The Issue is Decision Support

EDUCAUSE Virtual PreConference
Using Analytics, Business Intelligence, and Data Management to Advance Institutional Planning

Brad Wheeler

IU Vice President & Chief Information Officer
Professor of Information Systems
“I think you should be more explicit here in step two.”

Vince Cannon, 2015
1. Framing
2. Aligning
3. Defining

A Decision Support Initiative
Challenge #1

Framing an Initiative as Decision Support over BI/BA, etc.
IU’s DSI Goal (future state)

“To **improve decision making** at all levels of Indiana University by dramatically enhancing the availability of timely, relevant, and accurate information to support decision makers”

http://decisionsupport.iu.edu
DSI will affect **People and Organizations**. It addresses changes in culture, roles, authority over data, access, skills, work habits...

DSI will affect **Data and Technology**. Over time, it will address standardizing Data Definitions and change some of the core Data, Information, and Reporting IT.

DSI will affect departments, schools, and campuses across IU. It will provide greater transparency into and across many areas. The focus is to improve **decision outcomes** for IU in a rapidly changing world.

**Time Compressed to 27 Months**
Aligning Decision Support to Where Decisions are Actually Made
A Report Request:

“How many people work here?”

*What do you mean by people?*

*What do you mean by work?*

*... What do you mean by here?*
Haeckel’s Hierarchy model

Enhanced Decision Support

Reports
Business Intelligence
Business Analytics
Etc.

Audience:
Executives?
Deans?
Department Chairs?
There are two components to any analytical exercise. The first step is the often-times tedious gathering of reliable, reconcilable, data in a format that can be manipulated.

Then the real work (and fun) can commence: making sense of the data, discovering relationships, drawing conclusions, modeling, and projecting the future. I am excited by any possibility to reduce the time spent on the former, so our energy can be directed to the latter.

Jill Piedmont
Finance Director, Jacobs School of Music
Example: Finding Enrollment Data

- Downloadable
- Reconciles fully to General Ledger
- Doesn’t display historical data for comparison
- Uses Term Code instead of FY

- Not-downloadable (yet)
- Doesn’t always reconcile with General Ledger
- Displays 5 years of historical data
- Displays FY
How many credit hours at Jacobs?

Credit Hour Enrollment History:

- 6,116 Credit Hours
- 7,138 Credit Hours
Defining What Decision Support is...
Types of Decisions:

<table>
<thead>
<tr>
<th>Types of Decisions:</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured</td>
<td>• Optimization, decision rules, clear data/models</td>
</tr>
<tr>
<td>Semi-Structured</td>
<td>• <em>Blend</em> of known data/models and skilled judgment</td>
</tr>
<tr>
<td>Unstructured</td>
<td>• Unclear choices for data/models, much judgment</td>
</tr>
</tbody>
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Herbert Simon’s Classic:

- **Intelligence**: Finding occasions for making a decision
- **Design**: Finding possible courses of action
- **Choice**: Choosing among courses of action

*Decades* of Research Inform Decision Support
What Tools Provide Decision Support?

- Reports
- Dashboards
- Decision Support Systems

*Danger!*
Three Decision Support System Components

Data Sources
- Operational
- Historic Data
- External, Etc.

Models
- Stochastic
- Regression
- Simulation
- Etc.

DSS Examples

User Experience
- Ad-hoc Queries
- Scenarios
- Presentation Choices
Avoid the Pitfalls!!
1. Give them more information and decision making will improve.
   - In many cases, decision makers suffer from an overload of irrelevant information more than a lack of relevant information for a decision.

2. Decision makers know what information they need.
   - In many cases, decision makers often request vastly more information than needed to optimally make a decision (exacerbating #1).

3. Give decision makers the information that they need and decisions will improve.
   - In many cases, decision makers do not have refined models of the relevant information that best predict desired outcomes.

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The Decision Support Initiative at IU

http://decisionsupport.iu.edu
DSI Project Pipeline

Many ideas…

Only formal Project Charters advance for consideration and prioritization.

Charters detail merits of the project, scope, commitments of functional staffing, etc.

DSI Steering Council
- Assesses resource capacity
- Approves Charters
- Prioritizes Charters

Charters Queue:
- Project Charter
- Project Charter
- Project Charter
...

Work Queue:
1. Approved Charter
2. Approved Charter
3. Approved Charter
...

DSI Factory
Disciplined, Formal Agile Process

Agile Team #1
Agile Team #2
Agile Team #3

Functional and Technical Staff, Highly Prescriptive Process, Time-boxed 2 Week Delivery Sprints

+ http://ds.iu.edu
- Reports
- Dashboards
- Decision Support

- Education
- Training
- Rollout
- Diffusion
- Evaluation
- Support
- Enhancement
Charters Allocate the DSI Factory

• Projects will proceed via a formal **Project Charter** to engage the resources of Decision Support Initiative (DSI).

• The Project Charter will document the decision(s) to be supported, expertise, staff time commitments and resources.

• The DSI Steering Council, per guidance from the Executive Sponsors, will prioritize DSI Projects and scope.
Finding EXISTING Reports...

Solution:
Ported “one.iu.edu” to be a discovery portal to ANY report or dashboard from any part of IU. **Search replaces Navigation.**

App Store for reports, published, searchable via metadata, qualified for quality.

http://ds.iu.edu
Stuck in Unproductive Conversations

Data Denial, Quarrels over Allocations Consign Schools to Status Quo

How do we allocate joint appointment benefits?

Deans

My library allocation is too high!

Faculty Senate

Cut from Central Administration first!

Private University Task Force: Resolve $15M Budget Shortfall

How can I trust this data?

IR and IS

These enrollment figures are all wrong!

Department Chairs

It will take weeks to confirm the numbers

IR and IS

We’re already understaffed for our workload!

CBO

This is taking too long! Across the board cuts it is

Provost

Source: EAB interviews and analysis.