

Enhancing UNT's Presence in Sub-Saharan Africa: Building Partnerships with Ethiopian Higher Education Institutions

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AFRICA RESEARCH SYMPOSIUM
Thinking and Re-Thinking Africa!
Business Leadership Building,
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Outline

- **Background**
 - **ICT in Africa/Ethiopian**
- **Emerging Trends in Higher Education**
 - **MOOCs**
 - **Open Access and Scholarly Communication**
- **Global Knowledge Production and Consumption**
 - **Linkage of GERD and National Initiatives**
 - **African Challenges - Gross Domestic Expenditure on R&D**
- **Partnership for Enhancing Africans' HEI Capacity**
 - **UNT's Partnership with Ethiopian HEI**
- **Summary**

Background

- Africa is the second largest continent with about 54 countries and a population of over one billion people.
- Although African countries have experienced a series of natural and man-made disasters in the past, there has been significant progress in key human development indicators and toward the Millennium Development Goals (MDGs).
- Despite the recent progress towards information technology infrastructure development, implementing digital technologies and facilitating access to information resources in a way that enables knowledge creation, access, and use remains a critical challenge in many African countries.

WORLD INTERNET USAGE AND POPULATION STATISTICS

JUNE 30, 2014 - Mid-Year Update

World Regions	Population (2014 Est.)	Internet Users Dec. 31, 2000	Internet Users Latest Data	Penetration (% Population)	Growth 2000-2014	Users % of Table
Africa	1,125,721,038	4,514,400	297,885,898	26.5 %	6,498.6 %	9.8 %
Asia	3,996,408,007	114,304,000	1,386,188,112	34.7 %	1,112.7 %	45.7 %
Europe	825,824,883	105,096,093	582,441,059	70.5 %	454.2 %	19.2 %
Middle East	231,588,580	3,284,800	111,809,510	48.3 %	3,303.8 %	3.7 %
North America	353,860,227	108,096,800	310,322,257	87.7 %	187.1 %	10.2 %
Latin America / Caribbean	612,279,181	18,068,919	320,312,562	52.3 %	1,672.7 %	10.5 %
Oceania / Australia	36,724,649	7,620,480	26,789,942	72.9 %	251.6 %	0.9 %
WORLD TOTAL	7,182,406,565	360,985,492	3,035,749,340	42.3 %	741.0 %	100.0 %

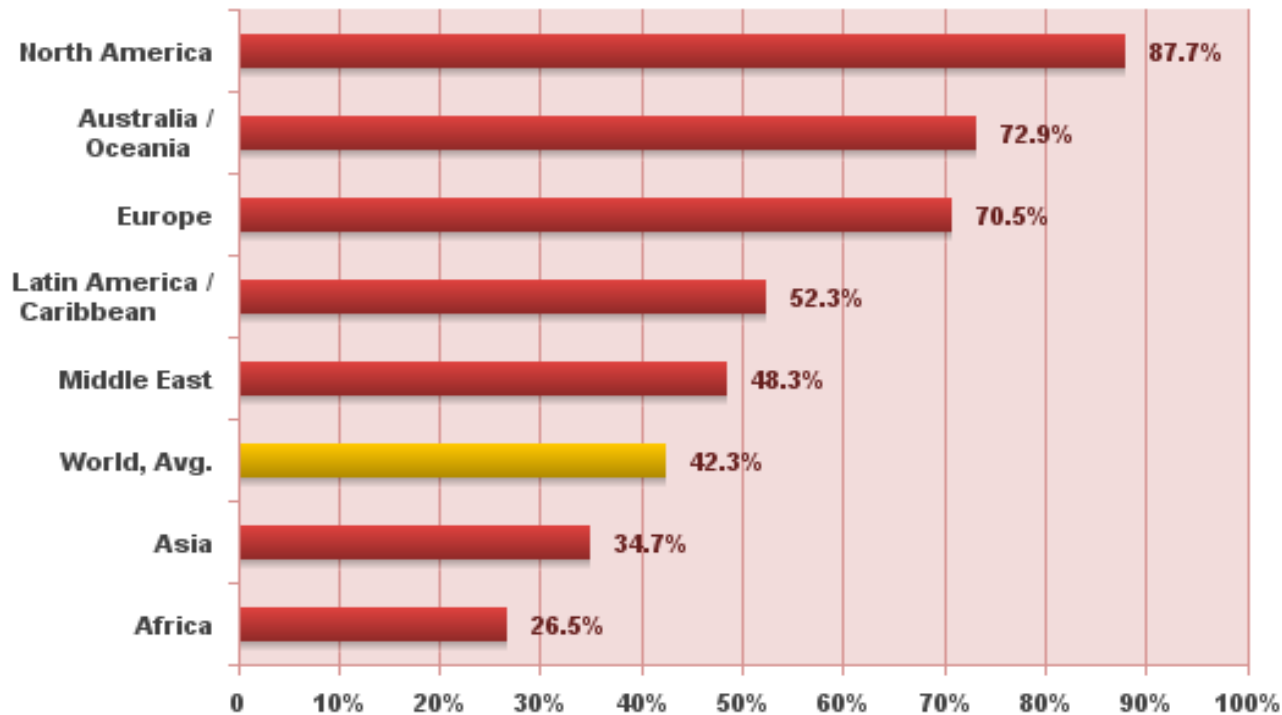


Figure 1. Internet Penetration per Population
(Source: <http://www.internetworldstats.com/stats.htm>)

ICT for Development

- To enhance the development of a global information society, increased attention has been given to the importance of addressing the digital divide.
- ICT enable economic growth and have strategic spillover effects on other sectors
 - Empower people and help create greater access to information for all.
- In a world that links knowledge with economic growth, building an indigenous knowledge base and the ability to access, publish and disseminate local/national or regional research outputs critically important.

Technology and Trends

- **Higher education institutions worldwide are undergoing transformation in the current digital and open environment.**
- **A goal towards a global:**
 - Research communication Infrastructure
 - Network of Interoperable digital archives
 - Content network framework
 - A federated system of national, regional, and global network of digital archives

Figure 2. Global Research Communication Infrastructure

(Source: www.geant.net/Resources/Media_Library/Documents/GEANT_Global_Connectivity_September_2014.pdf)



At the Heart of Global Research and Education Networking

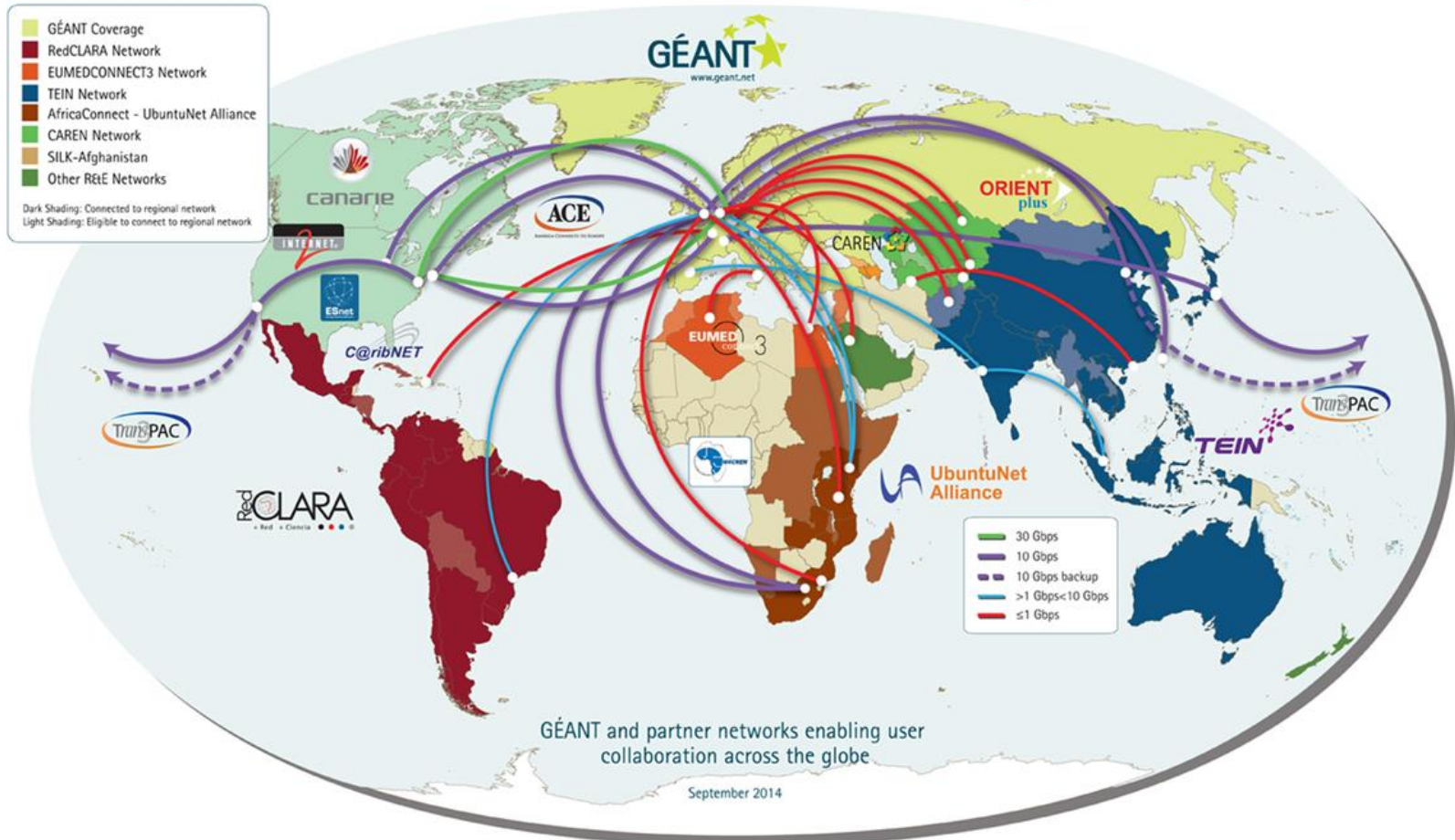


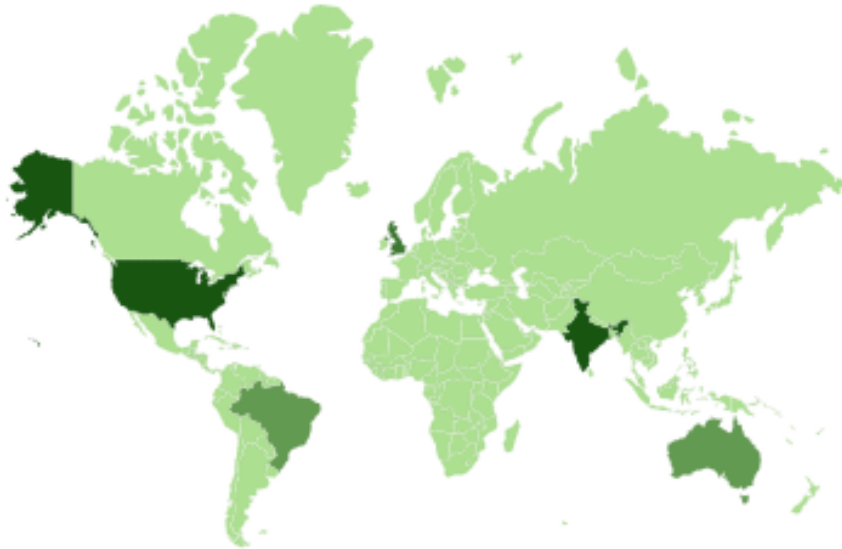
Figure 3. Visitors to Popular MOOCs - Udemy (www.udemy.com) by Country






(Source: www.alexa.com/siteinfo/udemy.com, as of April 10, 2015)

Audience Geography

Where are this site's visitors located?

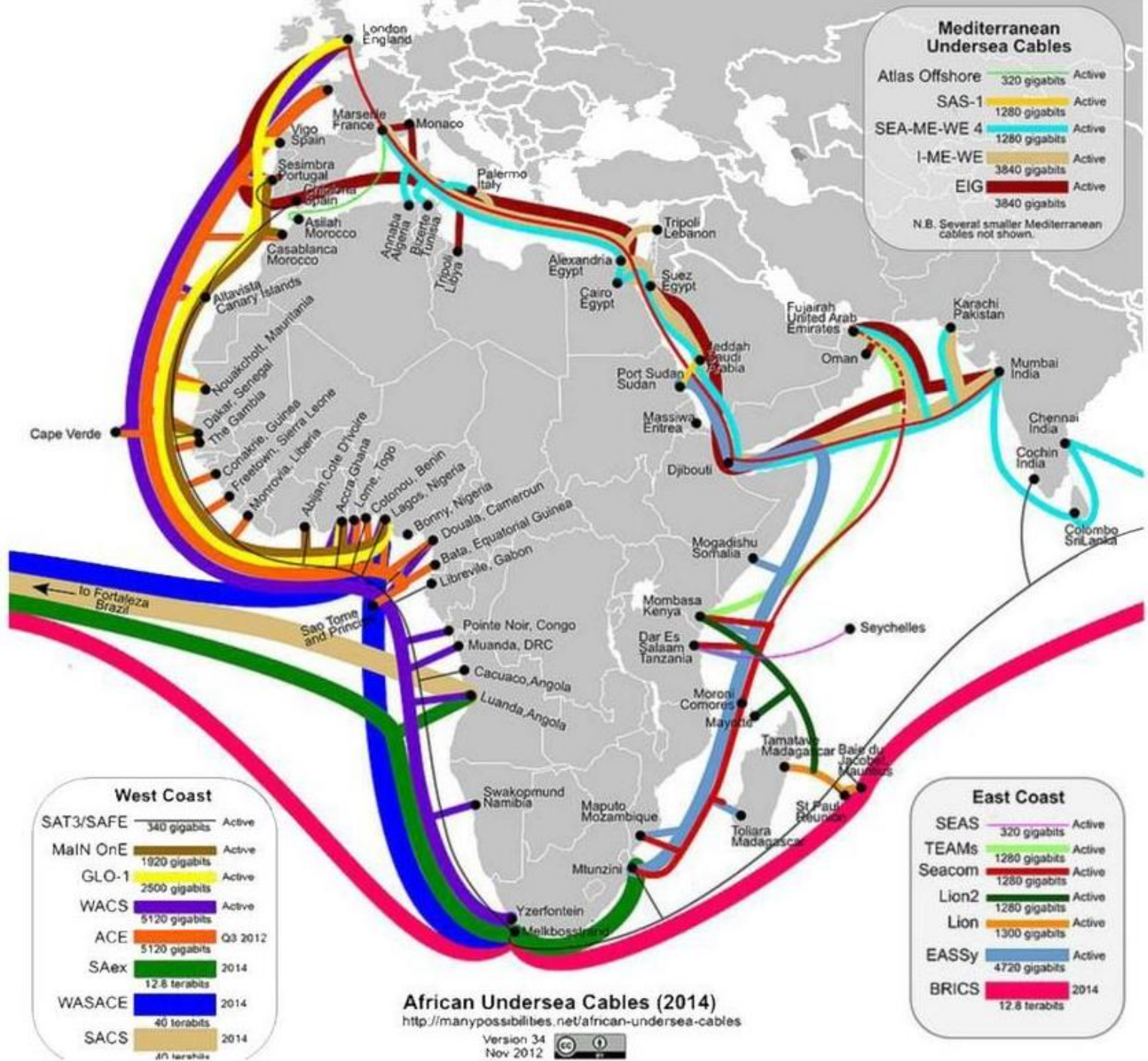
Visitors by Country



Country	Percent of Visitors	Rank in Country
 United States	29.2%	553
 India	20.5%	260
 United Kingdom	4.1%	474
 Brazil	3.4%	597
 Australia	2.9%	306

 [Upgrade to View](#)

Figure 4. Infrastructure for Changing Access and Research Capabilities in African Countries



Opportunities for African Countries

- Any technology has greater impact in developing countries
- Infrastructure development, coupled with the increased availability of interoperable Open Access content, helps to integrate, aggregate, and enhance access to diverse digital resources.
- The Open Access movement is transforming scholarly communication.

Open Access and Scholarly Communication

- **Open Access:** Provision of unrestricted online access to results/outputs of research & development such as publications, reports, journal articles, and data, through self-archiving and open access publications.
- Open access collections are more inclusive and their coverage tends to be multidisciplinary and international
- Institutional Repository store, manage, provide access, facilitate use, re-use, and preservation of digital assets. Provide more visibility for authors from developing countries than they would have gotten (because a significant number of journals from developing countries are not indexed in traditional databases)

Knowledge Production & Consumption

- In the current global knowledge economy, power and wealth are increasingly measured by one's ability to access and use information and knowledge.
- The digital divide in content networks is even more severe than the physical network. The contribution of African universities to the global scientific knowledge base is very small

Table-1 ISI Web - Global knowledge Production

Continent	S&T Journals	% of Titles	Patents Filed	% of Patents
Africa	54	0.64	438	0.24
Asia	968	11.28	70,500	38.76
Europe	4,134	48.55	56,134	30.86
Oceania	175	2.08	2,065	1.13
North America	2,966	35.2	51,519	28.32
South America	173	2.26	1,205	0.66
	8470		181861	

Figure 5. Gross Domestic Expenditure on R&D (GERD)

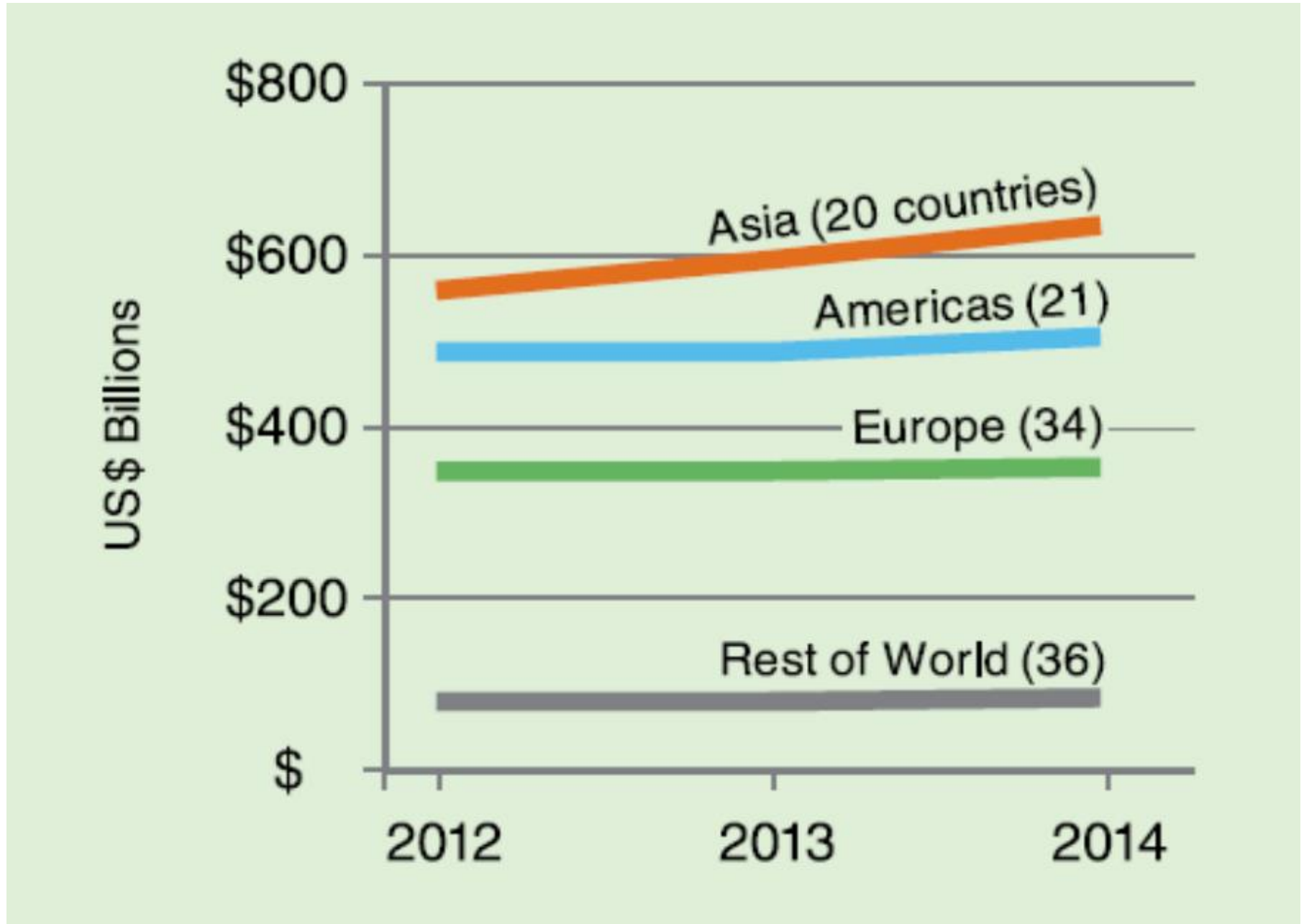


Figure 6. R&D Funding Challenges for African Countries

(Source: http://www.battelle.org/docs/tpp/2014_global_rd_funding_forecast.pdf)

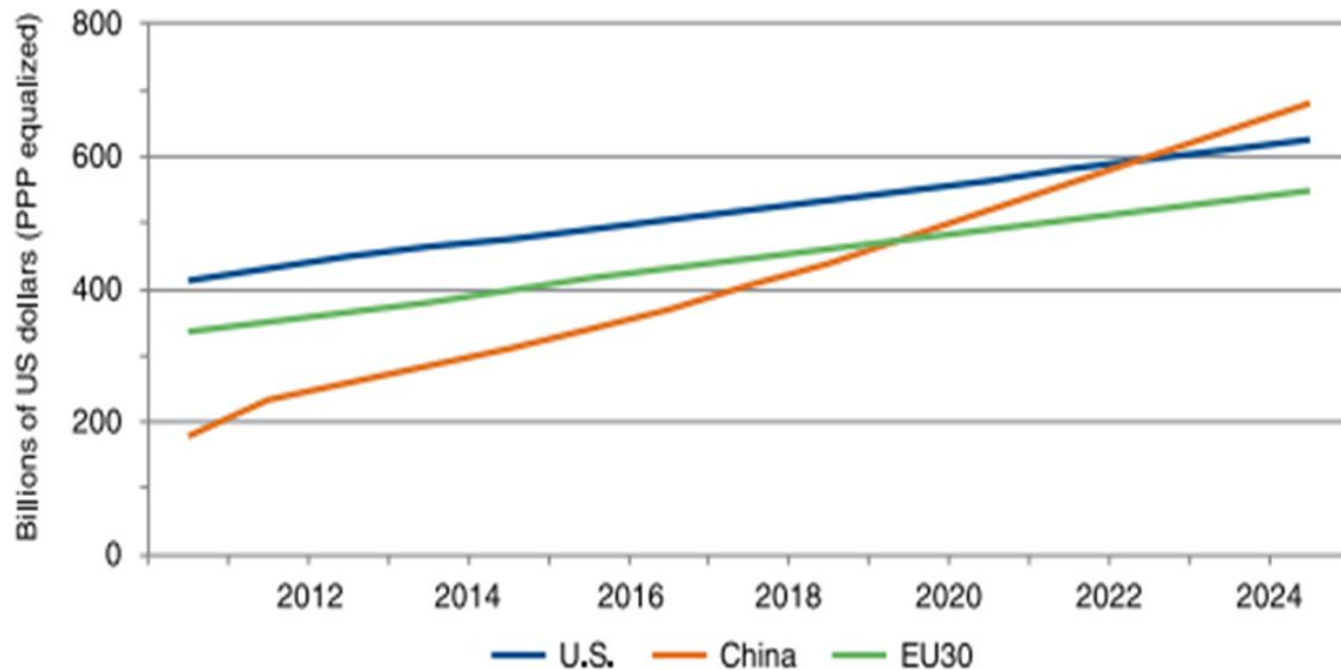
Total investments in R&D (as a percentage of GDP) will stay relatively steady throughout the world in 2014.

	2012	2013	2014
Americas	2.5%	2.4%	2.5%
Asia	1.8%	1.9%	1.9%
Europe	1.9%	1.9%	1.8%
Rest of World	0.9%	0.9%	0.9%

But GDP growth in Asia will continue to drive higher absolute levels of gross expenditures on R&D.

Ethiopia's Expenditure on R&D was 0.17%

Figure 7. Linkage Between R&D and National Priorities

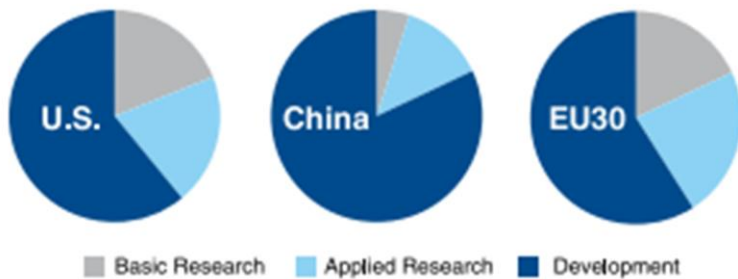


Long-Term Outlook for R&D Expenditures

Even if the historic stability of the U.S. and European commitment to research intensity (i.e., spending as a percent of GDP) continues, growth in China's economy is likely to propel it to the top position in absolute R&D spending by the early 2020s.

Source: Battelle and *R&D Magazine*

Different Priorities Among Research Leaders



China places more emphasis on development, less on basic research

Figure 8. R&D Funding Challenges for African Countries

(Source: http://www.battelle.org/docs/tpp/2014_global_rd_funding_forecast.pdf)

	2012			2013			2014		
	GDP	R&D	GERD*	GDP	R&D	GERD	GDP	R&D	GERD
	PPP Bil, US\$	as % GDP	PPP Bil, US\$	PPP Bil, US\$	as % GDP	PPP Bil, US\$	PPP Bil, US\$	as % GDP	PPP Bil, US\$
1 United States	15,940	2.8%	447	16,195	2.8%	450	16,616	2.8%	465
2 China	12,610	1.8%	232	13,568	1.9%	258	14,559	2.0%	284
3 Japan	4,704	3.4%	160	4,798	3.4%	163	4,856	3.4%	165
4 Germany	3,250	2.8%	92	3,266	2.8%	92	3,312	2.9%	92
5 South Korea	1,640	3.6%	59	1,686	3.6%	61	1,748	3.6%	63
6 France	2,291	2.3%	52	2,296	2.3%	52	2,319	2.3%	52
7 United Kingdom	2,375	1.8%	43	2,408	1.8%	44	2,454	1.8%	44
8 India	4,761	0.9%	40	4,942	0.85%	42	5,194	0.9%	44
9 Russia	2,555	1.5%	38	2,593	1.5%	38	2,671	1.5%	40
10 Brazil	2,394	1.3%	30	2,454	1.3%	31	2,515	1.3%	33
11 Canada	1,513	1.9%	29	1,537	1.9%	29	1,571	1.9%	30
12 Australia	987	2.3%	22	1,012	2.3%	23	1,040	2.3%	23
13 Taiwan	918	2.3%	21	938	2.3%	22	974	2.4%	23
14 Italy	1,863	1.3%	23	1,829	1.2%	22	1,842	1.2%	22
15 Spain	1,434	1.3%	19	1,415	1.3%	18	1,418	1.3%	18
16 Netherlands	719	2.0%	15	710	2.1%	15	712	2.1%	15
17 Sweden	399	3.4%	14	403	3.4%	14	412	3.4%	14
18 Israel	253	4.3%	11	263	4.2%	11	271	4.2%	11
19 Switzerland	369	2.9%	11	375	2.9%	11	382	2.9%	11
20 Turkey	1,142	0.9%	10	1,185	0.9%	10	1,227	0.9%	11
21 Austria	365	2.8%	10	366	2.8%	10	372	2.8%	10
22 Singapore	332	2.6%	9	344	2.6%	9	355	2.7%	9
23 Belgium	427	2.0%	9	427	2.0%	9	432	2.0%	9
24 Iran	1,016	0.8%	8	1,001	0.8%	8	1,014	0.8%	9
25 Mexico	1,788	0.5%	8	1,809	0.5%	8	1,864	0.5%	8
26 Finland	201	3.8%	8	200	3.6%	7	202	3.5%	7
27 Poland	814	0.8%	6	825	0.8%	6	844	0.8%	7
28 Denmark	214	3.1%	7	214	3.0%	6	217	2.9%	6
29 South Africa	592	1.0%	6	604	1.0%	6	621	1.0%	6
30 Qatar	191	2.8%	5	201	2.8%	6	211	2.7%	6
31 Czech Republic	292	1.8%	5	291	1.8%	5	295	1.8%	5
32 Argentina	755	0.6%	5	781	0.6%	5	803	0.6%	5
33 Norway	282	1.7%	5	287	1.7%	5	293	1.7%	5
34 Malaysia	507	0.8%	4	531	0.8%	4	557	0.8%	5
35 Pakistan	524	0.7%	4	543	0.7%	4	556	0.7%	4
36 Portugal	251	1.5%	4	246	1.5%	4	248	1.4%	4
37 Ireland	195	1.8%	3	196	1.7%	3	200	1.7%	3
38 Saudi Arabia	922	0.3%	2	955	0.3%	3	997	0.3%	3
39 Ukraine	341	0.9%	3	341	0.9%	3	348	0.9%	3
40 Indonesia	1,237	0.1%	2	1,303	0.2%	2	1,374	0.2%	3
Subtotal (Top 40)	73,362	2.0%	1,478	75,338	2.0%	1,518	77,896	2.0%	1,576
Rest of World	10,071	0.4%	39	10,413	0.4%	40	10,837	0.4%	42
Global Spending	83,434	1.8%	1,517	85,751	1.8%	1,558	88,733	1.8%	1,618

Except South Africa, no African country's investment in R&D made it to the top 40. (Ethiopia's Expenditure on R&D was 0.17%, as a percentage of GDP).



Partnership for Enhancing African Countries' Capacity

- There are several multi-scale (local to international) and multi-sector (Academic, government, commercial not-for profit, etc.) initiatives underway:
 - New Partnership for Africa's Development (NEPAD)
 - Access to Online Global Research in Agriculture (AGORA)
 - Health InterNetwork Access to Research Initiative (HINARI)
 - Online Access Research in the Environment (OARE)

UNT's Partnership with Ethiopian HEI

- **Higher learning institutions, especially those in developing countries such as Ethiopia, are core institutions or critical engines that shape competitiveness and link nations to the emerging global forces of the knowledge domain.**
- **Many progressive officials in African countries have already begun mobilizing global partners to improve education and ICT infrastructure in their respective countries.**
- **Addis Ababa University (AAU), one of the oldest institutions in Ethiopia/Africa sent its delegations in 2012 and 2013**
 - **MOU signed by both AAU and UNT presidents in April 2014**

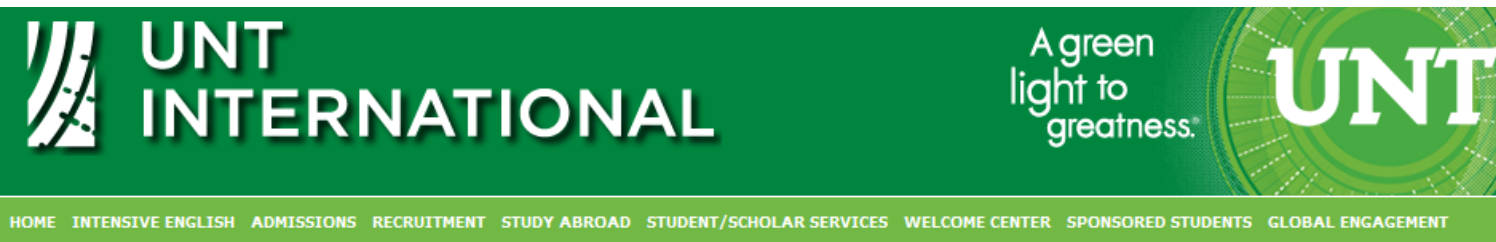
Green Light to Greatness

- The MOU enable us to explore further opportunities for possible collaboration and partnership in areas ranging from joint course offerings and online instruction to special projects in the areas of digital libraries and health informatics.
- We visited Ethiopia in February 2015 and presented:
 - at Addis Ababa University:
“Open Access & the Evolving Landscape of Scholarly Communication”
 - at Jimma University:
“Digital Repository: Promoting Scholarship via the Convergence of local/global and digital/analogue contents”
 - at the Consortium of Ethiopia Academic and Research Libraries (CEARL) Conference:
“Emerging Trends in Academic and Research Libraries”
 - At the National Archives and Library Agency:
“Web-Archiving: Preserving Important Web-based National Resources”



Success Breed Success

- We received US State Department's 2015 Seed Money
 - "...promote programs that prepare Americans for a global environment and attract future leaders from abroad to study, learn, and exchange experiences in the US:
<http://ethiopia.usembassy.gov/pr045.html>



UNT Libraries awarded U.S. Department of State Grant

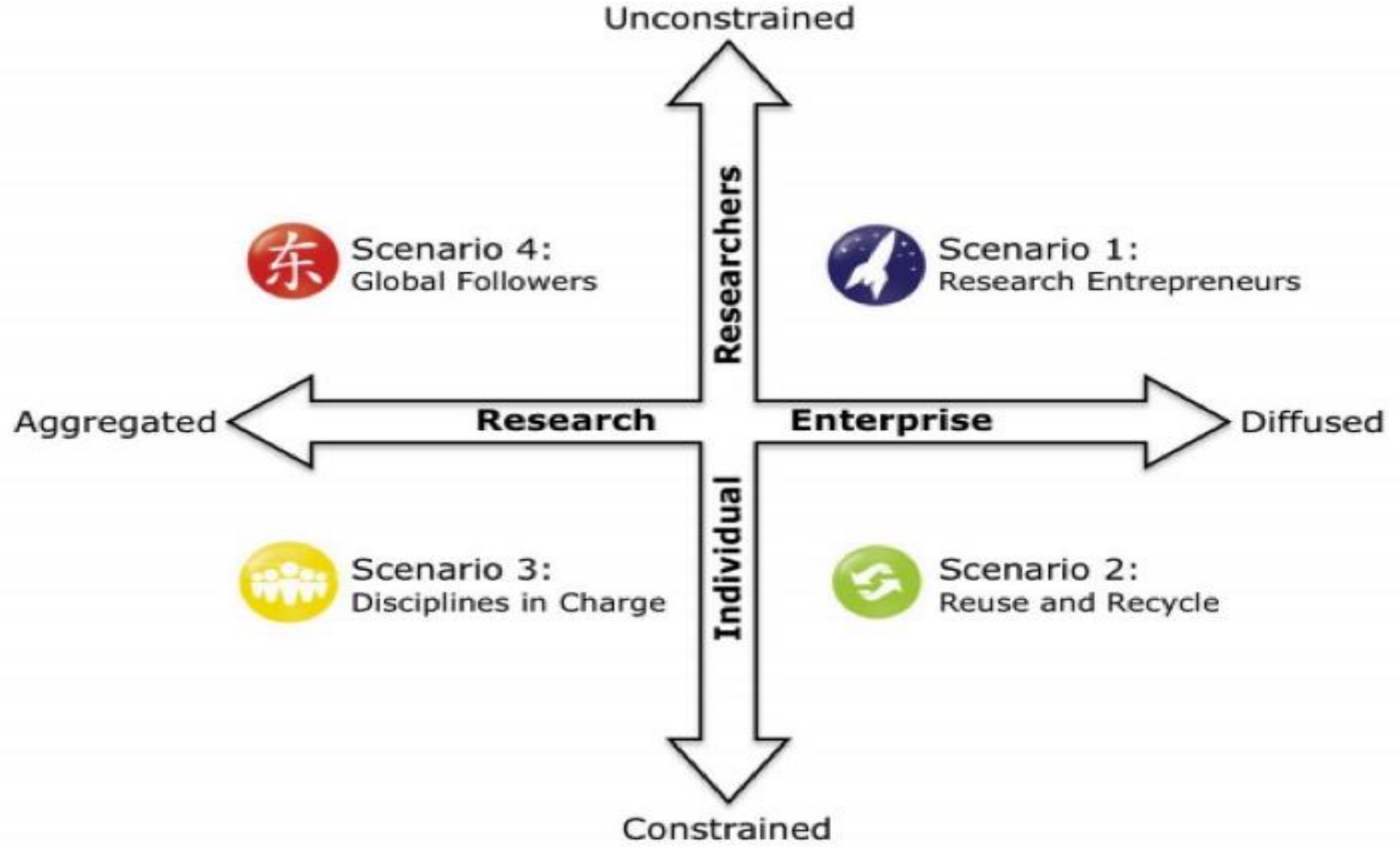
UNT Libraries was awarded a U.S. Department of State grant to establish innovative partnerships with universities in Ethiopia. The grant supports the development of new research collaborations, academic exchange programs, and curriculum development initiatives. UNT Libraries will collaborate with Jimma University and Mettu University to enhance their institutional and digital responsibilities.

Challenges and Opportunities for African Higher Education Institutions

- **For such academic collaborative activities to take off and flourish, African countries and institutions need to:**
 - Invest in R&D and ICT infrastructure
 - Create or formulate open access mandates and policies
 - Encourage all stakeholders to ensure compliance and policies implementations.
 - Encourage a cultural change in academic & scientific communities (collaboration & sharing)

ARL Scenarios

(Creative Commons BY NC ND)



Summary

- We live in integral global world and ICT will have far-reaching impact on education and scholarship. Addressing the evolving higher education and scholarly communications challenges require collaborative approaches.
- Creating international partnerships and multifaceted synergetic activities enhance African HE institutions' ability to synchronize their own indigenous socioeconomic with the new demands of 21st century academic institutions and global labor market.
- At UNT, we say our greatest passion is to give a **green light** to greatness. Through such international collaborations, we will be able to create an enriched and sustainable future for our students and for our world.

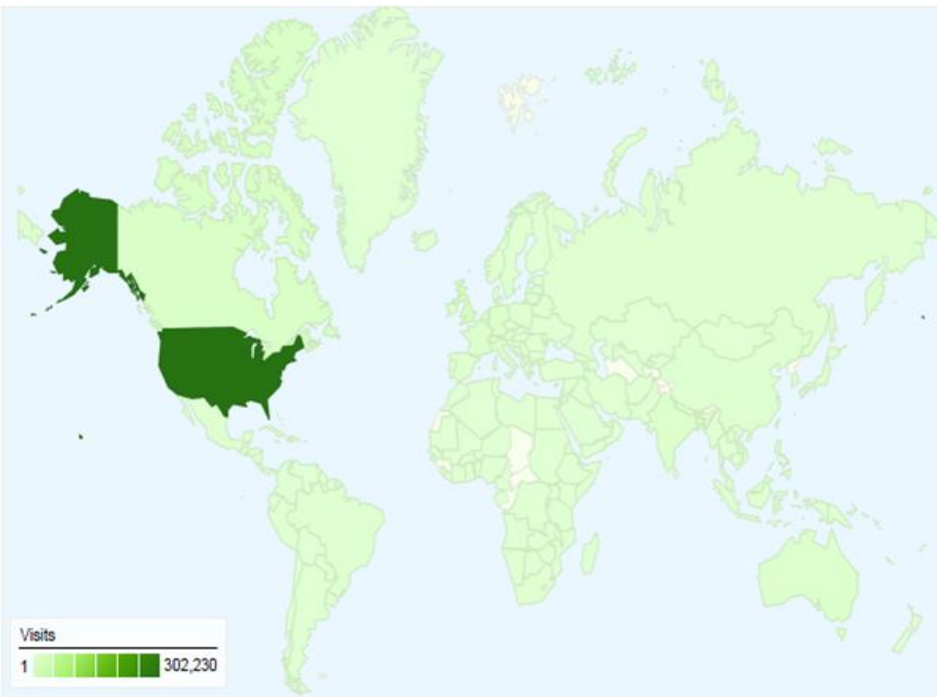
UNT's Digital Resources Accessed from 200+ Countries
<http://digital.library.unt.edu/explore/collections/UNTETD/browse/>



Traffic Source Overview: 6,000+ visits from Africa

UNT Digital Library
Map Overlay

Sep 8, 2010 - Sep 8, 2011
Comparing to: Site

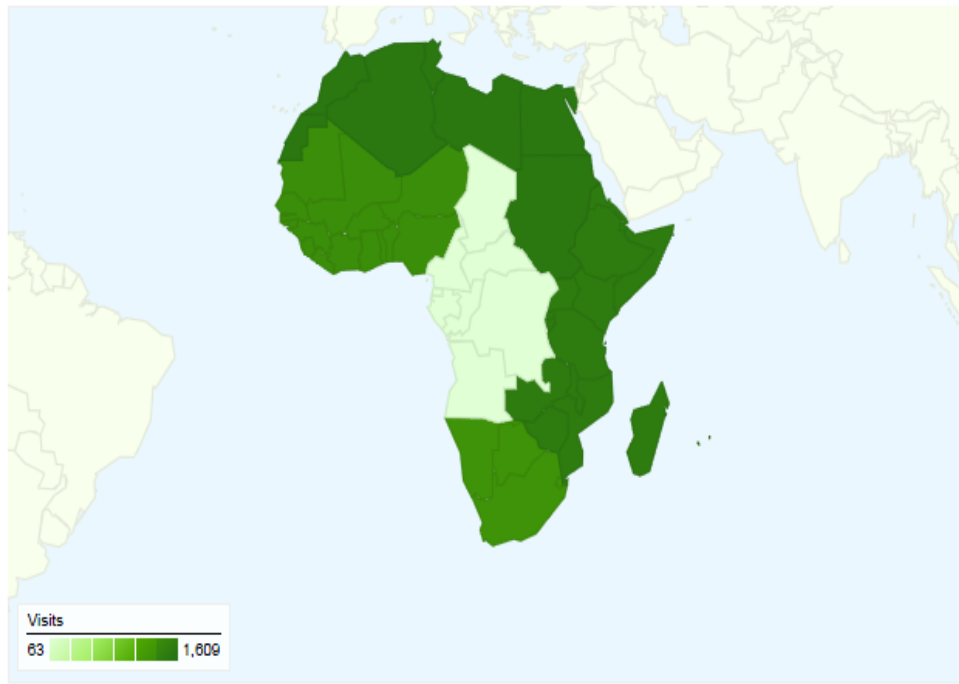


437,719 visits came from 216 countries/territories

Site Usage					
Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate	
437,719	4.25	00:02:33	84.69%	35.71%	
% of Site Total: 100.00%	Site Avg: 4.25 (0.00%)	Site Avg: 00:02:33 (0.00%)	Site Avg: 84.75% (-0.07%)	Site Avg: 35.71% (0.00%)	
Country/Territory	Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
United States	302,230	4.41	00:02:35	84.60%	34.79%
United Kingdom	14,589	3.28	00:01:56	87.48%	41.30%
Canada	11,313	4.30	00:02:17	87.05%	41.62%
Germany	6,944	5.53	00:02:40	81.91%	40.22%
India	6,509	2.91	00:02:12	92.64%	31.93%

UNT Digital Library
Continent Detail:
Africa

Sep 8, 2010 - Sep 8, 2011
Comparing to: Site



This continent sent 6,007 visits via 5 sub continent regions

Site Usage					
Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate	
6,007	2.80	00:02:49	88.93%	33.03%	
% of Site Total: 1.37%	Site Avg: 4.25 (-34.20%)	Site Avg: 00:02:33 (10.51%)	Site Avg: 84.75% (4.94%)	Site Avg: 35.71% (-7.51%)	
Sub Continent Region	Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
Northern Africa	1,609	3.70	00:02:52	84.03%	36.79%
Eastern Africa	1,574	2.64	00:02:36	89.83%	31.96%
Western Africa	1,405	2.24	00:03:34	88.90%	34.59%
Southern Africa	1,356	2.53	00:02:19	93.51%	28.39%
Middle Africa	63	1.65	00:00:43	93.65%	28.57%

Thank you!
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(Ameseginalehu)!

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