Faced with demands from provosts, parents, and politicians for better educational results, university data managers are turning to analytics to make the data accumulated in ERP systems available to many more users and to translate that information into actionable, cross-functional insights. In the process, they have learned that campus-wide collaboration on data usage is a prerequisite for successful governance and that new, non-expert tools must be created to improve access.

This webinar highlighted that the process of getting any educational institution—particularly a large one—to agree on complex data-governance processes and to use data to make decisions is a long-term journey that requires new tools, new skills, and new attitudes.

**Key Takeaways**

**Accountability is the driving force behind analytics.**

For two decades, universities have been investing in ERP systems, building data warehouses, and accumulating massive amounts of information. Only recently, however, have they begun to leverage those investments in their data infrastructure, driven by accountability pressures from:

- **State budgets.** Most public institutions are facing flat or declining budgets, with legislators calling for substantial spending cuts in higher education.
- **Students and parents.** Under their own constrained budgets, tuition payers are frustrated by continuously rising educational costs and are demanding greater returns on their educational investment.
- **Educational authorities.** Regents and chancellors are turning to outcomes-based performance measures to evaluate and compare public institutions.

Faced with these demands, university data managers are turning to the types of analytics used for business intelligence to extract useful insights from their voluminous (and growing) stored data. Far more than the straightforward compliance reporting that IT has traditionally provided, today’s managers must leverage institutional data to control costs, improve educational results, and add demonstrable value.

Driven by accountability, university leaders are looking to analytics to help change how higher education operates. For example, over...
the past decade, Arizona State University has used analytics to radically transform itself, establishing a dozen new trans-disciplinary schools and almost tripling annual research expenditures to nearly $400 million. Overall enrollment has increased by 27%, with minority enrollment reaching 30% of the student body. Fall 2010 freshman persistence, at 84%, is 10 points higher than in 2002. And between 2008 and 2011, when state support was cut by $200 million, the number of first-time, low-income freshmen increased by 640%.

Effectively leveraging enterprise data demands campus-wide collaboration.

Large public universities are some of the most complex information-management environments in existence. They must cope with a broad range of work activities, cost centers, revenue sources, and employee types, each with unique analytical needs, not to mention political forces.

Those responsible for data management, therefore, are challenged to construct a consistent, comprehensive, and secure information framework, while simultaneously maximizing analytics availability and winning broad, grassroots support.

This juggling act requires:

- **Institutional leadership.** At the University of Washington, a retired dean led a task-force that persuaded the provost to form the broad-based Data Management Committee, which eventually (after 23 versions) drafted a unifying charter of guiding principles. Prior to the formation of this committee, each data-generating unit had managed its own systems and information.

- **Departmental champions.** If rules are perceived to flow from a central office without local input, they are unlikely to be accepted. On the other hand, when representatives from departments as diverse as geophysics, financial aid, food services, and groundskeeping participate in drawing up the rules, community data stewardship is encouraged.

“*We tried for years to take a grassroots approach, but we found we just couldn’t achieve an enterprise perspective.*”
— Sara Gomez

- **Training and communication.** Even the best plan will founder if it is not supported by persistent, long-term education and messaging. As new employees arrive and new data applications emerge, the university must continue its user training and best-practices advocacy. Students themselves—UW has 50,000 and ASU has 72,000—are becoming consumers of campus data as well.

**University data-governance policies rely on strong “constitutional” foundations.**

An enterprise-wide approach to analytics requires good data and effective data governance. (A poll of webinar participants indicated that the majority have not yet begun a data-governance program.)

The reluctance to get started is understandable, since data governance is extremely complicated. Colleges and universities were compared to “loose confederations of guilds,” and each guild has traditionally fiercely guarded its data. At the University of Washington, there are 17 schools and colleges, 50 institutes and research centers, and 50,000 students. In such an environment, data governance is no easy task.

Nevertheless, the University of Washington was able to create a governance structure that encompasses standards for data quality and access, user roles and responsibilities, processes and jurisdiction, and other aspects of data stewardship. The experience at UW shows that achieving data governance in a complex environment is possible.

UW sees parallels between its approach to data governance and the way the U.S. government is organized, with checks and balances
among co-equal branches—and between “data hawks” and “data doves.”

The “revolution” in data governance occurred when the university realized that its aging administrative structures, numerous shadow systems, lack of trusted numbers, and uncoordinated data were jeopardizing institutional strategic objectives. This set the institution on a data-governance journey as shown below.

### The Data-Governance Journey

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<th>From...</th>
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<tr>
<td>Ownership</td>
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<td>Collection</td>
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<td>Expert reports</td>
<td>User dashboards</td>
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<td>Knowledge</td>
<td>Action</td>
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<td>Access</td>
<td>Insight</td>
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<tr>
<td>Anarchy</td>
<td>Governance</td>
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With a Bill of Rights acting as the constitutional framework, the school has:

- An “executive branch” of approximately 25 high-level data trustees
- A “judicial branch” of 55 data custodians, who interpret, implement, and enforce data management standards
- A “legislative branch,” the Data Management Committee appointed by the provost, which guides the creation and maintenance of standards and guidelines

Together, these branches created a map to assign accountability to jurisdictions: mission-oriented domains, such as academics and research, and support areas, such as human resources and finance. In the center lies the master data domain, where information from each of the other domains intersects.

*“Now that control is in the hands of data custodians, we’ve gone from 200 to 5,000 users with access to the data warehouse.”*  
— William Yock

The data custodians are those people who understand their domains’ business processes and are not necessarily the originators.
of the data. For the master data, the office of planning and budgeting (which includes Institutional Research) has custodial responsibility.

Finally, UW’s decision support services team acts as the “State Department” and provides enterprise information management services, including business intelligence, data warehousing, metadata maintenance, and training. For example, as business intelligence notices increases in particular report types, it shifts training and communication.

Ironically, the revolution’s founding battle cry of “Free the Data” has been best served by fine-grained controls that enable custodians to classify data sensitivity and assign roles that can access specific information.

**Data dashboards democratize access and insight.**

Arizona State University initially built its data-reporting tools for actual rocket scientists on campus. With graphical-interface tools such as Brio Reports and an understanding of data structures, specialists throughout the university are able to create reusable “MyReports” queries.

ASU depends on business intelligence tools to track MyReports usage. When a particular analytical task becomes popular, the development team explores turning it into a dashboard.

The experiences at UW and ASU show that with leadership commitment and a university-wide approach to data governance, analytics can make a difference in educational outcomes and in an institution’s operations. A key is to be focused not on the technology or the data but on the use of analytics to derive meaningful, actionable insights.

“**Make sure all the user groups agree with your data definitions and your data-exposure goals. If you expose bad data, people will lose trust in the tools.**”

— Leah Lommel

However, once the wider need for data access was recognized, ASU began to make purpose-built dashboards available for non-experts. Users can reach these data tools from any Internet browser and then download any saved results to Excel or Acrobat.

For example, dashboards can help track a student’s individual progress, measure enrollment trends for capacity planning, provide an overview of a faculty member’s research and teaching load, identify retention intervention points, and advise students on when to take what courses. Students themselves have volunteered as guinea pigs to help developers learn what data is most influential.

“**Clearly we’re competing for students and for resources. ASU treats data as a strategic asset.**”

— John Rome
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