



EAB TECHNOLOGY

8 Essential Predictive Models for Higher Education

Improve Decision-Making Across a
Student's Academic Journey



The Role of Predictive Modeling in Higher Ed

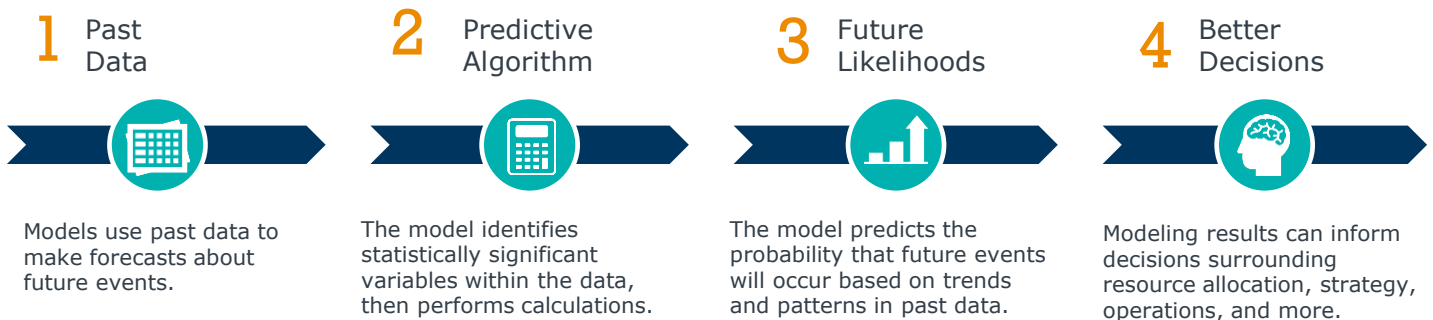
Gain Insight About the Future to Create Better Outcomes for Students

In today's tumultuous higher education landscape, it is more important than ever for institutions to guide strategy with data. With competition for students at an all-time high, some established tactics for courting and retaining students are no longer viable. At the same time,

shaking up an enrollment, retention, or advancement process without strong evidence that changes are likely to make a difference could be a costly mistake in a precarious time.

Done correctly, predictive modeling can provide objective insight to inform strategic decisions across the institution.

How Does Predictive Modeling Work?



As individuals progress through the student lifecycle, institutions refer to them by a variety of titles: prospects, applicants, students, and alumni, to name a few. While nomenclature changes, what remains constant is that every individual makes distinct decisions for their own unique reasons.

It would be impossible to determine how every student will act—and institutions should not even try to make such predeterminations. However, examining trends and patterns across groups of students equips campus leaders to make educated, informed decisions when shaping strategies to influence students positively. This intelligence offers the ability to learn from what has worked in the past and to predict what will work in the future. With training and experience, institutions can drill down to the individual student level and equip enrollment, retention, and advancement professionals to tailor their approach to each student. This granularity allows for personalized guidance and support during many of the critical decision points along each student's path.

Equitability in Higher Ed Predictive Modeling

Use Human Judgment to Foster Positive Outcomes and Guard Against Inequity

When using any higher ed model, it is important to remember that models should enhance, not replace, human judgment in decision-making. Modeling results demonstrate likely outcomes based on past outcomes for students with similar behaviors and/or characteristics. Predicted outcomes are not set in stone, though; if a model predicts an undesirable outcome, institutions can act to change that outcome. Applied thoughtfully, models equip an institution to remove institutional barriers and support students to influence their academic careers for the better.

However, without caution, forethought, and planning, predictive models can contribute to inequality. Models use historical data to make predictions, so it is important to construct your models carefully and to avoid favoring the status quo. Review the variables and methodology the model uses to make its forecasts, and ensure staff and instructors are trained to interpret and apply the model's results correctly.

As an initial gut-check, an institution should ensure its models can be described as transparent, broadly scoped, intentional, and responsive. Using the four characteristics below (along with institution-specific guiding principles), develop a repeatable, standardized process to apply to every predictive model before deployment.

4 Key Characteristics of Equitable Higher Ed Predictive Models

Characteristic

Definition

In Practice



Transparent

Data quality, governance, and privacy policies are open to all stakeholders. The institution has a functional understanding of the model and variables.

Ensure your software or vendor allows you to examine and discuss variables and methodology.



Broadly Scoped

The model incorporates a wide range of variables.

Solicit and embrace suggestions for new variables to include in the model rather than restricting it only to variables with suspected importance.



Intentional

The model undergoes appropriate review and consideration before deployment.

Establish an inter-departmental review committee to incorporate multiple perspectives on the model's methodology and results.



Responsive

The model can be updated to incorporate new information.

Partner with a tool or vendor that allows for changes to modeling variables and procedures.

Source: Ekowo & Palmer, "Predictive Analytics in Higher Education: Five Guiding Principles for Ethical Use," New America, 2017; Ekowo & Palmer, "The Promise and Peril of Predictive Analytics in Higher Education," New America, 2016; Waldo, "The Promises and Perils of Student Success Predictive Modeling," EAB, 2018; EAB interviews and analysis.

How to Use This Whitepaper

In this white paper, we provide an overview of predictive modeling's role in improving decisions across Enrollment Management, Student Success, and Advancement. Additionally, we offer examples of models in action and use cases demonstrating how institutions applied model results to improve outcomes.

Click the links below to skip to sections of interest or read the entire white paper to learn how predictive modeling fits within and between every phase of the student lifecycle.



Phase 1 Prospects

[Prospect-to-Inquiry Model](#)

[Inquiry-to-Apply Model](#)

[Admit-to-Enroll Model](#)



Phase 2 Students

[Student Support Model](#)

[Early Retention Model](#)

[GPA Model](#)



Phase 3 Graduates

[On-Time Completion Model](#)

[Advancement Models](#)

See page 22 to learn how EAB can help as you explore predictive modeling.



Phase 1: Pre-admission and Enrollment Models

SECTION

1

Models explored:

1. Prospect-to-Inquiry
2. Inquiry-to-Apply
3. Admit-to-Enroll

Case study:

How Oak Point University improved applicant outreach efficiency

Pre-admission and Enrollment Modeling

Increase Enrollment and Make Better Use of Admissions Resources

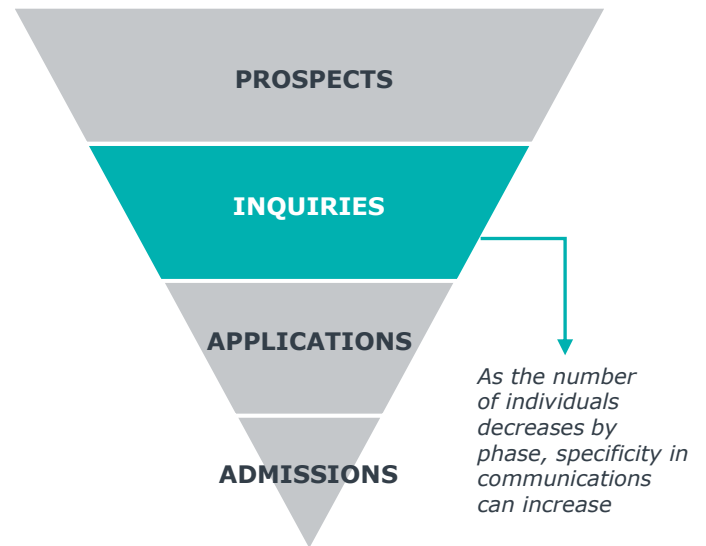
At the outset of the student lifecycle, institutions work to gather a large pool of prospective students, typically with website messaging, list purchases and mailers, and at events like college fairs. Institutions then encourage prospective students to inquire for additional information via email replies or web forms. Inquiries are prompted to apply, and after an institution vets applicants, institutions prompt and encourage admitted applicants to enroll.

To an extent, broad messaging is necessary toward the top of the marketing funnel (see figure at right), and there is no guarantee that prospects gathered with that messaging will be the right fit for a particular institution. However, the higher the likelihood the initial pool of prospects has of enrolling at an institution, the more effective subsequent efforts will be. As potential students work their way further through the funnel and provide more information or models to incorporate, institutions can focus efforts on prospects upon whom outreach will have the largest impact.

This section will demonstrate how predictive models improve messaging, outreach, and operations across the admissions funnel.

The Admissions Funnel

Enrollment Managers Can Tailor Outreach and Marketing Strategies as Potential Students Proceed Through the Funnel Toward Admissions



Pre-admission and Enrollment Models

Prospect-to-Inquiry Model	Inquiry-to-Apply Model	Admit-to-Enroll Model
<p>PURPOSE</p> <ul style="list-style-type: none"> Forecast inquiry volume Rank prospects by likelihood to apply 	<p>PURPOSE</p> <ul style="list-style-type: none"> Forecast application volume Measure each inquiry's baseline likelihood to apply 	<p>PURPOSE</p> <ul style="list-style-type: none"> Identify needs and preferences of admitted students
↓	↓	↓
<p>OUTCOME</p> <ul style="list-style-type: none"> Make operational decisions Expand outreach to new prospect audiences 	<p>OUTCOME</p> <ul style="list-style-type: none"> Tailor marketing efforts to reach likely applicants and underserved populations 	<p>OUTCOME</p> <ul style="list-style-type: none"> Plan the most effective outreach method for each admit

Source: Lakkaraju, Tech, & Deng, "A Framework for Profiling Prospective Students in Higher Education," Dakota State Faculty Research and Publications, 2017; EAB interviews and analysis.

Prospect-to-Inquiry Models

Make Informed Operational Decisions and Prioritize Outreach

In this first phase of the student lifecycle, institutions often know as little about prospects as their name, GPA, and zip code. However, predictive models can still translate this limited information into valuable insight.

Predict Inquiry Volume

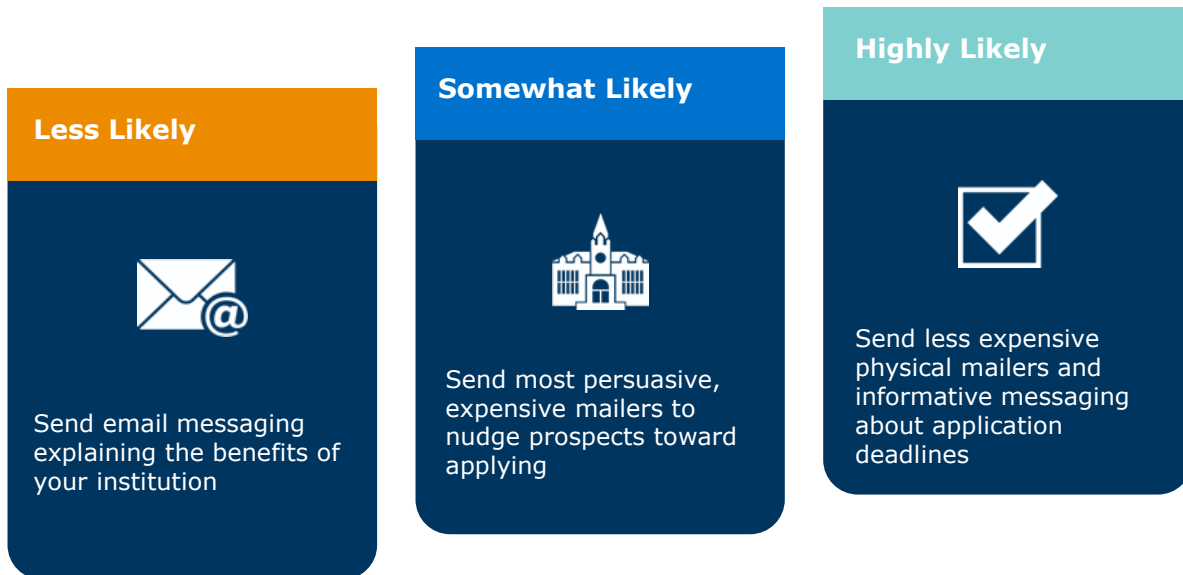
As a first step, predictive models are useful in predicting the volume of inquiries an institution is likely to receive. If the forecast is higher or lower than in previous years, an institution can make operational decisions accordingly. For a lower forecast, maintaining staffing levels or reallocating staff resources may be appropriate. For a higher forecast, perhaps added chatbot functionality is called for or additional staff should be hired or trained to respond to inquiries.

Expand Prospect Pools

Although information is limited at this early stage, predictive models can help institutions determine which prospects stand the highest chance of applying. Using location and GPA data, models group students by likelihood to apply, allowing institutions to make strategic outreach decisions early in the enrollment process. However, due to the limited nature of the available information, institutions should be mindful that prospect modeling results are less definitive than results generated by models further down the enrollment funnel. Prospects identified as less likely to apply should not automatically be ruled out for contact. Rather, institutions can use modeling results to prioritize outreach by method and cost.

Adjust Prospect Outreach Methods Based on Likelihood to Apply

Prioritize Persuadable Prospects to Make Better Use of Resources



At this stage, predictive modeling should be a primarily additive (rather than exclusionary) process. Particularly in today's competitive enrollment environment, it is important to expand outreach to new audiences. Rather than setting out with the goal of excluding prospects from outreach to save budget, models should encourage outreach to previously untapped or underserved prospects. Additionally, remember that the right messaging can show unlikely prospects why your institution is a better fit than they may initially think. Modeling is especially effective when complemented by effective enrollment marketing techniques.

► Amplify your Enrollment Results

EAB offers comprehensive marketing and enrollment solutions, including audience generation and enrollment analytics, to help you reach your goals. Visit eab.com/Enroll360 or email eabenrollmentcomms@eab.com to set up a consultation.

Source: "Lipscomb University Improves Enrollment ROI using Digital Engagement Data," Rapid Insight, 2020; EAB interviews and analysis.

Inquiry-to-Apply Model

Tailor Marketing Efforts to Drive Inquiries to Apply

In the Inquiry phase, institutions have useful (but still limited) data at their disposal. Through website forms or information gathered at events, institutions have typically identified a few key characteristics, such as a program or degree of interest. These data points allow models to go a level deeper in utility.

Forecast Applicant Volume

An institution can use its historical data to forecast how many inquiries are likely to end up applying. Building an understanding of expected applicant volume can inform operational decisions and allow institutions to estimate class size and financial aid outlay using prior conversion rates. This drives home the importance of collecting and maintaining quality, uniform data throughout a student's experience with an institution. A model is only as good as the data it is built from; the more comprehensive the data, the more accurate the model.

Tailor Outreach and Marketing

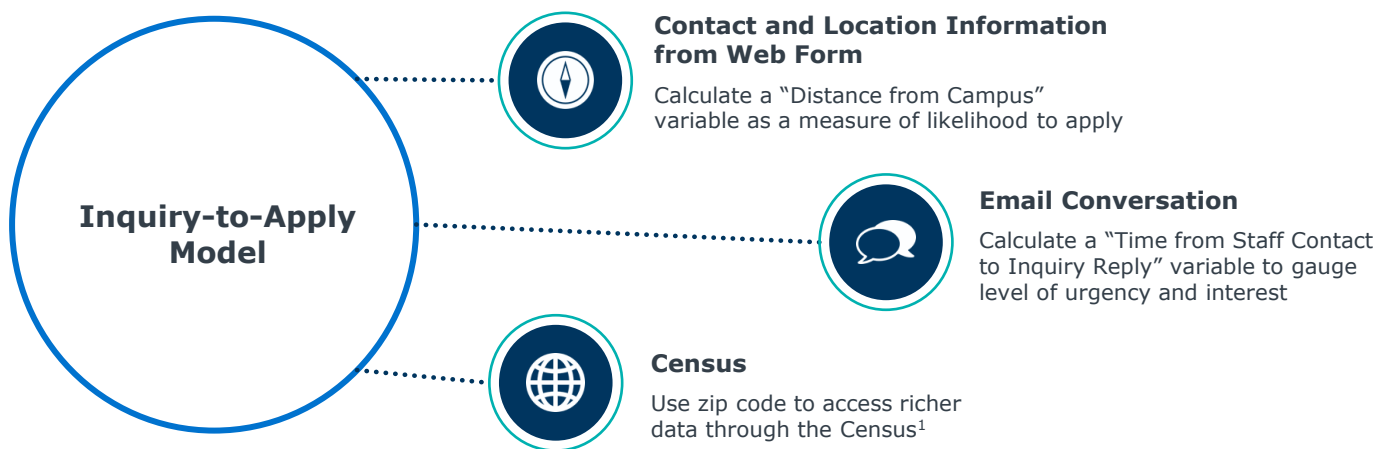
Given the relatively limited information available at this stage (in comparison to later stages), it may not be possible to predict which tactics are most likely to influence a specific, individual student to apply—but institutions can track and predict which efforts are likely to succeed based on location and program/degree interest data, providing a significant advantage over a purely speculative approach. This intelligence can improve efforts directed at likely and persuadable applicants, and it can also improve outreach to underserved populations. If historical efforts have not succeeded for a given subpopulation, it may be that the messaging does not resonate with the audience; language translation or a shift in focus could increase that subpopulation's inquiry-to-apply rate.

Enrich Limited Data

At this stage, institutions can also consider how to make better use of the information on file for each inquiry. While zip code is a critical piece of data, perhaps "[distance from campus](#)" is more relevant to an inquiry's likelihood to apply. This is an easy variable to create, and incorporating it into an inquiry-to-apply model may yield richer results. Additionally, information gathered in the inquiry phase can often unlock other sources of data from sources such as the [US Census](#).¹

Maximize Inquiry-to-Apply Model Utility

Incorporate data from multiple sources and use creative variables for stronger results



1) Always consider the implications of using demographic data (such as ethnicity or income level) in predictive models to ensure the model does not produce discriminatory outcomes.

Source: Garrett, "Creating Variables: Distance From Campus," Rapid Insight; EAB interviews and analysis.

Admit-to-Enroll Model

Increase Enrollment Likelihood Through Resonant, Personalized Communication

With an application on file, institutions have enough data to drill down to the individual student level and allocate time and resources much more effectively.

Customize Outreach to Make Better Use of Resources

Applying the same principles of tailored outreach discussed in prior sections, an admit-to-enroll model can highlight amenities and services that might appeal to subsets of the larger admitted student population, such as athletes, out-of-state students, or high academic performers. Predictive modeling will likely confirm intuitions about what appeals to each of these groups, but it will also uncover surprising connections.

Tailoring direct outreach at this phase has a massive impact. Before the admit stage, institutions typically do not have enough information on file to justify personal calls or emails to students they want to push to enroll. However, with a good understanding of each applicant's profile, enrollment staff can now identify which students would benefit from specific types of outreach. For example, high-achievers may react best to direct contact from department heads, while admits who live far from campus may benefit most from outreach about student life or housing. As a model is implemented and analyzed, the result is an ever-growing list of criteria upon which to base decisions surrounding resource allocation. See the case study on the following page for an example.

Model for Equitable Outcomes

From a financial perspective, incentives drive enrollment managers to focus efforts on prospects who they believe are likely to enroll, and predictive models bring attention to those prospects by ranking them as highly likely to enroll. However, it is important to remember that models rely on past data to make predictions. Predictive models must be built in a way that avoids surfacing only potential student profiles that match the profiles of current students. Be mindful in how you weight different variables to add momentum to equity efforts and contribute to greater diversity on campus.

[Research from New America](#) suggests that another approach to pre-admissions modeling is to focus efforts on persuadable students—that is, students who may not rank as having the highest likelihood to enroll but who could be persuaded to enroll with outreach and effort. This more guided, intentional approach can help ensure that an institution continues to expand its reach beyond profiles that match its current student body.

Also remember that factors such as rural vs. metropolitan residency can sometimes represent social categories beyond geography. Be mindful of these stand-in variables, and experiment by incorporating new variables to see how they might encourage outreach to underserved audiences.

Case Study: Prioritizing Outreach to Admits

Make the Best Use of Available Staff and Student Resources

Dr. Bryan Terry (Senior Vice President of the Student Experience at Oak Point University) used Rapid Insight's self-service analytics technology to develop and implement a predictive model that categorizes admitted students by academic performance, distance from campus, financial need, and several other metrics. The model equips Admissions staff to coordinate outreach campaigns suited to each admit type, bringing faculty, student mentors, and financial aid staff in to assist. "It's all high-touch, but you really can't expect to have faculty members calling 2,700 people....We really want to use their expertise to get to the right students," said Dr. Terry.

Targeted Outreach for Resource Prioritization

Connect prospects with the best on-campus point of contact

A+ High-Achieving

Academically Qualified

Faculty outreach can persuade these prospects to apply

 Out-of-state

Distance from Campus

Student-mentor contact can make these students feel more comfortable in relocating

 Pell-Eligible

Financial Challenges

Financial Aid counselors can provide these students with clarification and assistance

Source: Oak Point University; EAB interviews and analysis.



Phase 2: Retention and Student Support Models

Models explored:

1. Student Support
2. Early Retention
3. GPA

Case study:

How Saginaw Valley State University improved retention using live LMS data in models

2

Retention and Student Support Modeling

Provide Better Support to Students with Urgent Needs

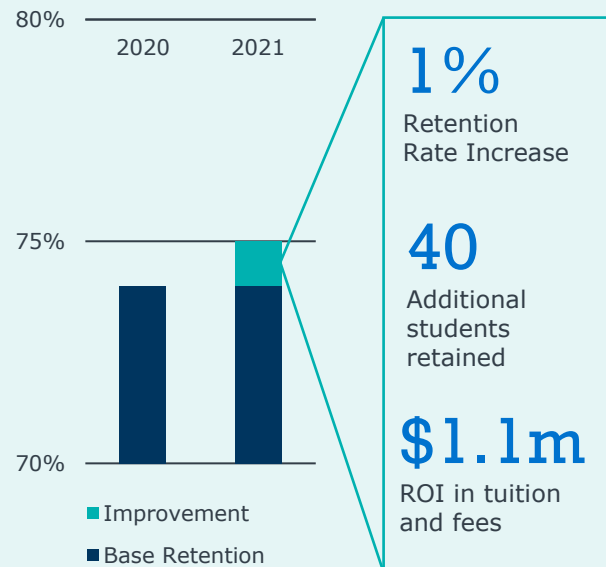
Retaining students is a persistent struggle in higher ed, and there are many reasons students may withdraw or attrit. Measurable trends drawn from historical data can offer advance indication of whether a student may be more likely to persist if offered support. By intervening to offer support at the right time, institutions can go a long way toward retaining students they might otherwise have lost. Retaining students is of paramount value as higher ed faces a demographic shift as well as pandemic-related decreases in enrollment.

Additionally, understanding a student's current academic performance as compared to an assessment of that student's potential performance offers opportunities for institutions to help students who may be performing sufficiently against an objective academic standard but who nevertheless pose a higher-than-average attrition risk.

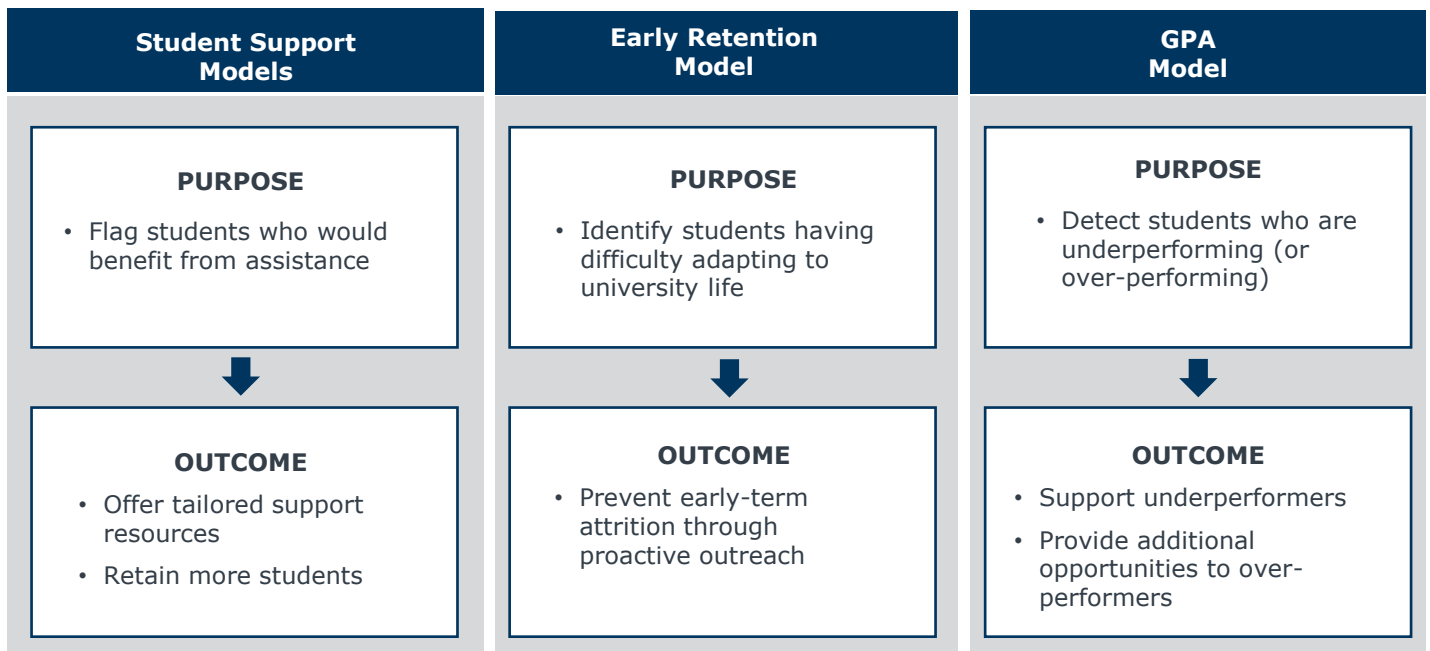
This section will demonstrate how predictive models can flag students who are likely to benefit from support and how institutions can use GPA models to support students who are performing better or worse than anticipated.

Gains from a 1% retention rate increase

An institution can see significant gain through focused, intentional effort at improving retention¹



Student Support and Retention Models



1) Using the following parameters: Class size=4,000; Tuition per term=\$12,000; Discount rate=48%; Second Year to Graduate Rate=68%.

Source: [Retention Savings Calculator](#), Rapid Insight, 2021; EAB interviews and analysis

Retention and Student Support Model

Identify and Connect Students with Personalized Support

Enrolled, attending students offer a great deal of information that can be incorporated into predictive models and can support highly strategic retention and student success efforts.

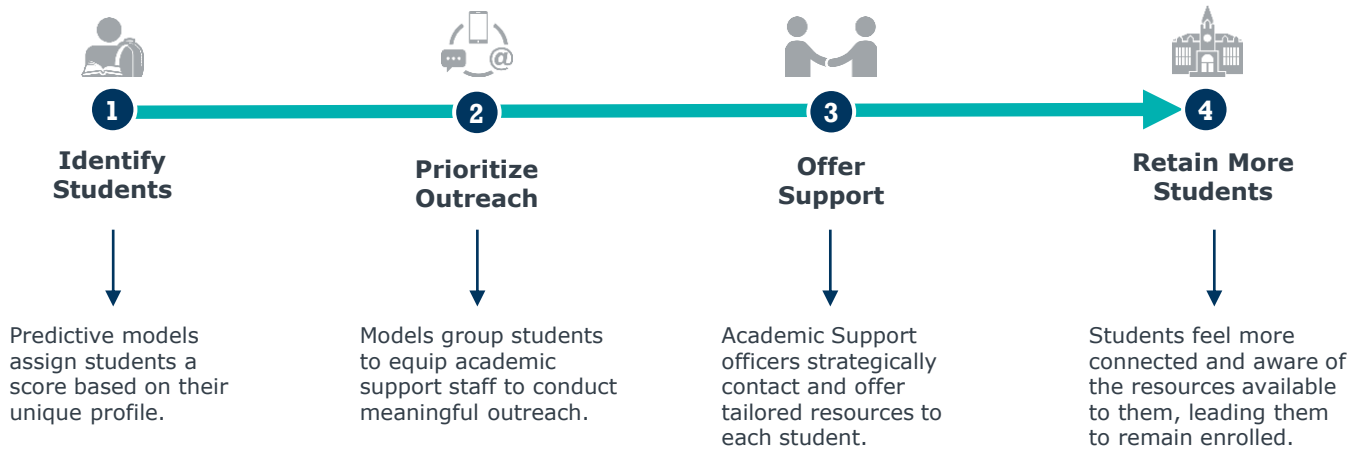
Look for Students Who Would Benefit from Additional Support

Certain patterns of behavior tend to correlate with dips in academic performance. Predictive models can identify these factors and help institutions stay a step ahead of student attrition, equipping counselors and support staff to step in and assist the students who need guidance.

For example, when students enroll in several simultaneous courses with high DFW¹ rates, that likely sets off red flags for counselors. However, some students can handle a heavier course load than others, so the risk of DFW isn't equal for every student. Models allow institutions to fold in additional variables, such as prior academic performance and on-campus or off-campus residency, granting a much clearer picture of which students would benefit most from academic assistance.

Deployed correctly, models grant a nuanced, in-depth understanding of what causes students to struggle. This understanding is helpful in assisting individual students, as well as at the broader strategic level. Patterns can inform changes to larger guidelines and policies.

Student Support Modeling Results in Better Retention



Adapt Models for Hybrid Instruction

As online and hybrid instruction becomes the norm, institutions should consider the opportunity that Learning Management Systems afford in making models even stronger. Bolstering models with live LMS data on student attendance and performance equips counselors and staff with even more actionable, updated data to inform retention efforts. Learn more in a case study on page 15.

1) Courses with high rates of Ds, Fs, or Withdrawals.

Source: EAB interviews and analysis.

Early Retention Model

Assist Students Who Are Having Difficulty Adjusting to Life on Campus

An early retention model assists enrollment managers in retaining students who are brand new to campus. This model measures a student's likelihood of early attrition, either during their first year or first semester. At this stage, retention staff have little data on a new student's academic performance at the institution, but other variables lend themselves to useful predictions.

Apply Data from Diverse Sources for Early Alerts

- ▶ **Past Performance Data:** Each student's transition from high school to higher education will be different, but as with other areas of modeling, trends in past data can give a baseline indication of future performance. While an early retention model cannot identify every challenge each student will face, past academic performance data can give counselors a baseline understanding of how much support a new student is likely to need to make a successful transition.
- ▶ **Behavioral Data:** On today's tech-equipped campuses, card swipe data gives institutions insight into the resources and facilities that tend to make a positive difference for diverse student groups. Institutions can analyze this data to expand services to underserved student populations, facilitating access to services for students with disabilities and hiring skilled mental health counselors to provide better support for students of color. Predictive models can help an institution determine which services will contribute most to an individual student's success. Emails, texts, and other communications encouraging students to take advantage of the library, counseling services, or peer groups can help students feel more supported on campus.
- ▶ **Virtual Data:** As hybrid and online classes become the norm, identifying digital equivalents for on-campus resources is a critical consideration. Developing and promoting virtual groups, clubs, and resources for off-campus students can help them feel a sense of affinity for an institution and combat early drop-off. As with on-campus students, predictive models can aid in identifying and prioritizing online and hybrid students who may need additional support.

The types of nimble variables described above can strengthen the insights gained from traditional indicators of a student in need of support, such as low midterm grades or ending a semester on academic probation. Intervening to assist the students who most need support earlier in their academic careers will decrease their chances of exhibiting these indicators in the first place, and every student who can be prevented from falling into academic probation will carry positive momentum forward.

▶ **Build a Student-Centric Campus**

EAB's student success management system, Navigate, brings together students, administrators, advisors, faculty, and other staff in a collaborative network to holistically support students across the college journey.

[Learn more about Navigate.](#)

Source: EAB interviews and analysis.

GPA Predictive Model

Connect with Students Who Are Underperforming (or Over-Performing)

Though GPA does not paint a full picture of a student's experience at an institution, it is a clear indicator of a student's academic performance. Predicting a student's GPA provides an institution the opportunity to assist students proactively, offering support options and developing strategies before a situation becomes dire.

View GPA in Context

High school GPA offers a good indication of how successful a student will be at an institution; research demonstrates that it is one of the strongest available indicators of student success and a far stronger predictor than standardized test scores. But the same research indicates that some high schools better prepare students for college than others, so a strong high school GPA is not a guarantee of college success. Environmental factors also play a role for new college students, who may have difficulty finding time to study in their dorm, feel out of place on their campus, or feel homesick.

A student's high school GPA is therefore a good starting point for a GPA predictive model, but GPA should be seen as a live data point that evolves over time. As a student progresses from their first year to graduation, institutions should update models with a student's current GPA to gain an ever-clearer picture of how a student is performing.

Predict Individual Student GPAs

Predicting individual student GPA makes academic support staff more responsive. Consider a student predicted to have a 3.8 GPA who instead earns a 3.2. On its own, a 3.2 GPA is not overly concerning and would likely not warrant support outreach, but if a model flags this student as underperforming, a 3.2 GPA is suddenly an actionable data point. Over-performing students also offer institutions opportunities to better serve their students:

Predicted GPA	Actual GPA	Potential Concerns	Follow-up
3.5	2.4	Student is underperforming and may have taken on too heavy a course load or work schedule	Connect student with tutoring and academic support resources, or review financial aid offerings and options. Provide school/life balance advising resources.
3.2	3.9	Student is over-performing and may benefit from more advanced classes and career counseling	Ensure the student receives the appropriate academic challenge. Create customized programming to serve high-performing students.
2.4	3.4	Student is performing better than expected and should receive encouragement to build momentum	Recognize the student's achievement. Share study group and instructor office hour information.

▶ Learn More

[See how Howard University developed customized programming for high-achieving students in this on-demand video.](#)

Source: Allensworth, Clark, "High School GPAs and ACT Scores as Predictors of College Completion: Examining Assumptions About Consistency Across High Schools," 2020; EAB interviews and analysis.

Case Study: Retention Models with Real-Time Data

Enriching Student Support Models with Learning Management System Data

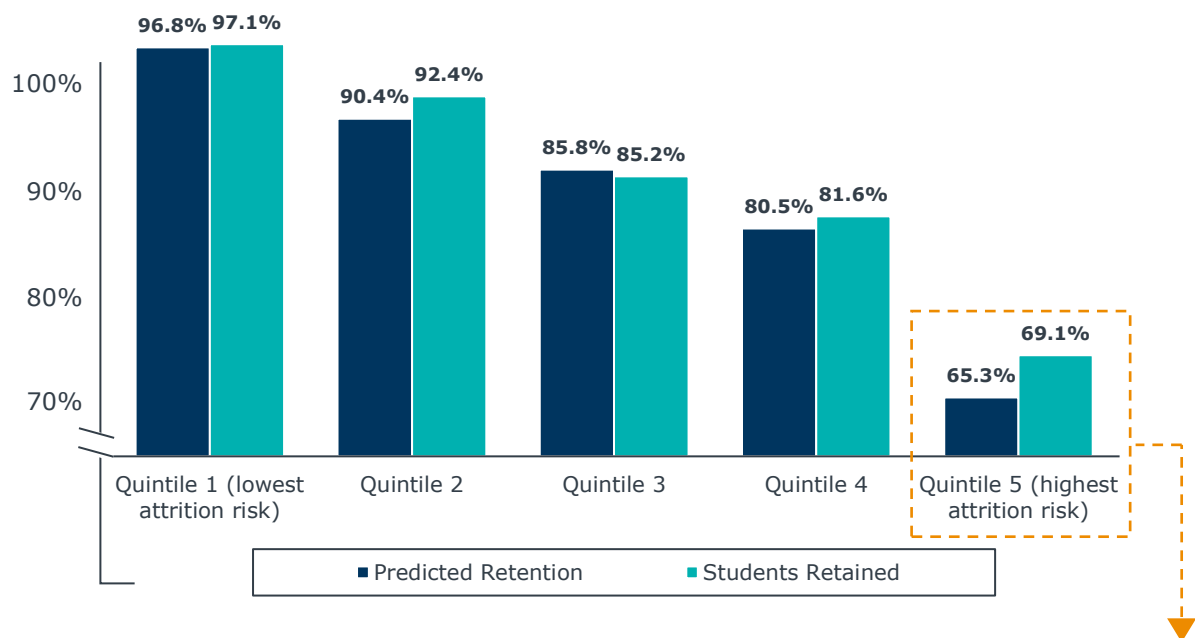
From 2017 to 2020, Saginaw Valley State University (SVSU) built predictive models using Rapid Insight’s self-service analytics technology to flag students who were likely to attrit. When COVID-19 forced a shift to remote instruction, many of the traditional indicators of student engagement were lost. SVSU required alternative, highly responsive metrics for identifying struggling students.

SVSU’s Executive Director of Institutional Effectiveness, Nick Wagner, incorporated 16 live variables from the institution’s Learning Management System (LMS) into his student support model. The LMS variables included factors such as completion of online assignments and depth of responses to assigned writing prompts.

The model separated the student population into five quintiles, with students at low risk of attrition in the first quintile and students at high risk in the fifth quintile. As in previous years, counselors used the model’s results to contact and support students identified as in need of academic assistance. However, with a litany of new variables in use, SVSU was uncertain if the new model would produce the same strong results as its pre-pandemic predictive models.

After implementing the model for the 2020–21 school year and testing its results, Wagner found that the model’s predictions remained highly accurate for the four highest quintiles. The largest observed change was in the fifth quintile, where counselors had invested the most time supporting students. SVSU retained 3.8% more students in the fifth quintile than the model projected the institution would retain.

In analyzing the outcome, Wagner credited the predictive model for helping SVSU identify and assist the students most at risk of attrition, leading more students to succeed under challenging circumstances.



“Who knows what the percentage retained would have been if interventions didn’t occur and this model wasn’t telling us to reach out to these students?”

Nick Wagner,
Executive Director of Institutional Effectiveness



Source: Saginaw Valley State University; EAB interviews and analysis.



Phase 3: Graduation and Advancement Models

Models explored:

1. On-Time Completion
2. Advancement

Case study:

How one private college optimized fundraising portfolios with predictive modeling

3

Graduation and Advancement Modeling

Monitor Graduation Likelihood and Conduct Stronger Fundraising Campaigns

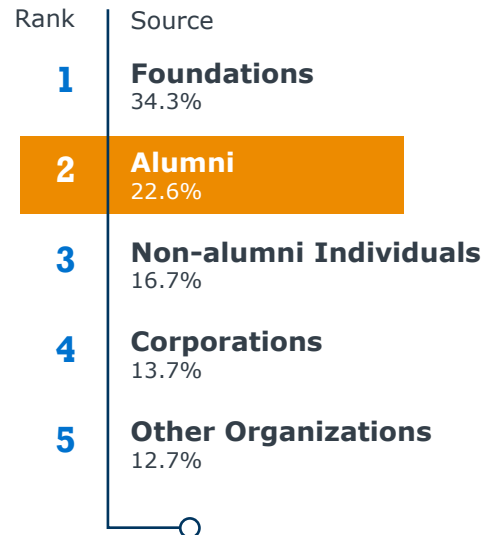
Alumni donors are incredibly valuable, and affinity for an institution is key to donation likelihood. Institutions must build that affinity during a student’s time enrolled at the institution and beyond, and a key step toward solidifying affinity is aiding a student in obtaining a degree in a time frame that meets their expectations.

In the alumni donor phase, tracking data over the entire student lifecycle comes to full fruition. With a data-rich student profile, institutions gain a complete understanding of the return on investment that results from earlier enrollment, retention, and affinity-building efforts. Institutions can use this data in predictive models that improve fundraising outreach techniques and timing, maximizing alumni donor engagement and value.

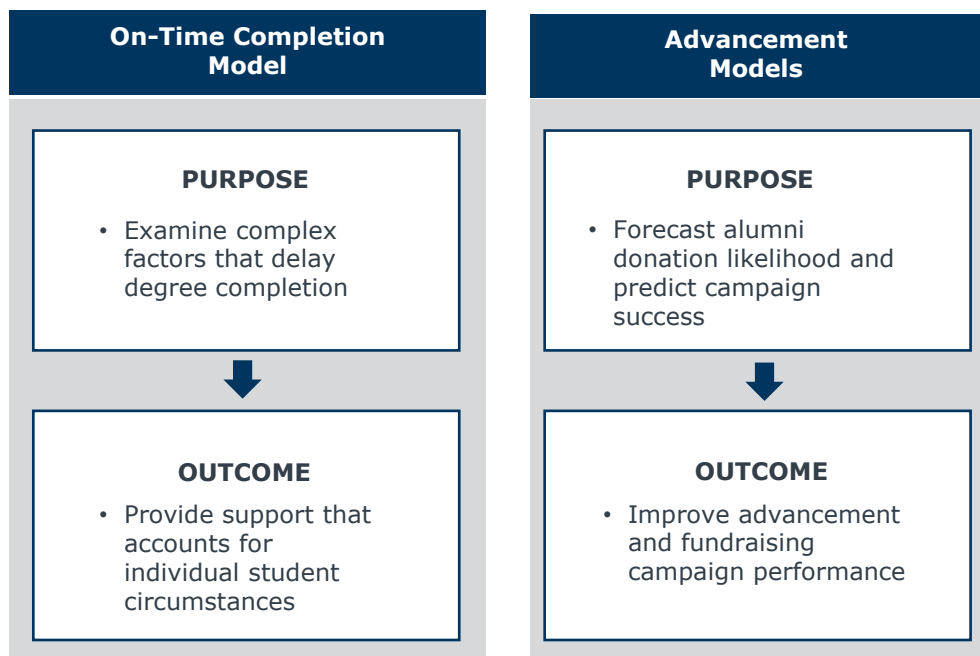
This section will demonstrate how predictive models help institutions assist students in graduating on time and how advancement departments can use modeling for better fundraising results.

Largest Sources of Voluntary Support

Alumni Account for Nearly a Quarter of Dollars Raised



Graduation and Advancement Modeling



Source: "Voluntary Support of Education," Council for Advancement and Support of Education, 2020; EAB interviews and analysis.

On-Time Completion Model

Provide Support That Accounts for Individual Circumstances

For most students, success in higher education means graduating on time, and predictive modeling can aid in keeping students moving forward on a timely path.

As with retention models, on-time completion models flag students who may need additional support. Many of the same variables used in retention models have statistical significance in an on-time completion model, such as GPA, educational background, enrollment in a full course load, and level of engagement with campus activities. However, some variables have greater weight in an on-time completion model. For example, change of major is known to have a particularly strong correlation with a lowered likelihood of on-time graduation.

Beyond well-known academic contributors, on-time completion models allow you to test student-level variables to see which factors in a student's life might play a role. The more variables that are folded into the model, the better an institution can understand which specific students will likely be impacted by changes to their major.

Student-Level Characteristics That Impact Graduation

Sample factors that impact likelihood to graduate in 6 years

+500%

for students with a HS class rank above 75th percentile vs. below 25th percentile

-50%

if student works full-time during semester

-66%

if student lives off campus or with their parents

+5x

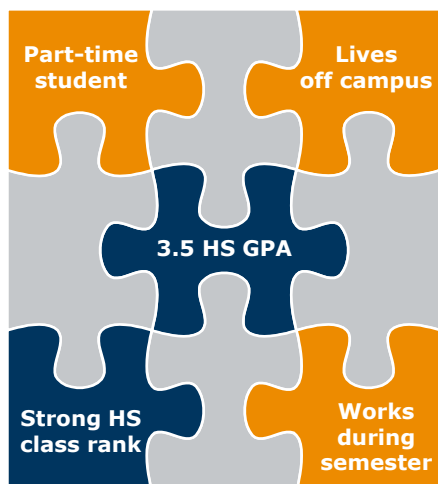
for students who enroll full-time

Personalize Support for Unique Student Profiles

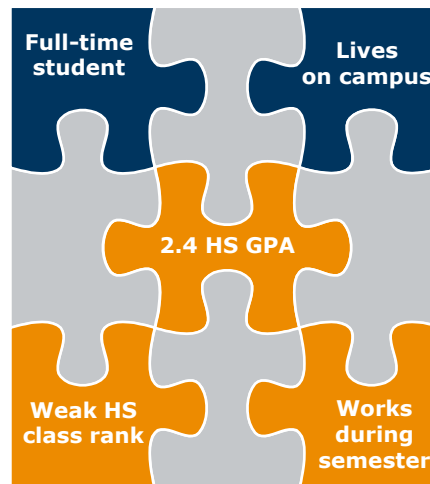
Forming nuanced on-time completion support plans

Would students with these profiles benefit from the same type and level of support? How might support be differentiated to support these students better given their unique situations?

Student A



Student B



On-time completion models distill the impact of these intersectional factors on graduation rates, then flag students who may struggle based on the unique factors that influence their lives. This intelligence enables institutions to form personalized support plans for each student.

Source: Aiken, De Bin, Hjorth-Jensen, and Caballero, "Predicting time to graduation at a large enrollment American university," 2020; Kantowitz, "Who Graduates from College? Who Doesn't?," 2021; EAB interviews and analysis.

Advancement Models

Improve Advancement and Fundraising Campaign Performance

Graduation is not the end of the road for predictive modeling's value; for Advancement, it's only the beginning. Predictive modeling helps fundraisers by cutting back on the guesswork involved in A/B testing, as models can track and predict which outreach methods are likely to succeed. It is still important to test and compare results, but starting on an informed foot puts fundraising officers a step ahead.

Model Donor Likelihood for Major Gifts and Annual Giving

Models can predict each prospective donor's individual likelihood to donate. Based on factors such as academic performance, wealth indicators, school affinity, and location, fundraisers can assemble a profile of variables that, when combined, form ideal prospects for major gifts or annual giving solicitation. Optimizing donor portfolios with modeling results will help fundraisers hit their targets and put attention where it is most likely to yield results.

Just as predictive modeling assists in tailoring outreach to prospects and admits, so too can it help in allocating resources for effective alumni donor asks. By tracking performance metrics tied to specific content, you can identify which formats and topics will appeal most to specific alumni in your database. Additionally, models can help fundraisers decide when to time specific asks, at both a macro and micro level. Models can suggest the best time to launch and close campaigns and help fundraisers make decisions about which day and time to make calls or send solicitations.

In addition, by identifying variables correlated with a likelihood to donate, institutions can more effectively foster affinity with current students, which could pay dividends down the road. Perhaps fostering ties between a specific subset of students and the university library creates lasting ties with those students, while focusing on the football team or social clubs resonates more with other subsets of the student population.

Perform Lapsed Donor Analysis

Predictive modeling also allows advancement departments to identify past donors who stopped contributing, then analyze what may have contributed to their lapse in donation. A model that incorporates all known information about donors can provide insight into root causes that may not be evident otherwise. Perhaps donors from a specific job field stopped donating; could this be due to a recent (or predicted) downturn in their industry? Alternatively, a drop in donations among donors 20 years out from obtaining their degrees could reveal an opportunity for outreach or an event related to that milestone. Models can reveal trends that warrant further investigation and uncover opportunities to reactivate lapsed donors in subsets of the larger alumni pool.

Maintain Data over the Long Term

With every day that passes, an institution's alumni data becomes less relevant. As students graduate and go on to live their lives, they move, change names, get higher-level degrees, and experience other changes that impact the relevance of data on file at graduation. Additionally, the alumni most likely to donate are often separated by decades from their college careers and may go by different names or titles. For example, efforts get off on the wrong foot when a fundraiser highlights a lack of familiarity by referring to an alumnus as "Sherry Walters" when they now prefer "Sharon Walters, PhD."

Updated alumni information can be captured in registration for alumni events, such as a webinar series or on-campus reunions. Tracking this information is critical to keeping communications fresh and relevant. A student data management system that captures and stores up-to-date information offers immense value. Relevant student data ensures that fundraisers do not make a bad impression when contacting potential donors.

▶ Engage Your Alumni Donors

Partner with EAB's [Advancement Marketing Services](#) to cultivate alumni donors, improve campaign engagement, and review performance with advance analytics.

Source: EAB interviews and analysis.

Case Study: Improving Advancement Portfolios

Focusing Major Gift Fundraising Efforts on Likely Donors

To make Gift Officer outreach more effective, the advancement research team at a private college in Pennsylvania used Rapid Insight’s self-service analytics technology to build a predictive model that identified the alumni most likely to donate. The model evaluated ten years’ worth of data from three categories (Characteristic Information, Giving History, and Volunteer Activities) to segment its alumni donors into subsets for analysis.

Examples of Data Used in the Advancement Model

Characteristic Information

- Location
- Major
- Activities during active enrollment

Giving History

- Gifts
- Designations
- Contribution dates

Volunteer Activities

- Service as a volunteer at fundraising events

The predictive model identified probabilities for each alumnus based on the criteria above. With the understanding that most alumni are unlikely to give a major gift, the research team sought ways to maximize the giving potential for alumni rated with a small, but workable, probability for giving, such as those alumni rated in the “20–40% chance of giving” range. The team decided to use descriptive scores instead of percentages to rank giving likelihood: Least, Less, Somewhat, More, and Most Likely to Give.

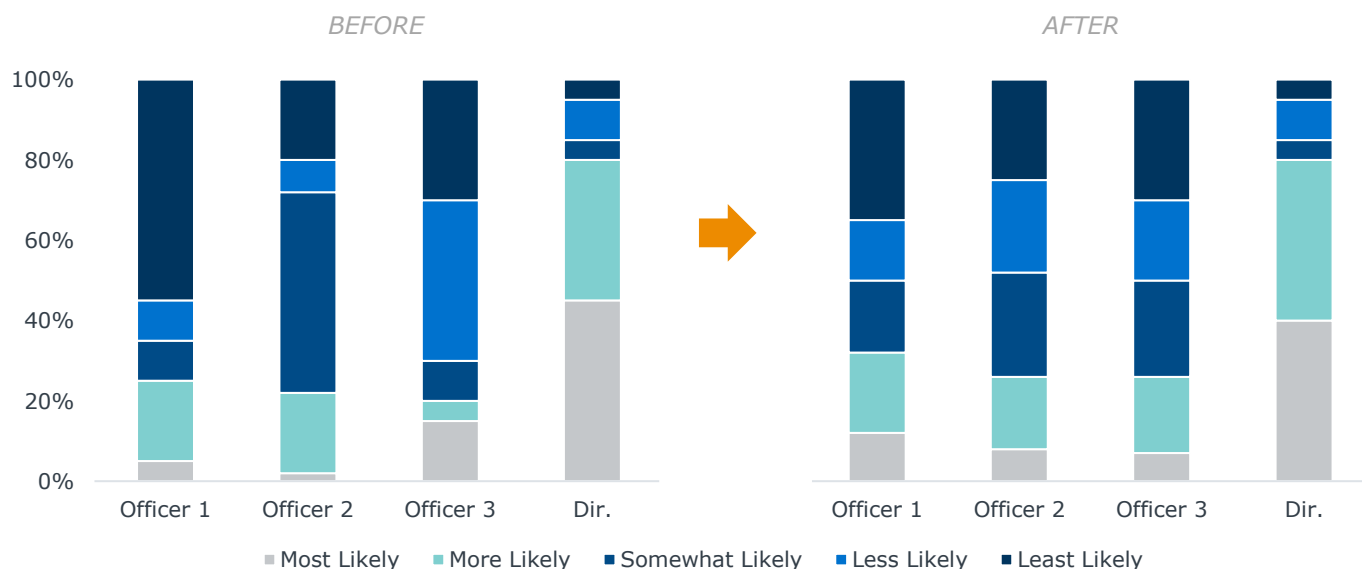
The model categorized most alumni as Least and Less Likely to donate, which allowed the advancement team to prioritize outreach and visits to the 1,600 alumni who were more likely to give a major gift.

Zooming in on the top three likelihood scores, the team discovered that they had assigned most alumni to a Gift Officer but that several likely donors were not yet assigned. Additionally, the model confirmed that the advancement director’s portfolio had an appropriately high number of donors with high giving capacity but showed that other Gift Officer portfolios were unbalanced: some contained a much higher percentage of unlikely donors than others.

This portfolio intelligence equipped the team to better allocate likely donors to portfolios, ensuring efficient, effective fundraising.

Improve Donor Portfolios by Using Predictive Modeling Results

Advancement Dir. Retains High Percentage of Likely Donors While Gift Officers Have More Balanced Outreach Pools



Source: EAB interviews and analysis.

How EAB Can Help

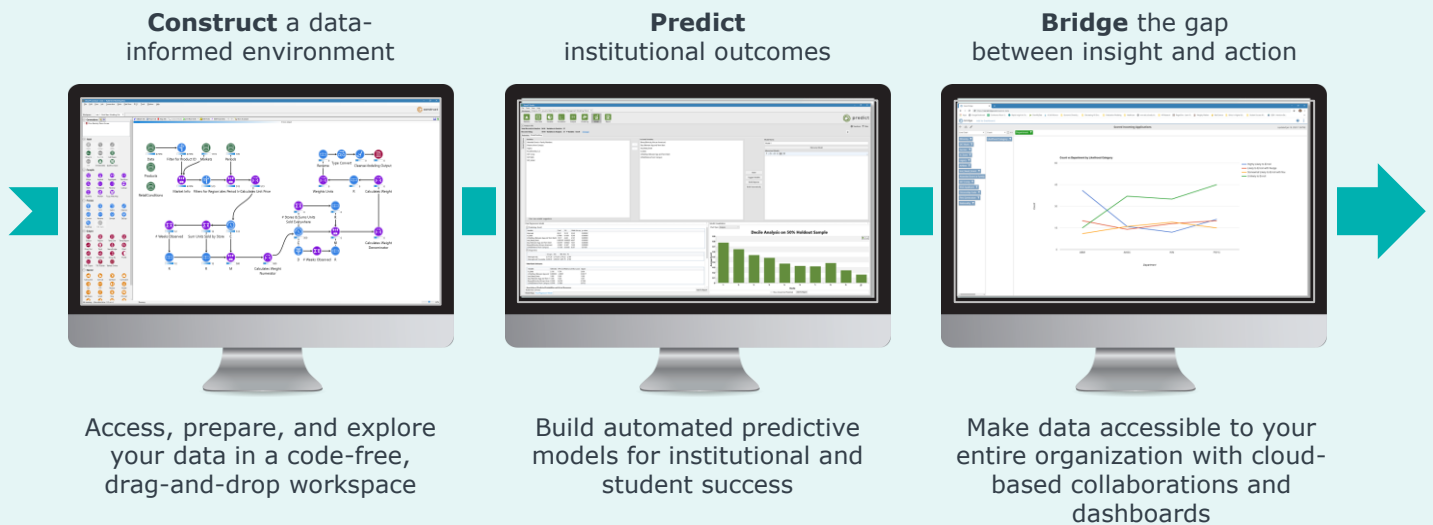
Improve Decision-Making Across the Student Lifecycle

Now that you understand why predictive modeling adds value to interactions with students, you may be considering how you can bring these models to life. Predictive modeling sounds like a highly technical, specialized process, but the truth is that modeling is within reach of every institution. In most cases, building and using each of these models won't even require hiring additional staff.

Rapid Insight is EAB's self-service analytics technology that enables institutions to create an unlimited number of multifaceted models that capture the nuance and complexity of the modern student lifecycle. Rapid Insight incorporates data from across the entire campus, from the SIS and LMS to CRMs and local files; using this rich data, users can build powerful predictive models for any campus application in a few clicks.

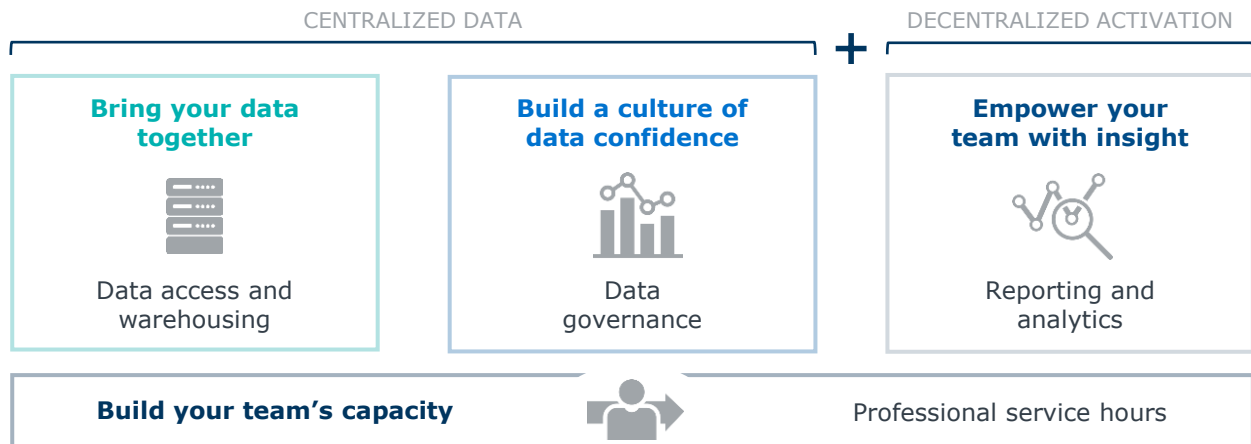
EAB's experts have deep experience in Enrollment, Student Success, Institutional Research, and Advancement. Whether your institution needs strategic guidance in data governance and policy or technical assistance building models, our experts can help you reach your goals.

Introducing Rapid Insight



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