Emory University Improves Core Facility Management via Business Analytics Approaches Combining Stratocore and Other Datasets

Creating and Using Powerful Reporting Dashboards and Visualizations in Power BI[1]

Case Study

Introduction

Emory University's core research facilities are organized across several academic units, including the School of Medicine, the Winship Cancer Institute, the Pediatric Research Alliance, and the College of Arts and Sciences. **Stratocore's** core facility management platform has been used within Emory's core facilities since before the software was commercialized in 2011, and Emory's facilities have extensively used Stratocore for billing users since 2015.

The School of Medicine administers over 17 core facilities that comprise the Emory Integrated Core Facilities (EICF, www.cores.emory.edu). The mission of these facilities is to advance the research mission of Emory University and to aid Emory researchers access and effectively use the latest technologies in support of their research.

Recently, the School of Medicine started to develop and use sophisticated business analytics—in the form of reporting dashboards and visualizations—to capture and present core facility performance indicators across financial and other dimensions. The dashboards and visualizations allow standardized metrics to be regularly produced for all core facilities in an efficient, systematic way that benefits core directors, senior leaders, and other stakeholders.

This case study focuses on the Emory School of Medicine's collaboration with Stratocore to combine Stratocore and other datasets within the University via a popular business analytics tool, Microsoft Power BI[1]—ultimately aimed at:

- Creating core facility data dashboards, and
- Using core facility visualizations and reports.

Challenge and Opportunity

Similar to many research organizations, Emory's School of Medicine had been producing monthly, quarterly, and annual reports on the performance of core research facilities. Historically, these reports were manually developed by downloading activity reports from Stratocore and manually generating summaries and statistics in Excel.

The School, led by Darryl Barr (Associate Director, Research Analytics and Reporting), was interested in whether there was an opportunity to partner with Stratocore and pull Stratocore and other University data directly into a business analytics or dashboarding software application.

Over a short period of time, the School had doubled the number of core facilities that the Dean's Office administers, and research leadership sought more robust information to enable data-driven decisions. These factors, coupled with the manual nature of previous report generation (on annual, quarterly, or more frequent bases), made the development of a process linked to more standardized, consistent core facility metrics very timely.

There was an opportunity for the Dean's Office to:

- Better leverage available data on the performance of core facilities within the School's purview
- Report to School leadership in a way that facilitates investments and financial decisions
- Provide core directors with better, more actionable information about the performance of their facilities
- Ease the burden on core facility directors and administrators stemming from producing their own statistics and reports on a consistent, regular basis
- Standardize some of core facility reports used across the School and make them easier to deliver on schedules as frequently as monthly

Emory Integrated Core Facilities
(https://www.cores.emory.edu)

- Biostatistics and Collaboration Core
- Center for Systems Imaging Core
- Division of Animal Resources
- Emory Comprehensive Glycomics Core
- Emory Flow Cytometry Core
- Emory Gnotobiotic Animal Core
- Emory Integrated Computational Core
- Emory Integrated Genomics Core
- Emory Integrated Lipidomics Core
- Emory Integrated Proteomics Core
- Emory Multiplexed Immunoassay Core
- Emory Personalized Immunotherapy Core
- Emory Stem Cell Core
- Integrated Cellular Imaging Core
- Mouse Transgenic and Gene Targeting Core
- Robert P. Apkarian Integrated Electron Microscopy Core
- Rodent Behavioral Core

[1] Power BI is a product of Microsoft. Similar business intelligence software applications exist (e.g., Tableau).

Creating Core Facility Data Dashboards

Data incorporated into the School of Medicine's business analytics platform originates from multiple sources:

- **Stratocore** – including data on all systems and services: billed revenue, usage, subsidies applied, projects and project milestones, and user and lab group data;
- **University PeopleSoft financials** – including data on revenues, expenditures, subsidy support, and sponsored grant awards; and
- **Local spreadsheet files** – including core facility budget and rate setting data, lists of infrastructure investments, other online calendars, and pending project lists.

With the data sources set up, monthly updates can be produced quickly and easily, and the Power BI software tool provides the ability to look at trend data year-over-year, track budgeted versus actual revenues, explore core facility users by various metrics, and drill down to varying levels across several dimensions.

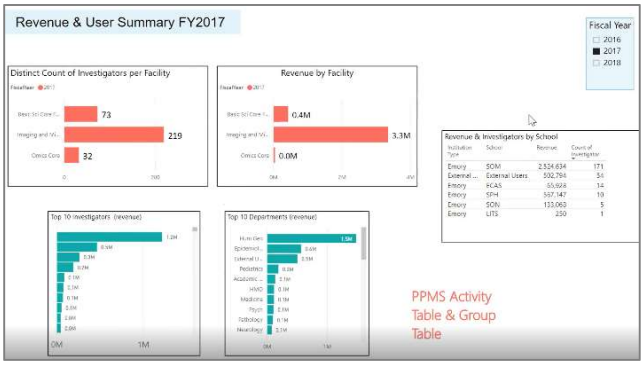

Figure 1. Sample Dashboard View #1. Core facility revenue and user summary.

In the past, when the School's core facilities had annual reporting, the core directors were asked to prepare summary statistics and reports. Invariably, the core facilities would call the Dean's Office and ask for the data. Under the new approach and utilizing the business analytics tool, data are captured, and reports are quickly created, by the School.

Dashboards are created in Power BI monthly, after billing has taken place across each of the core facilities. Flexibility within the Power BI platform allows for custom designs. As an example, reports and visualizations can be adapted to multiple annual periods, for example, the Emory fiscal year (September to August), the differing fiscal year of some Emory-affiliated organizations (January to December), and the specific calendars of some grant and contract awards.

Using Core Facility Visualizations and Reports

Once created in Power BI, the dashboards and associated visualizations and reports are used by a number of School of Medicine stakeholders. These including the core facility directors and Dean's Office personnel with research, financial, and overall leadership responsibilities.

The reports can easily be shared with members of School leadership who are not direct users of the Stratocore platform (and thus would not be using the statistics and reporting capabilities offered inside the solution). With this approach, Emory can summarize and present core facility data in customized ways and, importantly, incorporate other valuable and complementary datasets available within the University.

The School shares monthly Power BI reports with a number of individuals to view online anytime. Reports for financial and other leaders can be created using Power BI as either PDF or PowerPoint files. In addition, the visualizations and reports are being incorporated into the School's quarterly meetings with core facility directors, focused on reviewing facility performance and progression throughout the fiscal year.

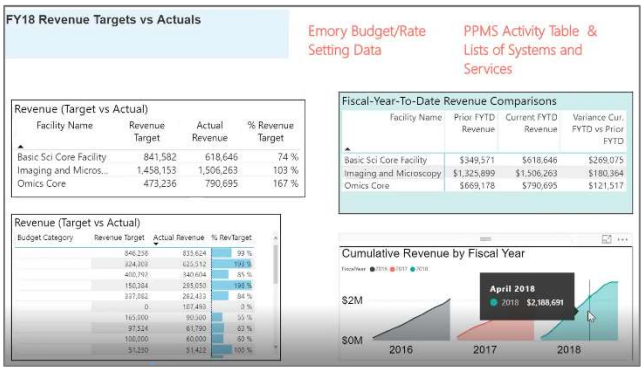

Figure 2. Sample Dashboard View #2. Core facility revenues and percent budget recovery, utilizing Stratocore and University datasets.

One example of a visualization that has been helpful is a large, dynamic table presenting all School of Medicine faculty members as rows and all core facilities as columns. The cells contain user fee reviews from each faculty member's laboratory to each core facility, with the ability to select various time periods. The table is reported to be very powerful, allowing the School to see who the facilities' users are and if there are other faculty members' labs that should be using certain facilities.

The table is also reported to be particularly helpful when the School learns that a faculty member is considering or will be leaving the University—providing the ability to quickly visualize and quantify the potential impacts on core facility revenues at individual and aggregate core facility levels.

Future Directions

The Emory University School of Medicine plans to continue improving the dashboards, visualizations, and reports generated, effectively tuning them to the unique needs of different stakeholders. In addition, efforts are underway in the Dean's Office—alone and in collaboration with Stratocore—to move beyond the historical view nature of the data presented to include more forward-looking and predictive elements.

According to Dr. Michael E. Zwick, Assistant Vice President for Research in the Woodruff Health Sciences Center and Assistant Dean for Research in Emory's School of Medicine, "Using the Power BI tool to efficiently collect and present valuable Stratocore and university data to a wide range of key stakeholders has added a new level of strategic insight to the management of our core facilities. The new process saves an incredible amount of time, removes a burden from the core directors—allowing them to focus on doing great science and providing great service, and provides leadership with new ways to see and absorb critical information about these important components of the School's research infrastructure."

Supplemental Video

A supplemental video to this case study is available at https://www.stratocore.com/our-clients/case-examples/

The four-minute video is an excerpt from a live webinar delivered to Stratocore PPMS clients in September 2018. The webinar was presented by Darryl Barr (Associate Director, Research Analytics and Reporting, School of Medicine, Emory University) and entitled, "Advanced PPMS Reporting: Creating Core Lab Dashboards and Analytics Tools."

(Note: The visuals presented in the video [and in the figures above] are based on de-identified and randomized data, showing three fictional core facilities: a basic science core, an imaging and microscopy core, and an 'omics core.)

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