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Analytics in higher education

Your guide to activating institutional data

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Everything you need to turn information into action

Higher education faces an unprecedented need for agility, and data-informed decision-making will be at its core. According to a survey conducted by the National Association of Student Personnel Administrators, 80% of institutions agree that they must continue to invest in student success analytics to stay competitive, but a staggering 67% fail to effectively use the data collected by their Student Information Systems.[1]

Unused data is lost potential. The role of analytics in higher education is to maximize the value of resources and outpace constituent needs. The ability to create strategic plans, execute them efficiently, and analyze their results will differentiate institutions and proactively improve student outcomes.

If modern systems are the vehicles for success, data is the fuel. Applications in the cloud and SaaS help unify people, processes, and technology with a consistent and intentional foundation on which institutions can continuously grow. Wherever your future vision takes you, cloud and SaaS-powered software will get you there seamlessly.

Digital transformation starts with strategy

- Strategize and assess
- Link business value
- Establish governance
- Accelerate and analyze

1. Amelia Parnell et al., "Institutions' Use of Data and Analytics for Student Success," NASPA, 2018, https://www.naspa.org/images/uploads/main/DATA2018_DOWNLOAD.pdf.

How data drives success:

- **Map the future.** Empower students and staff with the information and access they need to plot paths to success.
- **Increase enrollment.** Find best-fit applicants and deliver the right messages exactly when they need to hear them.
- **Save time and money.** Extend existing budget by improving value-added activity and process efficiency, while eliminating redundant manual input.

- **Build networks of support.** Identify students in need of support and provide resources to help them along their academic journeys.
- **Sharpen scholarship programs and prevent fraud.** Ensure compliance with all financial aid policies, while providing new ways for students to fund their education.
- **Strengthen alumni relationships.** Inspire philanthropy by leveraging the priorities of previous classes.
- **Show the ROI of your efforts.** Demonstrate results and iterate on campaigns to accelerate growth.

> We waste data if we don't use it to make decisions and take action.

THOMAS DAVENPORT
Professor of Information Technology & Management, Babson College

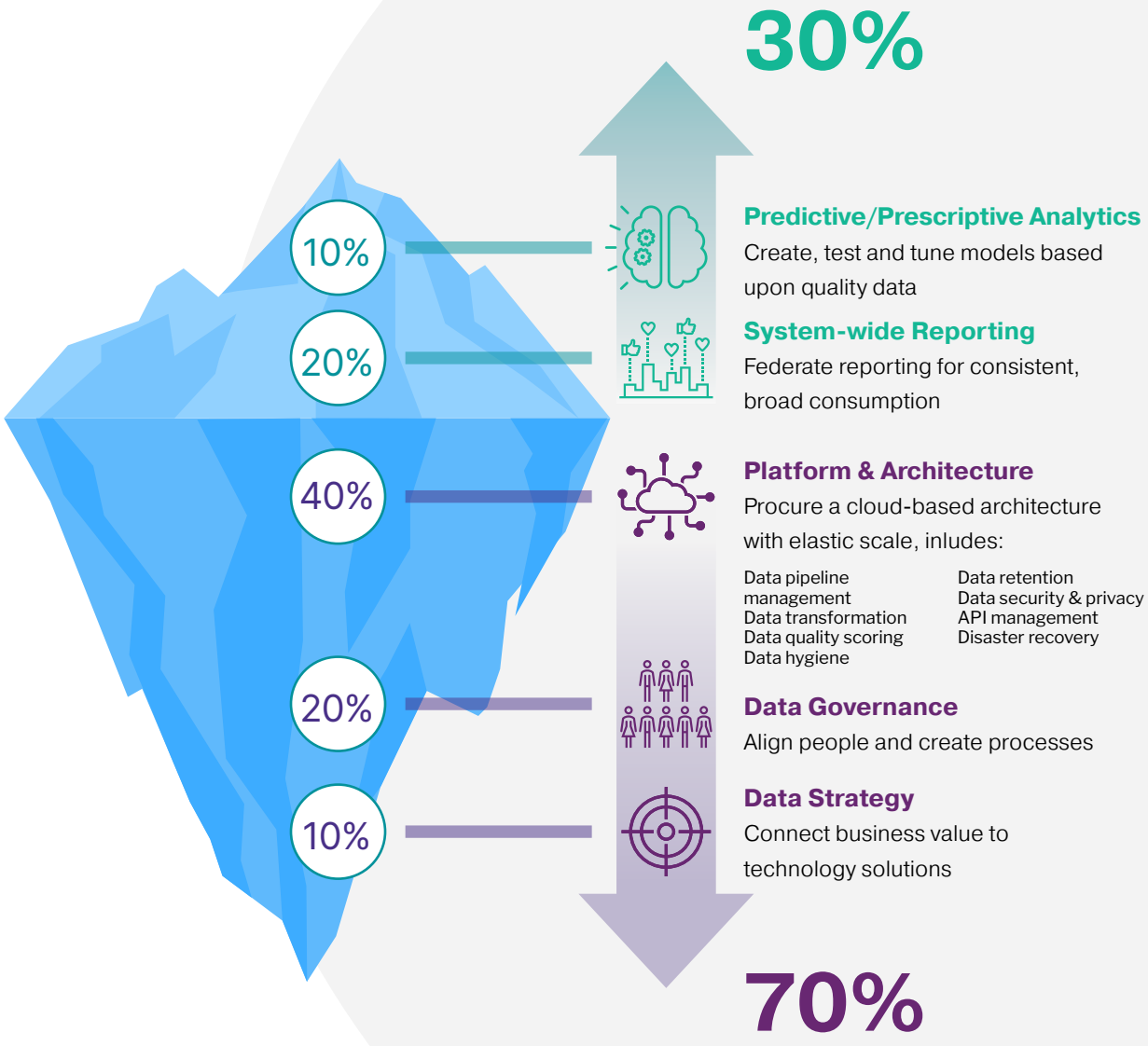
Basics of data analytics and strategy

The analytics iceberg: The visible (and invisible) aspects of successful analytics programs

Analytics programs are complex. We operate in an environment where we have many IT systems supporting our students and business operations. Data from these systems—and from various external sources—can be difficult to wrangle into actionable insights that directly impact departmental efficiency and student success.

Often, we start by trying to solve for the tip of the iceberg by creating an analytic or report, but miss the bigger picture of setting up data-, reporting-, and analytics-at-scale.

To truly democratize data, it is vital to set up the appropriate infrastructure, supporting data models, application programming interfaces (APIs), security and privacy considerations, and tools.



Getting started with data strategy

Most institutions are looking to do more with less, optimizing their existing technology and resources to meet current business needs. Data strategy is the most reliable method of doing so, and while this can encompass a daunting range of tactics, it all funnels down into four key components:

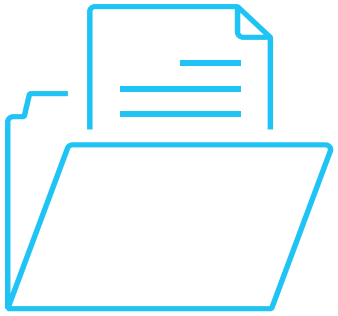
- Clearly documented understanding of business needs and challenges
- Defined use cases to address business needs
- Data architecture supporting all use cases
- A roadmap that reflects your long-term vision

To best optimize technology in support of both immediate needs and long-term goals, leadership must adopt a holistic approach to data strategy. Particularly when sharing information across departments and campuses, it is critical to foster a culture of data-driven decision-making, as well as a shared responsibility for governance.

Why data governance? Why now?

Simply put, **data governance** encompasses all systems used to manage data, including processes for assigning ownership to information, ensuring access for the right people, continuously vetting the quality, and enforcing its security. While these processes describe how institutions "govern" their data, the end goal is to use that data to better govern the institution, leveraging insights to drive efficiency and growth.

The International Data Corporation (IDC) found that only 18% of data professionals' time is spent analyzing information and delivering valuable business outcomes. Instead, they spend 34% of their time preparing data, and 29% of their time protecting data. That translates into a lot of wasted hours.[2]



This is not only inefficient, but also risky. When people can't easily find the data they're looking for, they're prone to recreating it, or tracking it down from an unvetted source, ultimately propagating multiple versions of "the truth" and introducing liabilities.

Not all data sources are created equal. Knowing where your data is coming from builds confidence in your decision-making and helps streamline workflows. As you map your sources, you can ensure that the appropriate stakeholders have access to information they can trust.

In addition to knowing your sources, it is equally important to document what type of data is being collected. Robust metadata will help maintain regulatory compliance with existing and upcoming data classification laws (e.g., FERPA, NACHA), while also beefing up protections for sensitive information. In this way, data governance works in tandem with cybersecurity to keep information safe and institutions running optimally.

2. International Data Corporation, "Time Crunch: Equalizing Time Spent on Data Management vs Analytics," IDC Blog (International Data Corporation, August 23, 2021), https://blogs.idc.com/2018/08/23/time-crunch-equalizing-time-spent-on-data-management-vs-analytics/.

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Breaking down data-related spending

Holistic data solutions are more than off-the-shelf tools. They're institutional strategies that can transform processes on every level. Because of this, McKinsey & Company describes four key areas to factor in when budgeting for data-related spending.[3]

Data sourcing
The cost associated with procuring data from customers and third-party vendors.

Data architecture
The cost associated with data infrastructure (procuring software and hardware) and data engineering (building and maintaining infrastructural approach).

Data governance
The cost of data-quality monitoring, remediation, and maintaining data-governance artifacts.

Data consumption
The cost associated with data analysis and report generation (including spending data access and cleanup).

3. Davide Grande et al., "Reducing Data Costs without Jeopardizing Growth," McKinsey & Company (McKinsey & Company, June 22, 2021), https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/reducing-data-costs-without-jeopardizing-growth.

Optimize your data strategy

As the volume, variety, and velocity of data increases exponentially, the analysis gap—between information quantity and our ability to analyze it—widens, making it critical for forward-thinking institutions to understand all aspects of analytics programs, safeguard information through data governance, and continuously optimize their strategy.

When optimized, data strategy extends the existing budgets, supports value-added employee activity, and improves process efficiency at all levels of an organization. The following steps will ensure your analytics help your institution remain nimble.

1 Align leadership

To maximize the impact of analytics, strategy and leadership must be in sync. As you're determining your data roadmap, start by establishing a set of North Star business priorities that directly link to your current technology, not the other way around. For most institutions, these Key Performance Indicators (KPIs) center on recruitment, retention, and student learning outcomes, but a robust analytics program can drive success in all areas, including advancement, finance, human resources, and procurement.

All governing KPIs should enrich the daily processes of each stakeholder group and provide insights with which leadership can continue refining their data strategy. Evidence-based feedback loops such as these ensure that analytics solutions meet the needs of their primary consumers, while incentivizing the funding needed to carry them out successfully.

> "We've seen two years' worth of digital transformation in two months."
>
> **SATYA NADELLA**
> CEO, Microsoft,
> FY20 Q3 Earnings Call

An investment from the top in solid data strategy is ultimately an investment in business continuity, not only supporting business priorities, but also system-wide cybersecurity. Data logging and acquisition capabilities facilitate fraud detection and forensic review, enabling you to quickly determine the cause of disruptive issues if they occur.

2 Double down on data governance

As the analysis gap widens, it will become impossible to meticulously govern every piece of data, making an effective data governance strategy key to information management that is efficient, accurate, and compliant with privacy regulations. In doing so, you'll also foster an understanding of data and its lineage that will drive analytics efforts and maximize technology's value at an institution.

Outdated approaches to governance fail to strike a balance necessary for optimization, either building a centralized Enterprise Data Warehouse (EDW) with monolithic solutions or foregoing an EDW for multiple distributed analytics systems. A more effective model for governance embraces data democratization, providing a centralized platform as a source of clean, trustworthy information. Decentralized units can then "plug in" to this shared service to access the information they need and manage data in an appropriate fashion.

Data is sensitive, particularly in higher education, where students entrust institutions to use their personal information responsibly. Because of this, ensuring appropriate access is critical. A democratized data governance strategy avoids risks inherent to moving data from one local machine to another by providing a reliable platform with security controls in place, including group and role-based access.

It is important that you protect information while still allowing it to move freely through the organization. The intent is not to hoard data, but to ensure that it is managed, governed, defined, and available to those who need it to make critical decisions.

3 Craft an actionable data and analytics strategy

We are living through a data deluge, and it's only going to get worse. IDC predicts that by 2025, the world will create and replicate 163 zettabytes of data annually, representing a tenfold increase in the annual amount of data generated less than a decade earlier.[4] We need actionable plans—both short- and long-term—to effectively analyze this data and use it for strategic insight.

An effective data and analytics strategy can't be seen as a monolithic approach enforced on an organization. It must be created and refined by engaging with the community, understanding their business needs, and continuously aligning analytics to meet them.

Design-thinking, persona-based strategy connects with users' day-to-day experiences and treats analytics like a software company might treat a product development exercise. By supporting iterative analytic development, you can take stakeholder requirements and turn them into design sprints, meeting individual needs in a matter of weeks, not months.

4 Accelerate data platform work

To become future-ready, institutions need a continuously available, fault-tolerant data platform based on cloud infrastructure, enabling flexibility and supporting the success of future reporting, analytics, and artificial intelligence.

4. David Reinsel, John Gantz, and John Rydning, "Data Age 2025: The Evolution of Data to Life-Critical," International Data Corporation (IDC, Seagate, April 2017), https://www.import.io/wp-content/uploads/2017/04/Seagate-WP-DataAge2025-March-2017.pdf.

The case for a Chief Data Officer (CDO)

While refining your data strategy, consider funding or maturing the role of a CDO in leading your institution's Data Management Office (DMO) and supporting cross-functional stakeholders.

CDOs in higher education not only enable data governance and ensure compliance with regulations, but also support downstream artifacts of data such as transactional reporting, as well as predictive and prescriptive analytics.

Legacy solutions address specific needs but create silos of information that decrease efficiency and compromise decision-making. More institutions are moving away from these disconnected systems and toward platforms like data lakes, large repositories of information that allow for more cross-functional, longitudinal analysis. This can be especially beneficial in higher education, where the applicant-student-alumnus lifecycle rapidly transfers the constituent relationship from department to department.

This doesn't necessarily mean institutions should get rid of their bespoke data warehouses. Instead, create a reference architecture in which transactional reporting, operational data stores (ODSs), EDWs, and data lakes can operate in harmony. By giving your analytics program a multi-faceted toolset, you can perform data science with a high degree of flexibility, enabling a wide range of insights.

5 Fuel the analytics talent ecosystem

Through your strategic planning, remember to enable people. The technology is important, but you'll need technical skills to manage your programs successfully. By offering specialized training for employees, you can accelerate key pilot projects, which in turn help keep staff engaged and motivated.

That kind of community engagement is essential, creating a culture in which everyone can help manage data's quality and use the information to solve real-world problems such as targeting best-fit applicants or identifying current students in need of academic support. By fostering an organization-wide appreciation for analytics, you drive the effectiveness of data across departments.

6 Leverage fit-for-purpose data models and tools

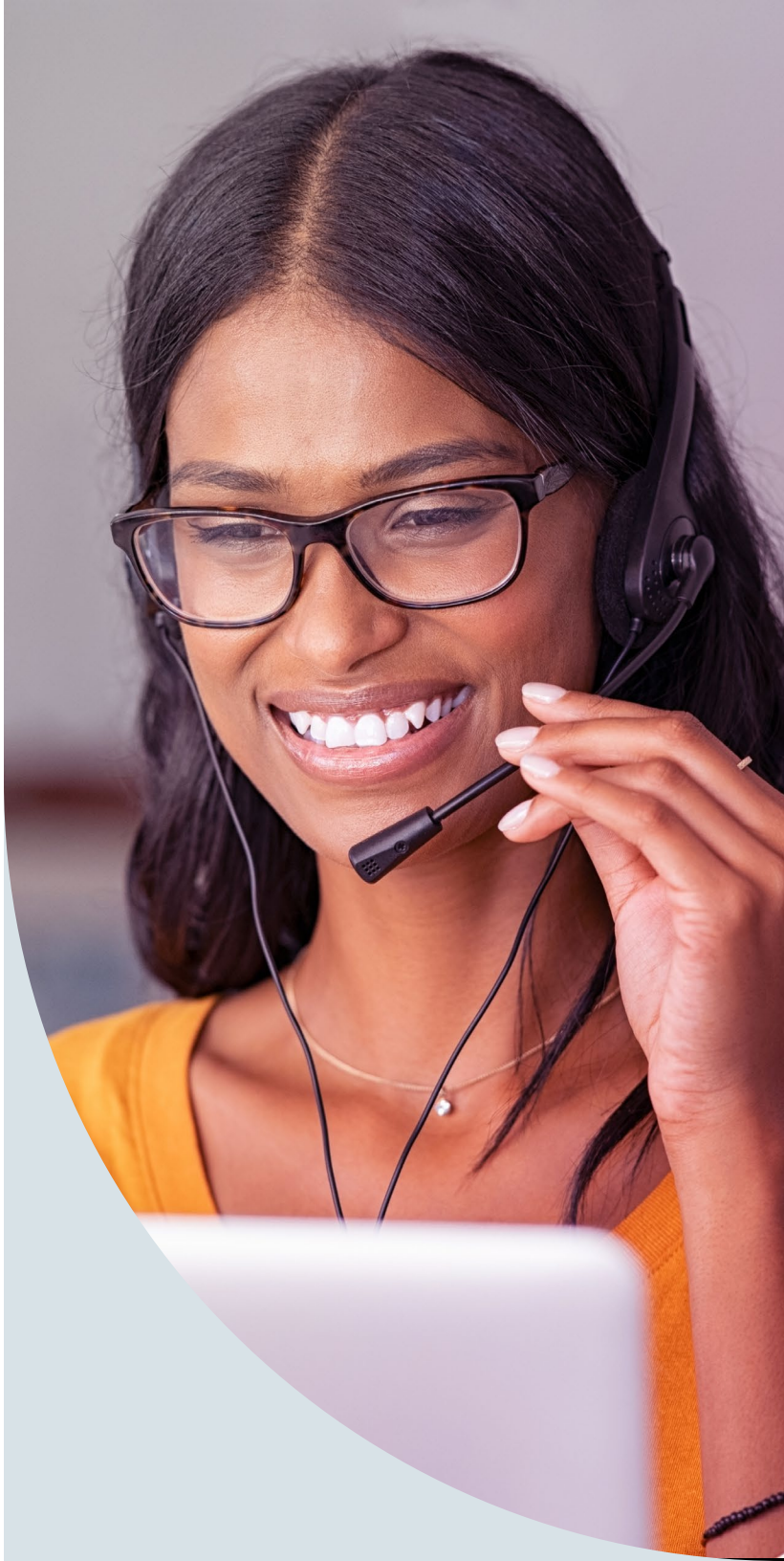
One way to accelerate your data strategy is to use templated data models and analytics tools to “jump-start” your adoption process at an affordable cost. With this approach, you can skip the time-consuming process of defining your own models, while greatly aiding governance efforts with metadata and traceable lineages for all elements already applied.

Look for higher education-centric models that meet common needs with additional flexibility to best serve your institutional goals.

7 Establish analytics DataOps

Data operations (DataOps) involves using agile principles, testing, automation, and measuring outcomes to ensure that valuable information is in the right hands at the right time and brings value to decision-makers more quickly. Data scientists and analysts then spend less time on repeatable, manual processes, and more time innovating.

Successful DataOps programs are made possible by solid governance and metadata. With this in place, you can automate continuous testing of your analytics pipeline to ensure all the data flowing through your institution is verified and trustworthy.

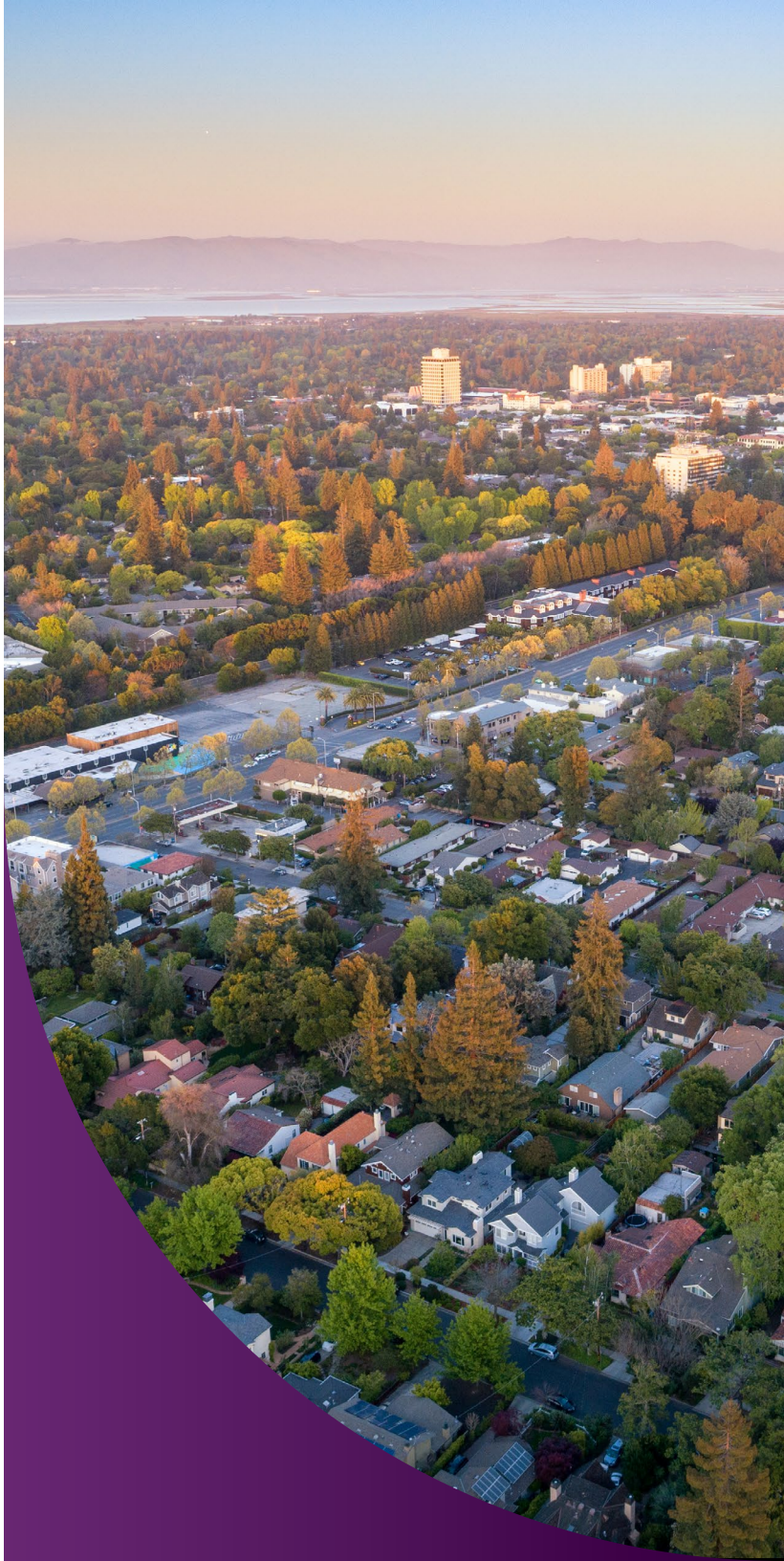


Ellucian Data Management and Analytics Services overview:

Data Strategy Lab	The Data Strategy Lab service provides an immersive, lab-based setting to review best practices and construct a high-level roadmap for utilizing data as an asset. This service helps align people, process, technology, and data along the core pillars of data governance, data quality, data visualization, and analytics.	• Define data strategy • Determine prioritization • Discuss blockers
Data Management Maturity Assessment	The Data Management Maturity Assessment provides an assessment of an organization's maturity level against the core pillars of data management strategy, data governance, data quality, data operations, architecture and supporting processes. Maturity is assessed on a scale of level 1 to 5. The intent is to provide a baseline for maturity and an indication of areas to consider for transformation.	• Identify areas of transformation opportunity • Gain insight from industry-leading practices
Data Governance	The Data Governance service helps establish or mature processes and efforts related to how data is accessed, managed, and federated throughout an organization. Providing illustrations of common data governance models, this service helps establish a working model within particular contexts through close collaboration with institutions. Scoped to include interviews, focus group discussions, and data governance workshops for up to two cohorts.	• Establish or mature a data governance model • Socialize and aid teams to adopt the model

Conclusion

Accelerated by 2020's digital transformation, data has rapidly become higher education's most valuable tool for improving student outcomes. By investing in analytics—and the people, processes, and technology that power them—institutions make themselves future-proof, fueling innovation and data-informed solutions year after year.



Ellucian is the market leader charting the digital future of higher education with a portfolio of cloud-ready technology solutions and services. Serving more than 2,700 customers in over 50 countries, reaching over 26 million students, Ellucian delivers student information systems (SIS), finance and HR, financial aid, integration, analytics, recruiting, retention, and advancement software solutions. Ellucian also supports the higher education community with a range of professional services that includes application software implementation, management consulting, and grants services.

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