

A Visual Approach to the Integration of Planning, Performance, and Accountability: Discussion and Demonstration of a Graphical Web-based System of Accountability

Presented at AIR Forum 2009 in Atlanta, Georgia by

Dr. Michael Moore moore@acad.usf.edu 813-974-6987
 Travis Thompson tthompson@acad.usf.edu 813-974-1630

Challenge

The call for accountability in higher education has grown louder in recent years. Accrediting bodies, local stakeholders, state and national committees, and the Spellings Commission are all seeking a higher degree of transparency. Various tools and methods exist to individually address planning, performance, and accountability, but the silos which develop are often detrimental to the overall wellbeing of a university. Cost, implementation timeframes, and hardware/infrastructure requirements can all become stumbling blocks when searching for a technology *solution*.

This presentation explores the development of a novel web-based system designed to integrate planning, performance and accountability in a clear and detailed manner. The system offers a comprehensive view of the university without many of the difficulties traditionally associated with executive dashboards, scorecards, Key Performance Indicators (KPI) or Business Intelligence (BI) tools.

Context

The Planning, Performance, and Accountability (PPA) system connects with the Strategic Plan to form a Strategic Business Plan. Together, they offer a platform for multi-year budget planning which is directly related to specific outcomes in the Strategic Plan. Compact Planning relies heavily upon the Strategic Business Plan to coordinate and align the broad University goals with the priorities, investments, and actions of individual units. For a diagram of the relationships and a description of these tools, see the back page of this document.

Process

Data is gathered from various external sources, including but not limited to: IPEDS, WebCASPAR, NSF, Top American Research Universities, US News and World Reports, and the ISI Web of Science Citations. Many of these sources use their own method to identify institutions, which poses a significant hurdle when gathering data for USF as well as our peers. The IPEDS Unitid was chosen to create a consistent identification number. Sources using another scheme must be merged or joined in order to standardize; we have relied on SAS though various tools are available for this process. All USF and peer data, current and historical, which has been identified to align with USF's Strategic Plan are then exported from SAS into Excel. We will treat the XLS file as a database, where each worksheet is the equivalent of a table. Multiple relational tables are created: performance data for USF and peers; projected USF performance; metadata for the variables (metrics) such as Definition and Data Source Type (AAU, TARU, Carnegie). After the various tables have been created in Excel, the file is imported into an enterprise database management system. Once the web scripts are pointed to this database, the system is operational.

Technology

Rather than debating the nuances of various programming languages and relational database systems, instead choose the most accessible pieces of technology available to your department. With the 6 months of time you've just saved, spend it by gathering and refining the data; understanding how the data will be used; and developing a display methodology that explains the data to users.

USF Strategic Budgeting Toolset

Description: Compacts are short term, focused planning agreements negotiated between accountable officers and their supervisors. They are intended to align broad University goals with the priorities, investments, and actions of a unit. **Format:** Form-driven input via web. **Granularity:** All units, academic and non-academic. **VPs, colleges, departments, directors.** **Location:** (Live) [http://www.ods.usf.edu/Plans/Compact/\(Demo\)](http://www.ods.usf.edu/Plans/Compact/(Demo)) <http://www.aa.usf.edu/Compact-Planning-dev/unit-information-astronomy.php>

Description: InfoCenter is a web-based application designed to provide management information, in summary and detail, to interested users in the campus and general community. Data include: student headcount, enrollment, courses, credit hours, degrees, employes, and more. **Format:** Web via user supplied parameters. **Granularity:** USF System through department into major. **Location:** <http://usfweb3.usf.edu/infocenter/>

InfoCenter

Description: The College Portfolios consist of summarized graphic depictions of trends and ratios which annually track college progress on USF's main campus. Selected summary dashboards include: student headcount; SCH and FTE; budget and fund-raising; research expenditures per faculty; faculty activity. **Format:** PDF via web. **Granularity:** College. **Location:** <http://www.ods.usf.edu/DSS/Resources/college-portfolios.asp>

College Portfolios

Description: eProfiles track trends and ratios across all campuses of the USF System, primarily through a two-benchmark comparison. Metrics include headcount and student credit hours, student profiles, and diversity profiles. eProfiles have generally replaced the FacBook. **Format:** Web. **Granularity:** Campus. **Location:** <http://www.ods.usf.edu/DSS/Resources/eProfiles.asp>

eProfiles

Description: The Performance Dashboard provides at-a-glance current and trend values using tables and graphics for 8 Key Performance Indicators identified in the PPA. **Format:** Web. **Granularity:** University. **Location:** <http://www.ods.usf.edu/Plans/PPA/dashboard.htm>

Performance Dashboard

Strategic Plan — **Compact Plan** — **Budget** — **Outputs**

Description: The 2007-2012 Strategic Plan is a bold, ambitious plan to elevate the performance and rankings of the University of South Florida as one of the nation's leading research universities. It provides the USF community with a clear vision, goals, strategies, and measures to promote alignment and success. **Format:** Web, print, PDF. **Granularity:** University. **Location:** <http://www.ods.usf.edu/Plans/Strategic/>

PPA

Description: The Planning, Performance and Accountability site is a web-based system which places university performance within the context of an institution's Strategic Plan and offers accountability through concise metrics and clear visualizations of performance over time. The system also offers a comparison of performance with an institution's peers. **Format:** Web. **Granularity:** University. **Location:** <http://www.ods.usf.edu/Plans/PPA/matrix.htm>

Big East

Description: The Big East performance document was initially created after USF joined the Big East Conference in 2005 and updated each year thereafter. It is designed to provide a comparison of the institution's performance with respect to other conference members, highlighting USF's status as the youngest institution in the Big East. **Format:** Print and PDF. **Granularity:** University. **Location:** <http://www.ite.usf.edu/BigEast/USFBigEast.pdf>

PPA Design: Spreadsheet to Web

Spreadsheet: All Measures

	A	B	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
	GOAL	Primary Performance Indicators	Secondary Performance Indicators	Type of Measure	Data Source	Responsible Vice President	USF Performance 2004-05	USF Performance 2005-06	USF Performance 2006-07	GOAL 2007-08	USF Performance 2007-08	GOAL 2008-09	USF Performance 2008-09	GOAL 2009-10	GOAL 2010-11	GOAL 2011-12
1																
2	1	A.I.1. Federal R&D expenditures		AAU, NSF, TARU	NSF Expenditure Survey	SVP Academic Affairs, VP Health, VP Research	\$143 M	\$154 M	\$158 M	\$156 M	\$160 M e	\$170 M	\$170 M e	\$183 M	\$198 M	\$211 M
3	1	A.I.2. Total research expenditures		Carnegie, NSF, TARU	NSF Expenditure Survey	SVP Academic Affairs, VP Health, VP Research	\$259 M	\$286 M	\$273M	\$318 M	\$275 M e	\$347 M	\$302 M e	\$332 M \$373 M	\$365 M \$404 M	\$400 M \$490 M
4	1	A.I.3. Total R&D Non-S&E expenditures		Carnegie, NSF	NSF Expenditure Survey	SVP Academic Affairs, VP Research	\$17 M	\$19 M	\$65 M	\$21 M	\$65 M e	\$23 M	\$68 M e	\$71 M \$24 M	\$74 M \$27 M	\$78 M \$28 M
5	1	A.I.4. USDA, State, Industrial Research Expenditures		AAU	NSF Expenditure Survey	SVP Academic Affairs, VP Research	\$52 M	\$65 M	\$47 M	\$70 M	\$54 M e	\$76 M	\$66 M e	\$72 M \$82 M	\$78 M \$88 M	\$84 M \$94 M
6	1	A.I.5. S&E research staff														
7	1	A.I.5a. Postdoctoral appointees		AAU, Carnegie, NSF, TARU	NSF Survey Grad Students and Postdoctorates in	SVP Academic Affairs, VP Health	105	179	183	189	211	206	217 e	224	241	259
8	1	A.I.5b. Non-faculty S&E research staff with doctorates		Carnegie, NSF	NSF Survey Grad Students and Postdoctorates in	SVP Academic Affairs, VP Health	13	9	62	70	72	77	78 e	85	94	104
9	1	A.I.6. Citations - US University Science Indicators														
10	1	A.I.6a. Number of papers		AAU	ISI database	SVP Academic Affairs, VP Health	1,216	1,251	1,287	TBD	1,289	TBD	TBD	TBD	TBD	TBD
11	1		A.I.I. Citations, scholarly publications, and creative products in the arts, humanities, and social sciences	USF	Faculty Scholarly Productivity Index	SVP Academic Affairs	Pending Source	Pending Source	Pending Source	Pending Source	Pending Source	Pending Source	Pending Source	Pending Source	Pending Source	Pending Source
12	1		A.I.I.2. Patents issued	USF	AUTM	VP Research	24	29	31	25	31	31	31 e	33	33	33
13	1		A.I.I.3. Start-up companies formed	USF	AUTM	VP Research	7	8	4	7	5	8	8 e	5 9	5 9	5 9
14	2	B.I.7. Doctorates awarded		AAU, NSF, TARU	IPEDS Completions	SVP Academic Affairs	194	184	229	217	257 e	228	260 e	270 284	285 293	300 265
15	2	B.I.7a. Doctorates humanities		Carnegie	USF Projections	SVP Academic Affairs	19	17	17	18	14 e	18	15 e	20	20	22
16	2	B.I.7b. Doctorates social sciences		Carnegie	USF Projections	SVP Academic Affairs	29	32	43	35	35 e	36	36 e	37	39	40
17	2	B.I.7c. Doctorates STEM		Carnegie	USF Projections	SVP Academic Affairs	60	65	89	74	123 e	79	123 e	78	83	83
18	2	B.I.7d. Doctorates other		Carnegie	USF Projections	SVP Academic Affairs	80	81	80	90	85 e	95	86 e	99	111	122
19	2	B.I.8. National Academy members		AAU, TARU	NAS, NAE, IOM	SVP Academic Affairs, VP Health, VP Research	2	2	2	2	2	4	3	4 6	7 8	10

Screenshots not to scale. Size of data in spreadsheet version is reduced by 60% when converted to web format:



Spreadsheet

- most data available within eyespan
- performs well when distributed as paper document
- custom layout may require verbal interpretation
- cannot refine or filter
- charts, graphs cannot be seamlessly integrated
- no drill-down for context, details, peers

Web

- data spread across multiple screens
- dynamic nature allows user drill-down based on their criteria
- charts, graphs embedded inline with data
- “standard” layout
- entire site difficult to capture for paper distribution
- database can feed other applications

Web Overview: All Measures

Goal

- 1 - Research
- 2 - Global Competition
- 3 - Engagement
- 4 - Economic Base

Type

- AAU
- Carnegie Basic
- Carnegie Community
- NSF
- TARU
- USNWR

Tier

- Primary
- Secondary

All

Show all

Dashboard

View Dashboard

Planning, Performance and Accountability

Planning & Performance Matrix > Goal: Research [Hide goals](#)

ID	Measure	06-07 Perf	07-08 Goal	07-08 Perf	08-09 Goal	08-09 Perf	09-10 Goal
A.I.1.	Federal R&D expenditures (\$Millions)	158	156	160 e	170	170 e	183
A.I.2.	Total research expenditures (\$Millions)	273	318	275 e	347	302 e	332 373
A.I.3.	Total R&D Non-S&E expenditures (\$Millions)	65	21	65 e	23	68 e	71 24
A.I.4.	USDA, State, Industrial Research Expenditures (\$Millions)	47	70	54 e	76	66 e	72 82
A.I.5a.	Postdoctoral appointees	183	189	211	206	217 e	224
A.I.5b.	Non-faculty S&E research staff with doctorates	62	70	72	77	78 e	85
A.I.6a.	Number of papers	1287	TBD	1289	TBD	TBD	TBD
A.I.I.1.	Citations, scholarly publications, and creative products in the arts, humanities, and social sciences	Pending Source	Pending Source	Pending Source	Pending Source	Pending Source	Pending Source
A.I.I.2.	Patents issued	31	25	31	31	31 e	33
A.I.I.3.	Start-up companies formed	4	7	5	8	8 e	5 9

Web Detail: One Measure

Goal

- 1 - Research
- 2 - Global Competition
- 3 - Engagement
- 4 - Economic Base

Type

- AAU
- Carnegie Basic
- Carnegie Community
- NSF
- TARU
- USNWR

Tier

- Primary
- Secondary

All

Show all

Dashboard

View Dashboard

Planning, Performance and Accountability

ID	Measure	04-05 Results	05-06 Results	06-07 Results	07-08 Results	08-09 Results	09-10 Goal
A.I.2.	Total research expenditures (\$Millions)	259	286	273	275 e	302 e	332 373

Definition

This measure reflects research expenditures resulting from all external funding sources (federal, state, local business, and industry) as reported by The Center in [Top American Research Universities \(TARU\)](#). Amounts reported in the 2007 report were for 2005-06.

Type of Measure

Carnegie, NSF, TARU

Data Source

NSF Expenditure Survey