

Optimizing Resource Allocation for Data Visualization at Oregon Health & Science University

Oregon Health & Science University (OHSU) utilizes diverse data visualization tools but lacks standardized decision-making and a formal governance structure to prioritize these tools. The absence of a standard decision-making process and clear governance structure can lead to inefficient use of resources and increased expenses. We aim to establish a system-level approach for effective resource allocation.

Background

The widespread use of electronic health records has resulted in vast amounts of data that can be used to identify trends and patterns. Dashboards are a strategy for presenting data to those who need it, and they help measure performance, detect outliers, and analyze acceptable performance (Barnum, 2019). OHSU has variances in what types of dashboards are created and the process by which these are approved. This has led to the proliferation of redundant and unused dashboards and increasing costs for licensing fees and maintenance of external programs. For comparative analysis, we evaluated two dashboard platforms targeted at similar data – Mission Control, which monitors inpatient capacity, and the OHSU Connected Care Center (C3), which monitors outpatient capacity. For Mission Control, OHSU decided to use an external vendor, GE Healthcare (GE), and for C3, to build an internal platform via Epic, OHSU's electronic health record system.

Methods

The two methods we used in this process were (1) Business Case Analysis to review the overall decision-making process for Mission Control versus C3's dashboard, and (2) Return on Investment (ROI) Analysis for Mission Control. At the time of this report, C3 is not fully implemented and does not yet have ROI data. We interviewed numerous stakeholders and individuals directly involved in the decision-making process for both services. We analyzed and summarized the content of the interviewees' comments and related financial documents to synthesize formal recommendations. We synthesized interview comments via affinity mapping and used financial records to review return on investment data and each platform's costs.

Analysis and Findings

Several common themes emerged from our interviews, highlighting key issues at OHSU. One prominent issue was the lack of data analytics and reporting governance structure. There are various ways to create and purchase data reporting tools at OHSU, but no central source of information regarding usage or cost. This leads to redundancy and waste as some platforms are duplicative, and some are licensed and unused. Clinical applications have different oversight levels, involving multiple stakeholders and disparate approval processes for prioritizing projects.

Another aspect of the governance challenge relates to the decision-making process of selecting external platform licenses versus internal development. Licensing external platforms increases costs and entails ongoing maintenance responsibilities for the Information Technology (IT) department. However, the criteria for choosing external vendors lack consistency, varying between considerations such as turnaround time and return on investment. The primary analytical framework employed in this case study focuses on evaluating the return on investment.

Retrospective analysis indicates that implementing the GE platform yielded positive returns by optimizing capacity management and facilitating real-time, data-driven decision-making.

Furthermore, the data visualization needs across OHSU display significant diversity. Certain dashboards, such as Mission Control, heavily rely on real-time data to be effective, while others, like the C3 dashboard, can accommodate a few hours of time lag without significantly impacting decision-making. An additional challenge associated with this diversity is using different data visualization tools, leading to limitations in accessibility and familiarity. Consequently, these limitations may impede the adoption and utilization of such tools.

Recommendations

For future decisions on dashboards to be made efficiently and equitably, there must be a governance structure that includes diverse stakeholders and aligns with OHSU's directional strategies. To support the new structure, the following best practices should be adopted:

1. New dashboards will have defined proposals that include information regarding data that needs to be collected, what sources data would come from, what types of reports are needed, how close to real-time the data needs to be, and how soon the dashboard is required.
2. Define clear criteria for prioritizing analytics projects and develop a methodology to evaluate and rank projects based on these criteria.
3. Any change in how dashboards are created and managed must be done in conjunction with a communication plan to disseminate the information to all levels of the organization.

Conclusion

OHSU faces challenges with the proliferation of dashboards, diverse data visualization tools, decentralized management of those tools, and a loosely defined governance structure for investing in dashboards. In the future, OHSU would be best served by requiring defined proposals for new dashboards, evaluating ROI for agreements with external vendors, developing a governance structure for making dashboard investment decisions, and establishing a communication structure for how future dashboards are created and managed.

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References

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