

## IR Knowledge Matrix – AIR Professional Development Services Committee (PDS)

In order to perform at the highest level, the Institutional Research professional needs a variety of information. This information can be grouped into seven broad categories; within each category there are two functional areas: knowledge, skills & abilities; and tools & techniques.

### **I. Technology: Data Management, Warehousing, Internet, Computers**

#### **Knowledge, Skills and Abilities**

Data acquisition  
Data storage  
Data management  
Data dictionaries  
Needs for above within IR office and central institutions  
Difference between frozen, census; routine, ad hoc reporting  
Report scheduling  
Home grown legacy vs. vendor packages  
Issues of data security, IT backup plans, IS/IT customer satisfaction  
Management science

#### **Tools & Techniques**

Storage via mainframe options (DB2, oracle, etc.)  
Data warehouse, data marts  
Developing dashboard, scorecard site  
Imaging technology  
Developing on-line factbook-like information  
Use of data dictionary

### **II. Analysis: Research Methods, Data Analysis, Business Analytics, Educational Policy & Practice**

#### **Knowledge, Skills and Abilities**

Research methods, quantitative and qualitative  
Experimental design  
Introductory statistics  
Intermediate statistics  
Advanced statistics  
Econometric analyses  
Analysis in the context of policy development  
External surveys (i.e., *U.S. News*)

#### **Tools & Techniques**

Analytic tools, including excel, SAS, SPSS, Stata, etc.  
NCES, NSF, other databases

### III. Support of Institutional Effectiveness, Accountability, Assessment

#### Knowledge, Skills and Abilities

Knowledge of and how to ascertain achievement of institutional mission  
Long term program development  
Academic and support unit program review  
Assist in development of and determine achievement of institutional strategy  
Assist in development of and determine achievement of institutional assessment  
Knowledge of higher ed organization, structure, functions, org culture  
Knowledge of current legislative or other local issues  
Regional and discipline accreditation  
External Reporting, including:  
    Local, state, regional  
    Federal (e.g., IPEDS)  
    Common Data Set  
    *U.S. News*, National Research Council, et al  
Knowledge, value of peer group analyses, benchmarking  
Qualitative and quantitative assessment techniques  
Teaching/learning paradigm+A14  
Direct versus indirect measures & ability to provide examples  
Understanding stages of assessment cycle

#### Tools & Techniques

Web-based and other presentations of mission, strategic plan  
All needs related to presentation of accreditation information  
Program review/Evaluation  
Activity-based costing  
Use of consortia  
Dashboard Indicators  
Peer analyses via:  
    Peer Analysis System  
    Data Cutting Tool  
    Data Analysis System  
    WebCaspar  
    Data extraction via internal database or warehouse  
    Carnegie classifications  
Environmental scanning  
SWOT, TOWS, Gap analyses  
SMART Student Learning Outcomes and MATURE measures  
Commercial assessment tools (CLA, CAAP, MAPP)  
E-portfolios  
Rubrics

### IV. Issues Related to Budget/Finance and Facilities

#### Knowledge, Skills and Abilities

Institutional budgeting in general and how specific institution funded  
State, local, regional budgets that support the institution  
State and regional policies that affect appropriations  
Development/fundraising  
Relationship of budget to campus master plan, missions of institution  
Funding - via formula, performance based, zero-based  
Faculty and staff salary issues  
Differential Funding/Budgeting for summer semester

#### Tools & Techniques

Trend and profile analyses via statistical packages and/or excel, access  
SWOT, TOWS, Gap analyses

Institutional Infrastructure (roads, bldgs, HVAC, M&O)  
 Repair/Renovation Schedules  
 Institution Safety, Security, Risk Management  
 Capital Construction  
 Accounting guideines  
 Economic impact studies

Automated scheduling

OLAP analyses

**V. Issues Related to Students**

**Knowledge, Skills and Abilities**

Description, Profiles of  
 Student-Institution Fit  
 Enrollment Management issues  
   Student choice  
   Marketing  
   Admissions  
   Retention, transfer  
   Graduation  
   Course taking patterns  
   FERPA, Student Right to Know  
   Graduation rates (cohort analysis)  
 Knowledge of local, state, Fed laws (such as HEA)  
 Demand for school, majors  
 Other Student Affairs Issues  
   Advising  
   Student engagement  
   Co-curricular activities, learning  
   Post graduation activities (job, grad school)  
 Specialized group analyses (e.g., first year, senior yr, minorities, women)  
 Alumni satisfaction, job & grad school placement  
 Employer satisfaction and recruitment interests  
 Graduate programs (NRC)

**Tools & Techniques**

Statistical analyses via stat package(s) and/or excel  
 Trend analyses  
 Benchmarking analyses  
 Enrollment projections  
 Surveys for marketing, choice, retention, engagement, satisfaction  
 National database data (e.g., NCES, NSF)  
 National Student Clearinghouse data  
 Studies of Economic Impact  
 Data mining  
 College Navigator  
 Surveys (CIRP, NSSE, graduating seniors, alumni)

**VI. Interpersonal Dynamics: Interpersonal Comm, Teamwork, Leadership, Professional Development of the IR Professional**

**Knowledge, Skills and Abilities**

Mission of IR office  
Organizational placement, history of higher education  
Personnel, staffing  
Ethical use of information  
Role of institutional review board and how it affects IR  
Working with leadership to translate findings into action  
Training people to understand IR information  
Monitor use of IR products  
Building relationships with staff in other offices  
  
Ongoing training and skill upgrade  
Oral and written communication  
Learning from others  
Political savvy

**Tools & Techniques**

Fact Books, web portals  
Environmental scanning  
DoE guidelines for national data; human subjects  
AIR code of ethics  
  
Workshops, institutes, webinars, print materials, AIR alerts, etc.  
  
Peer networking, mentoring  
Use of software for qualitative, quantitative analyses, presentations, web design, data mining

**VII. Issues Related to Faculty**

**Knowledge, Skills and Abilities**

Trends and Counts for:  
Recruitment  
Retention  
Satisfaction (as well as professional staff)  
Workload/productivity - balance of institutional missions  
Capacity issues  
Faculty demand by discipline  
Salary equity  
Scholarly research  
Funded research (NSF report)

**Tools & Techniques**

Trend analyses  
Benchmarking  
IPEDS HR, NSOPF, other data sources  
Common Data Set  
Institution data warehouse and/or faculty activity system  
Market demand analyses  
Institutional capacity analyses  
Faculty flow models  
Economic impact of faculty research  
Faculty surveys (HERI, FSSE)  
Academic Analytics  
ISI, SCOPUS  
AAUP & CUPA peer data