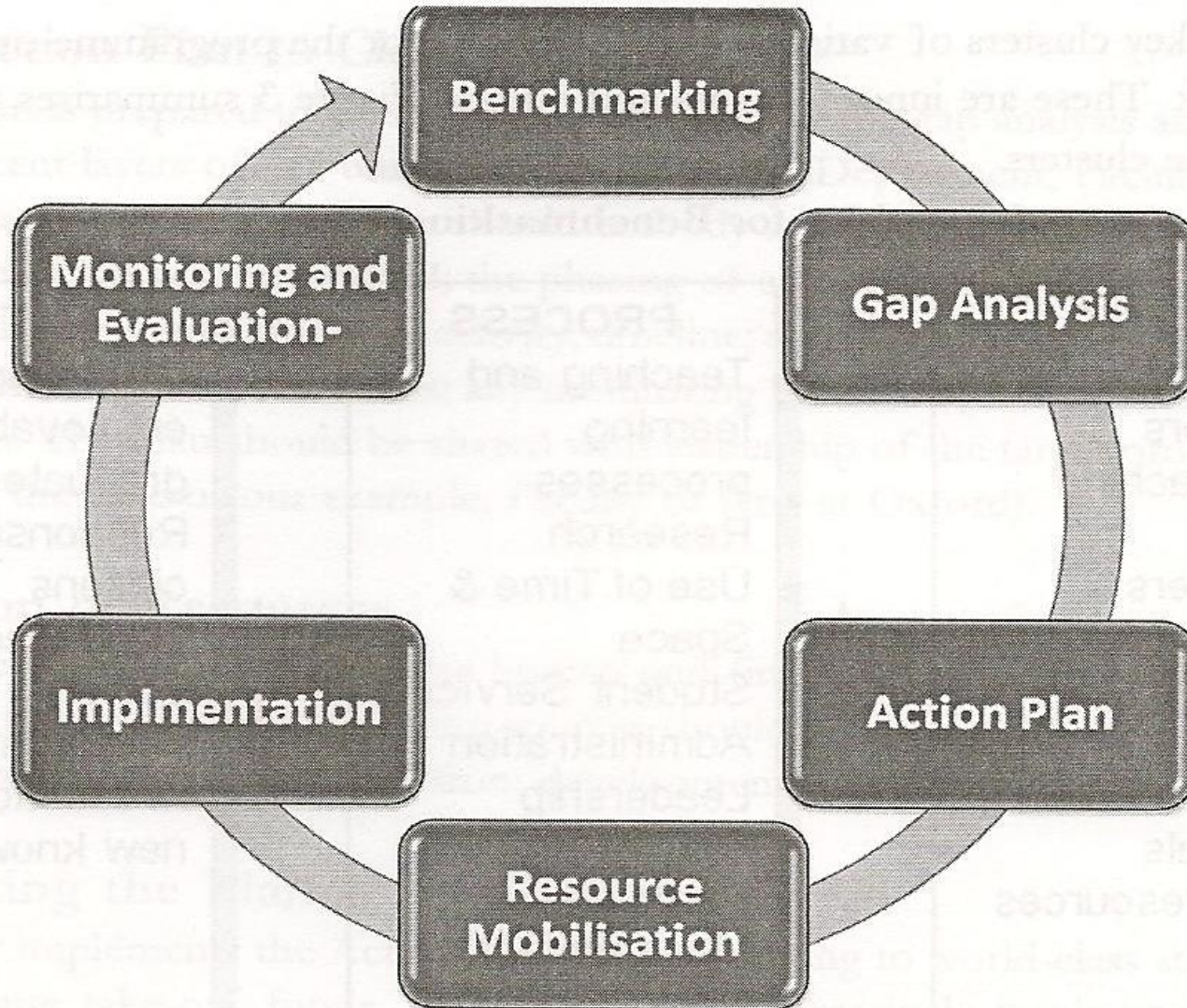
Journal Consortium Ranking (new)

Country	Top 10	Top 20	Top 50	Top 100
South Africa	6	9	14	18
Egypt	2	3	10	17
Kenya	1	1	3	5
Nigeria	1	4	12	28
Ghana	-	1	2	3
Uganda	-	1	1	1

- No of universities ranked in a country
- Ranking based on No of research publications and citation over the last five years (2010-2015), and internet visibility/web presence
- **Website:** <http://ranking.journalsconsortium.com>

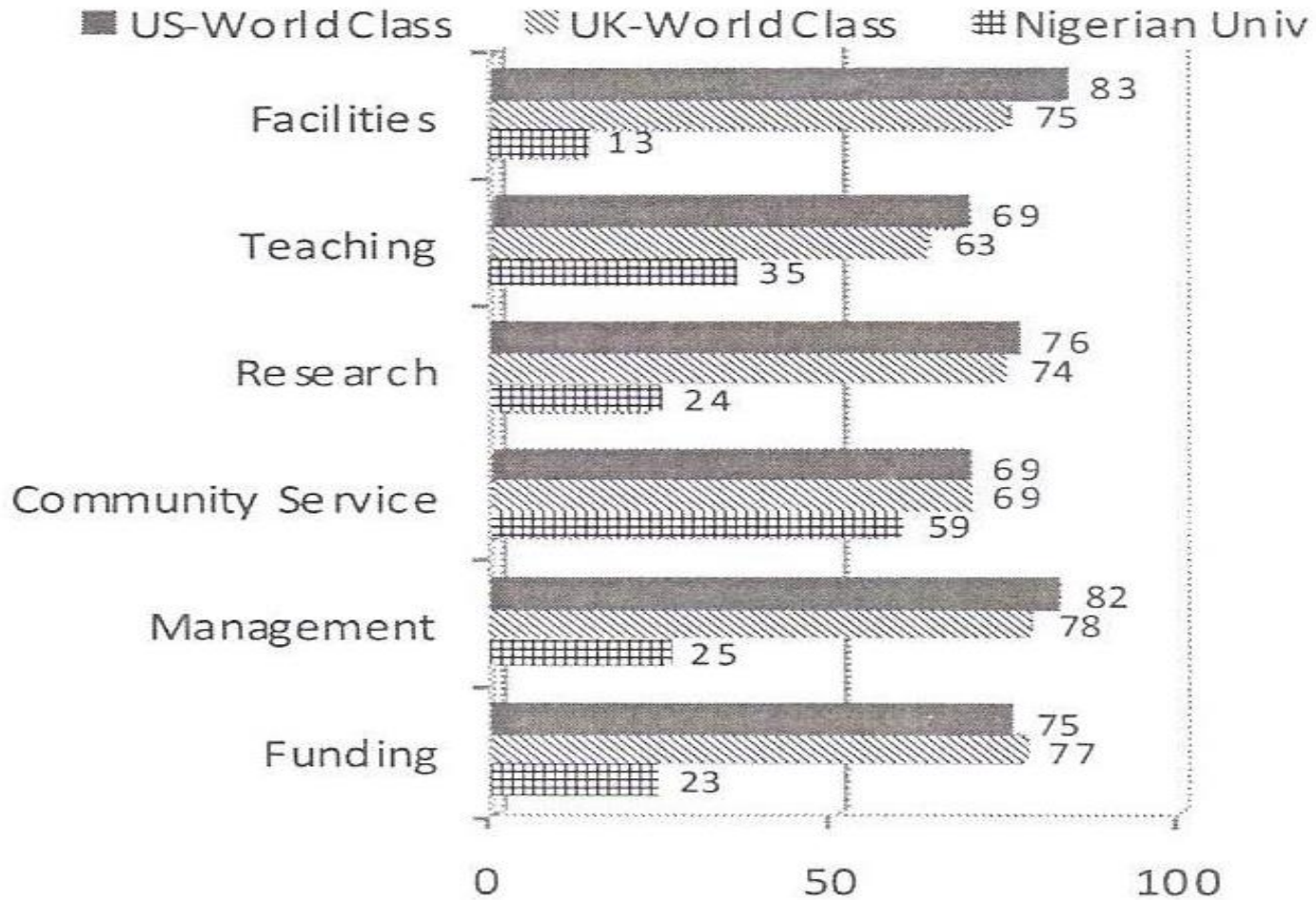


Steps to Attaining World-Class Status





Gap Analysis





CVC Analytics Reports

4 major strategic studies conducted & reported:

- *Research output, growth and impact report*
- *Brain circulation report and list of Nigerian researchers abroad*
- *Research collaboration report*
- *Academic-corporate collaboration and knowledge transfer report*

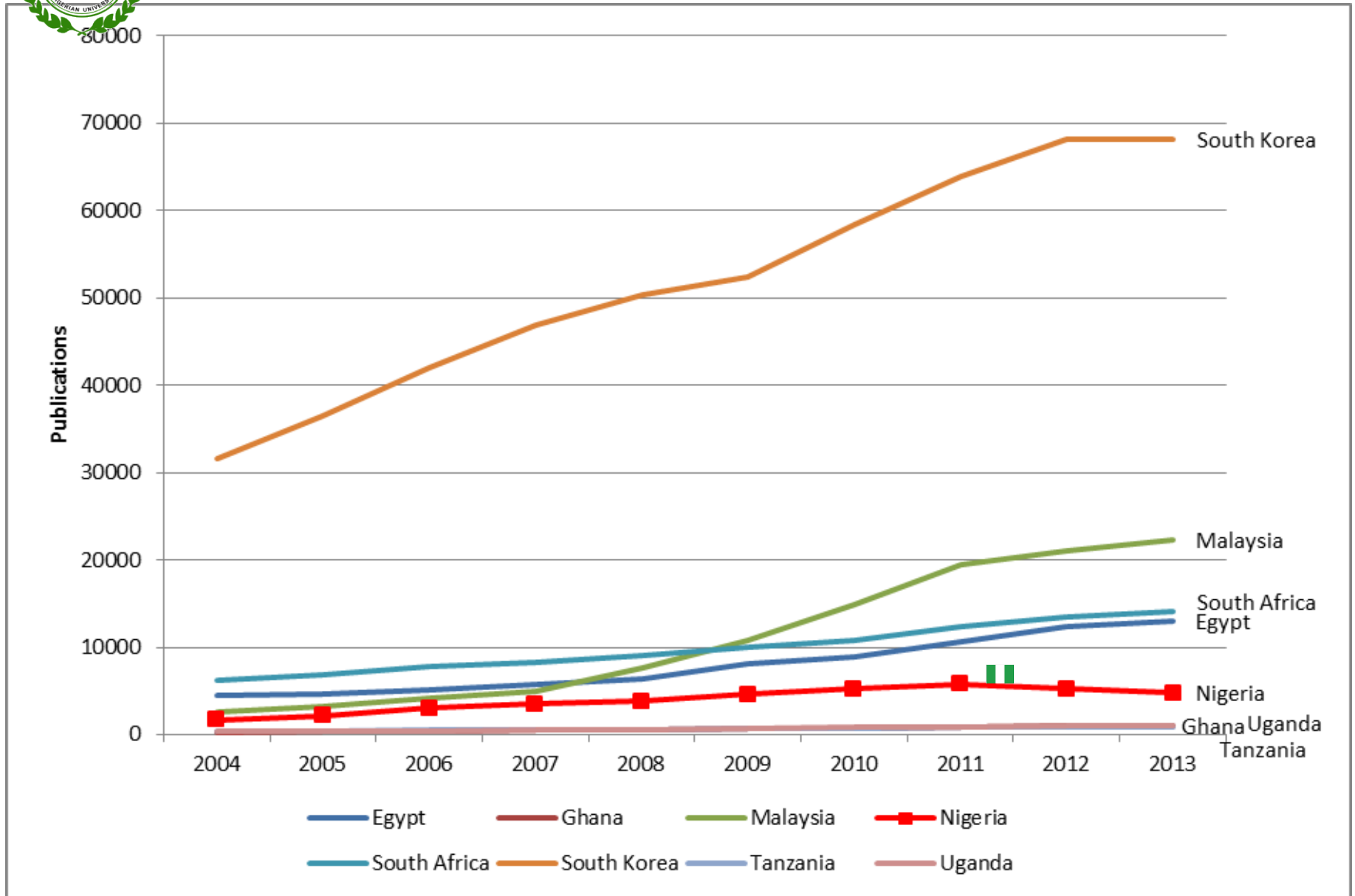


Output, Growth and Impact



Research output & Growth

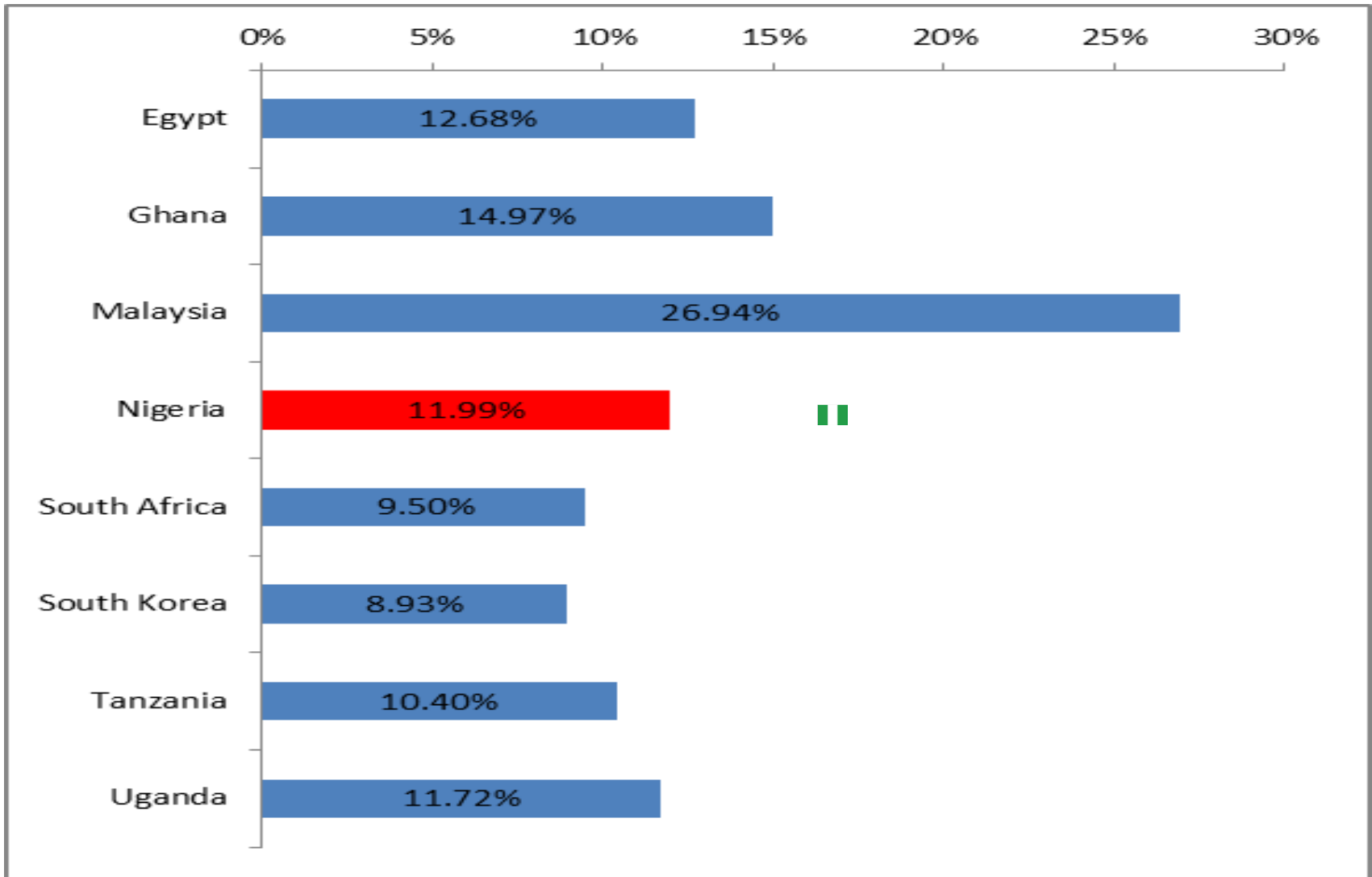
No of Publications: Publications with at least one author affiliated to an institution in that country.





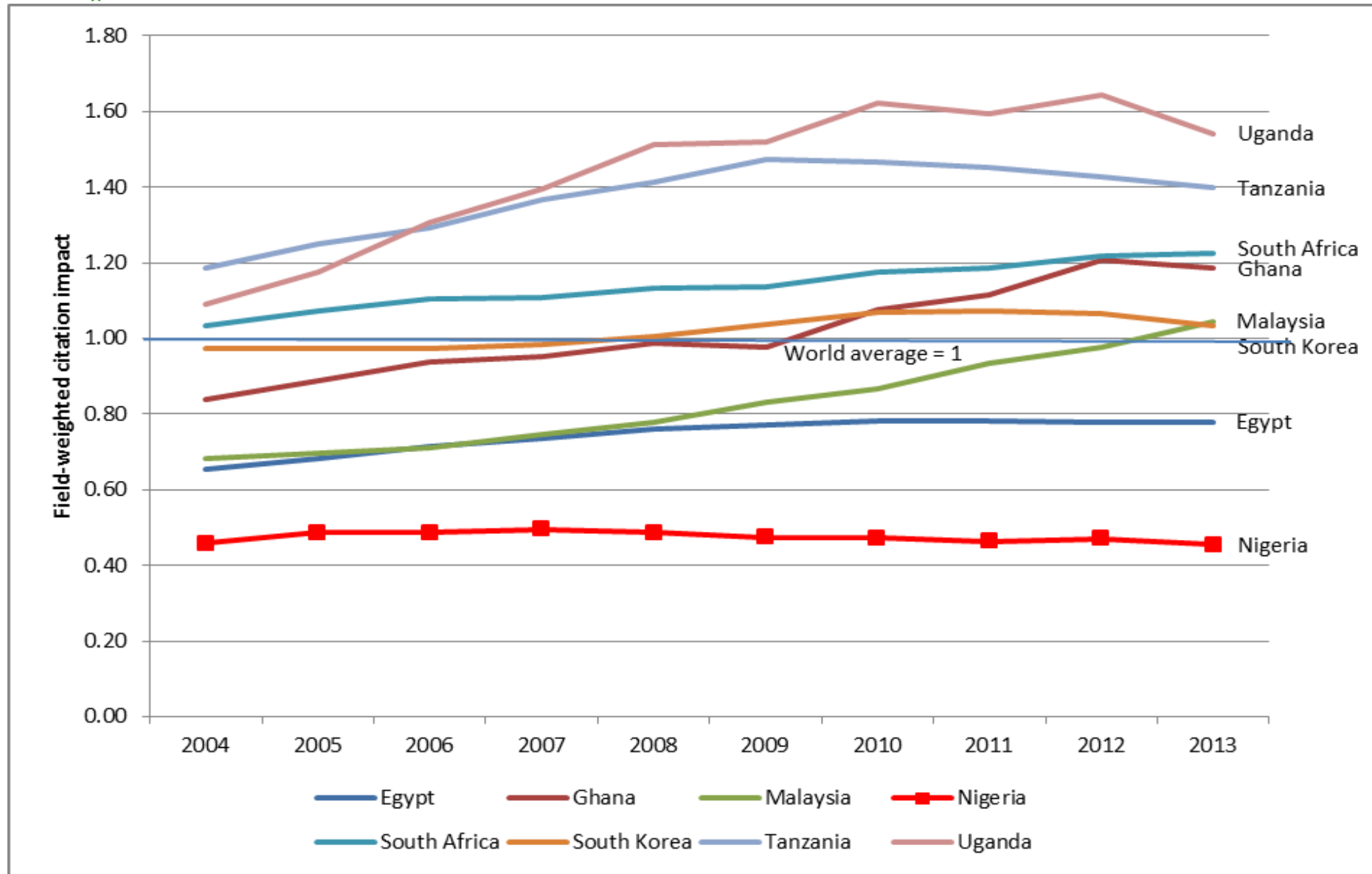
Growth

No of Publications: Publications with at least one author affiliated to an institution in that country.





Field-weighted citation impact





PRELIMINARY RESULTS FOR NIGERIA: Impact of Research Output, 2004-2013

In 2013, the FWCI of Nigeria is 0.45, much below Uganda's 1.54 and the world average of 1.0. Room for improvement in citation impact while expanding on the volume/output

World Citation Share	Field Weighted Citation impact
Increased from 0.06 % in 2004 to 0.08 % in 2013, but low in comparative terms	0.45 in 2013. Lower than the World Average of 1.0
Growth of Highly Cited Articles	Share of Highly Cited Articles
Share of world top 10% highly cited articles increased from 55 in 2004 to 271 in 2013	In 2013, 5.57% of publications belonged to world top 10% highly cited articles

FWCI – Field weighted citation impact is obtained by dividing the absolute citation of an article with the average citation received by articles in the same field, with same type and published in the same year, to remove any bias



Knowledge Exchange:

Academic-Corporate Collaboration

Research Usage – Corporate Downloads

Research Usage – Patent Citation

Cross-Sector Mobility



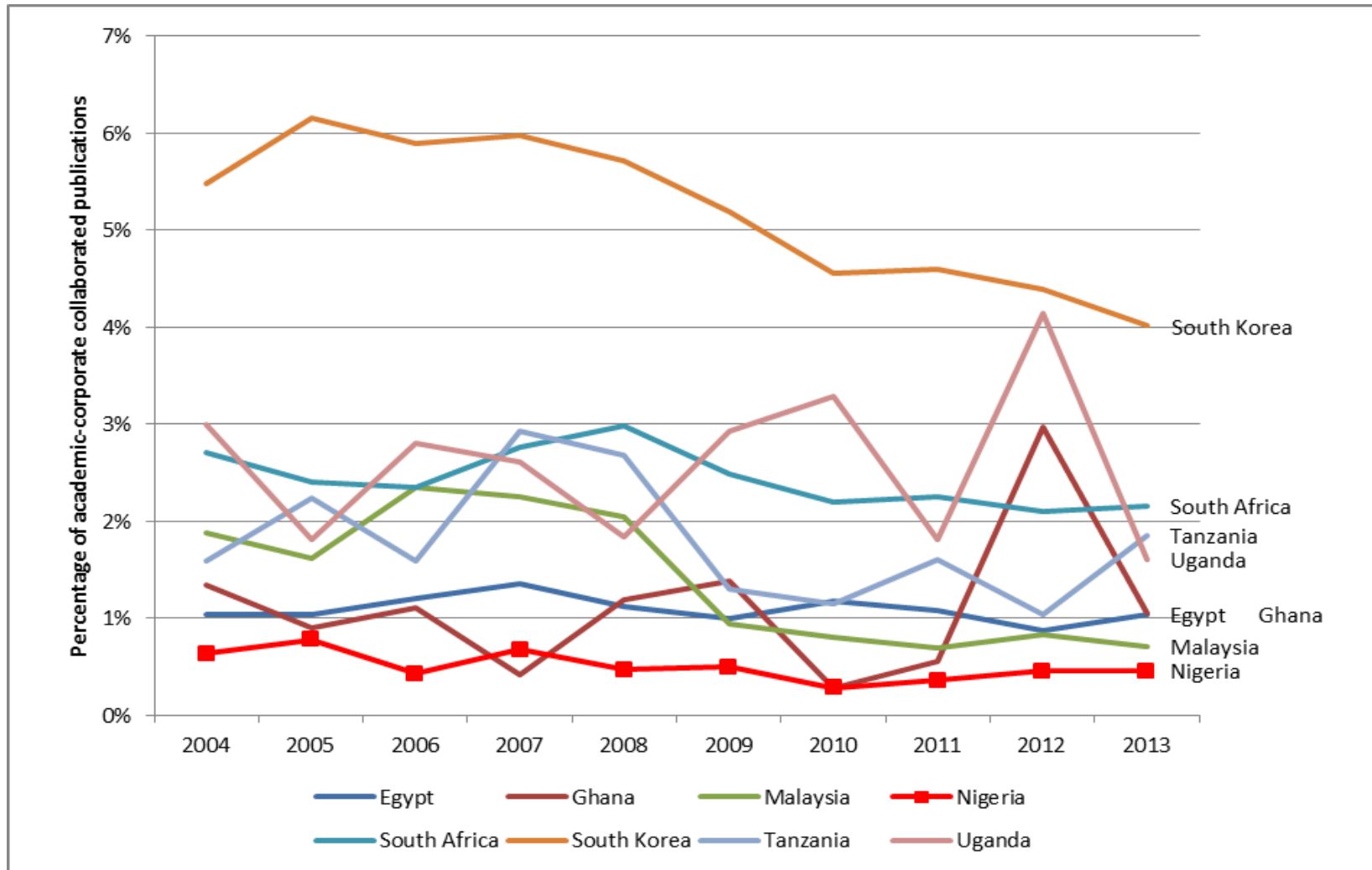
National Research Collaboration





Academic-Corporate Collaboration

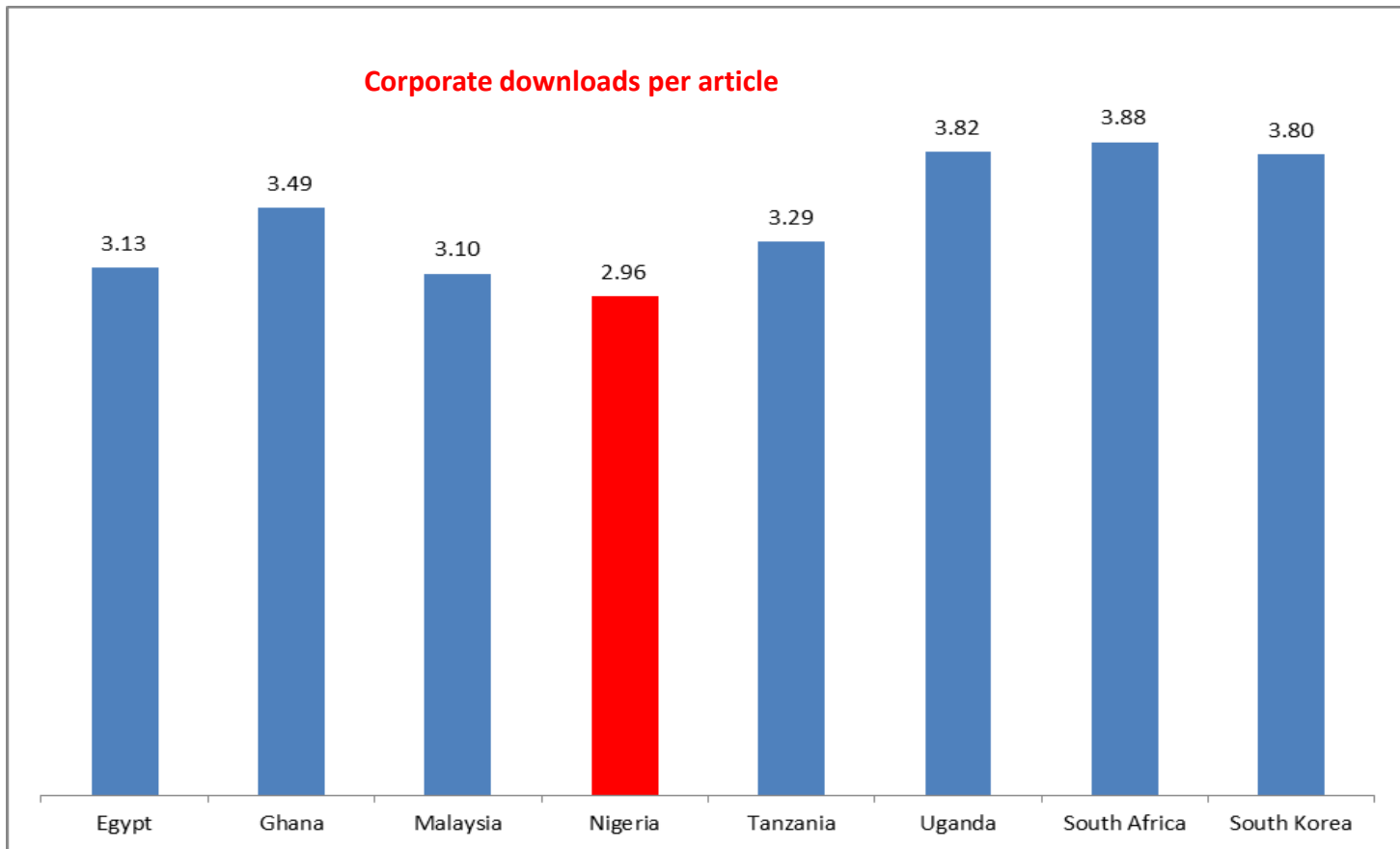
- In most of the years in 2004-2013, Nigeria had the **lowest percentage** of academic-corporate collaborated publications, fluctuating around 0.5%.
- South Korea had the largest number and percentage of academic-corporate collaborated publications





Research Usage: Corporate downloads (CD)

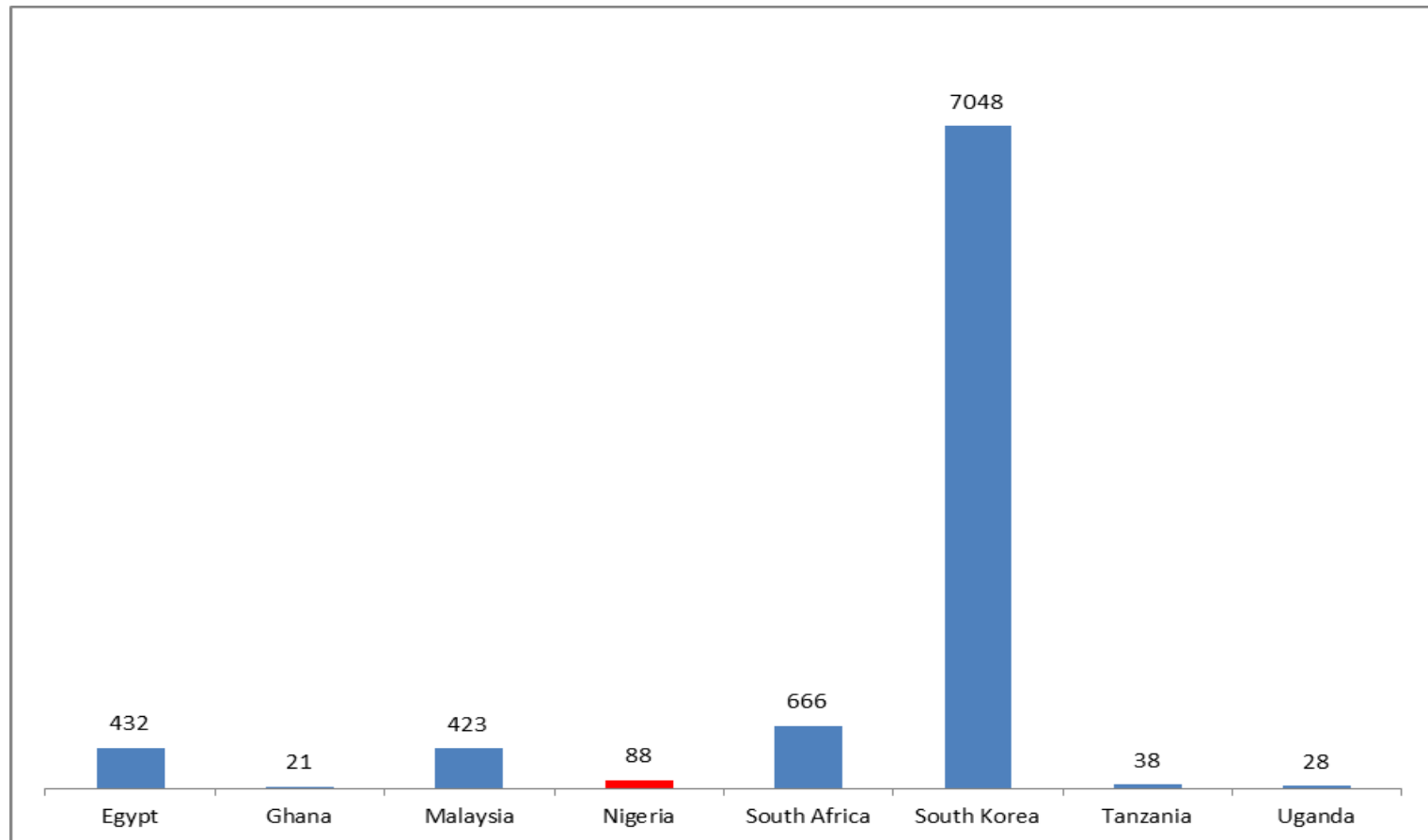
- South Africa's publications were downloaded most often by the corporate sector in 2004-2013 with 3.88 corporate downloads per article
- Nigeria's publications were downloaded less often than the comparator countries with on average 2.96 downloads per article.
- Relative to its world publication share, Nigeria's publications were downloaded less often by the corporate sector than the world average. At the peak in 2008, they were downloaded 15% less than the world average.





Research Usage: No of Patents

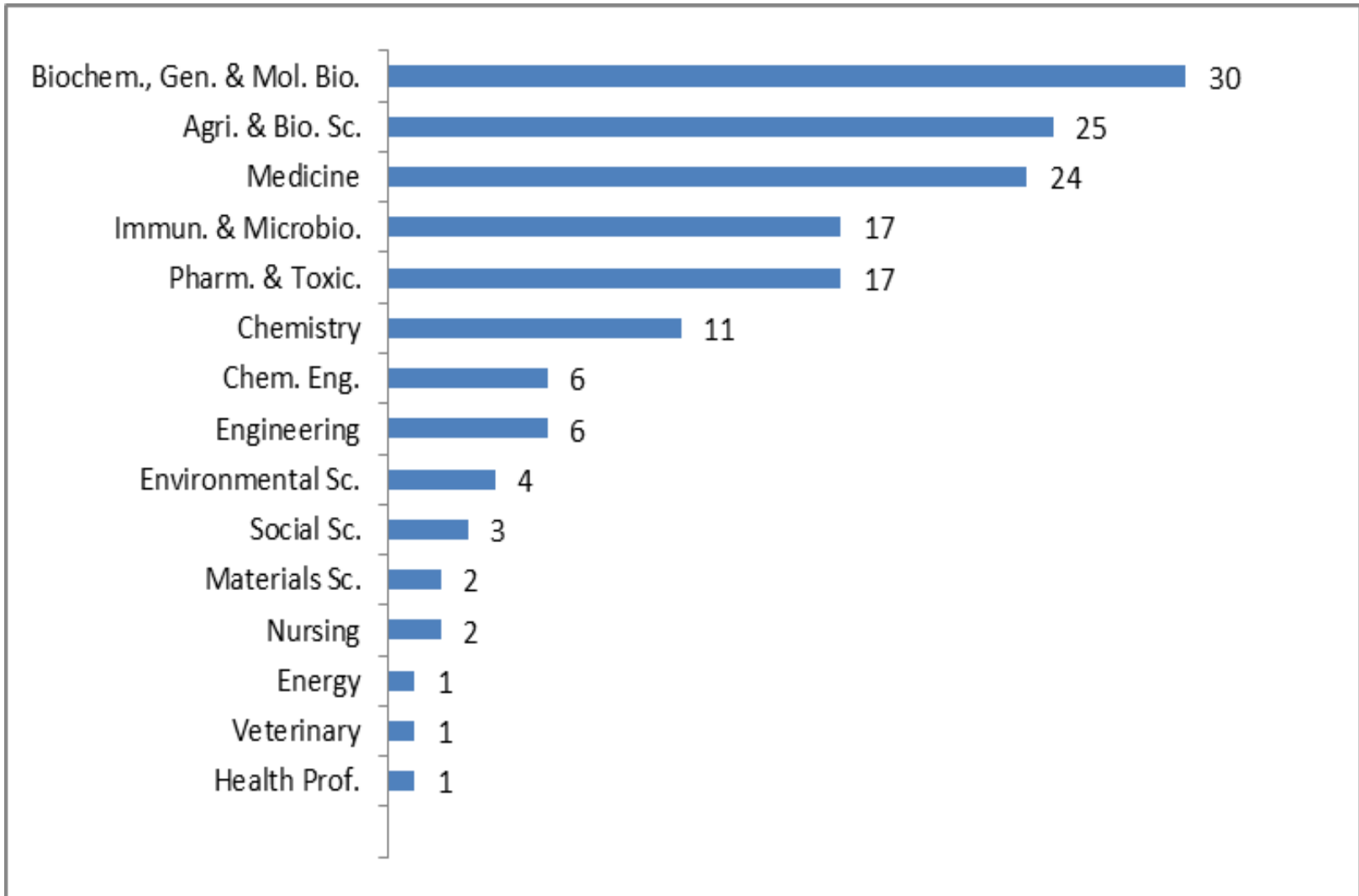
- Nigeria's publications received 88 patent citations in 2004-2013.
- Nigeria's world patent citation share is below 0.1% in all years 2004-2013. After normalizing it by the world publication share, the number is below 0.35 in all years 2004-2013, much below the world average – an indication that the connection between academia and industry need to be further intensified.





Research Usage: Patent citation

- Nigeria's publications in Biochemistry, Genetics & Molecular Biology received the largest number of patent citations (30), followed by Agricultural & Biological Sciences (25) and Medicine (24).





Summary of Knowledge Exchange Indices, 2004-2013

Academic – Corporate Collaboration	Field Weighted Citation impact
<p>Only a total of 188 articles, rep on average 0.5% of total publications. Compare South Korea with 26,172 or 4-6.2% of total publication. SA was 2.5%</p>	<p>4.69 for academic-corporate, very high compared with 0.45 for total publications in 2013. Much higher than the World Average</p>
Corporate Downloads & Patent Citation	Cross-Sector Mobility
<p>CD average 2.96; SA high with 3.88. Subjects: Medicine, Immunology & Micro, Neuroscience – 4.54, 4.29 & 4.01 Only 88 Patent cites. Very low, S Korea = 7048, SA 666, Egypt 432</p>	<p>Very low academic-corporate exchange: 10 local moves 73 International corporate moves TOP Corporate firm: SHELL with 9 pubs in 2004-2008 and 22 in 2009-2013</p>
<p>FWCI – Field weighted citation impact is obtained by dividing the absolute citation of an article with the average citation received by articles in the same field, with same type and published in the same year, to remove any bias</p>	



Results for 8 Nigerian Universities



RESULTS FOR 8 NIGERIAN UNIVERSITIES: Research Output, Growth, Focus & Impact 2004-2013

List of Nigerian University Evaluated

University of Ibadan, Ibadan

Ahmadu Bello University, Zaria

University of Port Harcourt, Port Harcourt

University of Ilorin, Ilorin

University of Benin, Benin

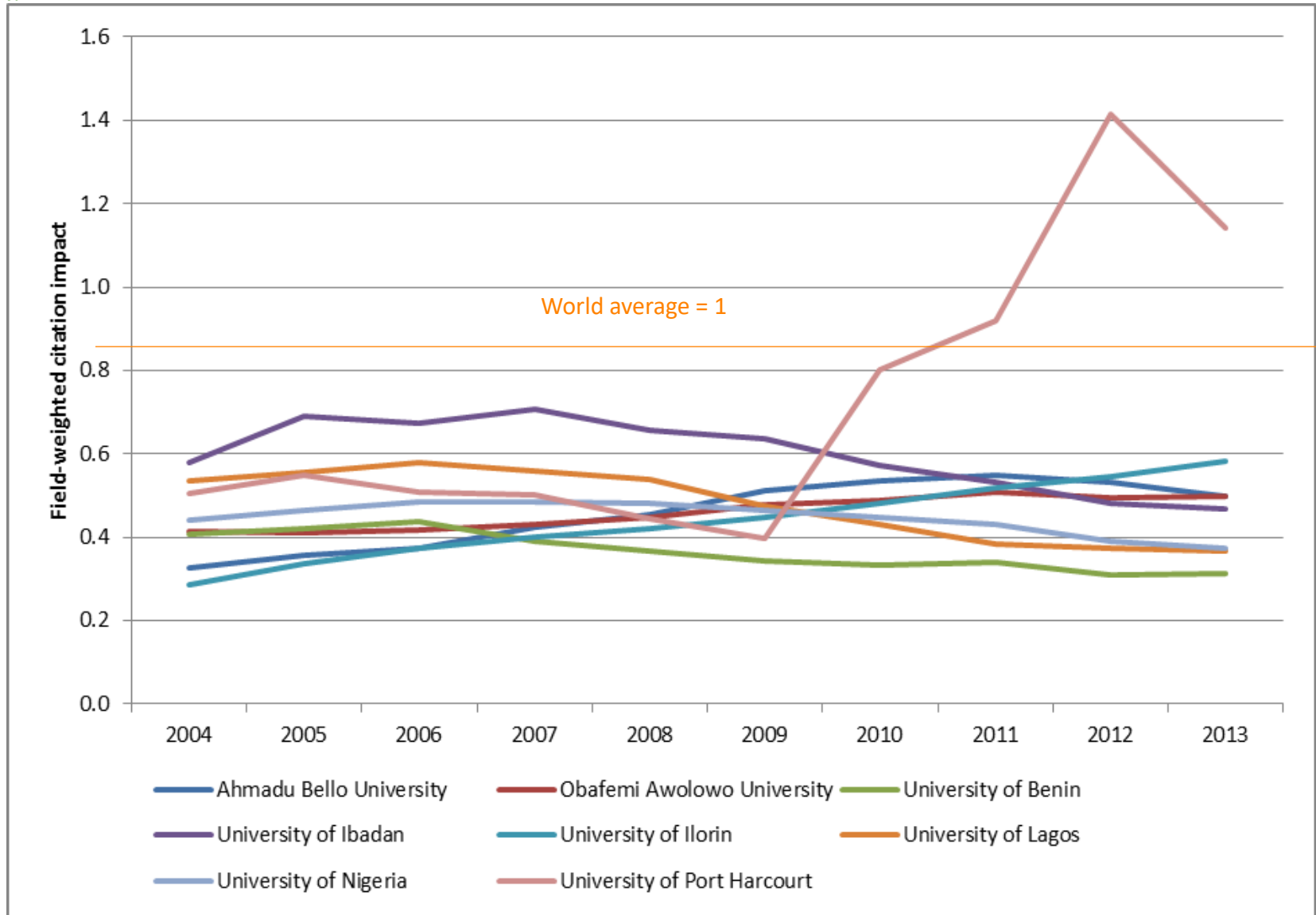
University of Nigeria, Nsukka

Obafemi Awolowo University, Ile-Ife

University of Lagos



Field-weighted citation impact of 8 Nigerian universities





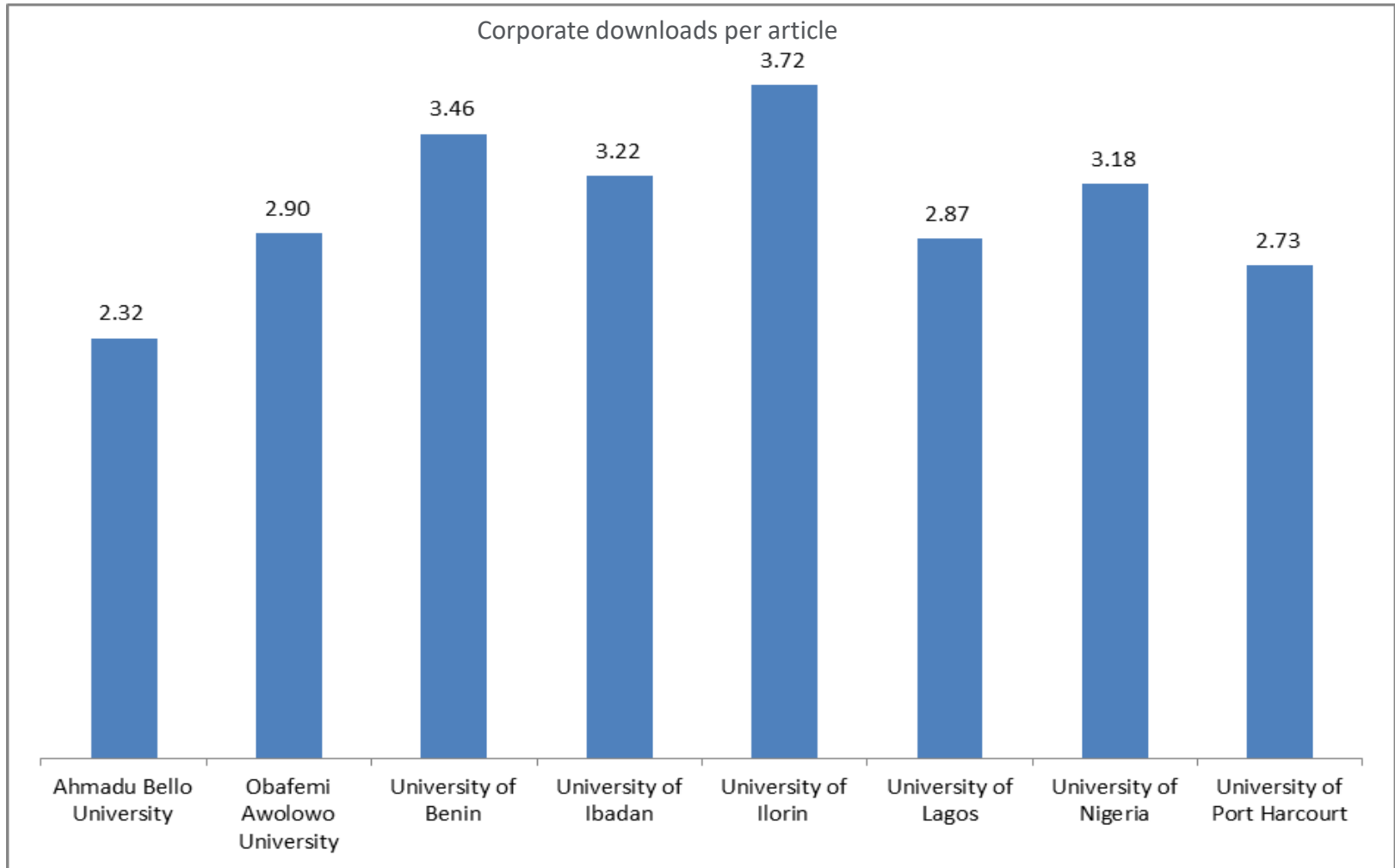
RESULTS FOR NIGERIAN UNIVERSITIES: Research Output, Growth, Focus & Impact 2004-2013

Overall Output	Highest Citation per Articles
<p>University of Ibadan was 1st with 6270 articles in 2004-2013</p> <p>UI also has the largest academic-corporate joint publications (52)</p>	<p>University of Ibadan has 6.16, highest. University of Port Harcourt has 4.23</p> <p>UNIPORT has the highest % academic-corporate publication of 1.1% of total.</p>
Highest FWCI	Highest % of Highly Cited Articles
<p>University of Port Harcourt's FWCI increased from 0.51 in 2004 to 1.14 in 2013, highest of 8 Universities</p>	<p>University of Ilorin has the highest % of 10% highly cited articles out of its publications in 2013 (10.70%)</p>



Research Usage

- University of Ilorin's publications had the largest number of corporate downloads per article at 3.72.
- Ahmadu Bello University had the lowest value at 2.32.





THE EXPERIENCE OF EGYPT

Goals:

- Raising profile of the Egyptian national publications
- Gaining international readership

Results:

- Established local publishing process
- 14 Journals launched in 10 areas from Engineering to Geophysics since 2009
- Journals attracted authors from 26 countries
- First batch of journals indexed in Scopus and ready for ISI application since 2014.
- Established publishing process
- Major universities & research institutes participate
- Drastic Increase in Number of published articles

Major impact on the Ranking of Universities (see next slide)



February 2014 Webometrics Ranking for Africa

Ranking	World Rank	University	Country	Presence Rank*	Impact Rank*	Openness Rank*
1	299	Cairo University	Egypt	886	76	1325
2	391	University of Cape Town	South Africa	760	556	655
3	504	Stellenbosch University	South Africa	327	981	419
4	549	University of Pretoria	South Africa	340	1154	196
5	632	University of Kwazulu Natal	South Africa	1181	886	677
6	690	University of Witwatersrand	South Africa	1600	1310	468
7	885	University of Western Cape	South Africa	1941	606	2287
8	1060	Rhodes University	South Africa	1039	1880	871
9	1167	University of Nairobi	Kenya	1828	1898	774

CVC/AVCNU STRATEGIC FOCUS: Quality

The Nigerian Research and Education Network (NgREN) is to enable Nigerian universities leverage on ICT for teaching, research and management of services, while the Nigerian Elsevier Partnership and those that would follow are designed to complement this initiative by granting access to global e-resources.

- **Establishment of the NgREN**
Connectivity and internet bandwidth for optimal resource sharing and cheaper cost.
- **E-resource Partnerships - NEP, etc**
Access to journals, and books, enhanced citation and visibility, etc using the consortium model



NIGERIAN JOURNALS SELECTED TO JOIN NEP PRODUCTION AND HOSTING INITIATIVE

Title	ISSN
Nigeria Medical Journal	0300-1652
Journal of the Nigerian Mathematical Society	0189-8965
Nigerian Food Journal	0189-7241
Nigerian Journal of Genetics	0189-9686
Nigerian Journal of Pharmaceutical Sciences	0189-823x
Nigerian Journal of Physiological Sciences	07945-859x



NEP Progress: Editor and Publishing Support

***Nigeria Journal
Portfolio Finalized (6
selected)***

***Nigerian Medical
Journal Hosted***

***Editor Workshop: 19
Attendees***

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Journal of the Nigerian Mathematical Society
Available online 12 November 2014
In Press, Accepted Manuscript — Note to users Open Access

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Article outline Show full outline
Abstract
Keywords
1. Introduction
2. MODEL FORMULATION
3. METHOD OF SOLUTION
4. RESULTS AND DISCUSSION
Uncited references
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Abstract
We study a model for forward propagation of a combustion front through a porous medium. The reaction involves oxygen and a solid fuel. We assume that this solid fuel depends on the space variable. We also assume that the amount of gas produced by the reaction is equal to the amount of gas consumed by it. By actual solutions, we prove the existence and uniqueness of solution of the model. We show that temperature is non-decreasing function of time. We use the similarity variable to transform the system of partial differential equations, describing the problem under consideration, into a boundary value problem of coupled ordinary differential equations and an efficient numerical technique is implemented to solve the reduced system. The





UNIMED as a World-Class University?

○ What Niche for UNIMED?

The Requirements to meet strategic Vision:

- Commitment – State Government, MDCN & NMA, University Leadership, Staff, Community, Alumni
- Funding
- Talents (Staff, Students)
- Excellent **research**, teaching & Service to Proximate Community, State & Humanity
- Good Governance – strategic visioning with dogged implementation