U.S.-Based Technical College Employs New Predictive Analytics to Improve Student Success

The mission of this U.S.-based technical college is to prepare its graduates to meet the resource demands for advanced, emerging technical certifications and associate degrees needed by public and private employers in its state. The state and the college developed a unique outcome-based business model whereby state funding increases when graduates' earnings increase. The college's success depends on a deep understanding of dynamic market trends, the curriculum needed for advanced certifications/degrees, and the right mix of professors and counselors.

Predictive Analytics Requires Internal and External Data

The college's unique funding model required it to identify current, in-demand skills continually, or that might soon be in demand, across its home state. This is a big job, as its state has a large workforce. Additionally, industries were moving into the area briskly, each with its own skills and training requirements. This dynamic environment increased the volume, variety, and velocity of the data necessary to anticipate market shifts and identify workforce gaps and opportunities for students.

Several mergers and multiple cloud systems compounded the college's data challenges. The college's cloud-based CRM, legacy enrollment system, and the state website, which lists employment opportunities, all fed into master records. The myriad data sources made it difficult for the college to manage student data and course history. Data consumers, such as faculty, advisors, and administrators, often could not combine internal data with data from external sources, such as the Bureau of Labor Statistics.

In addition, the college faced increasing competition from other higher-education institutions and private training programs hosted by local multinational corporations. The college needed to understand the skills required by such companies and various industry future needs, as well as the companies themselves.

Modernizing the IT Infrastructure to Combine Disparate Data

The college leveraged the Denodo Platform to develop a logical data fabric that combines disparate data sources in real-time without moving or copying any data. This data fabric enabled data users, including business analysts and student services staff, to connect, combine, and consume data more quickly. The Denodo Platform also simplified data governance, data quality, and data privacy by providing one place to define and enforce policies across the entire data infrastructure (see figure below).

Within weeks of deployment, business users could access data in a self-service manner to meet their goals. For example, the college's student advisors focused on improving student retention rates from one semester to the next. By combining data such as course prerequisites, a student's previous grades, and current in-semester progress, advisors can identify struggling students. This ability to identify potential issues more quickly enabled advisors to intervene with suggestions, such as modifying a student's current course load. Such interventions ultimately helped students finish the semester and boost their confidence to continue in their education.

Other users, such as administrators, identified the need for new programs and courses to meet the needs of their home state's local employers, giving them time to hire new faculty and build the appropriate curriculum. By taking early action, the college was able to advance its mission to increase competitiveness and economic development in its state while simultaneously improving outcomes, such as putting students into high-paying jobs.

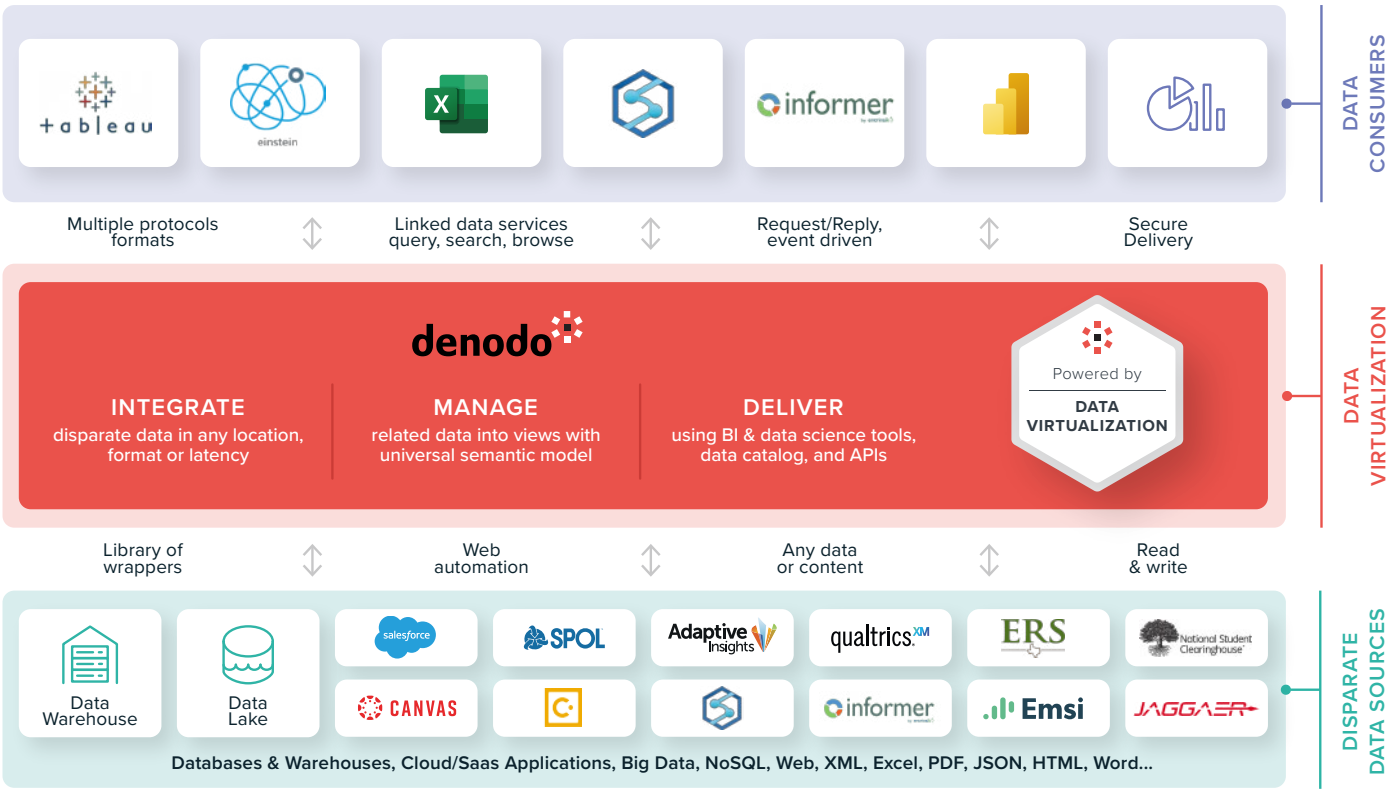

Figure: The college's new data platform

Improving Outcomes for Employers, Students, and the College

Combining internal and external data, coupled with data democratization for the college's data consumers, helped improve outcomes for staff, students, and employers. For example, advanced antemortem analytics helped:

- **Identify the highest-paying employers.** Geospatial mapping enabled the college to identify industry changes and employability wage differentials in each region of its state and across each training program to understand better which companies are hiring their students and which are paying the most.
- **Increase the average starting salary for graduates.** Staff could access data more quickly to help anticipate labor-force skill gaps. By filling these gaps, graduates' starting pay (adjusted for inflation) increased over those of the previous year's graduates.
- **Improve user productivity and make faster decisions:** The college's data users realized a 750% increase in productivity and a 160% reduction in time-to-decision, as data integration time went from days to minutes.
- **Accelerate regulatory compliance and reporting efforts.** Accelerated access to data helped satisfy the data needs of accreditation administrators.
- **Identify new and increased demand for technology skills.** The combined internal and external data helped administrators predict employer needs for new skills and industry expertise, such as robotics, artificial intelligence (AI), and renewable energy.

Next Steps: Data as a Driving Force

The college's journey with Denodo marks a transformative period. As the college continues to merge systems, reorganize operations, and empower its workforce, the institution envisions a future in which data drives decision-making. The college is now on the path to becoming a more agile, responsive, and data-driven educational institution, ready to meet industry and students' dynamic demands.

denodo

Denodo is a leader in data management. The award-winning Denodo Platform is the leading data integration, management, and delivery platform using a logical approach to enable self-service BI, data science, hybrid/multi-cloud data integration, and enterprise data services. Realizing more than 400% ROI and millions of dollars in benefits, Denodo's customers across large enterprises and mid-market companies in 30+ industries have received payback in less than 6 months.