A Common Currency

Data Governance Excellence as an Enterprise Process
Let's Start with a Story

Source: The New-York Pocket Almanack for the Year 1771.

Table of the Value and Weight of Coins, as they now pass in England, New-York, Connecticut, Philadelphia, and Quebec.

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* At a Meeting of the Chamber of Commerce, the 7th of August 1770, it was Resolved, That the Members of that Corporation would, in future, pay and receive all HALF JOES, that weigh 9 Penny Weight, at £ 3 4 0 and for every Grain they weigh more, allow three Pence per Grain; and every Grain they weigh less, deduct 4d. and all other Gold in like Manner.
1. Business Intelligence as an Enterprise Process

2. Laying the Groundwork: Hallmarks of Data Governance

3. Cleaning House: Hallmarks of Data Quality Assurance
What Exactly Do We Mean by “Data-Driven”?

Pick One From Each Column for an Aspirational Goal

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
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<tbody>
<tr>
<td>Data</td>
<td>Driven</td>
<td>Analytics</td>
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<tr>
<td>Information</td>
<td>Based</td>
<td>Decision-Making</td>
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<tr>
<td>Evidence</td>
<td>Informed</td>
<td>Strategy</td>
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<tr>
<td>BI</td>
<td>Leveraged</td>
<td>Organization</td>
</tr>
</tbody>
</table>

EAB: What Do You Want to Know?  CIOs: Anything!!!

Source: EAB interviews and analysis.
No More Pressing Issue

Academic Resource Decision Support Biggest Issue for Provosts and CBOs

Provosrts Want to Change Faculty Behavior

Academic Affairs Forum Topic Poll, 2014

#1 Funding Strategic Priorities in Lean Budget Times 78%

#3 Working Smarter, Not Harder: Best Practices for Getting More Teaching, Research and Value-Added Activity from Faculty without Increasing Overall Faculty Workloads 73%

CBOs Want to Provide Data to Do It

Business Affairs Forum Topic Poll, 2014

#1 The University Dashboard: Right for the Quality, Productivity, and Financial Measures Every Institution Should Track 67%

#2 Peer Academic Benchmarks: Apples-to-Apples Comparisons of Your Institution’s Key Metrics across Department Cost, Capacity (Student and Faculty), Enrollment, and Student Outcomes 61%

#3 Running the Lean University: Proven Strategies for Academic and Administrative Efficiency 58%

Source: EAB interviews and analysis.
Struggling to Answer Questions from Our Boards

Latency and Effort to Marshal Critical Data Undermines Credibility

Performance Funding Metrics

Tennessee’s Success Dashboard

- Students Accumulating 24 Hours
- Students Accumulating 48 Hours
- Students Accumulating 72 Hours
- Undergraduates Transferring Out with 12 Hours
- Six-Year Graduation Rate
- Bachelor’s Degrees Awarded
- Master’s/Ed. Spec. Degrees Awarded
- Ph.D./Law Degrees Awarded
- Degrees per 100 Student FTE
- Research Expenditures

Strategic Goal Achievement

“We’ll Get Back to You in a Month”

“Our President was updating the board on a major goal, recruiting more high-achieving Latinos from across the country. We showed them our new curriculum and marketing material. Someone asked how many students we’d admitted, and what programs they selected. It took us the whole day to be able to say it would take IR a month to get the data.”

CIO, Private Research University

Source: EAB interviews and analysis.
Doing More with the Same (or Fewer) Resources

How Do We Get Our Universities to Adjust to the New Budget Realities?

Flattening Revenues, Rising Costs

The New Reality
“Ten years ago, I could find a way to fund 20 out of 20 new investments across the university. Now, I'm lucky if I can in good conscience green-light five, and our academic leaders have a hard time understanding why.”

Harder to Fund “Business as Usual” Requests

**Provost**
Additional funds for institution-wide initiatives

**Education Dean**
To stem enrollment decline, wants to launch online master’s for mid-career professionals

**CBO**
Challenged to find new dollars for new initiatives
How Hard Could It Be to “Self-Fund”?  
Numerous Opportunities to Reallocate Resources without Impacting Quality

Findings From EAB Research

Proliferation of Small Courses
• 20-30% of classes have fewer than 10 students

Over- and Under-Filled Sections
• Over 1/3 of sections less than 80% full
• Almost 1/2 of sections more than 90% full

Faculty Administrative Task Creep
• 10-20% of faculty hours spent on release time
• 40-70% of faculty teach less than a standard load

Calculating a Back-of-the-Envelope Opportunity

Grow Enrollment without New Lines
200 - 400 Students equivalent to
$3M - $6M in Tuition Revenue

Reduce Instructional Costs without Workload Changes
$50K - $150K Adjunct Savings and
$600K - $1M in Re-allocatable Faculty Lines

Reinvest in Research
100+ New Course Releases for Research

1) Opportunity for typical 10,000 student research university
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Stuck in Unproductive Conversations

Data Denial, Quarrels over Allocations Consign Schools to Status Quo

Private University Task Force: Resolve $15M Budget Shortfall

- Deans: My library allocation is too high!
- Faculty Senate: Cut from Central Administration first!
- Provost: This is taking too long! Across the board cuts it is.
- CBO: We’re already understaffed for our workload!
- IR and IT: It will take weeks to confirm the numbers.
- Department Chairs: How can I trust this data? These enrollment figures are all wrong!

Source: EAB interviews and analysis.
Necessary Data Hard to Come By

University Reporting and IR Departments Not Up to the Task

Institutional Reporting Results Not Actionable

ERP Systems
- Disparate, disaggregated data
- Systems not built for analysis

Critical Categories of Data Inaccessible

Shadow Systems
- Hard to access
- Inconsistently reported
- Hard to integrate with existing systems

One-Off Data Projects Provide One-Off Insights

IR Projects
- Growing external reporting burden
- Expensive

Little Consistency, Less Bandwidth

“We don’t have the staff or the organizational resolve to standardize reporting. We couldn’t agree on metrics, and even if we could, we couldn’t afford the enterprise system re-work.”

CBO, Public Research University

Source: EAB interviews and analysis.
Analytics as an Enterprise Process

Ready, Fire, Aim

All Corners of the Campus Already Using Data... Differently

EAB 2014 BI Survey

When Did You Start Your Central BI Initiative?

- Not Yet Started: 13%
- <1: 20%
- 1-3: 30%
- 3-5: 13%
- >5: 24%

Do You Have a Written BI Strategy Plan?

- Yes: 46%
- No: 54%

Source: EAB IT Forum 2014 BI Survey; EAB interviews and analysis.
Strong Central Effort Precedes DIY Analytics

Towards Self-Service BI

Organizational Evolution of Analytical Efforts

Maximum

Degree of Centralization

Minimum

Time

Analytical Wild West

Coordinated Effort

Self-Service BI

“...on balance, decentralized approaches are best suited where innovation is the primary objective, whereas centralization is best where efficiency (capturing economies of scale and scope) is paramount.”

Richard Katz, Former VP of EDUCAUSE

Source: Richard Katz, "IT Matters: Centralization or Decentralization May Not!" EDUCAUSE (2007); EAB interviews and analysis.
The Predictable Fate of BI as IT Project

Institution Resolves to Become Data-Driven

- BI Tools and Staff Installed without Clear Direction
- Prolonged Discussions about Analytics Priorities
- No Resources to Fix Data Quality Issues
- IT Staff Seconded to Help Run One-Off Analyses
- End Users Criticize or Ignore Results

IT Blamed for Failed “Technology” Project
1. Business Intelligence as an Enterprise Process

2. Laying the Groundwork: Hallmarks of Data Governance
   - Hallmark 1: Institutional Ownership of Data
   - Hallmark 2: Bicameral Data Governance Committees
   - Hallmark 3: Fast-Cycle Decision Frameworks
   - Hallmark 4: Pop-Up Data Dictionaries

3. Cleaning House: Hallmarks of Data Quality Assurance
Data Governance for Performance Management

Fast Decisions about What to Measure and How to Define Terms

Roadblocks to Success

- **Siloed data ownership** leads to inaccessible data and non-standardized measures
- **Mixed signals** from campus leadership on key metrics to track
- **Bureaucratic inflexibility** leads to unsustainable time commitments, low engagement, and lack of accountability by committee members
- **Data denial** among end users

Indicators of Success

**Basic**
- Data ownership is institution-wide, not siloed
- Dedicated data governance resources and oversight
- A data dictionary exists

**Advanced**
- Self-sustaining data governance efforts

Source: EAB interviews and analysis.
Data Governance for Performance Management

Setting up for Success

Data Governance Maturity a Clear Correlation with BI Maturity

EAB 2014 BI Survey

Characteristics Determining BI Maturity

- Our data resides in departmental silos
- Institutionally, data is viewed as a shared asset
- Decisions are validated with data from central sources
- We align BI initiatives with institutional priorities

Enterprise Data Governance Indicative of Mature BI

n=46

- **Fragmented:** Zero or few processes govern the input, collection, definitions, usage, and access of data
- **Focused:** Within a narrow terrain (e.g., reporting) policies, definitions and processes exist
- **Enterprise:** Common policies and standards in effect, centrally-managed KPIs

Regression shows a positive correlation between data governance maturity and rising BI maturity

Source: EAB IT Forum 2014 BI Survey; EAB interviews and analysis.
Laying Down the Law

With Lives on the Line, No Time for Data Hoarding

Suicide Prevention Effort Data Management Meeting

Army Data Stewards

“*My data can only be used for...*”

“Our data is bound by certain terms and conditions...”

“I’m not letting others see my data...”

Deputy Under-Secretary of the Army

- Banished the phrase “my data”
- Any people with data ownership questions would have to schedule an appointment with the senior officer of the Army
- Data mistakes will be tolerated (and expected)
Hallmark 1: Institutional Ownership of Data

Setting Expectations at the Highest Level

Incorporating Data – as an Institutional Asset – into the Strategic Plan

Excerpt from Oregon State University’s Strategic Plan

**Technology as a Strategic Asset**

Technology and information occupy a critical role in a 21st century university… Greater accountability, enhanced expectations of a current generation and growth in the development, management and delivery of digital resources point to the expanding role that big data, analytics and information technologies provide as a strategic and enabling asset.

**Key Initiatives Needed to Meet Plan Goals:**

1. Enhancing Diversity
2. Stewarding OSU’s Resources
3. **Recognizing Technology as a Strategic Asset**

**We Will:**

Ensure that relevant information is widely shared and strategically used to make effective decisions and measure progress toward achieving university goals.

Hallmark 1: Institutional Ownership of Data

Sharing is Caring

Toward a Common Culture of Data Principles

“Analytics Community Principles”
Emphasize Collegiality, Discourage Ownership

1. Be Safe and Secure
2. **Be Collegial**
3. Help Improve Data Quality
4. Be Open-Minded and Inquisitive
5. **Share**

**Be collegial.** University data is a community asset and a community of people steward the data. Use and share the data with the best interests of the university community in mind. Since parts of our data analysis environment is designed to allow for greater transparency, analysis will potentially be able to see other unit data. While we will make private to a unit what absolutely needs to be private, the way the university runs its business often involves multiple colleges and units at the same time requiring broad data access. Don't use your access to take unfair advantage of another unit.

**Share.** The main benefit from open analytics is the power of a community of analysts learning from each other rather than a few select individuals hoarding knowledge or access. As the community improves its knowledge and skill with the data, the university can improve accordingly.

Source: University of Kentucky, “Tableau Server Access Request;” EAB interviews and analysis.
Hallmark 2: Bicameral Data Governance Committees

Perils of the Single Committee Structure

It Only Takes One Failure Point to Break

- Committee lacks the appropriate level of staff to think strategically about data assets across the institution.
- No show of support from institution executives leads to loss of interest.
- Committee turns into a group of delegates, as members aren’t held accountable to anyone.
- Committee turns into a prioritization committee, disagreeing on what to do next (and never getting to it).
- No arbiter exists to resolve disputes as there is no true leader of the committee.
- Project mindset with one end-point hobbles sustainability of committee.

Source: EAB interviews and analysis.
Hallmark 2: Bicameral Data Governance Committees

Separate Strategy from Operation

A Light, and Lasting, Lift

Data Strategy Committee

- **Role/purpose**: Direction setting (the “what”)
- **Seniority**: VP- to AVP-level
- **Composition**: Cross-functional data trustees (IT, Provost’s office, CBO’s office, Registrar’s office, etc.)
- **Size**: 5-10
- **Time commitment**: Minimal (one hour per quarter or semester)
- **Agenda**:
  - **Vision**: What areas of the university may benefit most from better data?
  - **Progress**: What has the data governance committee done since the last meeting, and what should they focus on until our next meeting?

Data Governance Committee

- **Committee Liaison**: A member of the data governance committee (e.g., a data governance director) may sit on the strategy committee to liaise between the groups
- **Intentionally Small**: Few members helps promote consensus on priority setting
- **Breakout Sessions**: To avoid additional meetings, data governance can be incorporated into already standing executive committee meetings
- **Dispute Resolution**: The group may also resolve data governance committee disputes (e.g., about data access decisions), but this is rarely required

Source: EAB interviews and analysis.
Hallmark 2: Bicameral Data Governance Committees

The Legs of the Machine

Execution Focus Owned by Subject Matter Experts

Data Strategy Committee

- **Interest Important**: Committee members ideally will desire better campus data and understand how data is input and used in their units.

Data Governance Committee

- **Role/purpose**: Execution (the “how”)
- **Seniority**: AVP- to director-level
- **Composition**: IT, BI, and cross-functional data stewards (Provost’s office, CBO’s office, Registrar’s office, etc.)
- **Size**: 12-20
- **Time commitment**: High (at least one hour per week or month)
- **Agenda**:
  - *Data Definitions*: What should the definition and security level for these terms be?
  - *Term Requirements*: What standard terms do we not have that are causing problems?
  - *Data Stewardship*: Are the right people in data stewardship roles across campus?

- **No Term Lengths**: If a member leaves the institution, his or her replacement typically fills the seat

- **Sizing the Priority**: How much the institution wants to expedite data governance determines meeting frequency

- **Short Meetings**: Kept to one hour or 75 minutes to prevent meeting burnout among members

Source: EAB interviews and analysis.
## Too Many or Too Few People at the Table
Most Committees Failing to Balance Inclusion and Engagement

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<thead>
<tr>
<th>Over-Inclusive</th>
<th>Under-Inclusive</th>
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<tbody>
<tr>
<td>** Unrealistic Time Commitment**</td>
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<tr>
<td>• “I’m the AVP of Research. Why am I talking about building codes?”</td>
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<tr>
<td>• “When are we going to get to the terms I actually care about defining?”</td>
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<td><strong>Slow to Reach Consensus</strong></td>
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<td>• Veto power of one stymies group consensus</td>
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<tr>
<td>• Inefficient to get 20 people to agree to a single definition</td>
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| **Missing Terrain Expertise**  |
| • Continued use of local definitions in uninvolved stakeholders’ units  |
| • Defined terms require revisions once uninvolved stakeholders speak up  |

| **Missing IT Expertise**  |
| • Information security officer has concerns about committee decisions  |
| • Committee decisions fail to be publicly documented and disseminated  |

Source: EAB interviews and analysis.
Hallmark 3: Fast-Cycle Decision Frameworks

We’re Going to Need a Bigger Conference Room

Full Range of Organizational Authority and Data Expertise Included

INVITATION TO PARTICIPATE IN DATA GOVERNANCE

To:

IT
• Data Governance Director
• Sr. Dir. of IT Service Delivery

IR
• Dir. of Strategic Planning and IR

HR
• Dir. of HR
• Manager, Payroll Services

Academic/Research
• Dir. of Budget and Planning (Provost Office)
• AVP of Research
• Sr. Assoc. Registrar

Student Affairs
• VP of Student Affairs
• AVP of Undergraduate Enrollment
• Lead Advisor, Office of VP for Mission Engagement
• Sr. Dir. of Finance and Administration (International)

Business/Finance
• Sr. Advisor to the Executive VP
• Asst. Dir. of Budget and Financial Planning

Advancement
• AVP and Exec. Dir. of Development

Security/Risk/Legal
• Chief of Police
• Dir. of Risk Management
• Associate General Counsel

Athletics
• Sr. Assoc. Athletic Director
• Athletics Compliance Program Dir.

Source: EAB research and analysis.
Rightsizing Roles for Each Definition

Committee Members Choose How Involved (Or Not) To Be

Four Banded Roles Determine Participation Level

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<tr>
<th>Role</th>
<th>Description</th>
<th>Expected Time per Term</th>
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<tr>
<td>Variable by Term Family:</td>
<td>Propose: Presents group with draft definition and security level</td>
<td>18 minutes</td>
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<td>- Consults local definitions</td>
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<td></td>
<td>- References IPEDS</td>
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<td></td>
<td><strong>Consult:</strong> Helps refine definition</td>
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<td></td>
<td>- Provides technical advice</td>
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<td>- Identifies logistical considerations</td>
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<td><strong>Document:</strong> Helps draft term; records decisions</td>
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<td></td>
<td>- Updates data dictionary; creates technical definition for data warehouse</td>
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<td>Permanent Role:</td>
<td><strong>Agree:</strong> Recuses from final decision; does not attend meeting</td>
<td>0 minutes</td>
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<td></td>
<td>- Agrees with committee decision</td>
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</table>

Opt-in Privileges: Members may choose to participate or not, but if not, they provide their tacit agreement to the committee’s decisions

Source: EAB interviews and analysis.

1) EAB composite inspired by the University of Notre Dame’s RACI matrix for data governance.

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## Opt-out Decisions as Interesting as Opt-in Decisions

**Legend:** Propose Document Consult Agree

<table>
<thead>
<tr>
<th>Term</th>
<th>Data Gov. Director</th>
<th>Registrar</th>
<th>Strategic Planning and IR</th>
<th>HR</th>
<th>Student Affairs</th>
<th>Athletics</th>
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</thead>
<tbody>
<tr>
<td>Credit-Bearing Student</td>
<td>D</td>
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<td>Full-Time/Part-Time Indicator</td>
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<td>Birthdate</td>
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<td>A</td>
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<tr>
<td>Academic Standing</td>
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<td>C</td>
<td>A</td>
<td>C</td>
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**Counterintuitive Results:**
Student affairs only desires input in 10 percent of student enrollment-related terms.

**Errors Avoided:**
Athletics desires input into “Academic Standing;” group avoids need to redefine term later.

**Generic Terms Owned:**
Data governance director owns proposal for terms with no obvious owner, like “Birthdate.”

**Major Time Savings:**
Only HR and data governance director sign up for “Full-Time/Part-Time Indicator;” no other committee members need to meet to define term.

Source: University of Notre Dame; EAB interviews and analysis.
100% Buy-In with 20% Effort

Most Committee Members Help Define Fewer than 10% of Terms

**Propose, Document, or Consult – Involvement by Function**

**Most Involved Functions**
- Data Governance Director: 100%
- Strategic Planning/IR: 92%
- Provost's Office: 69%
- Registrar's Office: 49%
- Human Resources: 48%
- Research: 47%
- Controller's Office: 27%

**Least Involved Functions**
- Fewer than Ten Percent:
  - Student Financial Services
  - Budget Office
  - International
  - IT
- Fewer than Two Percent:
  - Athletics
  - Undergrad Admissions
  - Mission Engagement
  - Graduate School
  - Security/Police
  - Risk Management

Source: University of Notre Dame; EAB interviews and analysis.
Hallmark 3: Fast-Cycle Decision Frameworks

A Win-Win-Win

Seeing Results in Engagement, Efficiency, and Effectiveness

Maintaining Momentum
Terms Defined per Year

<table>
<thead>
<tr>
<th>Typical Process</th>
<th>Role-Based Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>300</td>
</tr>
</tbody>
</table>

Minutes Defined per Term

<table>
<thead>
<tr>
<th>Typical Process</th>
<th>Role-Based Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>8</td>
</tr>
</tbody>
</table>

118 defined faculty headcount- and profile-related terms

79 defined course registration-related terms

Source: EAB interviews and analysis.
A Win-Win-Win

Seeing Results in Engagement, Efficiency, and Effectiveness

Better Decisions with Less Effort

<table>
<thead>
<tr>
<th>Terms Requiring Revisions</th>
<th>Number of People in Each Meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Process</td>
<td>Role-Based Process</td>
</tr>
<tr>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Typical Process</td>
<td>Role-Based Process</td>
</tr>
<tr>
<td>15</td>
<td>4.5</td>
</tr>
</tbody>
</table>

580+ director-level and above staff hours saved per year

10 maximum number of people interested in defining an individual term (half the total potential committee size)

Source: EAB interviews and analysis.
Hallmark 4: Pop-Up Data Dictionaries

**Overcoming Data Denial and Inquisition**

**Objections Coming from All Angles**

**Campus Members Lacking Data about the Data**

<table>
<thead>
<tr>
<th>Data Definition</th>
<th>Business Logic</th>
<th>Data Sourcing</th>
</tr>
</thead>
<tbody>
<tr>
<td>What does the title of this metric mean? How is each metric defined?</td>
<td>What was the formula or coding used to derive the numerical value of this metric?</td>
<td>From where is this data drawn? Who ensures its accuracy? Who inputs the original figures?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effective Dating</th>
<th>Access and Privacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>When were these data last updated? To what time range do these metrics apply?</td>
<td>Who can view this data? What restrictions are in place and what is their rationale?</td>
</tr>
</tbody>
</table>

**Data Dictionaries Often Structured in Unhelpful Ways**

<table>
<thead>
<tr>
<th>Hard to Find</th>
<th>Hard to Understand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not publicly accessible (e.g., on a personal drive)</td>
<td>Not comprehensive in detail</td>
</tr>
<tr>
<td>Publicly accessible, but hidden unintentionally</td>
<td>Too technical for most campus members</td>
</tr>
</tbody>
</table>

Source: EAB interviews and analysis.
Hallmark 4: Pop-Up Data Dictionaries

Keeping Everyone on the Same Page

Critical Elements that Bullet-Proof Your Data Definitions

Example Term: Degree Level (Student)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term</td>
<td>Degree Level (Student): The educational level of the degree a student is pursuing.</td>
</tr>
<tr>
<td>Interpretation/Usage Notes</td>
<td>Degree Level (Student) is identified by a numeric two digit code representing the educational level of the degree(s) a student is pursuing. For example, all bachelor degrees are identified as 13, graduate certificates as 14, master degrees as 17, educational specialists as 18, and doctoral and professional degrees as 21. If no degree is associated with an academic plan, the field is blank.</td>
</tr>
<tr>
<td>Potential Values</td>
<td>The EDUCATION_LVL is defined in the PSXLATITEM table. The following are currently used values. If no degree is associated with an academic plan, the field is blank. 13 - Bachelor Degree 14 - Post Bachelors 17 - Master's Degree 18 - Post Master's 21 - Doctorate Degree</td>
</tr>
<tr>
<td>Source Description</td>
<td>Provides source system information in SQL and with textual interpretation.</td>
</tr>
<tr>
<td>Related Terms</td>
<td>Degree (Student); Degree Name (Student); Is Student Doctoral</td>
</tr>
<tr>
<td>Current Status</td>
<td>Under Steward Review</td>
</tr>
</tbody>
</table>

1) From the University of Nevada, Las Vegas’ data dictionary.

### Shining Light on Data Sourcing

Data FAQs Address Objections at Point of Use

<table>
<thead>
<tr>
<th>Course</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>T h</th>
<th>F</th>
<th>S a</th>
<th>S u</th>
<th>Start</th>
<th>End</th>
<th>Total Enrolled Seats</th>
<th>Total Seat Cap</th>
<th>Percent Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials Science 301</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00A</td>
<td>11:00A</td>
<td>24</td>
<td>25</td>
<td>96.0%</td>
</tr>
</tbody>
</table>

**Information About This Report**

- **What are these KPIs about?** – Contextual information for currently displayed data, indicating details such as the department or unit the data covered.
- **How often is this data updated?** – Data latency information.
- **Who has access?** – Information on access restrictions for dashboards containing sensitive information (e.g., professor salaries).
- **Who are the data trustees of this report?** – Points of contact in case of errors or disputes about the data.
- **What are the data sources for this report?** – Details regarding collection points for data.
- **What is the SQL logic used?** – An extra layer of source detail on the SQL coding that precisely indicates exactly how the system “pulls” data from the central repository.
Hallmark 4: Pop-Up Data Dictionaries

In-Your-Face Metadata

Instant and Obvious Data Transparency

Pop-Up Metadata

- Mouse-over prompts user with “Click to view metadata”

- Report data traceable back to source forms, easing report validation and increasing trust in data

- Function built in a web application using HTML and jQuery

Hovering over calculated fields will show the user the actual calculation (e.g., if the 6-Year Cohort Graduation Rate is 63.15 percent, a mouse-over will show the figures that created that number).

Source: Oregon State University, EAB interviews and analysis.
## Data Governance for Performance Management

### Grading the Practices

<table>
<thead>
<tr>
<th>Tactic</th>
<th>Increment over Typical Practice</th>
<th>Data Excellence Factor</th>
<th>Impact</th>
<th>Implementation Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Institutional Ownership of Data</td>
<td>Culture of siloed or individual data ownership removed</td>
<td>Cross-campus support for institutional ownership and individual stewardship of data</td>
<td>A</td>
<td>High Requires cultural change across campus</td>
</tr>
<tr>
<td>2. Bicameral Data Governance Committees</td>
<td>Strategic discussions (the “what”) separated from operational work (the “how”)</td>
<td>Senior sponsors and subject matter experts making complementary contributions</td>
<td>B</td>
<td>Low Must get executive support for data strategy committee meetings</td>
</tr>
<tr>
<td>3. Fast-Cycle Decision Frameworks</td>
<td>Bounded participation levels for data governance meetings</td>
<td>Cross-campus buy-in to metric definition process</td>
<td>A</td>
<td>Medium Must convince committee members to tie tacit agreement to meeting absence</td>
</tr>
<tr>
<td>4. Pop-Up Data Dictionaries</td>
<td>Accessible and user-friendly metadata with high level of transparency</td>
<td>Metadata pushed out to end users</td>
<td>B-</td>
<td>Variable Effort varies by systems and level of detail provided</td>
</tr>
</tbody>
</table>

Source: EAB interviews and analysis.
Business Intelligence as an Enterprise Process

Laying the Groundwork: Hallmarks of Data Governance

Cleaning House: Hallmarks of Data Quality Assurance

Hallmark 5: Accountable Data Stewards

Hallmark 6: Automated Data Quality Testing

Hallmark 7: Fast-Turnaround Error Check Reports

Hallmark 8: Unit-Level Data Quality Scorecards

Hallmark 9: User-Friendly Data Entry Instructions
Data Quality Tolerance

Proactively Detecting and Fixing Front-Line Errors

Roadblocks to Success

- **IT receives misplaced blame and accountability** for data quality errors
- **No incentives** for users to correct errors at the source rather than at the report-level
- **Lack of standardization** across the institution for data input rules
- **Fixes happen downstream**, not in source system

Indicators of Success

- **Basic**
  - Data error detection methods in place
  - Means to identify patterns to improve data in source systems
- **Advanced**
  - Units held accountable for maintaining high quality levels

Source: EAB interviews and analysis.
Data Quality Tolerance

Out of the Loop, but Getting the Blame

IT in Poor Position to Identify Problems

**IT’s Role Offers Low Opportunity to Improve Data Quality Alone**

<table>
<thead>
<tr>
<th>Duration of IT Involvement</th>
<th>Time Point in Data Lifecycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Data Created</td>
</tr>
<tr>
<td>Low</td>
<td>Data Aggregated</td>
</tr>
<tr>
<td>Low</td>
<td>Data Used</td>
</tr>
</tbody>
</table>

**Opportunity to Impact Quality**

- High
- Low

**Missing Out**

“There are two interesting moments in the lifetime of a piece of data: the moment it is created and the moment it is used. Quality, the degree to which the data is fit for use, is judged at the moment of use.”

*Tom Redman, the “Data Doc” and President of Navesink Consulting Group*

Data Quality Tolerance

Workarounds Lead to Data Dead Ends

Systems’ Data Capture Not Designed for Completeness or Accuracy

End User Convenience Derails Institutional Usefulness

“We found that data fields in Banner... have been repurposed for other uses, such as using a State/Province field to enter an advisor’s first and last initial.”

“We were missing student states of residence and zip codes, making any kind of geographic analysis impossible.”

“We... have one year of data where the high school for many applicants is listed as “Miscellaneous High School.” This happened because the high schools weren’t in the system and the people entering data couldn’t add new high schools.”

“When staff couldn’t figure out where to input data in the ERP, they started storing data in common fields. For something as simple as double majors, it’s clear where you list a student’s major, but no one figured out where to store a second major, so that data lives in an open field... We couldn’t even report to deans or department chairs who was enrolled in their programs.”

Source: EAB interviews and analysis.
### Respondents Citing Issues as Drivers of Data Quality Problems

<table>
<thead>
<tr>
<th>Issue</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Entry by Employees</td>
<td>76%</td>
</tr>
<tr>
<td>Changes to Source Systems</td>
<td>53%</td>
</tr>
<tr>
<td>Data Migration/Conversion Projects</td>
<td>48%</td>
</tr>
<tr>
<td>Mixed Expectations by Users</td>
<td>46%</td>
</tr>
<tr>
<td>External Data</td>
<td>40%</td>
</tr>
<tr>
<td>Systems Errors</td>
<td>26%</td>
</tr>
<tr>
<td>Data Entry by Customers</td>
<td>25%</td>
</tr>
<tr>
<td>Other</td>
<td>12%</td>
</tr>
</tbody>
</table>

#### Typing Error Causes Trader to Lose $225 Million

Mizuho Financial Group Inc.’s brokerage arm intended to sell one share of stock for 610,000 yen; instead sells 610,000 shares for one yen each.

#### Data Entry Error Causes University to Obtain Top U.S. News & World Report Ranking... for ‘Most Debt’

A Florida Gulf Coast University employee’s error caused the university to submit average debt of $56,208, over $30,000 off (discovered too late to update print publications).

Data Quality Tolerance

Are BI Teams Getting Ahead of Themselves?

Data Management Lagging Behind Other Dimensions of BI Maturity

HEDW BI Maturity Assessment Results
(On Five Point Maturity Scale)
n=209

User Engagement

- 4% 19% 23% 31% 23%

Scope of Work

- 8% 23% 41% 23% 5%

Business Value

- 8% 23% 32% 27% 8%

Data Management

- 12% 52% 23% 10% 1%

Of all the BI dimensions included in the HEDW survey, data management had the lowest average maturity, based on existence of policies and procedures for:

- Data quality
- Data access
- Metadata
- Data integration
- Data retention and archival

Source: "BI Maturity Assessment," Higher Education Data Warehousing Forum (2014); EAB interviews and analysis.
Achieving Universal Coverage

Data Census Reveals Stewardship Needs

University of Washington’s “Data Map”

Subject Areas (plus Master Data across all areas)

- Academics: 13 Domains, 11 Data Stewards
- Human Resources: 7 Domains, 7 Data Stewards
- Research: 7 Domains, 7 Data Stewards
- Services and Resources: 15 Domains, 26 Data Stewards
- Financial Resources: 13 Domains, 9 Data Stewards
- Advancement: 6 Domains, 1 Data Steward

HR Business Domains

- Compensation
- Compliance
- Employee Demographics
- Labor Relations
- Staffing
- Training and Development
- Workforce Planning

One data steward may oversee data in several business domains, and business domains may have multiple data stewards (e.g., Workforce Planning has separate stewards for academic personnel and for other staff)

Source: University of Washington, “The UW Data Map;” EAB interviews and analysis.
Formalizing Stewardship

Data Responsibilities Built into Job Descriptions

Clear Expectations for Data Stewardship

1 Responsibilities

- Attend stewardship group meetings
- Develop data definitions and access policies
- Log and work to resolve data quality issues
- Review data sharing requests
- Ensure data definition implementation

2 Required Skills

- Knowledge of business processes’ relationships with data
- Flexibility to view data as a university resource
- Ability to work within a team
- Ability to communicate effectively to create data policies, answer data questions, and encourage proper use of data

Source: George Washington University, “Data Stewardship Responsibilities;” EAB interviews and analysis.
Hallmark 5: Accountable Data Stewards

Informally in Formal Evaluations

What Gets Measured Gets Managed

Personal Goal-Setting at George Washington University

- Staff assessed on up to five individually-chosen goals that support the institution’s or their department’s goals and priorities
- Data stewards may include data governance-related goals for assessment in their annual reviews

Governance Leadership Feedback at U.S. Department of Homeland Security

- Employees assessed on six core competencies, including achieving results, teamwork/cooperation, and communications
- Data governance director – not the stewards’ direct managers – writes a brief appraisal of data stewards’ contributions for inclusion in their performance reviews

Source: EAB interviews and analysis.
Hallmarks 6 and 7

Spot Cleaning Not the Solution

Downstream Fixes Don’t Solve the Pollution Problem

Data Pull
IR staff pull extracts of frozen data

Data Review
IR staff review the data before reporting, may find data errors

Data Correction
IR staff correct data errors in the frozen data, not in the source system

Data Use
IR staff create a report with the frozen, clean data

State of Data
Data in the source system still incorrect, next campus member who uses that data may need to correct it, and IT is blamed for poor data quality

Source: EAB interviews and analysis.
### Hallmark 6: Automated Data Quality Testing

#### Highlighting Data Anomalies

Exception Reporting and Cross-Validation Tests

#### Anomalies Detrimental to Data Analysis

<table>
<thead>
<tr>
<th>Testing Method</th>
<th>Type of Anomaly</th>
<th>Sample Source System Rule</th>
<th>Example Data Entry Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exception Reporting</td>
<td>Value Falls Outside of Valid Range</td>
<td>• Acceptable values for “class” are 1 (First-Year Student) through 7 (PhD Candidate)</td>
<td>• Class: 22</td>
</tr>
<tr>
<td></td>
<td>Entry Is Not an Acceptable Value</td>
<td>• U.S. state must be one of 50 valid options</td>
<td>• State: CI</td>
</tr>
<tr>
<td></td>
<td>Invalid Data Attributes</td>
<td>• Age must be numeric, less than or equal to three digits</td>
<td>• Age: W23</td>
</tr>
<tr>
<td>Cross-Validation Tests</td>
<td>Entry Violates Logic When Referenced Against Other Data</td>
<td>• Simple: Zip code must match state</td>
<td>• ZIP: 55409</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Complex: Greek life status, varsity sport activity, and sex should agree</td>
<td>• State: MI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Sorority status: Active</td>
<td>• Female sport status: Active</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Sex: M</td>
<td></td>
</tr>
</tbody>
</table>
Hallmark 6: Automated Data Quality Testing

Check, Please!

Over 200 SQL-Based Error Checks and Growing at UMBC

Spotlighting Errors in HR and Student Data Just the Start

Example HR Error Checks
- Null termination date with inactive employment status
- Invalid range for individual’s FTE (0-1)
- Full- or part-time not indicated
- Annual salary is out of range (0-250,000)
- Date tenure achieved is in the future

Example Student Records Error Checks
- Invalid student ID number (EMPLID)
- Student’s academic plan has an invalid degree code
- Unknown education level for degree
- Discrepancy exists between withdraw code and withdraw date

Data quality checks occur nightly during the ETL process at UMBC, with more in development.

Source: University of Maryland, Baltimore County; EAB interviews and analysis.
Hallmark 7: Fast-Turnaround Error Check Reports

Pushing Errors to Appropriate Users

Making Data Staff Aware of Problematic Data Fields

Data Error Reporting Process at UMBC

1. IR staff identify a potential data quality error (e.g., through data review, discussions with users)

2. IR works with functional unit staff and IT to identify the information needed for identification and fix

3. IT staff create a SQL statement; incorporate query into nightly quality checks

4. Nightly ETL process occurs, with error checks written into the ETL process

5. Email automatically sent to end users alerting them of data quality problems

6. End users fix problems identified in error emails

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Hallmark 7: Fast-Turnaround Error Check Reports

Turn-by-Turn Directions for Corrections

Guidance for Fixing Errors in Source System

Data Quality Summary Email

<table>
<thead>
<tr>
<th>Data Quality Module</th>
<th>Error Message</th>
<th>Errors</th>
<th>Unique Values</th>
<th>New Errors</th>
<th>Current Semester Data</th>
<th>Allowed “Errors”</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR</td>
<td>Age is &lt;14 or &gt;80</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Student Records</td>
<td>Student has duplicate plans</td>
<td>27</td>
<td>13</td>
<td>10</td>
<td>27</td>
<td>0</td>
</tr>
</tbody>
</table>

Staff may identify allowed “errors” (e.g., staff member actually is 82 years old) so errors don’t constantly repeat.

Line-Item Error Details

*Student has duplicate plans*

<table>
<thead>
<tr>
<th>Error Value</th>
<th>Keys</th>
<th>New</th>
<th>Current</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATPH PHD,--------</td>
<td>3000XXXXX<del>GRAD</del>2148</td>
<td>Y</td>
<td>Y</td>
<td>12/2/2014 6:51:01 AM</td>
</tr>
</tbody>
</table>

Table Name: PS_ACAD_PLAN
Field with Error: Acad_Plan, Acad_Sub_Plan
Keys in Table: Emplid; Career; Term

Source: University of Maryland, Baltimore County; EAB interviews and analysis.
### Hallmark 7: Fast-Turnaround Error Check Reports

**Peer Pressure to the Rescue**

Virtuous Cycle of Data Correction Keeps Source Systems Clean

<table>
<thead>
<tr>
<th>Compulsory Compliance</th>
<th>Positive Peer Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error correction mandated by CDO; agreed upon by unit-level data stewards, who receive and delegate data quality emails</td>
<td>Similar offices at the university (e.g., the three admissions offices) compete with each other for lowest error rate</td>
</tr>
</tbody>
</table>

#### Cleaning House

<table>
<thead>
<tr>
<th>5-10 DAILY ERRORS</th>
<th>24 HOURS</th>
<th>100% ERRORS FIXED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of new daily data entry errors per unit; staff typically address errors within one hour</td>
<td>Length of time after receipt of error reporting email by which university units have committed to rectify errors</td>
<td>Nearly 100 percent of new admissions and enrollment errors are rectified through this process</td>
</tr>
</tbody>
</table>
A Strange Bedfellow

BI Facing an Old Procurement Problem

Procurement Office Lacks Ability to Change Distributed Staff Behavior

Hierarchy

Staff listen to their supervisors, not to central function, and value local practice over the greater good

Accountability

Central office lacks formal authority to enforce contract compliance policies

Personal Incentives

With no repercussions for policy noncompliance, staff continue with methods that suit themselves, not what’s best for the institution

Lessons Learned for Data Management

Focus the data quality conversation on managers and end users will follow

Partner with other institutional offices (e.g., internal audit) to create repercussions for poor data quality

Incorporate data quality guidelines into the performance reviews of front-of-line staff

Source: EAB interviews and analysis.
Harnessing the Hawthorne Effect

Keeping an Eye on Quality over Time

**HR Scorecard Accuracy Measurements**¹

*By Longitudinal Tracking for Individual Error Messages*

<table>
<thead>
<tr>
<th></th>
<th>Age Is &lt;14 or &gt;80</th>
<th>Military Status Is Blank</th>
<th>State is Blank in Home Address</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Errors this Month</strong></td>
<td>5</td>
<td>21%</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Accuracy Rate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>This Month</strong></td>
<td>97%</td>
<td>87%</td>
<td>99%</td>
</tr>
<tr>
<td><strong>Last Month</strong></td>
<td>96%</td>
<td>84%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>This Month Last Year</strong></td>
<td>77%</td>
<td>62%</td>
<td>71%</td>
</tr>
<tr>
<td><strong>Percent of Errors Rectified</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>This Month</strong></td>
<td>100%</td>
<td>96%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Last Month</strong></td>
<td>98%</td>
<td>93%</td>
<td>97%</td>
</tr>
<tr>
<td><strong>This Month Last Year</strong></td>
<td>76%</td>
<td>73%</td>
<td>87%</td>
</tr>
</tbody>
</table>

¹ Illustrative

Source: EAB interviews and analysis.

---

**The Hawthorne Effect**

Individuals improve or modify their behavior in response to knowing they are being observed.
Hallmark 8: Unit-Level Data Quality Scorecards

Taking Scorecards to the Next Level

Potential Audit Motivates Data Quality Management

Policy

Unit managers set accuracy and rectification rate goals in coordination with relevant data steward

Tracking

BI staff review monthly unit-level data quality scorecards for patterns of inaccuracy

Enforcement

Error codes that fail to meet accuracy goals for three straight months will be referred to the internal audit office for review of potential process redesign

The threat of audit alone helps increase data input accuracy

HR Scorecard Accuracy Goals¹

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Total Errors This Month</th>
<th>Accuracy Rate This Month</th>
<th>Accuracy Rate Last Month</th>
<th>Accuracy Rate Target</th>
<th>Months in a Row Accuracy Rate Target is Achieved</th>
<th>Accuracy Rate This Month Last Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military Status is Blank</td>
<td>19</td>
<td>87.33%</td>
<td>85.23%</td>
<td>90.00%</td>
<td>-2</td>
<td>89.33%</td>
</tr>
</tbody>
</table>

Source: EAB interviews and analysis.

1) Illustrative

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Hallmark 9: User-Friendly Data Entry Instructions

Fighting Garbage In, Garbage Out

Two Unfortunate Tales

---

**Creative Convenience**

*Entering Personal Information to Fill a Mandatory Field*

- Retail bank system’s SSN field was mandatory to progress to next stage of data entry; field would not allow nonsensical entries (e.g., 999-99-9999)
- When customer SSN hard to find, staff would put in their own social security numbers to enable progression to the next data entry screen

Sales report for unique customers created with logic to identify customers by unique SSN; report inadvertently excludes many unique customers because of data entry problems

---

**Innocent Ignorance**

*Entering Locally-Determined, Non-Standardized Codes*

- New university department created; new staff hired
- Staff had no instructions for coding student information, so went with logical instinct
- Staff code non-degree seeking students with “0” whereas other departments code non-degree-seeking students as “NDS”

Enrollment report excluding non-degree seeking students created with logic to exclude fields with NDS; report inadvertently includes all non-degree-seeking students from new department
Hallmark 9: User-Friendly Data Entry Instructions

Data Hygiene at Point of Origin

Targeting Trouble Spots for Detailed Data Entry Instructions

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>In the Banner form: SPAPERS for students, or PPAIDEN for staff – Tab: Biographical: select a Citizenship Code of ‘R’ (Permanent Resident)</td>
</tr>
</tbody>
</table>
| **2** | In the form: GOAINTL – Tab: Visa:  
1. Select a Visa Type of ‘PR’ (Permanent Resident)  
2. Nation of Issue should be US.  
3. You may enter values for any other field on this page.  
  
In the form: GOAINTL – Tab: Passport:  
1. Enter the Alien Registration Number. This field must have a value. The 9-digit U.S. Citizenship and Immigration Services number listed on the front of Permanent Resident Cards (Form I-551) issued after May 10, 2010, is the same as the Alien Registration Number. The A-number can also be found on the back of these Permanent Resident Cards. Note: If you cannot determine the person’s A-number, please enter 99999999 as a temporary value for this field. The field must have a value for the person to be counted properly in IPEDS reporting.  
2. You may enter values for any other field on this page.  
  
Note: Visa start and end dates are not required for permanent residents, refugees or asylees. |
# Data Quality Tolerance

## Grading the Practices

<table>
<thead>
<tr>
<th>Tactic</th>
<th>Increment over Typical Practice</th>
<th>Data Excellence Factor</th>
<th>Impact</th>
<th>Implementation Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Accountable Data Stewards</td>
<td>Staff held responsible for data management duties</td>
<td>Data management part of performance assessment</td>
<td>B</td>
<td>Immediate and long-term benefits to data quality</td>
</tr>
<tr>
<td>6. Automated Data Quality Testing</td>
<td>SQL-based error checks run during nightly ETL process</td>
<td>Automated, frequent process for making data quality problems transparent</td>
<td>A-</td>
<td>Errors identified soon after creation, minimizing their reach</td>
</tr>
<tr>
<td>7. Fast-Turnaround Error-Check Reports</td>
<td>Emails detailing identified errors and necessary remediation automatically sent to appropriate users</td>
<td>Users able to correct errors in source systems soon after error creation</td>
<td>A</td>
<td>Long-term benefit of heightened awareness around potential errors</td>
</tr>
<tr>
<td>8. Unit-Level Data Quality Scorecards</td>
<td>Pairs quality performance with potential consequences</td>
<td>Units aware they bear accountability for quality assurance</td>
<td>B</td>
<td>Units motivated to meet data quality goals</td>
</tr>
<tr>
<td>9. User-Friendly Data Entry Instructions</td>
<td>Process documentation memorializes proper data entry practices for most issue-prone types of data</td>
<td>Uniform entry of critical terms reduces variation</td>
<td>C+</td>
<td>Reduced variation for input of key terms</td>
</tr>
</tbody>
</table>

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Source: EAB interviews and analysis.
## IT Forum Research Overview

Deep Bench of Knowledge in Higher Education’s Strategic Challenges

### IT SECURITY AWARENESS

**Hardwiring Breach Response**
- Designating key roles for Incident Response Leaders and Teams
- Establishing critical decision and workflow policies

**Making Risks Relevant**
- Turning mainstream media security news into just-in-time executive education
- Framing cyber risks in ways that unit leaders understand

**Vividly Demonstrating Vulnerability**
- Informing security discussions with real data on risks (e.g., from DLP platform)
- Using unit-level peer benchmarks to demonstrate security gaps

### DATA GOVERNANCE AND ANALYTICS

**Sustaining Data Governance Efforts**
- Automating Data Access Rights
- Structuring the data governance teams to match tasks with capability

**Developing A Common Data Dictionary**
- Instituting Fast-Cycle Decision Frameworks to efficiently define terms
- Providing accessible and user-friendly data definitions

**Incentivizing Data Quality**
- Rewarding data stewardship through formal recognition of time and effort
- Measuring data quality with scorecards to increase management

### IT STRATEGIC PLANNING

**Aligning Institutional and IT Goals**
- Ensuring IT’s activities are focused on moving the institutional forward
- Improving justification for IT spend

**Crafting Thoughtful Communication**
- Demonstrating the value of IT to campus stakeholders
- Providing perspective that connects activities across the institution

**Maintaining Prioritization Principles**
- Adopting a criteria for decision for IT resource allocation
- Maintaining focus through evaluating priorities using a value-add formula (ROI)
Immediately Available to Our Members

Implementation Resources to Aid Initiatives

**IT SECURITY AWARENESS**

**Templates and Tools**
- Security awareness KPI compendium
- Communication templates for board education, self-phishing prewires, and department score cards
- Draft language to develop policies on cyber risk mitigation

**Data Breach Response Toolkit**
- Diagnostic to self-evaluate preparedness for a data breach response
- Exemplar structures and communication templates in event of a data breach
- Key indicators for industry cyber security

**Expert Webinars on Research**
- On-demand webinars featuring experts discussing our best practice research on elevating security awareness
- Ongoing interactive webinars explaining our data breach preparation toolkit

**DATA GOVERNANCE AND ANALYTICS**

**Templates and Tools**
- Privilege Matrices for Role-Based Data
- Algorithms for a "Recommended Reports" Function
- Data Management Leadership Job Descriptions

**Exemplars, Guides, and Diagnostics**
- Exemplars of position descriptions, organization charts, terms to define list
- Guides to improve data entry processes, select data governance committee members, and build a data map
- A diagnostic tool to measure an institution's BI maturity

**Expert Webinars on Research**
- On-demand webinars featuring experts discussing our best practice research on data governance, data quality, analytics and BI
- Ongoing interactive webinars discussing past and current research increasing campus wide adoption of analytics

**PLANNING AND ASSESSMENT**

**IT Functional Diagnostic**
- An internal self-assessment on the 29 core activities of an higher education IT function
- A benchmark to determine how schools compare on a standard set of capabilities
- A tool to help prioritize investments based on institution specific needs

**CIO Leadership Series**
- Technical and employee skill matrices for succession planning
- Checklists and questionnaires for the outgoing CIO to smooth the transition
- Templates, checklists, and primers for an incoming CIO

**IT Strategic Planning**
- Onsite presentations and webinars that focus the IT strategic planning process
- Slide template for capturing the information that makes up the IT strategic plan
- Input on key components to an IT strategic plan
2015 Research Agenda
From Potential to Peak Performance

Developing Data Fluency

**Targeted Skill Building Initiatives**
*A Blueprint for Improving Fluency and Engagement*

- Identifying high-impact content to spur engagement with available reports
- Deploying integrated dashboards and visualization of data to facilitate adoption
- Developing trainings to increase the use of data in decision making

**Incenting Use of Analytics Adoption**
*Strategies for Enhancing Staff Adoption of Analytics*

- Rewarding campus members for application of analytics to improve processes
- Establishing expectations that require decision makers to utilize data for requests and proposals
- Ensuring data ubiquitous across campus and frequently referred to by campus champions

Student Success Lifecycle

**Prioritizing IT’s Role in Student Success**
*Processes to Streamline IT Support Mechanisms*

- Identifying relevant data sets and sourcing root cause problems from campus members
- Prioritizing data sources and analyses that can have the greatest impact
- Communicating the information effectively with students, faculty, and staff

**Enabling Institutional Success**

**Managing IT for Institutional Excellence**
*Capabilities Necessary to Realize Campus Goals*

- Measuring maturity on IT functional capabilities to prioritize investments
- Creating informed plans to increase efficiency