Overview

How Stony Brook University uses dashboards

Stony Brook’s organization and data environments

Lessons learned
How Stony Brook uses dashboards to improve university operations
<table>
<thead>
<tr>
<th><strong>Stony Brook University Profile</strong></th>
</tr>
</thead>
</table>
| **26,608**
Fall 2021 headcount enrollment |
| **1340**
Avg SAT 2021 Incoming Freshmen (test optional) |
| **94**
Avg HS GPA 2021 Incoming Freshmen |
| **68%**
Undergrad |
| **32%**
Graduate |
| **1/3**
Receive Pell Grants |
| **33%**
White |
| **20%**
URM |
| **15,365**
Fall 2021 employees including hospital |
| **2,866**
Fall 2021 Faculty full-time & part-time |
| **#93**
U.S. News & World Report Rank 2022 |
| **3.8 Billion**
USD Annual Budget |
| **1957**
Founded |
| **2001**
Joined AAU |
THE FOLLOWING DASHBOARDS ARE ASSOCIATED WITH OPERATIONAL IMPROVEMENTS. THE DASHBOARDS DID NOT CAUSE THE IMPROVEMENTS BUT RATHER PEOPLE MADE THE IMPROVEMENTS.

INFORMATION FROM AN ANALYTICS SYSTEM ENABLES CHANGE BUT REQUIRES ACTION

<table>
<thead>
<tr>
<th>Enables change</th>
<th>Informative depictions of data. Some facts may have been altered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not appropriate for all audiences</td>
</tr>
</tbody>
</table>
Selected Undergraduate Success Dashboards

Source: Stony Brook Analytics | Graduation Rate Dashboards
First-time, full-time 4-year graduation rates have increased 18 percentage points in the last seven years.

Over 8 years:

18 \uparrow \quad \text{percentage point increase in 4-yr grad rate}

10 \uparrow \quad \text{percentage point increase in 6-yr grad rate}

Source: Stony Brook University Office of Institutional Research, Planning & Effectiveness
Publicly Available Campus Energy Consumption Dashboards
Energy consumption and carbon emissions have decreased; new energy savings identified

HVAC optimization across 35 buildings over 2021-22 Thanksgiving, and late Dec./Jan. holiday weekends resulted in a savings of 158,000 kWh in electrical energy and 2,938 MMBtu in thermal energy

**20.84% reduction in energy use intensity**
Target = 23% by 2030

**36.81% reduction in Scope 1 and Scope 2 greenhouse gas emissions.**
Target = 40% by 2030

**Holiday Savings**
The energy savings achieved by SBU are equivalent to:

- **18.9 homes’ electricity use for one year**
- **14,246,920 number of smartphones charged**
- **277,202 Miles driven by an average passenger vehicle**
Financial dashboards allow unit and institutional leaders to see current data, trends, and budget to actuals.
Better unit-level budget management has helped the University deal with decreases in state funding and frozen tuition.
Results don’t always improve just because you make a dashboard
Stony Brook’s organization and data environment
Institutional Research reconfigured to include planning & institutional effectiveness

Data Governance System launched. Report & data dictionary standards approved

Significant dashboard expansion in Finance & Admin; Dashboard governance

Expansion of distributed dashboard development

Data Warehouse operational

Data Warehouse reporting line moved to IR

Tableau Server acquired (22 named users)

Tableau Server 8 Cores (unlimited users)

Tableau Server 8 Cores (unlimited users)
Stony Brook’s Organizational Environment

Executive Sponsors
VP Strategic Initiatives
Chief Information Officer

Data Governance Council

Data Governance Administrative Function

Data Stewards
Domain Steward
Domain Steward
Domain Steward
Area Stewards

Data Users

Report standards
Data dictionary standards

Data Warehouse

President
Maurie McKinnis, Ph.D.

Vice President
Strategic Initiatives
Rosemarie Martinelli, M.B.A.

Interim CIO
Information Technology
Charlie McMahon, M.B.A.

Assoc. Vice President
Institutional Research, Planning & Effectiveness
Braden J. Hesch, Ph.D.

Sr. Data Scientist
Nora Galambos, Ph.D.

External Survey Manager
Shaukat Malik, Ph.D.

Data Manager
Theresa Diermer, M.A.

Sr. Analytics Developer
Sean Hoffman, M.S.

Director
Strategic Analytics
Kim Berlin, M.S.

ENTERPRISE DATA AND ANALYTICS

Microsoft SQL Server

Data Users

Domain Stewards
Domain Stewards
Domain Stewards
Area Stewards
The university data environment
Stony Brook's data environment (simplified)

Data assets flowing into data warehouse (Nat'l Student Clearinghouse)

Data assets flowing into Tableau (IPEDS, rankings)

PeopleSoft
- Student
- HR
- Finance

Systems receiving ERP data; no other links (25 Live, Library)

Systems receiving ERP data with subsequent warehouse links (ClockWorks, LMS)

MS Reporting Services

SQL Server

Tableau
Three models for dashboard development at Stony Brook
Model 1: Dashboards developed by dedicated university analytics unit

Pros: strong dashboard design and functionality; consistent design; can work with no additional resources

Cons: less expertise with underlying data; additional time for QA and consultation, volume and speed limitations
Model 2: Dashboards developed by analyst embedded in dedicated university analytics unit with salary support

Pros: strong dashboard design and functionality; consistent design; faster dashboard development

Cons: less expertise with underlying data; additional time for QA and consultation, supervision & training take development time from supervisor; “two bosses”; additional resources
Model 3: Analysts in various units develop dashboards following university standards

Pros: rules for consistent design; responsibility clearly assigned; capacity to scale

Cons: QA relies upon strong processes in all development units; reliability issues in one area reflect poorly on all other areas; enforcement of rules requires resources; despite an inventory, no one knows exactly what we have.
### Stony Brook dashboard governance – Rules of the Road

**Site managers responsible to ensure and maintain**

<table>
<thead>
<tr>
<th>Access management</th>
<th>Required folders</th>
<th>Development standards</th>
<th>Testing standards</th>
<th>Organization standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal to Tableau server</td>
<td>~Archive</td>
<td>In designated Development folder</td>
<td>Function review</td>
<td>Most important dashboards to left</td>
</tr>
<tr>
<td>May use Active Directory groups</td>
<td>~Data source</td>
<td>Restricted access</td>
<td>Data review</td>
<td>Numbering standards (01, 02, 03…)</td>
</tr>
<tr>
<td>Written procedures</td>
<td>~Development</td>
<td>Style guide</td>
<td>Design review</td>
<td></td>
</tr>
<tr>
<td></td>
<td>~Testing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>~Tools &amp; resources</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lessons learned and final thoughts
Design is as important as content

- Develop, disseminate, and follow a style guide
- Visualization principles:
  - Charts, not tables
  - Tell a story
  - BANs (“Big-Ass Numbers”)
  - Left-to-right design
  - Limit visual elements
- Build accessible dashboards at the outset
Invest in professional development

- Formal, instructor led
- Tableau Conference
- Train-the-trainer
- Communities of practice
Develop and execute a communication plan

- Annual calendar of emails about data availability
- Deliberate broadcast about new/retired features, updates, maintenance
- User categories, lists, email addresses
Monitor analytics views and users; anticipate decrease in other areas

Dashboard views, users, power users should increase

Exclude development staff from metrics

Web site, fact book usage, other data requests should decrease
Final thoughts about analytics implementation

“Confusion and clutter are failures of design, not attributes of information.”

“The value of an idea lies in the using of it.”

“Design cannot rescue failed content”

- Edward Tufte

“If you don’t look good, we don’t look good”

- Thomas Edison

- Vidal Sassoon