CONFRONTING CULTURAL ROADBLOCKS TO A DATA-INFORMED CULTURE: DATA LITERACY & DATA DENIAL

PRESENTED BY:
Oregon State University • University of Tennessee • EAB
October 31, 2018
Confronting Cultural Roadblocks to a Data-informed Culture: **Data Literacy & Data Denial**

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Director and Faculty Member
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OREGON STATE UNIVERSITY

• Land Grant University – Est. 1868
• 32,000 Students
• 9 Colleges
• 4 Campuses
• 34 Extension Offices
Data Literacy
2013
DATA DRIVEN UNIVERSITY
‘single version of the truth’
‘free the data’

2018
DATA INFORMED DECISIONS
‘understand the data’
‘trust in the data’
## IAR DATA ANALYTICS OBJECTIVES

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<td>Next Generation Data Warehouse</td>
<td>Policies and Business Process that support data integrity and data security</td>
<td>A literate workforce trained on the definition and use of data</td>
<td>Reduce barriers to information access and enable “Citizen Data Scientists” and access to data and analytics toolsets</td>
<td>Establish central Data Science Center of Excellence and Innovation Laboratory for decision support, process automation, and advanced analytics proof of concept and development</td>
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<td>Outcomes</td>
<td>Develop tool agnostic Data Warehouse (DW) Architecture</td>
<td>Data Governance Committee overseeing data access, data security policies, and software and data interoperability</td>
<td>Communities of Practice that support data literacy through a shared knowledge base, and advance understanding of data management and analysis practices</td>
<td>Suite of public and internal facing University Strategic Plan 4.0 dashboards</td>
<td>Innovation Laboratory to conduct proof of concept testing and development of advanced data visualization and AI technologies</td>
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<td>• Sunset Legacy Data Warehouse</td>
<td>Data Maintenance Subcommittee tasked with review of data policy and business process that impact data quality and data integrity</td>
<td>Increased data security and quality by mitigating data misinterpretation and misuse</td>
<td>Data Reference portal with embedded intelligent search algorithms and interfaces to assist in data/report discovery.</td>
<td>• AI Assistant (voice and chatbot) interfaces to enable quick access to university data</td>
<td>• IAR Data Analytics Center providing decision support ad-hoc data discovery and visualization services</td>
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<td>• Build a &quot;certified&quot; data repository (CDR) of “trusted” data which serves as a “single source of the truth” for trend analysis and official reporting</td>
<td>• Centrally developed certified reports and dashboards that provide “trusted insights” into operations</td>
<td>Interactive IR Fact Book, Enrollment Summary, Graduate Program Review, and College Program Review</td>
<td>Support for user selected and centrally supported self-service analytic tools for data query and visualization</td>
<td>• AI technology integration for self-service decision support (i.e. Watson, Thought Spot)</td>
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<td>• Finish CORE Operational Data Store (ODS)</td>
<td>• OSU Data Dictionary and web enabled data resource toolkits</td>
<td>• Centralized predictive modeling capabilities to support high level decision support and strategic planning</td>
<td>• Interactive IR Fact Book, Enrollment Summary, Graduate Program Review, and College Program Review</td>
<td>• Machine learning implementation to support business process automation</td>
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<td>• Deploy CORE ODS and CORE application in Cloud</td>
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Data Literacy

Empowerment
IF YOU BUILD IT, WILL THEY COME?
Data literacy is the ability to **read, write and communicate** data in context, including an understanding of data sources and constructs, analytical methods and techniques applied, and the ability to describe the use-case application and resulting value.

**Data and analytics leaders must champion workforce data literacy as an enabler of digital business, and treat information as a second language.**

- Gartner
Dual Degree Enrollment Headcount with Data Literacy

**Line Staff**
- Enter degree record into Banner with a consistent hierarchy for degrees

**Systems**
- Transform and ETL so degrees can be counted in multiple ways easily

**Advanced Analysts**
- Create Enrollment Reports one for primary degrees and one for all degrees
- Run Report for Dean understanding which the report they need

**Citizen / Consumer Analyst**

**Decision Makers**
- Dean sees there are only 3 Students Enrolled
- 114 students and the enrollment as increased 10%

**Data Creators**

**Data Readers**

**WHAT HAPPENED?**

**WHAT WOULD HELP?**

**HOW ABOUT NOW?**
WHERE DID WE LAND?

We want a community where all the data creators and readers understand and trust the data.

IN SHORT, WE WANT A DATA LITERATE ORGANIZATION.
THE OSU DATA LITERACY INITIATIVE

DATA FLUENCY

DATA COMMUNITY
DATA FLUENCY
‘understand the data’

Asking good questions
Statistical literacy
Information security
Common definitions
DATA COMMUNITY
‘trust the data’

Connection
Awareness
Activity
Giving
Continuous learning
Data Literacy Strategy Building

I. Start with the **DATA HUNGRY** and the **DATA CURIOUS**.
Data Literacy Strategy Building

II. Identify the LOW HANGING data literacy SKILL FRUIT.

“I attended the first level Excel training last month. Today I used the text to column function that I learned in the training. Just wanted to say thank you for doing these trainings because the info you shared is helping me update my spreadsheets quicker (which leads to having more time for human interaction).”

- Academic Advisor
When 25 percent of people in a group adopt a new social norm, it creates a tipping point where the entire group follows suit. This shows the direct causal effect of the size of a committed minority on its capacity to create social change.

Centola et al. Experimental Evidence for Tipping Points in Social Convention
Ⅳ. Convene communities that **SHOULD EXIST**, but don’t.
Data Literacy Strategy Building

V. Start with a solid base, then CUSTOMIZE, CUSTOMIZE, CUSTOMIZE.
Our 6 Things

Wayfinding

Definitions

Security

Using Tools

Data Sources

Work with Us

What everyone needs to know
WE ARE IAR

Institutional Analytics & Reporting (IAR) is the central university organization responsible for providing access to actionable and accurate information, we lead the OSU community to organize, strengthen and advance institutional reporting, analytics and data literacy across the institution.

Institutional Research (IR)
- Certified university data and reports
- External reporting & surveys
- Official university statistics & metrics

Business Intelligence Center (BIC)
- Build & maintain official university reports
- Support CORE, GRS & OSUF reporting systems
- Provide decision making support tools

DATA REFERENCE DESK
- Data Security
- Report Portal
- OSU Data Dictionary
- FAQ and Help Docs
- Training and Education
- Data Warehouse Sunset

CONTACT IAR
Need help finding a report? Have a question and need to chat with someone? Contact IAR and someone will respond as soon as possible.

SUBSCRIBE TO OUR MAILING LIST

OSU Email Address
DATA REFERENCE DESK

REPORT PORTAL
DATA. INSIGHTS. DECISIONS.

Search by function or category for CORE reports, dashboards and workbenches to meet your data needs.

VIEW

OSU DATA DICTIONARY
REFERENCE. DEFINE. VERIFY.

Learn more about institutional data definitions, associated security and the many terms and concepts used in CORE reports.

VIEW

TRAINING AND EDUCATION
CONNECT. ENGAGE. LEARN.

Find training, workshops and opportunities to build your data literacy skills and understanding of institutional data.

VIEW

FAQ AND HELP
SEARCH. DISCOVER. REQUEST.

View comprehensive FAQ’s and detailed help documents to help you navigate CORE, GRS and OSUF.

VIEW

CONTACT IAR

Need help finding a report? Have a question and need to chat with someone? Contact IAR and someone will respond as soon as possible.

Email Us

SUBSCRIBE TO OUR MAILING LIST

OSU Email Address *

First Name *
REPORT PORTAL

Search

Search for a title or Report ID

Apply

Reset

Category

- Strategic Metrics
- Completion
- Migration
- Admissions
- Experience Learning
- Finance
- Enrollment
- HR
- Curricular Success
- Research
- Reports by Function

Strategic Metrics

DDB0110
College Success Metrics

Dashboard
Security: IRM1
Certified

DDB0120
Course Enrollment and Teaching Trends

Dashboard
Security: STU3
Operational

IRM5406
Credit Hours by Student Primary College & Major

Dashboard
Security: IRM1
Certified

Finance

DDB0510
University Finance Dashboard

Dashboard
Security: FIN3
Operational

HR

DDB1253
Employee Statistics

Dashboard
Security: HR3
Operational

Reports by Function

Login to CORE

About Report Portal

Search by function or category for CORE reports, dashboards and workbenches to meet your data needs.

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WHAT’S NEXT FOR DATA LITERACY?

“By 2020, 80% of organizations will initiate deliberate competency development in the field of data literacy.”

- Gartner
Food for Thought

GIVE PEOPLE WHAT THEY NEED AND JUST A PINCH MORE

Data Literacy is for everyone. All roles. All levels.
Food for Thought

Listen and be open to both praise and criticism.

“...These people are members of the community that care... So what I hear when I’m being yelled at is people caring loudly at me.”

- Leslie Knope, Parks and Recreation
Food for Thought

YOU WILL ALWAYS HAVE MORE TO LEARN
Food for Thought

This is the work of bringing together **technology**, process and **people** and is as much about the head as it is about the **heart**.
THANK YOU

References


Confronting the Cultural Roadblocks to a Data-Informed Culture: Data Literacy and Data Denial

Dr. David Rausch, Associate Dean, College of Health, Education and Professional Studies, University of Tennessee at Chattanooga

Rodger Patience, Director and Faculty Member, EAB
Cycle of Providing Student Support and Services

Best Practices and Data-Informed Decisions

- Recruitment
  - Growing size and quality
- Advancement
  - Cultivating alumni
- Onboarding
  - Practicing appropriate interventions
- Careers
  - Life after degree
- Retention
  - Reducing costs and streamline time to degree
- Graduation
The Five Stages of (Data) Grief

Gaining Data Acceptance a Process, Not a One-Time Dictate

“Data-driven decisions? Yeah, I’ve heard that one before. This too shall pass.”

“Let’s not rush into this. We need a committee to do a comprehensive study of academic performance metrics.”

“This data might actually help us make smarter decisions. Besides, it’s the only way to get resources from the provost’s office.”

 DENIAL  ANGER  BARGAINING  DEPRESSION  ACCEPTANCE

“I didn’t become an academic just to become part of the corporatization of higher ed. And that data is all wrong, too!”

“I guess we’ll just give up on all of our traditional ideas of quality and intellectual autonomy.”

Source: Education Advisory Board research and analysis.
Three Common Responses To Data

1. “These numbers aren’t right”
   Questioning data validity as a way to disengage from the conversation

2. “Our situation is unique”
   Justifying results with excuses and special circumstances to nullify comparisons

3. “Where we are is good enough”
   Recalibrating expectations to avoid any further need to improve
Addressing the Spectrum of Avoidance

1 “These numbers aren’t right”

Questioning data validity as a way to disengage from the conversation

The Data Denier

When presented with troubling data, the data denier attacks the methodology, rather than seeking to understand it.

2 “Our situation is unique”

Justifying results with excuses and special circumstances to nullify comparisons

3 “Where we are is good enough”

Recalibrating expectations to avoid any further need to improve
Confronting the Data Denier

“These Numbers Aren’t Right”

A Conversation Starts...

“I’d like to talk about the 3% decline in enrollment.”

...and Ends Just as Quickly

“The data is wrong! We had 548 undergrads in 2016! Not 542.”

Resulting Damage

- Immediately shuts down the conversation
- Absolves the “denier” from further engagement
- Fuels further mistrust and cynicism in data
Prepare Well

Thorough Preparation Fuels Confidence Needed to Stay Firm

**When Preparing to Present Data**

- Get metric definitions, clarify methodology
- Anticipate any questions that may arise
- Know the time period and any other filters that have been applied
- Know your audience and what they care about

**Prep the data**

**Plan for the people**

Create a data dictionary as a resource!
Thorough Preparation Fuels Confidence Needed to Stay Firm

When Communicating Data

- Define all terms and explain methodology (even if it seems tedious!)
- Present data in both absolute and relative terms
- Preclude attacks by providing answers proactively
- Be strategic about seating arrangements; pair deniers with data experts or “no nonsense” types
- Apply a discount rate – e.g. “even if we reduce this by 20%…”

A Leadership Moment

Hold. The. Line.

Strong preparation will help counter staunch deniers, but debate beyond a certain point is futile and should be shut down.
UTC Reflects on Best Practices

Shared Data Leads to Shared Decision-Making

**Student and Course Data**
- Course enrollments
- Credits and GPA
- Section capacity
- Majors, minors, and cross-listing

**Faculty Cost and Workload Data**
- Teaching load definitions and per-term loads
- Faculty service and administrative activities

**Academic Program Data**
- Courses, majors, and faculty working within academic programs
- Additional administrative support provided at the department level

*Collaborative Informed Decision-Making*

Source: University of Tennessee at Chattanooga.
Addressing the Spectrum of Avoidance

1. “These numbers aren’t right”
   Questioning data validity as a way to disengage from the conversation
   
   **The Data Denier**
   When presented with troubling data, the data denier attacks the methodology, rather than seeking to understand it.

2. “Our situation is unique”
   Justifying results with excuses and special circumstances to nullify comparisons
   
   **The Unrelenting Unicorn**
   When considering a data set, the unrelenting unicorn rationalizes the data rather than attempting to truly learn from the results.

3. “Where we are is good enough”
   Recalibrating expectations to avoid any further need to improve
Encountering the Unrelenting Unicorn

“Our Situation is Unique”...Just Like Everyone Else’s

A Conversation Starts...

“Let’s look at the high percentage of underfilled music courses.”

...and Ends Just as Quickly

“We’re different! You can’t compare us to other programs.”

Resulting Damage

- Narrows the pool for comparison
- Leaves status quo practices unquestioned
- No opportunities for learning
“Yes and…” Helps Reverse the Narrative

Avoid the Parity Trap Using Affirmative Statements

**Yes and…**

**Start with Agreement**

- Begin by accepting the suggestion, which can:
  - Minimize defensiveness
  - Cut down time spent on explaining unique factors
  - Establish trust, foundation for collaboration
- Be careful not to validate disputes of fact

**Expand the Discussion**

- Add to the narrative they’ve established
- Redirect to a story of improvement, not parity in numbers
- Reiterate that commitment to quality isn’t minimized because of unique factors
- Find common ground with peers to learn from differences
UTC Reflects on Best Practices

Focus on the Journey: What We Do and Why

- Illustrate the Journey
- What We Do and Why
- Behavior and Belief

Source: University of Tennessee at Chattanooga.
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The Lounge Lizard
When thinking about outcomes, the lounge lizard opts to set a lower bar and aim easy, rather than striving for the highest ceiling of success and aiming high.
Motivating the Lounge Lizard

“Where We Are is Good Enough”
Borrowing Lessons From Dunning & Kruger

The Dunning-Kruger Effect

*Illusory Superiority Correlated with Low Competence*

Is Only Skill to Blame?

Not all overconfidence stems from lack of competence. It is incumbent on leaders to provide their teams with visibility into performance and exposure to exemplars.

*Questions for consideration*

- Has the person been made aware of their performance relative to others?
- Has the person been shown what great performance looks like?

Benchmark Broadly

Building Up to Best-in-Class Performance

Benchmark broadly by expanding the scope of comparison

Department Benchmarks

• Department historical performance
• Peer departments at other institutions

Institutional Benchmarks

• Like-departments at institution
• Institution-wide or system-level performance
• National best-in-class performance

Best-in-class Benchmarks

• Ideal performance
• International best
• Out of industry quality measures

If performance is already strong, encourage continued improvement by asking:

Have you translated your success into best practices that can be used to coach others?

How are you publicizing and sharing your success?

If you had to improve another 5%, what would you do?

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**UTC’s Data Journey**

**Concept in Action**

**Shared Vision**
- Student Retention
- Student Progression
- Student Graduation

**Shared Data**
- Students Unable to Schedule Appointments with Advisor
- 70:1 Average Faculty Advising Ratio
- Faculty Advisors Lack Time & Resources to Support High Risk Students

**Shared Governance**
- Established a Central Advising Office to Support First Year Students
- Hired 29 Professional Advisors
- Deployed Professional Advisors to Support Faculty Advisors

**Outcomes**
- 20:1 Faculty Advising Ratio
- 250:1 Professional Advising Ratio
- 4.9% Increase Retention
- 3.1% Increase Average Credit Hour Accumulation
- 5% Increase Graduation Rate

Source: University of Tennessee at Chattanooga.
Tactfully Rebuffing Unproductive Responses

1. **Prepare Well and Hold the Line**
   - Do your due diligence in preparing for the conversation. Remain firm throughout and stay on message.

2. **“Yes and…”**
   - Start with agreement but then expand the conversation to a story of needed improvement.

3. **Benchmark Broadly**
   - Choose increasingly diverse sources for comparison to bring new ideas and innovation to bear.

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“**These numbers aren’t right**”

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“**Our situation is unique**”

Justifying results with excuses and special circumstances to nullify comparisons.

“**Where we are is good enough**”

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Audience Questions