During a Time of Change: Metrics for 21-st Century Research Universities

CCAS Committee on Research

Presiding: Patricia Witherspoon, University of Texas at El Paso

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KU COLLEGE OF LIBERAL ARTS & SCIENCES
The University of Kansas

"Deans, Data, Decisions"
Danny Anderson, Dean

- **Datafication**
  - Transform information into quantified data; predictive analysis; new value in the data

- **Analytics**
  - "…the use of data, statistical analysis, and explanatory and predictive models to gain insights and act on complex issues." Usually related to "strategic," "decision making," and "data visualization" (EDUCAR)

Recommendation #1

- **Engage department chairs**
  - Break the dataset into smaller "chunks"
  - Relate each analysis to a decision point
  - Roll out the decision points as they align with the academic year

Recommendation #2

- **Contextualize datasets with a variety of institutional research data**
  - Insights can be extracted from aggregated datasets
  - Teaching load, space, research networks, research leadership, and institutional research networks can and should inform each other
  - Historic institutional strengths, fields where your institution must "be in the game," and areas poised for prominence

Recommendation #3

- **Make conversations the point of departure**

"I keep getting distracted by our profession's desire for change to be data-driven. I prefer change to be human-driven. I'd much rather enable people to become more successful rather than focusing on making the numbers look better. [...] **What do we want/need to know to enact change?** Or taken further— to foster innovation?" -- (Brian Matthews, *The Ubiquitous Librarian blog, The Chronicle of Higher Education* 23 July 2012)

Recommendation #4

- **State and repeat frequently: data informs the decisions we make; data will not make them for us**
  - The phrase "data driven" often creates confusion on this point

What is greatest about human beings is precisely what the algorithms and silicon chips don't reveal, what they can't reveal because it can't be captured in data. **It is not the "what is," but the "what is not": the empty space, the cracks in the sidewalk, the unspoken and the not-yet-thought.**
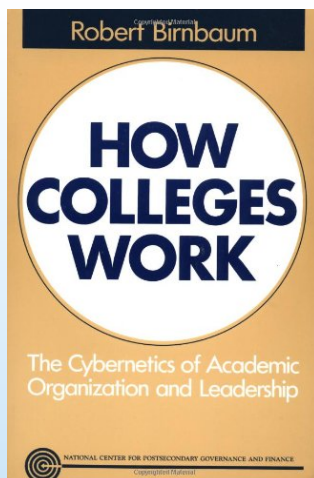
…[T]he spark of invention becomes what the data does not say. That is something that no amount of data can ever confirm or corroborate, since it has to exist. […] In a world of big data, it is our most human traits that will need to be fostered—our creativity, intuition, and intellectual ambition—since our ingenuity is the source of our progress.

(Mayer-Schonberger and Cukier, 197)

Recommendation #5

- **Data are narratives waiting to be told**
  - Remember the human reality of our faculty, staff, and students represented in the datasets
  - Think about the audience who needs to understand the successes and the challenges represented within the data
  - Put a human face and a persuasive story into your use of the data
  - Use visualization strategies to help make the data clear and the story even more persuasive

- **Expect (some) resistance**
  - Concerns about accuracy when complex phenomena are datafied, reduced to a single index
  - Misuse/abuse or distortion when data are taken out of context
  - Privacy (federal objections to a unit record federal student database; Snowden events recently described in Germany as *Der Shitstorm*)
  - Power in asymmetrical access to datasets—hot buttons for shared governance, heightened after the recession of 2009-2011

Robert Birnbaum

HOW COLLEGES WORK

The Cybernetics of Academic Organization and Leadership

NATIONAL CENTER FOR POSTSECONDARY GOVERNANCE AND FINANCE

The use of data is . . .
- bureaucratic institution
- symbolic action
- shared view of reality
- ritualistic, more show than substance

Book published 1988

Published 2013
- New data environment
- Aggregate and combine datasets, visualize information—new social infrastructure and mental outlook
- Decisions informed by predictive modeling

Concluding comment #1

- **Be clear about our responsibility to use tools wisely to <u>inform</u> our decision making. Don't abdicate our judgment, authority, or responsibility.**

  - *Big data is a resource and a tool. It is meant to inform, rather than explain; it points us toward understanding, but it can still lead to misunderstanding, depending on how well or poorly it is wielded. And however dazzling we find the power of big data to be, we must never let its seductive glimmer blind us to its inherent imperfections.* (197)

Concluding comment #2

- **Use data, Academic Analytics, and all other tools thinking more broadly about the multiple frames or points of view needed to be effective as leaders.**

*Modern organizations often rely too much on engineering and too little on art in their search for attributes like quality, commitment, and creativity. Art is not a replacement for engineering but an enhancement. **Artistic leaders and managers help us see beyond today's reality to forms that release untapped individual energies and improve collective performance. The leader as artist relies on images as well as memos, poetry as well as policy, reflection as well as command, and reframing as well as refitting**.*
(Lee G. Bolman and Terrence E. Deal, *Reframing Organizations: Artistry, Choice, and Leadership*, 17)

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Danny Anderson, Dean

djand@ku.edu

College of Arts
and Sciences
Oklahoma State University

"Bottom-up Strategic Planning"
Bret S. Danilowicz, Dean
bret.danilowicz@okstate.edu

OSU College of Arts and Sciences

As college deans, we typically:
- set goals for departments in various 'academic' dimensions
  (e.g. increase grant dollars 50%),
- use data to compare department performance to peers, and
- hold departments accountable for improving across all measures.

But does that really move departments towards the goals most important to the college/institution?

Do we really challenge all departments to improve in research, or just the departments that are easily measured against our chosen metrics?

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If the college/institution desires distinction, should we
  instead have departments :
- set their own (reasonable) goals aligned with their success/mission,
- determine what data is needed to compare themselves to peers,
- then hold them accountable for improvement against their own
  selected goals?

This led to our experiment:
  Bottom-up (Department-led) Strategic Planning

We expect increased autonomy will improve buy-in and effort towards goals, moving departments more quickly towards academic distinction.

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**Step 1: Department self-benchmarks data covering
most areas of responsibility**
- **Research**
- **Student Learning**
- **Retention/Progression/Graduation**
- **Service**
- **Outreach/Community Engagement**
- **Diversity**
- **Health of Programs**
- **Faculty Workload**
- ***Philanthropy (goals set by Dean's Office/OSU Foundation)***

The Dean's Office provides some data centrally, but the department determines what to benchmark & report.

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Step 2: Based on the data, the department identifies what most limits their improvement towards distinction *(cannot be resources!).*

Step 3: The department plans how it will make improve upon these limiting factor(s); does not need to improve in all areas.

Step 4 (Year 2+): The department reports on progress since last year (*they argue what constitutes overall improvement*), evaluates new data, sets new plans.

Why participate? The Dean's office prioritizes new or returning funding to departments making the most relative progress against benchmarks.

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Microbiology
(Benchmark data for 'Research')

1. **External funding from government and private sources**

2. **Number of PhD students**

3. **Number of papers appearing in top tier* professional journals**

   *top tier still needs to be defined (oversights like this is why this process takes longer than 1 year to establish)

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Chemistry (Benchmark data for 'Research')

A. **Research Productivity**
1. Number of peer-reviewed publications, i.e. those whose citations are tracked
2. *Number of patents and licensing agreements*
3. Number of major and minor external grants submitted
4. Number of external seminars presented including contributed conference
       presentations and posters
5. Number of students graduating with MS or PhD degree
6. Number of postdoctoral students

B. **Research Impact and Quality**
1. Publication citations
2. Impact factor of journal
3. H-index
4. *Number of invited presentations*
5. Research collaborations resulting in publications, patents, or grants
6. Grants funded (major grant is at least $100k)
7. Student fellowships
8. Job placement of students (postdoctoral versus permanent)
9. Awards (for both students and faculty member)

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Music (Benchmark data for 'Research'- *Handout*)

WRITTEN RESEARCH PRODUCTIVITY	American	International	Under contract	Proposal submitted
Book/book-length publication				
Journal article publication				
Book chapters/essays publication				
Textbook/teaching materials publication				
Dictionary/encyclopedia entries publication				
Reviews (book, composition, performance) pub.				
	Local	Regional	National	International
CONFERENCE PRESENTATIONS				
Paper/poster				
Performance				
Masterclass/clinic				
Adjudication				
Coordination/administration				
PERFORMANCES				
Solo recitals				
Shared recitals				
Chamber music				
Concerto (w/ orchestra)				
Large ensemble				
...				

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The unexpected:

- **2/22 department heads did not include faculty in developing their reports.**
- **One department did not submit a report!**
- **4/4 humanities departments are struggling with defining quality.**
- **It took most of the year for departments to determine benchmarks- consequently, much less data than expected was reported the first year.**

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Is bottom-up strategic planning right for your college?

Cons:
- **It is another *$#!^&@*#% report!!!**
- **Does not provide an easy report for upper administration to extract universal data**
- *You cannot solely rely on annual evaluations of unit heads to 'improve' departments*
- *You* **delegate leadership to department heads**
- **More difficult to explain on** *your* **CV**

These 'cons' represent leadership challenges

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Is bottom-up strategic planning right for your college?

Pros:
- *Rich* **discussions occur across all areas of responsibility, not just research**
- **Departments 'own' their path to improvement and focus on what matters most**
- <u>Easy</u> **to construct College strategic plans: emergent property of departmental goals**
- <u>Easy</u> **to determine where new resources should go**
- <u>Easy</u> **to address accreditation reports, both for assessment and institutional effectiveness**

These 'pros' facilitate management issues

College of Arts
and Sciences
Oklahoma State University

"Bottom-up Strategic Planning"
Bret S. Danilowicz, Dean
bret.danilowicz@okstate.edu

College of Sciences
& Mathematics
*Arkansas State
University*

"Measuring Teaching: Faculty Credit
Hours"
John M. Pratte, Dean
jpratte@astate.edu

Teaching or Research

- Tuition and fees have increased dramatically nationally
- External agencies are questioning the productivity and value of faculty in light of these increases
- Some critics propose eliminating the research/teaching/service model for faculty in favor of teaching/service in order to save money
- This view neglects the value of research as an excellent form of teaching

Measuring Teaching

- Cannot continue to rely on old methods that only measure traditional lecture/lab/studio courses

- Need to measure all forms of instructor student interactions in which teaching occur

- Need measurable outcomes for these interactions so that the quality of the teaching can be assessed.

Faculty Credit Hour

- Teaching load policies are normally based on student's effort in class and not faculty member's

- Develop faculty credit hour as a method for measuring faculty effort in all forms of student interaction

- Create translations and measurable outcomes for all of the teaching interactions that take place in the college

Ex. Arkansas State

- **Lecture course**: SCH = FCH up to enrollment of 49; beyond this, add .1 to multiplicative factor

- **Lab courses taught**: dependent up how much of course is done (set-up, grading, etc.); can be as high as 1.5 contact hours = 1 FCH

- **TA oversight**: teaching TA's to teach is another form of instruction; 1 FCH = 3 SCH

A-State, cont.

- **Student Teaching Interns**: requires a tremendous amount of travel and mentoring time; .67 FCH = each student

- **Internships:** very dependent upon the level of involvement and credentials of external internship personnel; normally 1 FCH = 12 SCH

A-State, cont.

- **Undergraduate Research**: 1 FCH = 6 SCH; expectation of student presentation at local/state conference or publication in a public venue

- **Graduate Research**: 1 FCH = 6 SCH; at masters level, requires presentation at regional conference of national organization; at doctoral level, publication in peer-reviewed journal

Conclusion

- Still a work in progress; expect to change translations as we measure interaction time and get feedback from faculty

- Administration is allowing us to use this system currently to see how it goes; still not universally adopted