From 0 to 60(00+): Speeding to Roll-Out and Beyond

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Agenda

- About UMass Amherst and analytics
- The journey to roll-out
- Data and analytics governance and literacy
- Lessons Learned and the Future
UMass Amherst Profile

- Flagship of the UMass System
- Only public Carnegie highest research university in MA
- Sponsored research expenditures $210M
- Enrollment: 31,000+ in Fall 2019
- 24,209 undergraduates, 7,141 graduate students
- Entering class of 5,731
- 9 Schools and colleges + Graduate School and Commonwealth Honors College
- Over 50 academic department, over 100 undergraduate majors
A (Very) Brief History

2007
2008
2009
...
2015
...
2018

Go Live
Student reporting goes live

Instill a culture of evidence at all levels that applies the best possible information and analysis to decisions.
Project Timeline

- Contract signed May 2018, promise of delivery of Student Core Analytics platform in 9-12 months

Jun 2018 | Jul | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr 2019

Planning

Data Discovery

Technical Build

Data Model Validation and Content Development

Analysis and Support Planning

Roll-Out / Training

Campus kick-off meeting
Project Structure

- Executive Committee
- Steering Committee
- Project Leads (IT + IR)
  - Project Team
  - Project Manager
- Subject Matter Experts
- DBA/Network Team
- Client Relationship Manager
- Implementation Consultant
- Data Scientist/Analyst
- BI Engineer
- Architect/Data Engineer(s)
- Cloud Engineer
• Provide university leadership with an intuitive, interactive analytics solution that centralizes and connects key student data across the institution to provide a homogenized and comprehensive view to facilitate forecasting and enable better decision-making. These data sets include Admissions, Financial Aid, Course Enrollments, Persistence, Retention, Degrees Awarded, and Course Faculty.

• Deploy priority analysis areas and dashboards (Enrollment and Student Success) to campus leadership by Spring 2019.

• Provide ability to conduct ‘deep dive’ analyses based on strategic priorities and create and display Predictive and Statistical Models using HelioCampus data science resources and capabilities.

• Provide OIR and other analysts with a flexible, extensible analytical data platform with the ability to create new data and reporting models to answer business questions that haven't been addressed before or via standard HelioCampus models.
Technical Build, Data and Dashboard Validation

- Technical: network, replication/ETL, data model build
- Validation (data and dashboard) – cannot do one without the other
  - Most time-intensive part of project – took much longer than expected
  - Bulk of time scheduled over IR’s busiest period
Data and Dashboard Validation

- Process starting to bog down
- No real timelines

Steering Comm demo

Onsite Exec demo

Student Movement Financial Aid

Student Success

In person working session

Class Faculty Admissions

Persistence/Retention/Graduation Data Validation

Enrollment Data Validation (including Census)

Sept Oct Nov Dec Jan Mar
Validation to Roll-Out

• Vision: 
  – Launch all dashboards and content to everyone on campus!

• Key tasks:
  – Final data/dashboard clean-up
  – Final roll-out plan
  – User provisioning
  – Data governance
Roll-out and Launch

- Messaging about expectations
- Decision to launch to ~150 users, with demo/training required
- Tableau permissions were automated via user roles
- Meetings scheduled with Chancellor, leadership cabinet, campus planning, steering committee and other campus leaders
- Content was perfect:
  - Dashboards with high familiarity data
  - Something new in high demand
Launch Day(s)

- 8 demo/training sessions given over a week
  - Attended by over 100 people
  - No attendance = no access

- Team-building/reward

- Immediate feedback overwhelmingly positive, people were logging in and using data (~70% had logged in within first month)

- Receiving requests to be added as a user
Roll-Out – Round 2

Why?
• Increased demand for data
• Campus priority is around student success

What?
• Same content as initial launch with improvements + new dashboards: retention/graduation, course success, financial aid

Who?
• Expansion of users to include all with provost/dean/director in title + department chairs (~200 people)
• New users need mandatory training/existing users offered optional training on new content

When?
• August 2019
Roll-Out – Round 3

Why?

- Instill a culture of evidence at all levels that applies the best possible information and analysis to decisions.

Who?

- Broad data access to campus community

What?

- All faculty and staff (~6,500 individuals)
- Limited set of dashboards with limited filters
  - Inability to cross-filter (e.g. female URM students)
  - Remove sensitive content like GPA

When?

- No training required
- September 2019
Roll-Out – Round 3 (What? How?)

- Dashboards still require log-in
- Permissions done via two automated processes:
  - User roles in Student Information System
  - Tableau server role assigned based on user roles in SIS
  - Built-in hierarchy of access
Roll-Out by the Numbers

• Over 20 training sessions/demos delivered (multiple sessions on the calendar for the coming month)
• ~250 trained users (100+ more have requested access)
• Campus-wide dashboards are available (but not yet advertised)
  – Open to 7,000+ users
  – ~100 users have logged in to take a look
**Action-Oriented Data Use Infrastructure**

Taking action based on data requires access, contextual intelligence, and a shared code of conduct.

- **Get the data: data access & use**
  - Data extract & dashboard development
  - Validate, define, and incorporate data sources

- **Understand & communicate the data: data literacy**
  - Position-specific data fluency

- **Take care of the data: data & analytics governance**
  - Ensure data availability, quality, and privacy
  - Prioritize and assure unbiased analyses
Additional Data

Tableau Server
Hosts Amherst Data Pond and Flagship Analytics

Future Sources

Flagship Analytics: University Data & Dashboards
- Course Reg Extract
- Retention Extract
- Degrees Extract
- Enrolment Dashboards
- Retention and Graduation Dashboards

Amherst Data Pond
- Provost
- Data Source
- Dashboards
- OAPA Data Source
- Dashboards

Future Sources
- Tableau Server
- Amherst Data Pond
- Flagship Analytics
- Provost
- OAPA
Analytics Strategy – Data & Trust

• UAIR & IT have a good base for disseminating data campus-wide

• How do we now ensure:
  – Decision makers trust the information they receive?
  – The use of student data is consistently in alignment with our mission?
  – Analysts use the minimum amount of data and datasets needed to support decision makers?
  – We do not reify systemic biases?
  – Students experience the results of our analyses as helpful and not creepy?
  – Individuals have mechanisms to control the use of their data?
Data Literacy

Develop fluency for data-driven action

Exploration: Frame questions

Acquisition: Identify/collect relevant data

Interpretation: Analyze data

• Use-focused trainings on Flagship Analytics
• Reporting & Analytics School/College group
• Reporting & Analytics Administrative group
• Campus-wide Tableau User Group (users & developers) – UAIR & IT
• Data literacy programming – UAIR & Library

Communication & Decision making: Discuss and strategize to address issues
Data & Analytics Governance Structure

- Data governance working group: joint UAIR/IT initiative
- Participants will have different priorities for data use, balanced group-wide
## Data & Analytics Governance Work

<table>
<thead>
<tr>
<th>Question</th>
<th>Answers</th>
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<tbody>
<tr>
<td>Where did the data come from?</td>
<td>• Data Flow Diagrams, Lineage</td>
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<tr>
<td>What can you do with it?</td>
<td>• Data Use &amp; Prioritization Policies/Procedures</td>
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<tr>
<td></td>
<td>• Data Use Code of Conduct</td>
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<tr>
<td>Can you trust it?</td>
<td>• Data Integrity/Quality</td>
</tr>
<tr>
<td></td>
<td>• Business Process Review</td>
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<tr>
<td>What does it mean?</td>
<td>• Data Dictionaries</td>
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Lessons Learned

✓ Someone has to own the project and drive it ➔ needs a champion
  ✓ Other areas need to buy-in: executive and functional areas (importance of keeping everyone informed – whether formally or informally)
  ✓ Clear objectives and priorities
  ✓ Timely decision making
  ✓ Importance of IR/IT partnership, using strengths of each area

✓ Data governance and access strategy
  ✓ Acknowledge myriad of data sources and shadow systems
  ✓ Communication is key: iterative process

✓ Requires institutional bandwidth…
Lessons Learned (2)

... and a committed team!
Next Steps

We are live but there is so much more:

• Validating remaining data and dashboards to finish core implementation

• Deep dive into data!
  – Leveraging the data models for custom analyses and dashboards
  – Using new platform to replace existing platform (OBIEE)

• Leveraging the data platform (Redshift) and Tableau for other campus data

• Data governance and literacy
Questions?

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