IR Newcomers PDO
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Presenters

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Agenda

• Morning
  – Introductions
  – What is IR?
  – IR Models
  – Common functions
  – Impact of institutional culture
  – Relationships with other campus offices
  – Project management
  – Ethics
Agenda

• Afternoon
  – Common reports
  – National data
  – Technical skills
  – Reporting
  – Business Intelligence
  – Resources
  – Advice
  – Wrap up

Housekeeping

• Informal
• Interactive
• Ask questions as we go
• Breaks
• Lunch
• Evaluations

Introductions

• Tell us
  – Your name
  – Title
  – Institution
  – Length of time in IR
  – Size and composition of office
  – Three things you want to take away from this session today
What is IR?

"Institutional research involves the collection of data or the making of studies useful or necessary in (a) understanding and interpreting the institution; (b) making intelligent decisions about current operations or plans for the future; (c) improving the efficiency and effectiveness of the institution" – Dressel (1966)

What is IR?

"...institutional research is a variegated form of organizational self-study designed to help colleges and universities gather an expanding range of information about their own internal operations and the effectiveness with which they are using their resources." – Rourke and Brooks (1966)

What is IR?

“...institutional research consists of data collection, analyses, reporting, and related staff work designed to facilitate operations and decision-making within institutions of higher education." – Saupe and Montgomery (1970)
What is IR?

- “Conscience” of the institution.
- The guardian of “truth”.
- No one definition fits all institutions.

IR Axes

“Very seldom can you sit squarely on all three legs”

Balance is critical!

IR Models - Where are you now? What do you aspire to?
IR Models: Skills

Technical ability is moving out of IT and into IR!

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<thead>
<tr>
<th>Skill</th>
<th>Novice</th>
<th>Expert</th>
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<td>Technical</td>
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<td>Data Knowledge</td>
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It is important to invest in skills because it adds stability to your stool.

Common Functions

• Reporting
• Surveys
• Data collection and aggregation
• Analytical studies
• Data warehousing
• Assessment

Common Functions

• Reporting
  – Internal operations and management
  – System
  – Governing boards
  – State government
  – Accreditation
  – Federal government
Common Functions

• Surveys
  – Development
  – Administration
  – Analysis
  – Completion

Common Functions

• Data collection and aggregation
  – Existing sources
  – From surveys
  – Across functional areas

Common Functions

• Analytical studies
  – Application flow/yield
  – Enrollments projections
  – Retention/attrition/graduation
  – Faculty workload
  – Salary equity
  – Turnover
  – Retirement projections
Common Functions

• Data warehousing
  – Why?
    • Can mask changes in underlying systems
    • Easier to use data structures
    • Generally reduces development time
    • Accessible by many reporting tools
    • Facilitates cross-function reporting

Common Functions

• Data warehousing
  – Daily “production” data
    • Useful for ad hoc reports
  – Census point data
    • Source for compliance and other recurring reports
    • Allows reproduction and deeper analysis at lower organizational levels

Common Functions

• Data warehousing
  – Requires significant investments
    • System design
    • Developing agreed-upon definitions
Common Functions

• Assessment
  – Cyclical process
    • Identify goals
    • Define measurable objectives
    • Select appropriate measures
    • Select approaches
    • Communicate findings
    • Make changes
  – Assist other units

Institutional Culture

• The nature, values, and self-view of the institution impacts the functioning of IR

• Some factors:
  – Control
  – Sector
  – Highest degree offered
  – Institutional values
  – Internal politics

Institutional Culture

• Why is this important?
  – Openness of information sharing internally
  – Amount of information shared externally
  – Focus on teaching, research, service or a combination
  – Actual or perceived ownership of data
  – Politics of data
  – Where IR reports impacts how it is viewed
Break

Relationships with Others

- Open and honest
  - Strive to be above politics
  - Serve the best interests of the college
- Accessible and cooperative
  - “WOW!” factor
- Heart of service
  - If you don’t generate revenue directly, appreciate and add value to those who do!
- Do the work, give others the credit
  - Committees and teams

Build trust and credibility
- Errors are not well tolerated
- Know and share when you have a dog in the fight
- Help people with their thinking
- Respect others deadlines and help them understand yours
- Don’t be the shovel in the shed
Relationships with Others

Especially tricky relationships
• President and Cabinet (Kill the messenger)
• Board (Brevity vs. details)
• Marketing & Media (You want to say what?)
• Faculty (Unions)
• “Like to knows”
• IT Department (Earn your stripes)

Project Management

• Phases
  – Receive the work
  – Plan
  – Execute
  – Check
  – Present
  – Document

• Receive the work
  – Question to be answered
  – Type of data needed
  – Selection criteria
  – Transformations and summarizations
  – Level of detail to report
  – Output format
  – Due date
Project Management

• Plan
  – What needs to be done
  – How will it be done
  – How it will be presented
  – What resources are needed

Project Management

• Execute
  – Use the plan
  – Modify if not working

Project Management

• Check
  – Record counts
  – Changes in counts
  – Reports generated by others
  – Change level of aggregation
  – Trend analysis
  – Ask others
Project Management

- Present
  - Focus on audience needs
  - Anticipate questions
  - Practice
  - Review with others
  - Be aware of pitfalls

Project Management

- Document
  - Keep notes concerning what, why, and how
  - Assumptions
  - Location of external sources
  - Consider hardcopy and electronic copies

Ethics

“The power to do good, is also the power to do harm”
Milton Friedman

Source of Guidance:

- Core values
  - What if it was in the paper?
  - What would your mother say?
- AIP statement of ethics
  - http://www.airweb.org/?page=140
  - Competence, practice, confidentiality, relationships
- Institutional standards
- Confidentiality & Human subjects protocols
Ethics

In a nutshell….
- Be honest
- Be honest about your abilities
- Be fair
- Be firm
- Be consistent

Lunch

Unanswered Questions
Common Reports

• Federal
• State
• System
• Campus
• Departments
• External surveys

Common Reports

• Federal
  – IPEDS
    • Institutional Characteristics (IC)
    • Degree Completions (C)
    • Twelve-Month Enrollment (E12)
    • Fall Enrollment (EF)
    • Finance (F)
    • Graduation Rates (GRS)
    • Human Resources (HR)
    • Student Financial Aid (SFA)

Common Reports

• Federal
  – Other NCES
    • Library Statistics Program
    • National Post-Secondary Student Aid Study
    • National Study of Post-Secondary Faculty
    • Post-Secondary Education Quick Information System
  – NSF
    • Science and engineering degrees and research expenditures
Common Reports

• State
  – Varies by state
    • AR http://www.arkansashighered.com/
    • IA http://www2.state.ia.us/regents/
    • KS http://www.kansasregents.org/
    • MO http://www.mdhe.mo.gov/
    • NE http://www.ccpe.state.ne.us/
    • OK http://www.okhighered.org/
  – Tends to parallel IPEDS

Common Reports

• System
  – Will vary by system
  – Tend to address system-specific concerns

Common Reports

• Campus
  – Enrollment
  – Demographic characteristics
  – Application flow
  – Faculty and staff by organizational units
  – Faculty teaching load
  – Retention and graduation rates
Common Reports

- Departments
  - Parallel campus reports
  - Answer unit-specific questions

Common Reports

- External surveys – two-year institutions
  - National Community College Benchmark Study
  - Kansas Study – Instructional Costs and Productivity
  - Community College Survey of Student Engagement
  - Community College Faculty Survey of Student Engagement

Common Reports

- External surveys – four-year institutions
  - Consumer-oriented
    - US News Best Colleges
    - College Board
    - Princeton Review
    - Voluntary System of Accountability
    - Common Data Set
Common Reports

• External surveys – four-year institutions
  – Institutionally-oriented
    • National Survey of Student Engagement
    • Faculty Survey of Student Engagement
    • National Study of Instructional Costs and Productivity
    • College and University Personnel Administrators salary surveys
    • Cooperative Institutional Research Program Freshman Survey

National Data Sets

• Federal
  – IPEDS
  – Library Statistics Program
  – National Post-Secondary Student Aid Study
  – National Study of Post-Secondary Faculty
  – Beginning Post-Secondary Students
  – Baccalaureate and Beyond

National Data Sets

• Federal
  – NSF Survey of Earned Doctorates
  – NSF Survey of Federal Funds for Research and Development
  – NSF Survey of Federal S&E Support to Universities, Colleges, and Nonprofit Institutions
National Data Sets

- Federal
  - NSF Survey of R&D Expenditures at Universities and Colleges
  - NSF Survey of Science and Engineering Research Facilities
  - NSF-NIH Survey of Graduate Students & Post Doctorates in S&E
  - Scientists and Engineers Statistical Data System

- Non-Governmental
  - State Higher Education Executive Officers
    - State Quick Facts
    - Links to many other policy-related sites
  - Grapevine
    - State tax support for higher education statistics
  - National Center for Public Policy and Higher Education

Technical Skills

Data Query:
- Point-and-Click:
  - MS Access
  - Crystal reports

- SQL (Structured Query Language)
  - Universal across databases

```sql
create_table temp as select full_name, count(*)
from instructors, courses
where full_name = temp
order by full_name
```
Technical Skills

Statistics:
- **Basic**: mean, median, quartiles, standard deviation, normal distribution, ogive
- **Comparison**: correlation, Chi-square, t-test
- **Inferential**: ANOVA, regression, etc.

90/10 rule:
Don't spend 90% of your time learning something that you only use 10% of the time. Find good resources.

Technical Skills

Statistics Packages
- Excel
- SPSS
- SAS Enterprise Guide
- Others

Which ever your choose, invest time in learning Stats and stats packages are often the easy part, getting the data is often more difficult

Technical Skills

Other needed skills:
- Web
  - Sharepoint designer
  - Dreamweaver or other Point-and-click editor
- Office
  - Excel: charts, graphs and pretty tables
  - Don’t confuse spreadsheets with databases
  - PowerPoint a must
- Screen capture and GIS
Technical Skills

Surveys and Survey Design
- Don’t overuse, often intuitively sound good but results are often disappointing or misleading
- Represent all options
- Stick with the same survey for awhile (ACT, CCSSE, NSSE, etc)
- SurveyMonkey at al.

Assessment of student learning
- Faculty driven (more difficult, but better)
- Strategies vary with subjects
- Standardized tests are good, but not complete
- Focus on improving learning and teaching
- Don’t get bogged down in statistical significance, assessment needs to be practical, reasonable and evidentiary.

Program Evaluation

Provide all the data possible
- Let the program worry about what the data means, not what the data is

5 years of data identifies trends

Include assessment plans

3-5 year goals at best

Criteria for a program to exist

Adding new programs, dropping programs
Reporting

Often the biggest part of what we do.
Three types:
1. Structured (meeting file specifications)
2. Reporting aggregate fields (IPEDS)
3. Research or ad-hoc reports

Most reports are never done only once. Document the sources, caveats, limitations, timing, etc so you can repeat it and/or explain it in 6 months

Reporting

Structured files:
• Delimited files
  – Fields in the right order
  – Check in Excel
• Fixed length files (i.e. Student Clearinghouse)
  – Right order, right length, start and stop
  • Name 1-30, term 31-36, birthdate mmddyy 40-45
  – Find the right tool
Reporting – Research and Ad hoc

What is the STATE of your reports?

Simple
– Answer the question first, then add necessary detail
– A chart is worth a thousand data tables
– A page or two, or an executive summary

Targeted
– Answer the question, not the request if possible
– Help people with their thinking
– Leave the door open for follow up
– PowerPoint, Web, paper, brochure, etc.

Accurate
Timely
– The best report does not good after the decision
– Adjust content to deadline and be open about it

Effective
– If this is not what you expected, let me know

Do:
• Footnotes, sources, dates, etc.
• Classy charts and graphs
• Trend data when possible
• For complex issues, write around the data
• Academic writing when necessary
• Bullet points
• Opinions based on the data, not agendas
• Leverage your work, make it accessible
• Let it get cold, come back to it

Do Not:
• Clip Art = Clown
• Trashy Charts and graphs = Clown
• Mismatch purpose with time
• Push your own agenda
• Over-animate your PPT
• Provide too much detail
• Get your President in hot water
• Violate FERPA
• Forget the literature
• Forget to communicate with marketing

Reporting

Good Chart, Bad chart
Business Intelligence

Improves the STATE of your data:

- Automation
- 24/7
- Institutional Reporting
- Personalized data
- Data access
- Culture of Inquiry
- De-siloization
- Extend IR reach

Why do you need to consider BI?

1. Student Information Systems (SIS) are transactional data, not reporting data
   Example: SCT Banner
   - 2,800 tables holding 300 GB of data
   - Naming: SFRSTCR and SFRSTCR_RSTS_CODE
   - Do you know your PIDM?
2. BI hides the complexity of your SIS
3. BI unifies disparate systems
4. Your IR staff can’t be in their offices enough!

Business Intelligence

- Institutional Reporting
- Direct Access to Data
- Personalized User Information
- Dashboard/Scorecard
Business Intelligence

Institutional Reporting
• Parameters
• Drill-down
• Flexibility
• Access controlled/integrated security
• Centrally created and controlled
• Aimed at business of college (all see the same picture)

Business Intelligence

Direct Access to Data
Available:
• Wait lists, Census Data (Fall, Spring, Summer, Annual>=2000), Current Term Courses and Students, Student Concentration Data, Recruits, Historical Point-in-Time Enrollment Data, Persistence, Retention
Features:
• User cannot create an inaccurate report
• Build once, save to use again (personal or shared)
• Automatically updates, accesses fresh data
• Leverage you data warehouse
• Charts and graphs
• Output: Web, PDF, Excel
• Table and field level security
• Excellent flexibility (recruits)

Business Intelligence

Personalized Info
• Class Lists
• Course Retention
• Grade Distribution
• Ti Units
• Coming Soon! Assessment of Student Learning
Dashboards/Scorecards
• Portal Key Performance Indicators (KPIs)
Resources

- Professional
  - AIR
  - MidAIR
  - Other organizations
  - Networking
- Vendors
  - Education
  - Use as consultants

Resources

- Internal
  - Information Technology
  - Library
  - Academic courses
  - Continuing education/extension
  - Faculty
  - Other staff

Advice

- Actively listen to clients
- Ask questions
- Check your work
- Keep your boss informed
- Give your boss bad news before client
- Hone existing skills
- Develop new skills
Advice

• Do not fear failure
• Learn from your mistakes
• Be objective
• Beware of emotional involvement
• Be able to explain what you did and why
• Trust your instincts
• If you mess up, 'fess up

Advice

• Know when to keep your mouth shut
• Maintain confidentiality
• Be honest with yourself and others
• Develop and publicize standard definitions
• Develop and publicize standard data
• Use frozen files for recurring reports
• Leverage previous efforts with templates

Advice

• Share what you have done or learned at conferences
• It takes time to build credibility
• It takes an instant to lose credibility
• Ask clients what they think of your work
• Establish, maintain and use favorites
• Think about how to remember passwords
Wrap Up

Any remaining questions
Please complete the evaluation

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Thank You
Handy Web Sites for Institutional Research

Topic
Arkansas Department of Higher Education
Association for Institutional Research
Association of Governing Boards of Universities and Colleges
Board of Regents State of Iowa
Carnegie Classifications
Census 2000 EEO Data Tool
Chronicle of Higher Education
Circular Area Profiling System
Classification of Instructional Programs
Common Data Set
Digest of Education Statistics
Economic Diversity of Colleges
Equity in Athletics Data
Grapevine
Inter-University Consortium for Political and Social Research (login required)
IPEDS
IPEDS College Navigator
IPEDS Peer Analysis System
MidAIR
Midwestern Higher Education Compact
Missouri Department of Higher Education
National Center for Public Policy and Higher Education
National Postsecondary Education Datasets
National Student Clearinghouse
NCES
NCES Academic Library Comparison Tool
NCES Library Statistics
NCES School District Demographic Data System
Nebraska's Coordinating Commission for Postsecondary Education
NSF Databases
Oklahoma State Regents for Higher Education
State Higher Education Executive Officers (SHEEO)
The Kansas Board of Regents
US Census Bureau
Voluntary System of Accountability

URL
http://www.arkansashighered.com/
http://airweb.org/
http://www.agb.org/
http://www2.state.ia.us/regents/
http://www.carnegiefoundation.org/classifications/index.asp
http://chronicle.com/
http://mcdc2.missouri.edu/websas/caps.html
http://www.commondataset.org/
http://nces.ed.gov/programs/digest/
http://www.economicsdiversity.org/
http://ope.ed.gov/athletics/
http://www.grapevine.ilstu.edu/
http://www.icpsr.umich.edu/ticketlogin
http://www.nces.ed.gov/ipeds/
http://nces.ed.gov/collegenavigator/
http://www.nces.ed.gov/ipedspas/
http://www.mid-air.org/
http://www.mhec.org/
http://www.mdhe.mo.gov/
http://www.highereducation.org/
http://highered.org/answers/
http://nces.ed.gov/
http://nces.ed.gov/surveys/libraries/compare/index.asp?LibraryType=Academic
http://nces.ed.gov/surveys/libraries/aca_data.asp
http://www.cecpe.state.ne.us/
http://www.okhighered.org/
http://www.sheeo.org/
http://www.kansasregents.org/
http://www.census.gov/
http://www.voluntarysystem.org/index.cfm