Mid-Term Review of Assumptions and Projections

Used to Establish State University System Goals in the 2005-13 SUS Strategic Plan

Board of Governors Academic Programs and Strategic Planning Committee

June 19, 2008

The Board of Governors, State University System of Florida Strategic Plan for 2005-2013 establishes specific goals for

A. Access to and production of degrees
B. Meeting statewide professional and workforce needs
C. Building world-class research programs and research capacity
D. Meeting community needs and fulfilling unique institutional responsibilities

Three years after the adoption of the plan, many of the conditions and data that informed its development have already changed, and the "Forward by Design" initiative has put in place a framework for institutions and the Board to agree on mission-specific goals for each university.

Many of the statewide goals, particularly under "A" and "C", were based on assumptions about where Florida and the United States would be educationally and demographically in 2012-13. Some of these assumptions have shifted and the corresponding goals would need to be revised to maintain the same underlying principle assumed when adopted.

In many cases, goals that were already ambitious have become essentially impossible, at least within the time frame of the current strategic plan. Even so, the system has in many cases demonstrated considerable progress already.

GOAL AREA A. Access to and production of degrees

A.1-A.4 Degrees awarded

These goals were set based on Florida reaching the national average in degrees awarded annually, with the SUS having a responsibility proportionate to its current share of degrees awarded. A separate goal was set for doctoral degrees in emerging technologies only.

Annual	Actual 03-04 Degrees	Actual 06-07 Degrees	2012-13 Original Strategic Plan Goal	2012-13 Equivalent Goal Based on New Data	03-04 to 12-13 Annual Growth Rate Reach Original Goal	06-07 to 12-13 Annual Growth Rate to Reach Revised Goal	03-04 to 06-07 Actual Growth Rate
A.1 Bachelor	42,680	47,326	57,638	64,462	3.4%	5.3%	3.5%
A.2 Masters	13,040	13,786	17,514	21,795	3.3%	7.9%	1.9%
A.3 First Professional	1,370	1,841	2,167	2,423	5.2%	4.7%	10.4%
A.4 Emerging Tech Doctorates	795	997	941-1317	1194-1670	1.9-5.8%	3.1-9.0%	7.8%

These revisions are based on the following changes in the underlying data and assumptions:

1. 2012-13 Population projections for Florida and the US have both increased:

	2012-13 Original Strategic Plan Assumptions	2012-13 Projections Based on Recent Data
US 18-44 Population	109,708,000	114,555,102
Florida 18-44 Population	6,307,817	6,764,362
Florida Total Population	19,845,212	20,312,447

Source: US Census Projections, Middle Series. Florida Total Population: February 2008 consensus estimate of the Office of Economic and Demographic Research. Florida 18-44 population projection adjusted proportionately.

2. The USDOE estimate for the number of degrees awarded nationally in 2012-13, both absolute and per capita, has increased.

	Original 2012-13 Strategic Plan Assumptions	2012-13 Projections Based on Recent Data
US Bachelor Degrees	1,509,000	1,738,000
US Bachelor Degrees per 18-44	1,375	1,517
US Master's Degrees	556,000	696,000
US Master's Degrees per 18-44	507	608
US Doctoral Degrees	47,300	61,400
US Doctoral Degrees per 18-44	43	54
US 1st Prof Degrees	95,900	101,600
US 1st Prof Degrees per 18-44	87	89

Source: USDOE, Projections of Education Statistics to 2016, December 2007, Tables 28, 29, 31, middle series projections.

3. Combined with the increased state population projection, this means that reaching the "national average" by 2012-13 would require hitting a higher numerical target.

Total Public and Private	Original 2012-13 Strategic Plan Assumptions	2012-13 Goal Based on Revised Assumptions
Florida Bachelor Degrees	86,732	102,627
Florida Master's Degrees	31,981	41,098
Florida Doctoral Degrees	2,720	3,626
Florida 1st Prof Degrees	5,488	5,999

4. The SUS share of total degrees awarded in Florida has changed, so the proportionate share of the 2012-13 goal is also different.

The 2005-13 degree goals for the SUS were based on maintaining the system's proportionate share of all degrees awarded in the state at all levels except the bachelor degree. The bachelor degree target assumed community colleges' share would grow to 1%, reducing the SUS share accordingly.

The SUS "market share" has since changed slightly, and community college degrees have grown more rapidly than anticipated.In addition to using the current market shares in place of the 2001-02 assumptions, the revised goal should use a 2% assumption for the community college share.

	2001-02 SUS Share of Florida Degrees	2006-07 SUS Share of Florida Degrees	Est. SUS Share Needed to Achieve Statewide Goal for 2012-13
SUS Share of Florida Total Bachelor Degrees	66.5%	64.1%	62.8%*
SUS Share of Florida Total Masters Degrees	54.8%	53.0%	53.0%
SUS Share of Florida Total First Prof Degrees	39.5%	40.4%	40.4%
SUS Share of Florida Total Doctoral Degrees	50.3%	54.7%	54.7%

Source: Integrated Postsecondary Education Data System (IPEDS) Completions File.

Current projections are for the number of community college bachelor degrees to increase to 1,859 by 2010-11, which would be approximately 2% of the total state's degree production assuming modest public and private growth.

COMMUNITY COLLEGE BACHELOR DEGREES

	ACTUAL 2003-04	ACTUAL 2004-05	ACTUAL 2005-2006	ACTUAL 2006-07	ESTIMATED 2007-08	PROJECTED 2008-09	PROJECTED 2009-10	PROJECTED 2010-11
Bachelor	123	228	398	570	771	983	1,326	1,859

Source:March 4, 2008 Community College Estimating Conference Handouts, Office of Economic and Demographic Research.
http://edr.state.fl.us/conferences/communitycolleges/communitycolleges.htm

5. The goal for emerging technology doctorates would increase based on changes in the goals for research described below.

The original assumption was that the number of emerging technology doctorates would increase in proportion to federal research expenditures, as graduate students in those fields typically work on externally funded projects. The range provided reflected uncertainty about the future discipline mix of emerging technologies, some of which are more capital-intensive (physics) than others (math). The low and high ends of the goal would need to be revised in proportion to the increased goal for C.1.d. Federal research expenditures.

Actual growth in emerging technologies doctorates has exceeded the rate necessary to achieve the original goal and is within range for the revised goal.

A.5. Access/diversity

The goal to increase the proportion of minorities receiving degrees to the same proportion they represent in the state's population does not need adjustment based on demographic trends since it is already articulated as a proportion.

The 2012-13 goal appears unrealistic at this point. The SUS has started working with a national organization, the Education Trust, on an initiative to "halve the gaps" in graduation rates nationally between minority and low-income students and others. Alternative goals could focus on this effort, perhaps with a longer time horizon to have a more realistic chance of success.

	Actual 2003-04	Actual 2006-07	2012-13 Original Strategic Plan Goal,	[DATE TBD] Alternative Goal Based on NASH/Ed Trust Initiative*
BOG GOAL: Underrepresented Minorities Bachelor's Degree Attainment (As a % of state's 18-44 population)	64.0%	63.4%	100.0%	-
RELATED MEASURE: Underrepresented Minorities Six-Year FTIC Grad Rate Gap	12.1% gap	10.7% gap	-	5.35% or smaller gap
RELATED MEASURE: Pell Recipients Six-Year FTIC Grad Rate Gap	8.0% gap	6.1% gap	-	3.05% or smaller gap
RELATED MEASURE: Underrepresented Minority Bachelor's Degrees as % of Minority Enrollment – Gap	3.8% gap	3.8% gap	-	1.9% or smaller gap

GOAL AREA B. Meeting statewide professional and workforce needs

These goals are addressed in a related document.

GOAL AREA C. Building world-class academic programs and research capacity

C.1 Research expenditures

Competitively awarded research grants are both a direct economic benefit to the state in terms of high-tech employment and spin-off technologies, and an index of the quality of research programs in the eyes of the entities awarding the grants. High-performing states in this arena tend to perform well on other educational and economic measures.

Goals for research expenditures were set based on Florida reaching the national average per capita (population), with the SUS maintaining its proportionate share of statewide academic research activity and maintaining or increasing an already high level of faculty productivity.

Note that per capita goals include private universities. The SUS contributes the lion's share and is assumed to continue doing so. The total dollar amounts and the amounts per faculty member are for the SUS only.

	Actual 2001-02 Baseline	Actual 2005-06 (in 2002 dollars)	2012-13 Original Strategic Plan Goal	2012-13 Equivalent Goal Based on New Data	01-02 to 12-13 Growth Rate to Reach Original Goal	05-06 to 12-13 Growth Rate to Reach Revised Goal	01-02 to 05-06 Actual Growth Rate
C.1.a. SUS Total academic research expenditures	$898,553,000	$1,149,176,344	$2,067,019,626	$2,448,715,257	8%	11%	6%
C.1.b. SUS Total academic research expenditures per full-time faculty	$124,488	$143,647	$143,518	no change	1%	0%	4%
C.1.c. FL Total research expenditures per capita (population)	$65 (FL pub and private)	$74 (FL pub and private)	$126 (= 01-02 US avg)	$143 (=05-06 US avg)	6%	10%	3%
C.1.d. SUS Federally-financed academic R&D	$427,583,000	$580,302,650	$1,146,933,862	$1,454,782,608	9%	14%	8%
C.1.e. SUS Federal research expenditures per full-time faculty	$59,238	$72,538	$77,757	no change	3%	1%	5%
C.1.f. FL Federal research expenditures per capita (population)	$34	$40	$76	$90	8%	12%	4%

Source: National Science Foundation Survey of Research and Development Expenditures at Colleges and Universities. All dollar figures are, consistent with the original strategic plan, expressed in year 2002 dollars, adjusted using the calendar year Gross Domestic Product Implicit Price Deflator, as published by the U.S. Bureau of Economic Analysis (the same inflation adjustment used by the National Science Foundation in its reports).

These changes are based on changes in the following underlying assumptions:

1. The projected 2012-13 population for Florida has increased, as outlined in the section above on degree production.

2. Nationally, research expenditures per capita (population) have increased from the level assumed in the strategic plan, both in nominal and inflation-adjusted terms.

The SUS strategic plan used separately budgeted science and engineering research and development expenditures as reported in the 2001-02 National Science Foundation survey of R&D Expenditures at Colleges and Universities as the baseline for calculating the national average. The 2005-06 version of the survey shows that in constant 2002 dollars, total academic science and engineering research per capita has increased from $126 to $143 (or $160 in 2006 dollars). Federally funded academic science and engineering research increased from $76 to $90 per capita in 2002 dollars ($101 in 2006 dollars).

The benchmarks below include both public and private universities to calculate per capita numbers. Note that the US population was 287,973,924 in 2002, and 298,754,819 in 2006, according to the U.S. Census.

	Original Strategic Plan 2001-02 data	Updated 2005-06 data (2002 dollars)	Updated 2005-06 data (2006 dollars)	2005-06 Per Capita (2002 dollars)
US Total R&D	$36,243,803,000	$42,792,795,752	$47,760,402,000	$143
US Federal R&D	$21,771,139,000	$26,909,377,463	$30,033,156,000	$90

Source: National Science Foundation Survey of Research and Development Expenditures at Colleges and Universities.

3. The SUS share of total university science and engineering research and development in Florida has also increased between FY 2002 and FY 2006.

	2001-02 Actual	2005-06 Actual
SUS Share of Florida Total R&D Spending	82.8%	84.2%
SUS Share of Florida Total Federal R&D Spending	76.4%	79.5%

Source: National Science Foundation Survey of Research and Development Expenditures at Colleges and Universities.

This means that, in addition to the state needing to reach a higher per capita level with a higher projected population, the SUS would have to take on a larger share of the burden of meeting an overall state goal.

	2012-13 Original Strategic Plan (2002 dollars)	2012-13 Updated Strategic Plan (2002 dollars)	2012-13 Updated Strategic Plan (2006 dollars)
Florida Total R&D (Public and Private)	$2,497,677,374	$2,909,497,489	$3,247,246,815
SUS Prorated Share of Total R&D Spending	$2,067,019,626	$2,448,715,257	$2,732,974,628
Florida 2012-13 Goal: Federal R&D	$1,500,319,414	$1,829,578,198	$2,041,965,018
SUS Prorated Share of Federal R&D Spending	$1,146,933,862	$1,454,782,608	$1,623,661,234

4. The national average per faculty member has also increased.

The SUS was already competitive on this measure and remains so. The original goals in this area do not need adjustment. The state does poorly on a per capita basis not because faculty are unproductive but because there are relatively few faculty for the size of the state's student and overall populations. This goal assumes that every public university system has a mix of institutions, with some more focused on research than others.

	2001-02 Actual	2005-06 Actual (2002 dollars)	2005-06 Actual (2006 dollars)
US Public University Total R&D	$24,830,706,000	$28,920,260,656	$32,356,705,000
SUS Total R&D	$898,553,000	$1,149,176,344	$1,285,727,000
US Public University Federal R&D	$13,367,288,000	$16,503,225,448	$18,464,218,000
SUS Federal R&D	$427,583,000	$580,302,650	$649,257,000
US Public University Full-Time Tenured/T-Track Faculty	225,364	230,271	230,271
SUS Tenured, Tenure-Track Faculty	7,218	8,000	8,000
US Public Total R&D Per Faculty	$110,180	$125,592	$140,516
SUS Total R&D Per Faculty	$124,488	$143,647	$160,716
US Public Federal R&D Per Faculty	$59,314	$71,669	$80,185
SUS Federal R&D Per Faculty	$59,238	$72,538	$81,157

Sources: National Science Foundation Survey of Research and Development Expenditures at Colleges and Universities, Full-time tenured and tenure-track faculty from Integrated Postsecondary Education Data System fall staff survey.

C.1.g. Research expenditures—contracts and grants

Since National Science Foundation data do not capture external funding for purposes other than research and development, the total amount of contracts and grants reported in the SUS operating budget was included as a supplementary indicator. There is no national benchmark for this number. The goal assumed that the amount would increase at the same rate as the research expenditures in goal C.1.a.

As a result of the changes in assumptions behind research expenditures in goal C.1.a., above, this goal would also have to be adjusted.

	2001-02 Baseline	2006-07 (in 2002 dollars)	2012-13 Original Strategic Plan Goal	2012-13 Equivalent Goal Based on New Data	01-02 to 12-13 Growth Rate to Reach Original Goal	06-07 to 12-13 Growth Rate to Reach Revised Goal	01-02 to 06-07 Actual Growth Rate
C.1.g. Research expenditures -- contracts and grants	$1,023,438,497	$1,246,739,324	$2,354,304,598	$2,789,050,242	8%	11%	4%

Source: State University System Operating Budget Summary adjusted for inflation in same manner as NSF research expenditures.

C.2. U.S. patents issued per 1,000 full-time faculty

No absolute number or per capita goal was set for patents issued to the State University System, so the demographic data do not need to be updated. The goal of 15.9 patents per 1000 (tenured and tenure-track) faculty assumed the system would maintain an already high level of faculty productivity.

This assumption has held up well. The number of patents per faculty member in the SUS has increased, even as the national ratio has declined. In 2001-02, there were 115 patents awarded in the SUS, or 15.9 for every 1000 tenured and tenure-track faculty (compared to 8.2 per 1000 faculty nationally). In 2005-06 there were 152 patents awarded, or 19 for every 1000 tenured and tenure-track faculty (compared to 8 per 1000 tenured and tenure-track faculty nationally).

As in other areas, the key weakness for the state is in the low number of faculty relative to student and state populations, not the productivity of those we have.

	2001-02 Baseline	2005-06 Actual	2012-13 Original Strategic Plan Goal	2012-13 Equivalent Goal Based on New Data
C.2. SUS patents issued per 1,000 full-time faculty	15.9	19.0	15.9	no change needed
* SUS patents issued total	115	152		
* FL university patents issued per million residents	6.9	8.3		
* FL university patents issued per million residents	10.8	9.4		
* Not a strategic plan goal				

Source: Association of University Technology Managers (AUTM) annual survey.

These numbers can vary substantially from year to year depending on technology trends and U.S. Patent Office policies and staffing levels, but are nevertheless a positive indicator for Florida.

It is worth noting that only one patent was awarded to a non-SUS institution in Florida in 2005-06 (the University of Miami), so that the SUS accounted for over 99% of the state's university patents. Nationally, however, private institutions accounted for about a third of overall patent activity.

C.3. National Research Council rankings

New rankings are scheduled to be released September 2008. See http://www7.nationalacademies.org/resdoc/index.html

C.4. Centers of Excellence

There were three funded Centers of Excellence at the time the 2005-13 Strategic Plan was adopted. Each has adopted mid- and long-term goals and has provided interim reports on progress toward those goals. Since that time, an additional six

centers have been established, bringing the total to nine. Each one has specific objectives and accountability measures on which it must report.

C.5. Doctorates per full-time faculty member.

The strategic plan goal assumed that the ratio of doctorates awarded per 1000 faculty would remain high. In fact, it has increased. Nothing has changed in the underlying assumptions for this goal.

	2003-04 Baseline	2006-07 actual	2012-13 Original Strategic Plan Goal	2012-13 Equivalent Goal Based on New Data
C.5. Doctorates per full-time faculty member				
Full-time faculty (tenured and tenure-track)	7,289	8,227	n/a	n/a
Doctorates awarded	1,464	1,825	n/a	n/a
Doctorates per 1,000 full-time faculty	201	222	201	no change needed

Sources: State University System master files (doctorates) and full-time tenured- and tenure-track faculty from the Integrated Postsecondary Education Data System fall staff survey.

C.6. Other forms of national recognition for institutions' academic and research programs

Institutions have established goals for recognition of academic and research programs in their strategic plans and will include selected goals in their compacts with the Board of Governors.

D. Meeting community needs and fulfilling unique institutional responsibilities

These goals and objectives will also be addressed through the compact process. Any changes in underlying assumptions from year to year would be included in annual revisions of the compacts.