DATE: 2/25/98

TO: PROVOSTS OF THE PAC18/CIC

FROM: ED RAY, ACTING PROVOST,

THE OHIO STATE UNIVERSITY

RE: UNIVERSITY PERFORMANCE INDICATORS AND THE BENCHMARKING PROCESS

In an attempt to clarify current activities around the issues of performance indicators and university benchmarking, I have examined the measures used by nine schools of the PAC18/CIC group. While there is considerable coherence in the data, as well as a large body of information from which to draw, substantial gaps are evident that may limit universities as they attempt to improve their effectiveness in the 21st century.

Evaluating What Has Been Done

Nine universities submitted information regarding the measures they currently use for performance assessment. While no two universities had exactly the same measures, there was a noticeable consistency in the types of measures used. Table 1 shows the range of performance measures used by the nine universities. While not comprehensive, the list does capture the general categories and measures used across many of the universities. Generally, the performance data divides into input measures and outcome measures. Under these headings, subcategories of information regarding students, faculty, staff, the learning infrastructure, and university resources can be found.

Table 2 shows the distribution of input and outcome measures used by the nine universities. Generally there seems to be an even split between the use of input and outcome measures to assess performance. More interesting, though, is the distribution of the measures across the subcategories. Table 3 shows the distribution of measures across the input subcategories. Table 4 shows the distribution of measures across the outcome subcategories.

Input measures used by the nine universities tend to focus on the characteristics of the students and evaluation of resource allocations of the university. Though important, less information assesses the characteristics of the faculty or the learning environment. There is little information evaluating university staff or examining the administrative infrastructure which supports the university organization. The huge investment in university administrative services makes this lack of assessment noteworthy.

Outcome measures are largely targeted toward student outcomes. Graduation rates, persistence rates, and time to degree show up on many lists of performance measures. University performance as an institution attracts the interest of some schools, but many measures (other than national rankings) are operationally difficult to compare across peer institutions. Faculty research, especially as it is associated with generation of research grants, is also important. Teaching, however, is mentioned by only 3 universities, and no institution provides assessment of this faculty activity beyond student satisfaction surveys which are not comparable across peer institutions.

Assessment of the performance measures used by the nine institutions suggests some significant gaps in information. Some gaps are more easily addressed than others by simply having institutions take advantage of existing data. Table 5 takes the original list of performance measures and indicates data sources from which comparable information is available. Each subcategory is also assigned an "accessibility" ratio. Data on student characteristics and performance, faculty characteristics and some faculty performance, university resource allocation and generation are all reasonably available to university administrators. Data on teaching, research quality, staff allocation and administrative efficiency, and broad institutional performance is more difficult to capture in a meaningful way from existing databases.

Though some gaps come from a lack of attention to or access to available data, other gaps are associated with a lack of data collection. Specifically lacking is institutional information on

- student learning assessment practices,

- use of technology-based pedagogy in classrooms

- trends in developing interdisciplinary degrees or research

- administrative operational efficiency

- impact of faculty research or areas of university research focus

All of these areas are arguably of strategic importance to higher education in the 21st century.

Summary of Limitations of Current University Performance Measures

An appraisal of the performance indicators used by the nine universities suggests that the area of benchmarking for universities has limitations worth addressing.

- Measures are focused primarily on aggregate input and output measures. There is a noticeable lack of emphasis on process measures, especially those which evaluate administrative efficiency and student and faculty support and development.

- The measures capture "snapshots" and the status quo. There is a lack of integration and understanding of how the input variables affect outcomes or how the various inputs are influenced by university processes.

- The measures do not provide a sense of "best practice".   If universities were compared based on many of the performance indicators, there would be variance. What would not be clear is WHY the variance occurs. If one university has an 80% graduation rate and another a 60% graduation rate, what explains the difference? What is the successful university doing that the less successful one is not…and which one is really successful?

- There is no sense of international context. Though many universities present themselves as engaged in an international arena, evaluation of the success of that engagement is absent from any of the listed performance measures, including those for my own university.

- Finally, the performance measures used by the nine universities are not clearly linked to important strategic issues facing higher education in the 21st century. Specifically

  - Distance Education

  - Cross disciplinary work in teaching and research

  - New markets for university knowledge

  - Assessment of student skills and knowledge.

Performance Measures and National Rankings

A goal of many universities is to use performance assessment to affect an institution's position on various national rankings. While many of the performance measures listed by the nine universities may have an indirect effect on position in the national rankings, only 13 of the 72 (18%) have a direct effect on any national ranking. The measures with a direct effect on rankings are identified with a double asterisk in Table 5.

The performance measures associated with national rankings tend to mix objective and subjective assessment. Reputational rankings of academic departments from the NRC, however accurate, dominate the subjective portion of some national rankings and are difficult to change. The objective portion of most rankings captures information about resources, quality of entering students and graduation rates and uses them as proxies for assessing the value adding capability of the university as a whole. While this may be useful to the organizations doing the rankings, it begs the question of the value of the rankings to the institutions themselves. Without connection or linkage between the inputs, processes, and outcomes, intervention for performance improvement becomes a "shot in the dark" for many universities.

If rankings are of questionable value to universities in search of honest feedback and performance improvement, what will fulfill that function? What data should be created and what influence should universities impose on ranking entities to convince them to develop measures of more value and significance to university performance?

Expanding the Number of Current Measures to be Shared

While the list in Table 5 is fairly comprehensive, several measures which could provide valuable benchmarking information are not readily accessible. Providing these measures may require universities to collect information that may not be currently tabulated nor currently shared. Equally useful when providing new data would be disaggregation to the college or department level within the university.

Measures not currently shared but potentially useful are listed in Table 6. This list is not exhaustive, but represents data currently examined by some schools in their internal performance assessment.

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Table 1

Categories of Performance Measures

Inputs

Characteristics of the Students

National Merit Scholars and H.S. Valedictorians
Student Quality (SAT/ACT)
Distribution of types of enrolled students
        Degree seeking/Non Degree seeking
        Diversity of students
        Distribution by Major
        Resident/Non-resident
        Graduate/Undergraduate
        Distribution by Age
        Transfers by rank

Performance of Students

Retention Rates / Persistence
Graduation Rates
Graduation Efficiency Index
Student Placement Rates
Time to Degree
Performance on Professional Licensing Exams
Average salary offer for graduates by college.
Distribution of conferred degrees
Number of students receiving national awards

Characteristics of the Faculty

Number of research proposals submitted
Research reputation
Diversity
Number and Distribution by Rank
Funding per faculty
Number of faculty Academy members

Performance of Faculty

Teaching: Student Satisfaction w/ Instruction
Perceived quality of instruction
External awards for teaching

Research: NRC Rankings by Discipline
Faculty awards for scholarly work

Ratio of research proposals submitted to awards made.
Percent of faculty w/ external research funding
Publications & Citations relative to discipline average.
Number of intellectual property disclosures

Characteristics of University Staff

Academic support staff per faculty and per student FTE
Student life staff per student FTE
Diversity

Characteristics of the Learning Environment

Course availability
Class size
Classes after 3:00 p.m.
Student/Faculty ratio
Undergraduate participation in scholarly and cultural activities
Use of technology in university courses
Interdisciplinary courses
Campus safety statistics
Library Ranking
Satisfaction with advising

Performance of the University as an Institution

Reputational Rankings
Annual Private Support
Monthly news citations
State Citizen Satisfaction
Number of companies recruiting on campus
Number of university outreach programs
Economic impact of the university
Satisfaction of key constituents

University Resource Allocation

Faculty workload by discipline
Number of classrooms with computer technology
Instructional salary per student credit hour
Average staff salary by position category
Capital expenditure per student

Instructional expenditure per student credit hour
Yearly deferred maintenance
Distribution of credit hours by student rank
Scholarship/Fellowship Amount and Availability
% of general funds for academic functions
Dedicated research space
Available learning space

University Resource Generation

Cumulative tuition and fees per student graduate
Research funds generated from external sources
Endowment
State investment by degree level
Student investment by degree level
Appropriations per Capita and per student FTE (inflation adjusted)

Table 2

Percentage Distribution of Input and Outcome Measures

	Percent of Measures Devoted to Inputs	Percent of Measures Devoted to Outcomes
Iowa	29.0%	70.9%
Ohio State	57.4%	42.5%
Arizona State	48.6%	51.7%
Oregon	48.2%	51.7%
Indiana	28.5%	71.4%
Univ. of California System	73.6%	26.3%
Minnesota	42.8%	57.1%
Penn State	44.4%	55.5%
Washington	57.1%	42.8%

Table 3

Distribution of Input Measures by Category

	Students	Faculty	Staff	Learning Environment	Univ. Resouce Allocation
	Characteristics Of				
Iowa	9.6%	0.0%	0.0%	12.9%	6.4%
Ohio State	10.6%	10.6%	4.2%	12.7%	19.1%
Arizona State	5.4%	0.0%	0.0%	24.3%	18.9%
Oregon	17.2%	0.0%	0.0%	3.4%	27.5%
Indiana	28.5%	0.0%	0.0%	0.0%	0.0%
Univ. of California System	35.7%	10.5%	0.0%	5.2%	31.5%
Minnesota	7.1%	7.1%	0.0%	14.2%	14.2%
Penn State	7.4%	7.4%	3.7%	11.1%	14.8%
Washington	17.1%	11.4%	0.0%	17.1%	11.4%
Average	15.4%	5.2%	0.9%	11.2%	16.0%
Std. Dev.	10%	5%	2%	7%	10%

Table 4

Distribution of Outcome Measures by Category

	Performance Of				
	Students	**Faculty (teaching)**	**Faculty (research)**	**University as Institution**	**Univ. Resouce Generation**
Iowa	16.1%	6.4%	19.3%	25.8%	3.2%
Ohio State	19.1%	0.0%	10.6%	6.3%	6.3%
Arizona State	37.8%	5.4%	8.1%	0.0%	0.0%
Oregon	31.0%	0.0%	0.0%	0.0%	20.6%
Indiana	71.4%	0.0%	0.0%	0.0%	0.0%
Univ. of California System	15.7%	0.0%	0.0%	5.2%	5.2%
Minnesota	14.2%	0.0%	7.1%	21.2%	14.2%
Penn State	11.1%	0.0%	7.4%	18.5%	18.5%
Washington	14.2%	5.7%	11.4%	5.7%	5.7%
Average	25.6%	1.9%	7.1%	9.2%	8.2%
Std. Dev.	19%	3%	6%	10%	8%

Table 5
Categories of Performance Measures: Common and Accessible Sources of Data

Inputs	**Outcomes**

Characteristics of the Students (Accessibility = 66%)

National Merit Scholars and H.S. Valedictorians = *NA*
** Student Quality (SAT/ACT: top 10%) = *CDS (ranges), IPEDS*
Distribution of types of enrolled students
       Degree seeking/Non Degree seeking = *NA*
       Diversity of students = *USN, IPEDS*
       Distribution by Degrees = *AAUDE, IPEDS*
       Resident/Non-resident = *USN*
       Graduate/Undergraduate = *IPEDS, AAUDE, CDS*
       Distribution by Age = *CDS*, IPEDS*
       Transfers by rank = *NA*

Performance of Students (Accessibility = 62.5%)

** Retention Rates / Persistence = *CDS, USN*
** Graduation Rates = *IPEDS, CDS, USN*
   Time to Degree = *NA*
   Graduation Efficiency Index = *NA*
   Student Placement Rates = *NA*
   Performance on Professional Licensing Exams = *USN**
   Average salary offer for graduates by college = *USN**
   Distribution of conferred degrees = *IPEDS, AAUDE*
   Number of students receiving national awards = *NA*

Characteristics of the Faculty (Accessibility = 83%)

Number of research proposals submitted = *NA*
Research reputation = *NRC, USN, ISI*
Diversity = *IPEDS, AAUDE**
Number and Distribution by Rank = *AAUDE, IPEDS*
** Funding per faculty = *IPEDS*
** Number of faculty Academy members = *NAS*

Performance of Faculty (Accessibility = 44%)

Teaching: Student Satisfaction w/ Instruction = *NA*
         Perceived quality of instruction = *NA*
         External awards for teaching = *NA*

Research: NRC Rankings by Discipline = *NRC**
      ** Faculty awards for scholarly work = *NRC**
        Ratio of research proposals submitted to awards made = *NA*
        Percent of faculty w/ external research funding = *NA*
        Publications & Citations relative to discipline average = *ISI*
        Number of intellectual property disclosures = *NSF, CHE*

Characteristics of University Staff (Accessibility = 33%)

Academic support staff per faculty and per student FTE = *NA*
Student life staff per student FTE = *NA*
Diversity = *IPEDS*

Characteristics of the Learning Environment (Accessibility = 50%)

Course availability = *NA*
** Class size = *USN**
Classes after 3:00 p.m. = *NA*
** Student/Faculty ratio = *IPEDS, USN*
Undergraduate participation in scholarly and cultural activities = *NA*
Use of technology in university courses = *CAUSE**
Interdisciplinary courses = *NA*
Campus safety statistics = *CHE*
Library Ranking = *ARL, AAUDE, IPEDS*
Satisfaction with advising = *NA*

Performance of the University as an Institution (Accessibility = 25%)

** Reputational Rankings = *USN, NRC*
** Annual Private Support = *IPEDS, USN*
Monthly news citations = *NA*
State Citizen Satisfaction = *NA*
Number of companies recruiting on campus = *NA*
Number of university outreach programs = *NA*
Economic impact of the university = *NA*
Satisfaction of key constituents = *NA*

University Resource Allocation (Accessibility = 83%)

Faculty workload by discipline = *Delaware Study*
Number of classrooms with computer technology = *CAUSE**
** Instructional salary per student credit hour = *IPEDS**
Average staff salary by position category = *AAUDE*, IPEDS*
Capital expenditure per student = *IPEDS*
** Instructional expenditure per student credit hour = *IPEDS**
Yearly deferred maintenance = *NA*
Distribution of credit hours by student rank = *Delaware Study*
Scholarship/Fellowship Amount and Availability = *CDS, USN, IPEDS*
% of general funds for academic functions = *IPEDS*
Dedicated research space = *COGR*
Available learning space = *NA*

University Resource Generation (Accessibility = 66%)

Cumulative tuition and fees per student graduate = *IPEDS, CDS, AAUDE*
** Research funds generated from external sources = *NSF, IPEDS*
Endowment = *CHE*, IPEDS*
State investment by degree level = *NA*
Student investment by degree level = *NA*
Appropriations per Capita and per student FTE (inflation adjusted) = *IPEDS*

AAUDE = Association of Universities Data Exchange
ARL = Association of Research Libraries
CAUSE = Assn. For Managing and Using Information Systems in Higher Education
CDS = Common Data Set
CHE = Chronicle of Higher Education
COGR = Council on Governmental Relations
Delaware Study = National Study of Instructional Costs and Productivity

IPEDS = Integrated Postsecondary Education Data System
ISI = Institute for Scientific Information
NA = Not available for comparison across universities
NAS = National Academy of Science
NSF = National Science Foundation
NRC = National Research Council (1993 only)
USN = U S News and World Report
* = Partial data or limited data from this source.

Accessibility = Number of measures available from data sources divided by total number of measures in the category.

    ** = Empirical impact on external rankings

Table 6
Current Measures That Could Be Shared Across Universities
(By College/Department)

Inputs	*Outcomes*
Characteristics of the Students	**Performance of Students**
National Merit Scholars and H.S. Valedictorians	Time to Degree
Distribution of types of enrolled students	Student Placement Rates
Degree seeking/Non Degree seeking	Performance on Professional Licensing Exams (Supplement USN)
	Average salary offer for graduates by college (Supplement USN)
	Number of students receiving national awards
Characteristics of the Faculty	**Performance of Faculty**
Number of research proposals submitted	**Teaching:** ?????
Characteristics of University Staff	**Research:** Faculty awards for scholarly work (Supplement 1993 NRC)
Academic support staff per faculty and per student FTE	Ratio of research proposals submitted to awards made
Student life staff per student FTE (by Administrative Function)	Percent of faculty w/ external research funding
Characteristics of the Learning Environment	**Performance of the University as an Institution**
Use of technology in university courses (Supplement CAUSE)	Number of university outreach programs
Interdisciplinary courses	
University Resource Allocation	**University Resource Generation**
Number of classrooms with computer technology (Supplement CAUSE)	Student Investment by Degree Level
Available learning space	