Knowledge, Vetting, and Discovery

May 16, 2006
Gail Salaway and Judy Caruso
Central IT and metrics

- Using external data sources
- Central IT metrics
- Supporting campus users of analytics
Navigating the World of Data

• Using external data sources
• Central IT and institution metrics
• Key questions to ask about data
Expanding our use of external data sources: Why?

• Satisfy our curiosity
• Question ideas or anecdotes
• Make more informed decisions
• Make your case – for or against
• Benchmarks
• Organize information overload
Too much data
Weighing the choices
Data sources—higher education

Associations:

• Integrated Post-secondary Education Data System (IPEDS)
• Chronicle of Higher Education
• EDUCAUSE and ECAR
• The College Board
• National Center for Higher Education Management Systems (NCHEMS)
• PEW Internet and American Life Project
• State Higher Education Executive Officers (SHEEO) (this site has great links)
• The Education Trust
Data sources – higher education

• Government sources:
  – Department of Education
  – Department of Labor

• Your institutional data:
  – Official publications
  – Data warehouse
  – Strategic plans
  – Budgets and financial reports
Data sources - professional topic areas (e.g. IT security)

- Associations/organizations websites (e.g. SANS)
- Publications
- Consulting firms
- Marketing firms (e.g. eMarketer.com)
Data sources – academic research

- Academic journals/publications
- Conferences/academic forums
- Library resources
- Faculty
Navigating the World of Data

- Using external data sources
- Central IT and institution metrics
- Key questions to ask about data
Culture of evidence?

“We are more goal oriented, not number oriented, in our process. Our board doesn’t seem to require particular dashboard numbers that say we are 38% of the way to accomplishing our goal.”

Jack McCredie, UC Berkeley

From Information Technology Alignment in Higher Education, ECAR, 2004
Culture of evidence?

“We started using metrics 10 years ago on a one-year basis, just to see the impact. Now, we have found metrics to be an integral part of our business processes and strategic planning.”

Steve Relyea, UCSD

From *Information Technology Alignment in Higher Education*, ECAR, 2004
## Institution metrics

**Improved Outcomes from Academic Analytics, by Function (N = 354)**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved admissions/enrollment management results</td>
<td>3.43</td>
<td>1.012</td>
</tr>
<tr>
<td>Improved student retention results</td>
<td>3.16</td>
<td>0.952</td>
</tr>
<tr>
<td>Improved the institution's financial results</td>
<td>3.09</td>
<td>0.928</td>
</tr>
<tr>
<td>Improved fundraising results</td>
<td>2.93</td>
<td>1.087</td>
</tr>
<tr>
<td>Managed its workforce more productively</td>
<td>2.78</td>
<td>0.928</td>
</tr>
<tr>
<td>Managed grants effectively</td>
<td>2.61</td>
<td>0.984</td>
</tr>
<tr>
<td>Improved ability to obtain grant funding</td>
<td>2.47</td>
<td>0.962</td>
</tr>
</tbody>
</table>

(1 = strongly disagree, 2 = disagree, 3=neutral, 4=agree, 5 = strongly agree)

*Source: Academic Analytics: The Uses of Management Information and Technology in Higher Education, ECAR, 2005*
Better use of metrics – When and why and how?

- **Performance metrics**
  - Improvement in services
  - Problem identification
  - Benchmarking

- **Customer satisfaction**
  - Faculty/staff/students
  - Employees

- **Analytics**
  - Proving ground for the data warehouse and tools for analytics (e.g. dashboards, user reporting facility)
When to use what metrics?

• Who is your audience?
• What is your objective?
• What is the topic? What works well with it?
• What is practical?
Navigating the World of Data

- Using external data sources
- Central IT and institution metrics
- Key questions to ask about data
Key questions to ask about data

- Questions, terminology and definitions – what do they mean?
- Where does the data come from?
- What is the sample?
- How are the data presented?
- What conclusions can I reasonably make?
- In what context is the data useful?
Questions, Terminology, Definitions

How would you rate the maturity/capability of the following SOA technologies?

<table>
<thead>
<tr>
<th>Technology</th>
<th>Mature</th>
<th>Still evolving</th>
<th>Inadequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development tools</td>
<td>16%</td>
<td>79%</td>
<td>5%</td>
</tr>
<tr>
<td>Enterprise service bus</td>
<td>16%</td>
<td>73%</td>
<td>12%</td>
</tr>
<tr>
<td>Repository/registry</td>
<td>14%</td>
<td>72%</td>
<td>15%</td>
</tr>
<tr>
<td>Monitoring and management</td>
<td>12%</td>
<td>66%</td>
<td>22%</td>
</tr>
<tr>
<td>Security</td>
<td>14%</td>
<td>65%</td>
<td>22%</td>
</tr>
<tr>
<td>Migration/legacy adapter tools</td>
<td>10%</td>
<td>68%</td>
<td>22%</td>
</tr>
<tr>
<td>Underlying protocols</td>
<td>25%</td>
<td>68%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Where does the data come from?

• Quality of data source?
• Using existing data or creating their own?
• Data collection method?
  – Collecting actual user portal usage data, vs.
  – Survey question: “How many times a day do you logon to the university portal?”
Multiple sources of similar data

• Comparative results in 3 different charts

• Comparative results in 1 chart
What is the sample?

- Who got the survey (and who didn’t)?
- Who responded (and who didn’t)?
- How many responded (what is the N? Is it published?)
- When were they surveyed?
- Did they tell the truth? What is their bias?
ECAR Survey Respondents

Survey respondents by EDUCAUSE membership and Carnegie Class

Source: Academic Analytics: The Uses of Management Information and Technology in Higher Education, ECAR, 2005
ECAR 2005 Student Study

- Survey sent to 65,491 freshmen and 78,239 seniors
- 7,997 freshmen respondents and 10,042 senior respondents (response rate 12.6%)
- Respondents are 65.9% female
- Respondents age – 39.4% 18-19 yrs. and 47.6% are 20-24 yrs.
- 92.3% of respondents are full-time
How are the data presented? Can you believe what you’re seeing?
How are the data presented?
Scaling: Billions of Dollars
How are the data presented?

Scaling: Billions of Dollars
What conclusions can you reasonably make about the data?

How would you use and present these conclusions?