How to Optimize Enrollment with Predictive Analytics

an eBook presented by:

Rapid Insight

Contents

CHAPTER 01

Where Have All the Students Gone?

Since 2011, the overall number of high school students applying to colleges and universities has been in gradual decline, and the trend is expected to continue into the foreseeable future.

Yet it has come on the back of nearly a decade that saw steady increases of applicants, which supported the growing number of institutions, both for-profit and non-profit, and did not anticipate the coming crisis.

Then there are the ongoing pressures to manage costs, satisfy federal regulations, and reduce student loan default rates. These and other monumental changes confronting higher education have been the subject of countless articles in publications of note, including the Chronicle of Higher Education, New York Times, and Washington Post.

In such tumultuous, even threatening times, many higher education institutions are asking themselves how they can ensure their continued success.

The old approaches are no longer enough. Just as businesses compete to acquire and retain customers, schools must compete to acquire and retain students. Expanding or adding programs, embracing online options, and enhancing financial aid offerings represent just some of the strategies being considered.

It's time for institutions to also implement the same state-of-the-art-methods, technologies, and strategies that are utilized by their corporate counterparts.

Keep reading to explore how advanced analytics and predictive modeling can enhance and optimize higher education enrollment management. We'll cover different types of predictive models and their use cases, and then we'll discuss the steps to take to create a data-informed strategy centered on predictive analytics-led enrollment management.

CHAPTER 02

3 Common Uses of Predictive Modeling in Higher Education

1. Ranking and Prioritizing Search Names and Inquiries

What if, out of the tens of thousands of search names that you purchase, you could determine which students are likely to enroll and which students you'd be wasting your time trying to recruit? This is exactly the type of question that predictive modeling can answer.

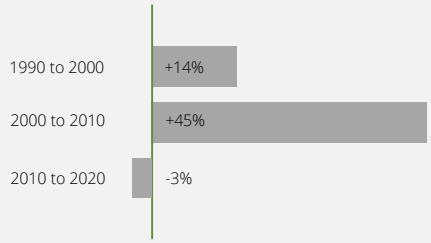
By building a model to predict which search names are most likely to apply or enroll, you can use the resulting probability scores to rank all names and target accordingly. Additionally, you can use these models to evaluate search lists themselves. You may find that some lists perform better than others, in which case you can adjust your future list purchases accordingly.

You can also build models to predict which of your inquiries will become applicants. Inquiry models can be used to develop cost-effective travel and communication strategies for reaching out to potential students.

Small adjustments like changing communication type based on likelihood of enrollment for each inquiry can help you allocate your resources more efficiently. Such savings can add up to tens of thousands or hundreds of thousands of dollars annually, depending on the size of your institution.

Models can be used to define and allocate specific packages of recruitment materials (segmented by cost and content) to groups of prospective students segmented by likelihood of enrollment. The data can be further analyzed to inform an understanding of the demographic characteristics, activities, and interests of students who are likely to enroll so that future list buys could be optimized along the best possible combination of characteristics that are aligned with institutional goals related to student body composition.

When will post-secondary enrollment recover?



Although college enrollment is forecast to increase over the next ten years (after several years of decline) it will not be close to the 45% growth of the previous decade.

With more colleges competing for students, this can mean new challenges for enrollment and admissions staff.

Source: National Center for Education Statistics

2. Predicting Enrollment and Class Composition

Once you have your applicant pool, models can be used to predict each admitted student's probability of enrolling. These probabilities can be used to focus your resources on those students who are most likely to matriculate.

For example, admitted students with high predicted enrollment probability scores can be sent the more robust (and expensive) recruitment packages that include glossy view books and the most impressive materials.

Those admitted students on the low end of the probability scale can be sent emails and less expensive publications, such as postcards. The admissions team can also use the probability scores to determine how much time to spend per prospect in terms of personalized outreach, including telephone calling.

Taking the enrollment probability scores for admitted students, use them to predict the size of your incoming freshman class. This can be accomplished by summing up the predicted enrollment probabilities for all admitted applicants.

These enrollment models can be used to:

- Run simulations to determine which applicants to accept
- Estimate/predict your financial outlay based on the financial aid that you've promised to each applicant
- And, based on the students you've accepted, coupled with additional student information such as SAT/ACT scores, high school GPA, gender, etc., shape what your incoming class is going to look like according to your institutional goals

3. Beyond Enrollment: Predicting Attrition Risk / Student Success

For your current students, you can harness historical data to anticipate which students are at risk of attrition or under performance. Flagging and focusing on at-risk students early in their academic careers, sometimes before they even reach campus, can improve retention rates. This benefits the institution as well as the individual students.

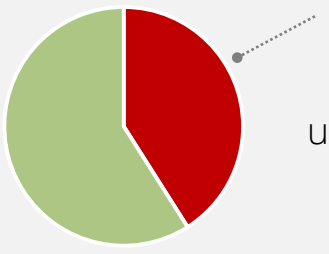
The ROI on these types of models, when combined with strategies to help retain the designated at-risk students, can reach million-dollar territory.

It is important to remember that these various models give you a prediction of probable outcomes based on the data that you present.

In some cases, the prediction is something you're looking to change.

For example, you may predict that you will not meet enrollment goals. Knowing this early in the season can lead to additional recruiting efforts and potential modifications to acceptance partners. The same holds true with retention. You'll predict which students might be at risk, but ultimately your goal is to intervene in a preventative manner.

Models do not necessarily predict a future that you are required to accept. Instead, they might alert you so that you can take corrective action to get to the desired outcome.



41%

of first time undergraduate students **will not** graduate in the first six years

Predictive models do not necessarily predict a future that you are **required** to accept. They are a preview in which you can pivot from.

CHAPTER 03

7 Steps to Creating a Data-Informed Strategy

1. Get Buy-In and Prepare Your Organization

Building analytic capacity requires a group effort, so it's critical to establish support from the entire organization at the outset of a modeling effort.

Get buy-in from Institutional Research, Financial Aid, Admissions, and Administrators. As a team, you need to agree that a data-informed approach can inform your decision making and help you optimize your practices.

But understand that engaging in predictive modeling might not drastically rock the boat or make you change course. Sometimes, the data will simply confirm a direction in which you were already heading and provide additional justification for maintaining an existing strategy. At other times, your data might turn an assumption totally on its head and provide new, previously unforeseen insights.

With buy-in for predictive modeling and a data-informed approach to decision-making, next articulate your goals and the metrics you'll use to measure success. Clearly articulating these goals from the start will help you focus and establish your analytic priorities.

One enrollment goal to unite a team around:

Grow the institution by increasing enrollment by a certain percentage or sustain enrollment of a specific number of students.

2. Pick a Project Lead to "Own" the Predictive Modeling Efforts

Like any project, someone needs to own the predictive modeling effort to keep everything on track. This person should be a problem solver and a good communicator. They will learn from the model and make strategic recommendations to the rest of the team, and they will need to be comfortable with an iterative process.

3. Incorporate as Much Data As Possible – The More the Merrier

Gather as much historical data about your students as possible. This can include inquiry data, high school data, social media data, and financial aid information. It is recommended that you use at least three years of historical data to build your models.

Data preparation is 80% of the modeling process. And a model is only as good as the data used to create it. Solid data preparation is a crucial piece of the model building process. Preparing data involves creating new variables, checking for missing values, integrating data from disparate sources, and making sure that your dataset is clean. It's very important to create a repeatable process for data preparation, as this will limit the chance of errors and ensure model accuracy.

4. Prepare and Build

While building your model, keep in mind that you will be asked to explain the model to others at some point in the process. Make sure that all of the variables in your model make sense and that you understand the relationships in your data.

After you have built a model you're comfortable with, you will use it to score your population of interest. For example, you might be using the model to score your admitted applicant pool to get each applicant's probability of enrolling, which you can then use to make decisions and to understand what your incoming class will look like.

5. Communicate

As models are developed and analyzed, it is crucial to communicate openly and frequently with key stakeholders and team members.

Share how modeling will support the institution's objectives. When presenting information, keep your audience in mind. Often, a dashboard or visualization will convey what you've learned better than a series of raw numbers.

6. Measure Your Progress

As you are implementing your strategy, always keep campus-wide goals in mind and always track your model's impact. For example, if you're using the model to decide which students to mail, keep track of the response and application rates, then compare them to previous mailings. By reducing the number of students you mail based on your model scores, you can calculate ROI from the amount of postage saved.

7. Reduce, Reuse, Recycle

The process of building a model shouldn't be a single-use effort. The lessons learned from one model can be utilized to build the next. Create repeatable processes for cleansing and extracting your data. Automate reports whenever possible to limit the potential for errors and to keep a sense of consistency.

Finally, recycle and spread the acquired knowledge throughout your institution. Remember, the value of a model isn't limited to the model's predictions. Throughout the process, you'll gain an understanding of your data, historical trends, and an idea of what to expect going forward.

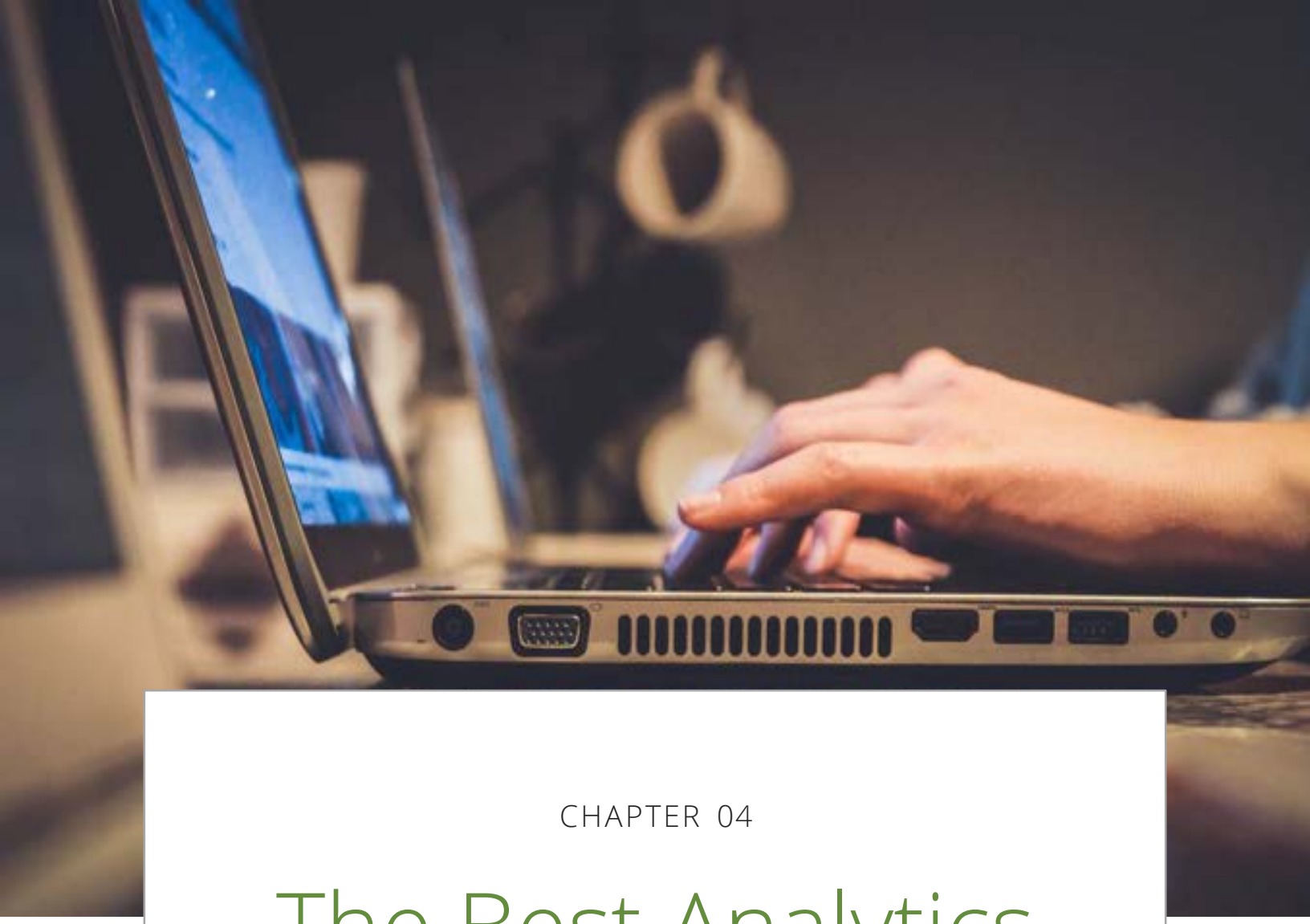
Conclusion

Among the key assets of any institution are its history, people, and financial resources. By leveraging data and predictive models effectively, you can help articulate institutional history in a more meaningful and comprehensible way and provide support to inform strategic decisions.

When data and models become vital and trusted assets, your institution and key stakeholders are better equipped to face the challenges in the college admissions and enrollment landscape. And it's never too early or too late to make data a key institutional asset. Your decision-making abilities will only grow stronger if informed by accurate data analyzed and modeled to support your strategies.

The key is to align your analytic efforts with your goals. Remember that these models are only as strong as the data that goes into creating them, the tools that build them, the team that leverages and acts upon the scores that they produce, and ultimately, the institution that embraces them as critical assets in their strategic arsenals.

Data-informed decision-making is designed to augment your experiential capital and institutional knowledge—not replace it.

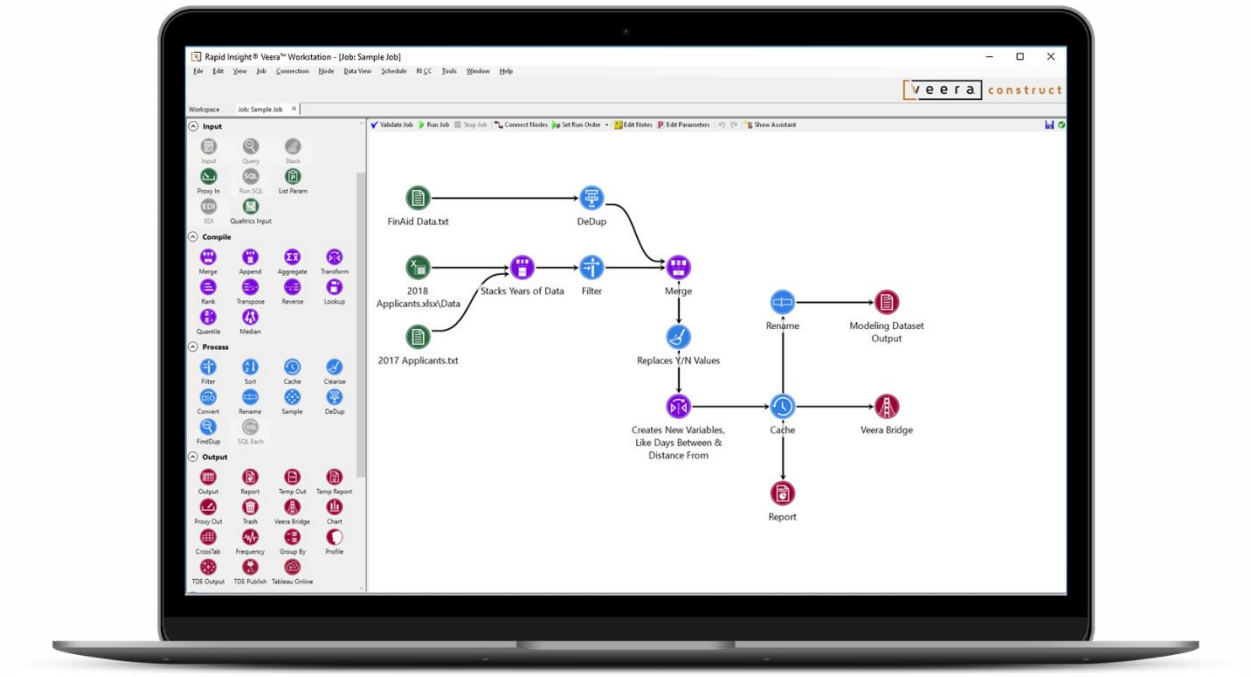


CHAPTER 04

The Best Analytics Software for Your Institution

A Data Prep Software Solution for Everyone

It all begins with data prep. With **Construct**, seamlessly connect to any data format, run processes to blend, cleanse, and aggregate that data for analysis and reporting.



Connect

Easily integrate data from virtually any source, including Excel, Access, SQL, SAS, SPSS, MySQL, and more

Prepare

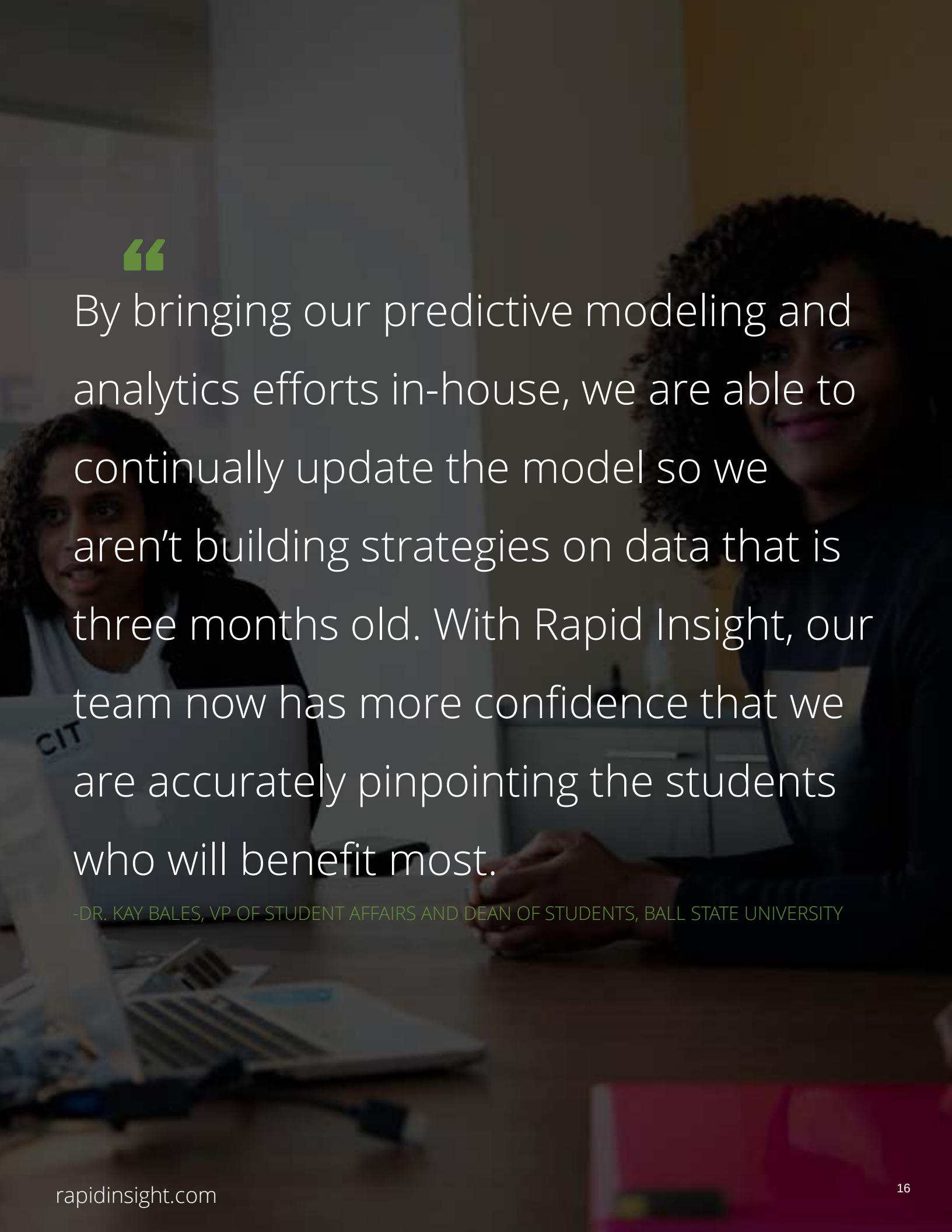
An easy, drag-and-drop workflow enables any level of user to build step-by-step analytic processes

Analyze

Build and schedule jobs to run automatically, dramatically boosting workload efficiency

Share

Share reports and datasets with your team using Bridge or other visualization tools like Tableau

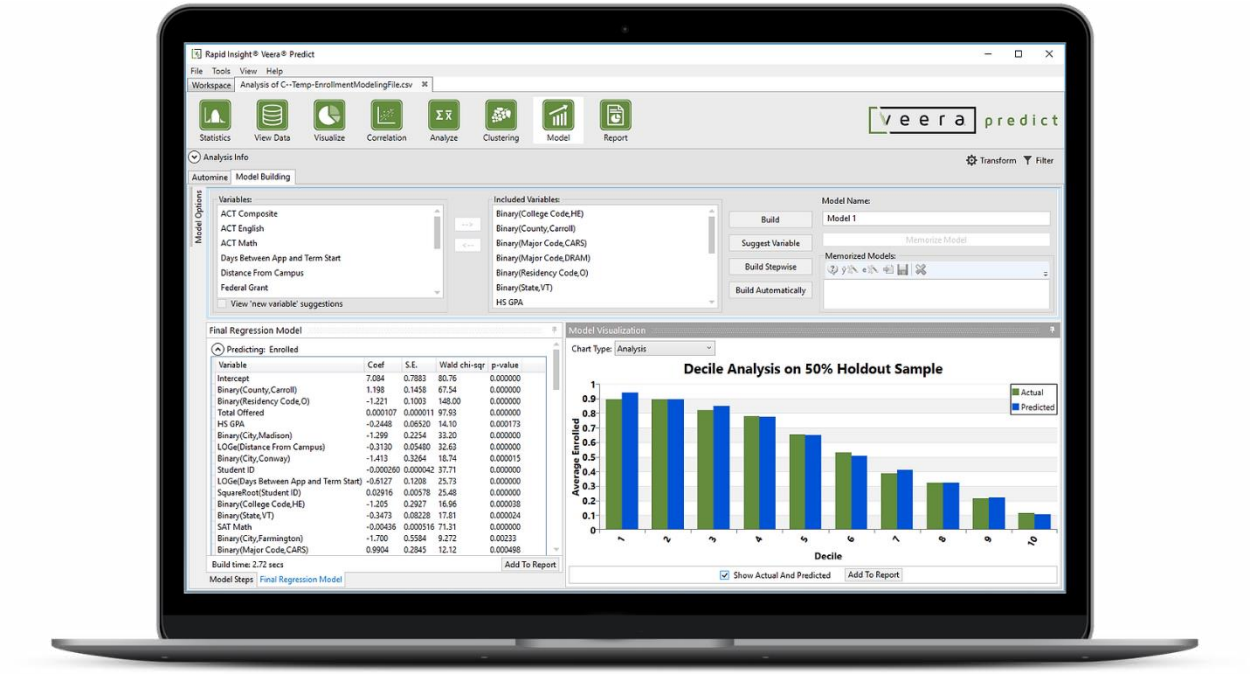


“By bringing our predictive modeling and analytics efforts in-house, we are able to continually update the model so we aren’t building strategies on data that is three months old. With Rapid Insight, our team now has more confidence that we are accurately pinpointing the students who will benefit most.

-DR. KAY BALES, VP OF STUDENT AFFAIRS AND DEAN OF STUDENTS, BALL STATE UNIVERSITY

Embrace the Future Through Predictive Analytics

Built to deliver quick results, **Predict** makes building predictive models easy. With a single click, automatically mine your data, analyze the depth of relationships among variables, and create the strongest predictive model possible.



Deeper Data Analysis

Take a diagnostic snapshot of your data, measuring quality and patterns among variables for better models

1 Click Automation

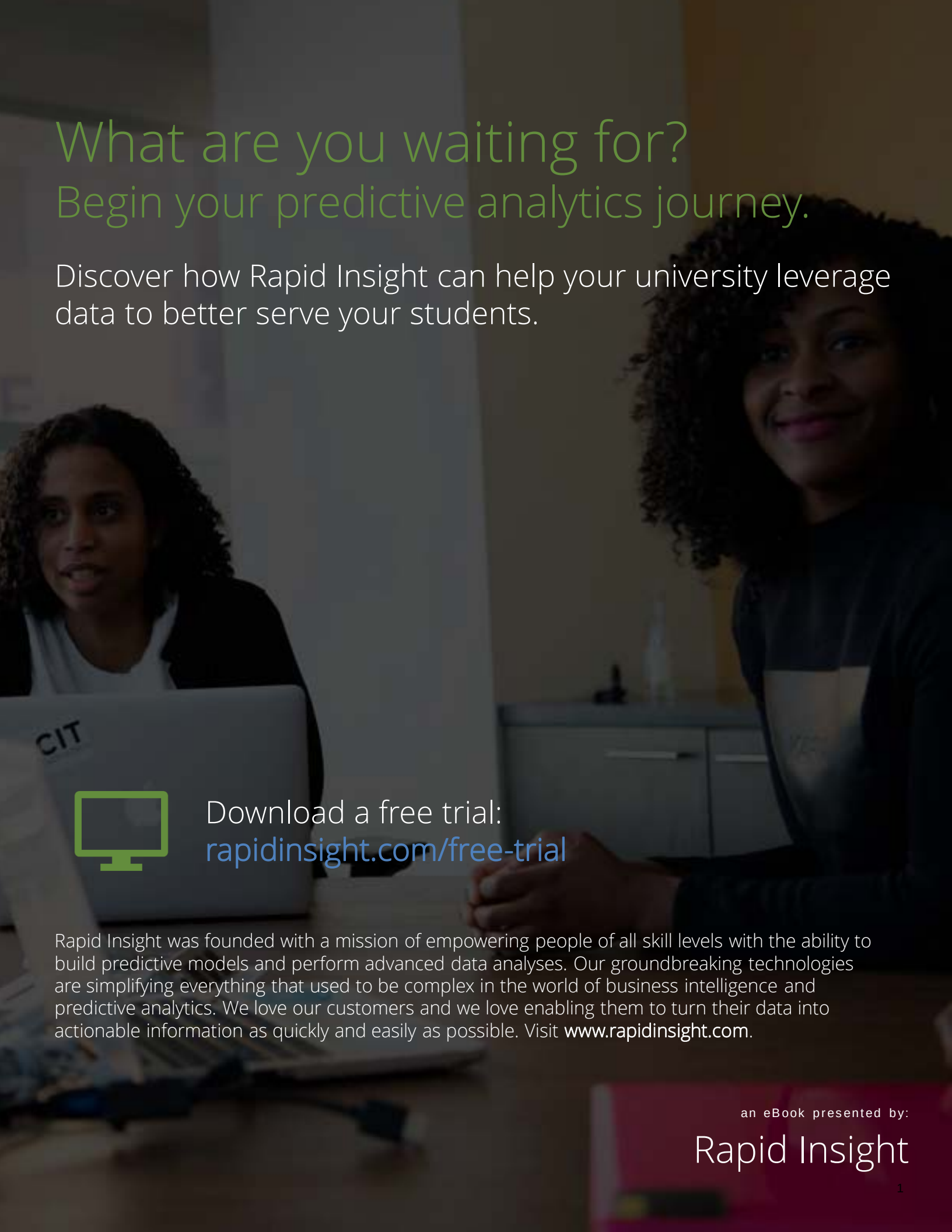
Automatically mine your data, identify variables with (and without) predictive qualities, and build models

Transparent

Maintain a lens into the model-building process, from ingredient to algorithm, giving you defendable results

Insight-Driven

Apply predictive analytics to any business challenge, and learn where to focus your efforts for maximum ROI



What are you waiting for?
Begin your predictive analytics journey.

Discover how Rapid Insight can help your university leverage data to better serve your students.

Download a free trial:
rapidinsight.com/free-trial

Rapid Insight was founded with a mission of empowering people of all skill levels with the ability to build predictive models and perform advanced data analyses. Our groundbreaking technologies are simplifying everything that used to be complex in the world of business intelligence and predictive analytics. We love our customers and we love enabling them to turn their data into actionable information as quickly and easily as possible. Visit **www.rapidinsight.com**.

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