

A Path Upward for Research Supporting Top 25

DRAFT

**Presentation for Top 25 ILT Meeting
February 15, 2013**

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Approach

- Feedback from Chancellor Cheek (1/18/13,2/1/13)
- Feedback from Cabinet retreat (2/1/13)
- Seeking feedback from Top 25 ILT (2/15/13)
- Will seek feedback from Top 25 Research Advisory Committee (2/20/13)
- Will seek further feedback from Cabinet (3/4/13)
- Will seek feedback from others as appropriate

Top 25 Research Advisory Committee

Original Members (under Wes Hines):

Susan Ballentine, Chris Boake, Chris Cimino, Bill Dunne, Paul Montgomery, Margie Nichols, Greg Reed, Carol Tenopir, Dave Washburn

New Additional Members:

Bill Brown, Marc Gibson, Lee Han, Dave Irvine, Tom King, Tony Mezzacappa, Sally Morris, Stacey Patterson, Bob Porter, Charlie Senn, Melissa Shivers, John Zomchick

Some Critical Questions

- Working with our current primary metrics and goals, how do we identify appropriate action items that can be measured over time that actually grow these metrics?
- Are there secondary metrics, goals and action items that are also needed that help build research reputation and the research enterprise; especially those common measures of quality?
- How do we integrate, as appropriate, these with the prior two years of excellent work?
- How to align, as appropriate, with UT System metrics?

From *Tennessee Today*, November 14, 2012

“US News focuses solely on undergraduate education. Our goals for this university ***are broader and include research and graduate education*** which are core to making us a better university overall,” Cheek said. “They are also critical to the state’s economy, job growth, and are needed for a more educated workforce.”

From *VOL Vision: The Pursuit of Top 25*, January 19, 2011

“Implementation plans in support of each strategic priority include detailed goals, objectives, tactics, and assessment plans. Throughout the strategic planning process, focus will remain on closing the “gaps” between UTK and Top 25 institutions. The key metrics that will be targeted for closing these gaps are listed below, although ***additional metrics will be considered, where appropriate, to target broader goals.***”

Current Top 25 Research-Related Metrics and Goals (primary)

Area Of Focus	Metric	2010	2012	2015	2020
Grad Ed	Ph.D.s Graduated	277	270	360	486
Grad Ed	MS & Professional Graduated	1,845	1,726	2,000	2,130
Research	FRE, \$M	70	109	105	182
Research	TRE, \$M	165	208 (170)	247 (?)	427 (?)
Faculty	Undergraduates/Faculty	20	20	?	?
Faculty	Awards	10	10	?	32
Resources & Infrastructure	T&SE/Student	16,100	17,698	?	25,898
Resources & Infrastructure	Endowment/Student	14,380	16,250	?	40,250

Some Proposed Top 25 Research-Related Metrics & Goals (secondary)

Area Of Focus	Metric	Action Item (Leads)	2013	2015	2020
Research	Increase TRE State + Local	Fully hire GCs (SAC)	+5	+3	-
Research	Increase TRE State + Local	Seek additional GC support (UTK, UT System, ORNL)	-	-	?
Research	Increase TRE State + Local	State support of HPC (UT System)	+\$15M	+5M	-
Research	Increase TRE State + Local	TBD	?	?	?
Research	Increase TRE Corporate	New annual substantive corporate partnerships (Gibson & Eighmy)	+2	+3	+5
Research	Increase TRE Corporate	New annual corporate R&D grants/contracts (Ballentine & Eighmy)	+10	+20	+30

Some Proposed Top 25 Research-Related Metrics & Goals (secondary)

Area Of Focus	Metric	Action Item (Leads)	2013	2015	2020
Research	Increase TRE Corporate	Increase gifts for research (Rabenold)	+2	+3	+5
Research	Increase TRE Corporate	Increase R&D funding from licensing partners (Washburn & Eighmy)	+\$M	+\$3M	+\$5M
Research	Increase TRE Corporate	Increase annual royalty for R&D (Washburn & Eighmy)	+\$5M	+\$5M	+\$5M
Research	Increase TRE Institutional	NCUBO Separately budgeted (Cimino & Eighmy)	?	?	?
Research	Increase TRE Institutional	R coding confirmation (Cimino & Eighmy)	?	?	?
Research	Increase TRE Foundation	New annual substantive foundation partnerships (Gibson & Eighmy)	+2	+3	+5

Some Proposed Top 25 Research-Related Metrics & Goals (secondary)

Area Of Focus	Metric	Action Item (Leads)	2013	2015	2020
Research	Increase FRE DOD	New annual DOD R&D grants/contracts (Montgomery & Eighmy)	+10	+20	+30
Research	Increase FRE DOD	UARC Designation (Eighmy)	+1	-	+1
Research	Increase FRE NNSA/DHS	Joint Faculty with Y-12 (Eighmy)	+2	-	-
Research	Increase FRE NNSA	Joint Institute with Y-12 (Eighmy)	1	-	-
Research	Increase FRE NSF	ERC/STC/MRCT/IUCRC (Senn & Eighmy)	+2	+3	+5
Research	Increase FRE NIST	NNMI IMI (Eighmy)	+1	-	-
Research	Increase FRE HHS	New R&D collaborations with UTMC (TBD)	+2	+5	+10

Some Proposed Top 25 Research-Related Metrics & Goals (secondary)

Area Of Focus	Metric	Action Item (Leads)	2013	2015	2020
Research	Increase FRE USDA	New R&D collaborations with UTIA (Brown & Eighmy)	+2	+5	+10
Grad Ed	Increase Ph.D.s graduated	Increase RAs on grants & contracts (Hodges)	+25	+50	+100
Faculty	Undergraduates/Faculty	New faculty hires (Zomchick)	+10	?	?
Faculty	Undergraduates/Faculty	Hire National Academy Members (TBD)	+1	+2	+3
Faculty	Awards	New CAREER Awards (Porter & Reed)	+5	+10	+15
Faculty	Awards	New NEH Fellowships (Rutenberg, Porter & Reed)	+3	+4	+5

Some Proposed Top 25 Research-Related Metrics & Goals (secondary)

Area Of Focus	Metric	Action Item (Leads)	2013	2015	2020
Faculty	Awards	New Fulbright Fellowships (Rutenberg, Porter & Reed)	+5	+5	+5
Faculty	Awards	New Guggenheim Fellowships (Rutenberg, Porter & Reed)	+1	+1	+1
Faculty	Other	Faculty (Porter & Reed)	+?	?	?

Appendix 1

Metrics Used in University Ranking

Ranking Methodologies

(Italics indicates research-related)

- **NSF HERD Annual Survey of 741 Institutions: Strict Rank Order by:**
 - *Total research expenditures (TREs)*
 - *Plus components like federal, state and local, industrial, institutional, and not-for-profit*
 - *Federal Research Expenditures (FREs)*
 - *Plus components like DOD, DOE, HHS, USDA, NSF and All Other Federal Agencies*
- **Carnegie Foundation Doctoral-Granting Universities of 297 Institutions as RU/VH (108), RU/H (99), DRU (90): Unranked, but ca. tertiles using:**
 - *TREs*
 - *Research doctorates awarded*
 - *Number or research-focused faculty*
 - *Other factors*

Ranking Methodologies (continued)

(Italics indicates research-related)

- **CMUP of Top 200 Research Universities: Strict Rank Order by:**
 - *TREs, FREs, TRE by discipline (from NSF HERD), \$*
 - *Endowment Assets, \$*
 - *Annual Giving, \$*
 - *Number of National Academy Membership*
 - *Number of Faculty Awards (Annual)*
 - *Number of Doctorates Awarded*
 - *Number of Postdoctoral Appointees*
 - SAT Scores
 - Number of National Merit and Achievement Scholars

Ranking Methodologies (continued)

(Italics indicates research-related)

- AAU Selection of 62 Leading Public and Private Research Universities using algorithms involving:
 - Phase 1:
 - *FREs (especially NSF, NIH) (from NSF HERD)*
 - *National Academy Members (from CMUP)*
 - *NRC Faculty Quality Rankings (but...)*
 - *Faculty Annual Awards (from CMUP)*
 - *U.S. University Science Indicator citations*
 - Phase 2:
 - *USDA, state, industrial (from NSF HERD)*
 - *Doctorates granted (from CMUP)*
 - *Post docs appointed (from CMUP)*
 - Quality and diversity of undergraduate educational programs

Ranking Methodologies (continued)

(Italics indicates research-related)

- USN&WR Ranking of 262 Doctoral Granting Universities using data from peer assessment and CDS:
 - 25%- *Undergraduate Academic Reputation (peer assessment survey of Chancellors, Provosts, deans of admission; e.g., distinguished, strong, good, adequate, marginal, don't know)*
 - 15%- Student Selectivity for Fall Entering Class (acceptance rate, HS top 25%, SAT and ACT CR and Math scores)
 - 20%- Faculty Resources (compensation, % top terminal degrees, % full time, S/F, class size < 19, class size > 50)
 - 25%- Graduation and Retention Rates (avg. grad rate, avg. freshman retention rate)
 - 10%- Financial Resources per Student
 - 5%- Alumni Giving (alumni giving rate)

Appendix 2

Detailed Benchmarking Against Peer Institutions Using 2011 NSF HERD Survey Data, 2011 CMUP data

Benchmark Institutions

Institution	Top 25 "Target Group"	USNWR 2012 Ranking	Carnegie RU/VH	AAU	National Lab Partner	Land Grant	Med School
U. Georgia	Y	21	Y	N	N	Y	N
Purdue	Y	22	Y	Y	N	Y	N
TAMU	Y	23	Y	Y	N	Y	N
Clemson U.	Y	24	N	N	N	Y	N
Rutgers U.	Y	25	Y	Y	N	Y	N
Indiana U. Bloomington	Y	33	Y	Y	N	N	N
Stony Brook	N	92	Y	Y	Y	N	Y
UTK	-	101	Y (?)	N	Y	N	N

Total Research Expenditures

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU	705.7	14
Purdue	578.2	18
Rutgers U.	432.3	26
U. Georgia	245.1	45
Stony Brook U.	211.3	53
Indiana U. Bloomington	184.0	58
UTK	167.4	61
Clemson	166.3	62

TRE Component: Federal Research Expenditures

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU	291.8	21
Purdue	259.9	25
Rutgers U.	239.9	29
U. Georgia	137.3	45
Stony Brook U.	125.1	49
UTK	111.9	54
Indiana U. Bloomington	74.1	65
Clemson U.	52.9	71

TRE Component: State and Local Government

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU		
Purdue		
Rutgers U.		
U. Georgia		
Stony Brook U.		
Indiana U. Bloomington		
UTK		
Clemson		

TRE Component: Industry

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU		
Purdue		
Rutgers U.		
U. Georgia		
Stony Brook U.		
Indiana U. Bloomington		
UTK		
Clemson		

TRE Component: Institution Funds

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU		
Purdue		
Rutgers U.		
U. Georgia		
Stony Brook U.		
Indiana U. Bloomington		
UTK		
Clemson		

TRE Component: All Other Sources (e.g., not-for-profit)

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU		
Purdue		
Rutgers U.		
U. Georgia		
Stony Brook U.		
Indiana U. Bloomington		
UTK		
Clemson		

FRE Component: DOD

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU		
Purdue		
Rutgers U.		
U. Georgia		
Stony Brook U.		
UTK		
Indiana U. Bloomington		
Clemson		

FRE Component: DOE

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU		
Purdue		
Rutgers U.		
U. Georgia		
Stony Brook U.		
UTK		
Indiana U. Bloomington		
Clemson		

FRE Component: HHS (includes NIH)

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU		
Purdue		
Rutgers U.		
U. Georgia		
Stony Brook U.		
UTK		
Indiana U. Bloomington		
Clemson		

FRE Component: NASA

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU		
Purdue		
Rutgers U.		
U. Georgia		
Stony Brook U.		
UTK		
Indiana U. Bloomington		
Clemson		

FRE Component: USDA

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU		
Purdue		
Rutgers U.		
U. Georgia		
Stony Brook U.		
UTK		
Indiana U. Bloomington		
Clemson		

FRE Component: All Other Federal Agencies Reported

Institution	FY09 TRE As Reported in 2011 NSFHERD, \$M	National Rank Among USNWR Publics
TAMU		
Purdue		
Rutgers U.		
U. Georgia		
Stony Brook U.		
UTK		
Indiana U. Bloomington		
Clemson		

Endowment

Institution	FY09 Value as Reported in 2011 CMUP Report, \$M	National Rank Among USNWR Publics
TAMU	5,224	3
Purdue	1,633	14
Indiana U. Bloomington	769	25
U. Georgia	625	31
Rutgers U.	554	34
UTK	509	36
Clemson	382	47
Stony Brook U.	125	66

Annual Giving

Institution	FY09 Value as Reported in 2011 CMUP Report, \$M	National Rank Among USNWR Publics
TAMU	211.9	11
Purdue	191.7	13
Indiana U. Bloomington	184.3	14
UTK	95.5	31
Rutgers U.	74.2	43
U. Georgia	69.4	45
Stony Brook U.	66.3	48
Clemson	33.1	63

National Academy Members

Institution	FY10 Value as Reported in 2011 CMUP Report	National Rank Among USNWR Publics
Rutgers U.	36	12
Purdue U.	24	23
TAMU	22	26
Stony Brook U.	12	32
Indiana U. Bloomington	10	34
U. Georgia	7	43
UTK	1	63
Clemson	1	64

Doctorates Granted

Institution	FY10 Value as Reported in 2011 CMUP Report	National Rank Among USNWR Publics
Purdue U.	618	13
TAMU	578	15
Indiana U. Bloomington	443	22
Rutgers U.	424	23
U. Georgia	417	25
UTK	397	30
Stony Brook U.	283	40
Clemson	178	61

Faculty Awards

Institution	FY10 Value as Reported in 2011 CMUP Report	National Rank Among USNWR Publics
Rutgers U.	18	19
TAMU	17	20
Purdue U.	13	29
U. Georgia	9	41
UTK	9	45
Indiana U. Bloomington	8	51
Stony Brook U.	7	55
Clemson U.	6	61

Postdoctoral Appointees

Institution	FY09 Value as Reported in 2011 CMUP Report	National Rank Among USNWR Publics
Purdue U.	334	23
TAMU	324	25
U. Georgia	232	38
Rutgers U.	217	41
Stony Brook U.	168	49
UTK	156	52
Indiana U. Bloomington	143	55
Clemson U.	49	71