Using Tableau to derive insight from data at the University Library System (ULS), University of Pittsburgh

Purpose
In 2017, the University of Pittsburgh’s Business Intelligence Unit subscribed to Tableau Server. The ULS’s Assessment and Quality Assurance Unit was in the first group of early adopters at the University to create and publish Tableau dashboards on the Tableau Server. The aim of the initiative was to push all data collected and/or generated by the Unit to Tableau, in order to:

- streamline collection, storage, and presentation of assessment data
- increase access to data and analyses across the ULS
- facilitate understanding of complex data
- encourage data-driven decision making

This poster describes selected examples of Tableau visualizations created to support distinct projects, and how they were used by the stakeholders throughout the projects. It also discusses efficiencies gained by the Unit in producing new visualizations and updates to data.

Design
Several projects, in which Tableau visualizations were used extensively, were selected to examine their role in planning, execution and assessment of those projects. We analyzed levels of engagement with the selected Tableau dashboards and solicited user feedback. We also tested data improvements and internal efficiencies by integrating direct ingestion of LMS data into the Tableau Server.

Case studies

Analysis of collections use: approval plans

- Do materials purchased as firm orders circulate more than materials purchased on approval?
- Which approval plan books circulate more/less than average, and how does this compare to our projected approval plan costs?
- What are the specific actual/projected approval plan costs for a specific call number range?

Service improvements

- What is the workflow for retrieving off-site materials?
- Did changes to the processing of requests from off-site storage result in improved turnaround times? (goal ~ 24 hours or less)
- How many staff do we need at the Hillman Information Desk?

Collection Move Management

- Which volumes will fit on the 2nd floor without splitting call number ranges? What is the most logical way to provide access to our general collections in swing spaces during renovation?
- Which print serials may be candidates for cancellation and/or relocation off-campus?

Case studies findings

Approval Plan Review
Tableau allows for large amounts of complex data to be combined from different sources, and enables users to view either the "big picture" or drill down to specific subject areas, and identify outliers. Visualizations were used to prepare for vendor meetings and review projected plan changes in terms of usage and cost.

Service improvements
(Delivery of off-site materials)
This visualization provides near-real-time information on the turnaround times for patron requests from our off-site storage location. It also enables users to see how different process improvements, implemented incrementally, affect the turnaround times.

Service improvements
(Information Desk staffing levels)
The purpose of this visualization is to uncover temporal patterns and the volume of traffic at the main Service Desk at Hillman Library. Reference activity, together with similar visualizations of circulation data helps in planning for optimal staffing at this service point.

Collection Planning
We are in the midst of a multi-year renovation project and plan to shift and move several collections within limited swing-space over the next several years. Visualizations assisted collection move planning within swing spaces, and also helped identify material that could be shifted off-site.

Conclusions
By keeping stakeholders engaged with Tableau dashboards, we conclude that they:

- helped encourage larger groups of colleagues to interact with the data
- facilitated deeper engagement with data for better understanding and decision making
- established dashboards as "go to" places for relevant information
- provided "ready" graphics for use in reports, presentations, outreach and marketing materials

Internally, with the Assessment & Quality Assurance Unit, Tableau Server:

- helped with the collection and management of data (in absence of ULS data warehouse)
- streamlined our processes by enabling anyone in the Unit to edit and share content
- enabled automated updates of many dashboards via integration with our LMS
- increased visibility of the Unit’s support services and analyses across the ULS

Next steps

- identify more data sources for automated Tableau ingestion
- explore opportunities for combining ULS data with other University-collected data
- communicate added value of Tableau visualizations to support projects and decision making
- test additional Tableau integrations as an alternative to a data warehouse

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