

# HUMANIZING DATA FOR STUDENT SUCCESS



**HOW PREDICTIVE ANALYTICS AND CARE MANAGEMENT  
TRANSFORMED A UNIVERSITY'S STUDENT OUTCOMES**



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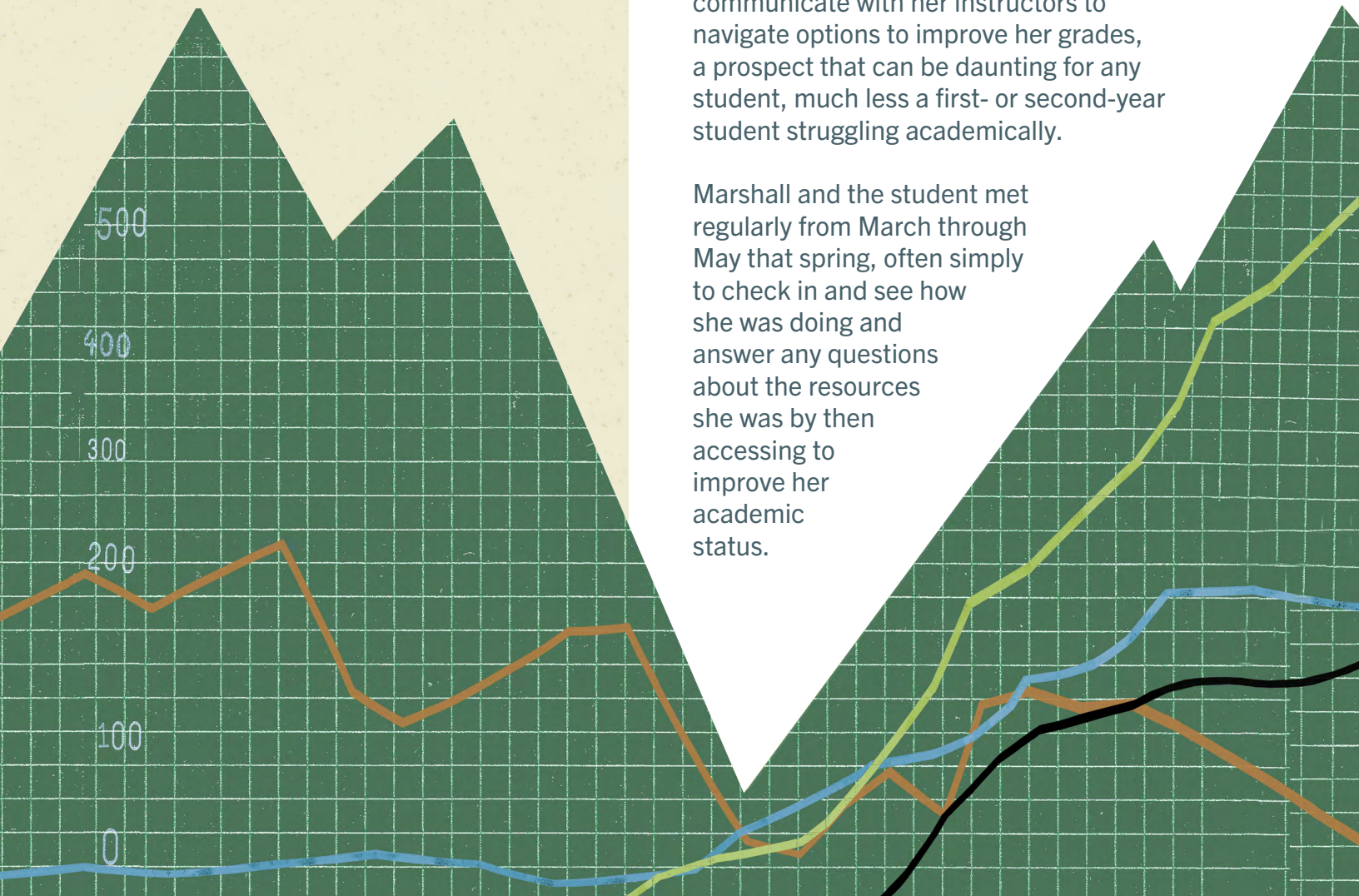
## INTRODUCTION

In January of 2022, Sarah Marshall, an academic advocate at the University of South Florida, reached out several times to a sophomore student in danger of failing most of her courses. She was a first-generation college student from a single-parent household who had been placed on academic probation and was on the verge of being academically dismissed.

Marshall's persistence paid off, and the student responded in March. Over the next few days, Marshall connected the student with a variety of resources available to all USF students, including wellness support and Academic Success Center Study Skills mentors.

Marshall also spent time talking with the student about how to more effectively communicate with her instructors to navigate options to improve her grades, a prospect that can be daunting for any student, much less a first- or second-year student struggling academically.

Marshall and the student met regularly from March through May that spring, often simply to check in and see how she was doing and answer any questions about the resources she was by then accessing to improve her academic status.



Before long, things got better – much better. By the end of spring, the student passed all her courses and was removed from academic probation. She told Marshall it had been her best semester in college, and the first time she had been so successful in the classroom.

The student remains enrolled at USF, and she and Marshall continue to meet every two to three weeks to help keep her on track for timely graduation. Her story is complicated, fraught with personal challenges and family concerns that continue to impact her wellness. However, it is by no means unique. And it's an example of why USF utilizes a data-informed case management model designed to provide an additional layer of outreach and support that ensures thousands of students each year receive proactive outreach from an academic advocate like Marshall.

The model is assisted by machine learning, a form of artificial intelligence, and is informed by practitioner insights. The result is a proactive tool to identify and prioritize students who may need intervention to avoid future academic trouble – in some cases before the student even realizes the extent of the problem and the potential consequences. And it's part of a much larger, comprehensive, data-informed approach to student success that USF began using about a decade ago driven by an institutional expectation that every student will succeed when given the opportunity to do so.

# 01

## A CULTURAL TRANSFORMATION

The platform that identified the student above and the advocate from the USF Office of Academic Advocacy who provided help are part of a case management model that emerged from the university's innovative plan to improve student outcomes. From the outset, leadership aimed to remove silos among academic affairs, student affairs, information technology and institutional research. Leaders knew even the most effective digital transformation required a shift to an institutional culture that placed students at its core.

That approach has been a driving force behind a decade-long improvement in overall outcomes, with first-year retention rates rising from 86 percent to 91.9 percent and four-year and six-year graduation rates climbing to 63.5 percent and 74.6 percent through the 2019-20 academic year. And while USF, like many universities, saw a leveling off during the COVID-19 pandemic amid unprecedented strains placed on students and staff alike, the model underscores the importance of human interaction as critical to student success in a post-COVID world.

“It can be difficult for large institutions like ours to intercept a student in academic distress before it's too late,” said Cynthia DeLuca, USF's vice president for student success. “By working with the colleges to leverage the data, connect the right people and functions and develop a point team to engage identified students, we have greatly improved our persistence and graduation rates. That success has contributed to a university-wide cultural change where leadership, faculty and staff

now think and act from a student centric perspective.”

USF’s student success transformation began about a decade ago to improve four- and six-year graduation rates that, at the time, hovered around 43 percent and 66 percent, respectively. Leaders saw troubling patterns such as students missing class and failing to meet with advisors, leading to slumping grades.

In some cases, students faced financial hardship or mental health challenges, or were stretched thin by working to pay for school.

In response, USF over the next decade introduced a series of predictive platforms, and Student Success leaders gradually expanded the academic advocacy team and added data research specialists.

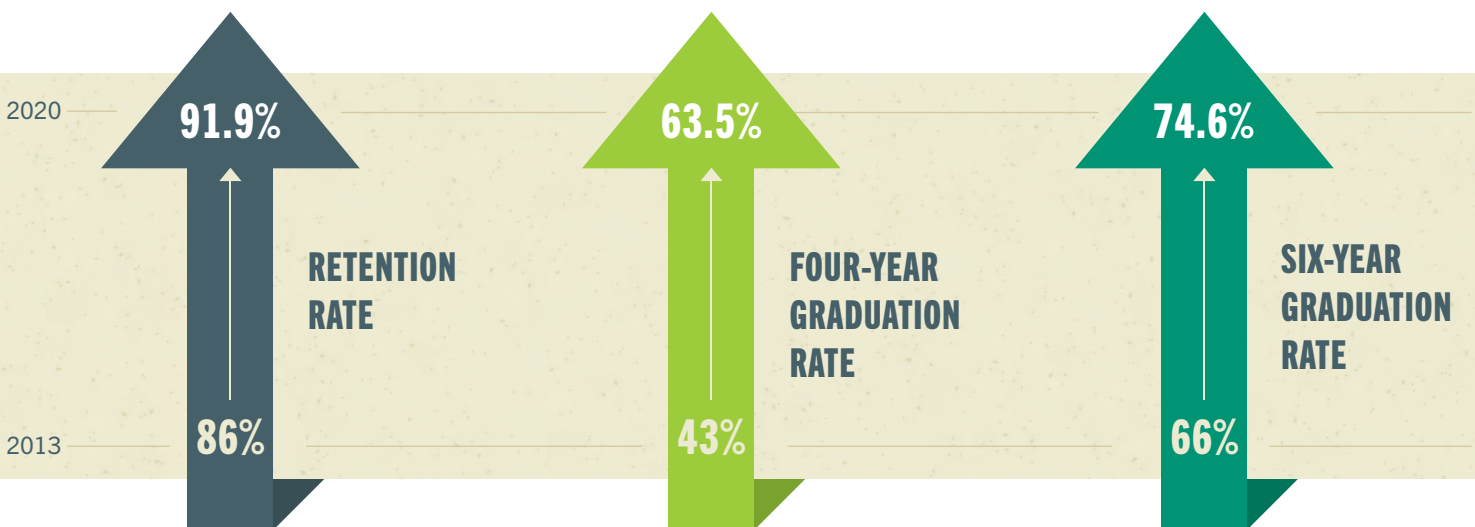
The work had begun as early as 2008 with the creation of a predictive model to reveal barriers affecting students’ ability to persist to graduation. But leaders quickly discovered that relying on “dead”

data, from sources such as the National Student Clearinghouse, and reported data didn’t allow them to intervene in time to change student outcomes. Those early predictive models provided point-in-time information that represented only the tip of the iceberg.

Seeing those limitations, USF in 2014 implemented a data insights platform from a third-party vendor, which it used for several years before eventually developing a proprietary version with design input from staff and tailored to its needs. The result was an innovative Care Management model combining predictive analytics with case management principles used in the health care industry to triage and assist patients. The model continues to evolve, representing a collaborative, data-informed approach that has positioned USF as a national leader in improving student outcomes.



**RELYING ON DATA FROM A SPECIFIC POINT IN TIME LED TO INTERVENTION THAT WAS TOO LATE TO CHANGE STUDENT OUTCOMES.**



**STUDENT SUCCESS OUTCOME METRIC INCREASES AFTER MODEL IMPLEMENTATION**



# 02

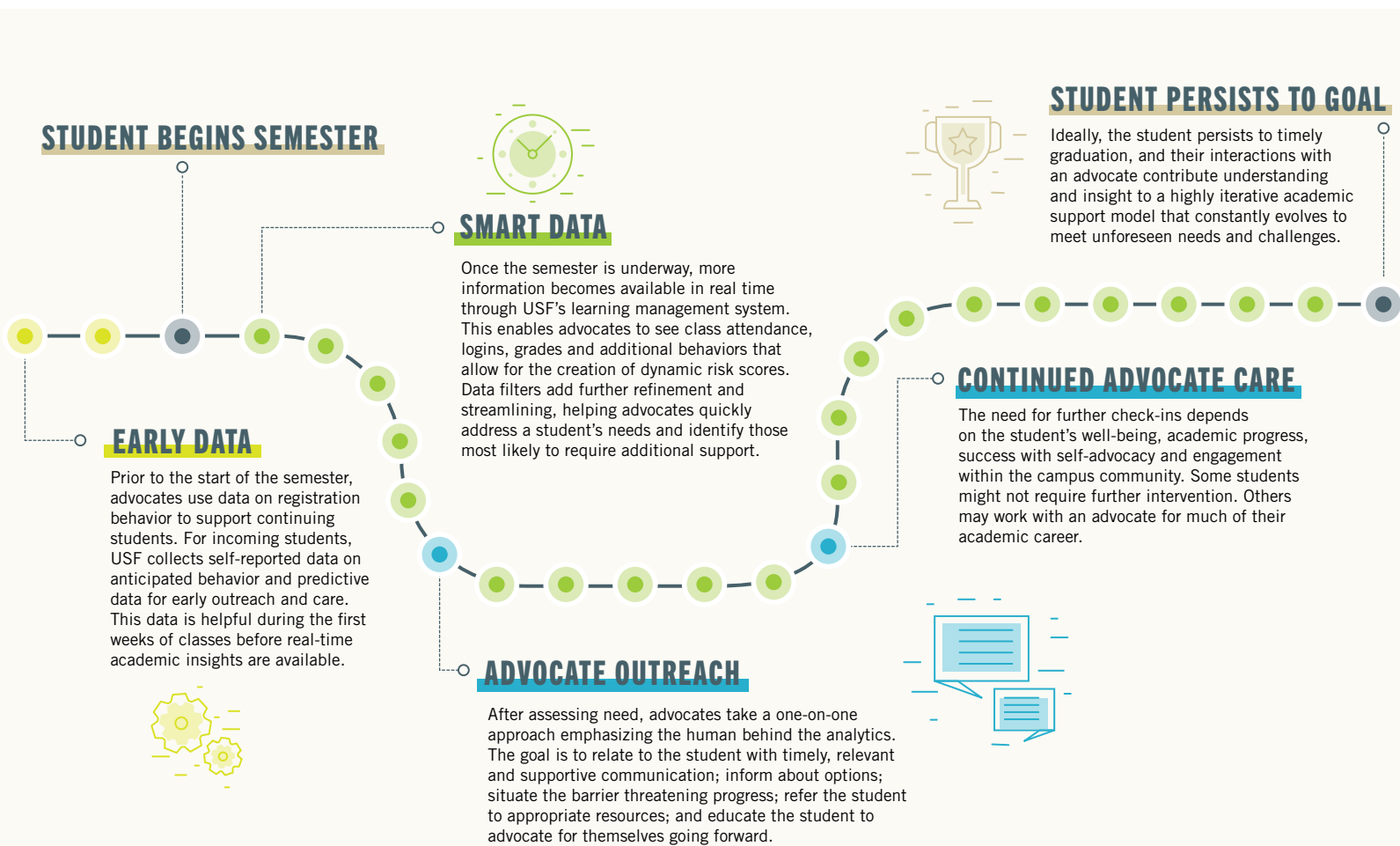
## BECOMING A DATA-INFORMED INSTITUTION

This new approach gave rise to the building blocks that continue to provide decision support to leadership and drive specific initiatives. USF took another major step forward in 2017 with the creation of a dashboard tool that enabled the Office of Academic Advocacy (OAA) to integrate its growing spreadsheets and student lists, providing the ability to identify students in real time for outreach to stay on track, remain in school and realize timely graduation.

The tool, called SMART (Student Monitoring and Risk Tracking), combines a constellation of data points from

predictive analytics to information on which students have registered and paid for classes. The addition of data from USF's learning management system, the transformation of that data into student prioritization scores and the ability to apply data filters streamlined the process for academic advocates – shining light on data previously in a “black box.” That enabled advocates to quickly address a student's needs and identify those most likely to require additional support.

“Before SMART, all we knew was that a student was struggling to persist,” said Leslie Tod, director of USF's Office of





**WHILE PREDICTIVE ANALYTICS DATA COULD SHINE LIGHT ON CERTAIN ISSUES, IT COULDN'T FIX THEM.**

Academic Advocacy. “We needed to be able to interpret the data to find the reasons and the problems behind it. We’re in a developmental arc of that process now, looking for new data and analytics to improve our process and ability to reach the right students at the right time.”

The data integration for the SMART dashboard led to additional practitioner-based tools, including a dashboard for academic advisors developed through internal partnerships with IT and institutional research, along with ongoing training around the differences between reported data for decision support and operational data for daily student support.

The groundwork for this kind of collaborative effort stemmed from a reorganization of USF’s Enrollment Planning and Management, Undergraduate Studies and Student Affairs units into one Student Success division in 2016. Leaders also oversaw the formation of a Persistence Committee, formalized the role of the Office of Academic Advocacy and established a Student Success Data Collaborative, an interdepartmental team created to discuss data needs and share predictive models and new platforms. The result would lead to a better understanding of what it means to be a data-informed institution.

That work accomplished what can be an ominous undertaking by helping to demystify the vast amounts of information

## MODELING SUCCESS

Predictive Analytics Research for Student Success is a group of university researchers who develop the analytical models that OAA uses to identify students with potential need for support, which include:

### FIRST-TIME-IN-COLLEGE (FTIC) MODELS

- **First-Year Retention:** Indicates student has a low probability of returning in their second year.
- **First Semester GPA Differential:** Indicates student’s GPA is far lower than expected.
- **Finish in Four:** Indicates student has a low probability of graduating within four years.
- **Finish in Six:** Indicates student has a low probability of graduating within six years.

### TRANSFER MODELS

- **Transfer First Year Persistence:** Indicates student has a low probability of returning in their second year.
- **First Semester GPA Differential:** Indicates student’s GPA is far lower than expected.
- **Finish in Two:** Indicates student has a low probability of graduating within two years.
- **Finish in Three:** Indicates student has a low probability of graduating within three years.

that are produced by and about higher education institutions each year. However, USF leaders understood from the start that while the data behind any predictive platform could expose certain issues, those data couldn't fix them.

"The most important part is the human behind the analytics – the person who sent the message is the person who saw the need for support," said Tod, who has overseen OAA's growth over the years into three full teams – each consisting of a lead and two advocates – focused on FTIC, transition and transfer students.

OAA typically works with the top 15 to 25 percent of students who are in greatest need of outreach and care. Most are at risk for not persisting or progressing. To find them, advocates are trained to apply their knowledge of USF's practices, processes and policies to inform and guide students through specific barriers.

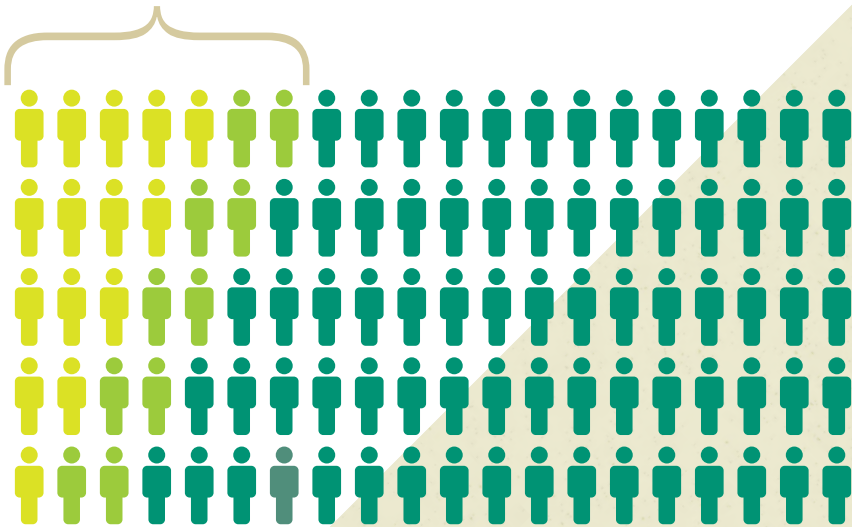
**“THE MOST IMPORTANT PART IS THE HUMAN BEHIND THE ANALYTICS – THE PERSON WHO SENT THE MESSAGE IS THE PERSON WHO SAW THE NEED FOR SUPPORT.”**

They work in partnership with colleagues across the university who can provide the right resources when they're needed.

USF Dean of Undergraduate Studies Allison Crume, whose unit houses OAA, said the use of predictive analytics informs her team's outreach and support, ensuring timely responses and customized solutions that increase the likelihood of successful outcomes.

"Students are at the center of our work," Crume said.

**15-25% OF THE UNIVERSITY STUDENT POPULATION IS IN THE GREATEST NEED OF OUTREACH AND CARE.**



**A DRIVING FACTOR BEHIND THE UNIVERSITY'S CARE MODEL IS AN INSTITUTIONAL EXPECTATION THAT EVERY STUDENT WILL SUCCEED WHEN GIVEN THE OPPORTUNITY TO DO SO.**

## REMOVING BARRIERS THROUGH COLLABORATION

**T**he cross-functional, university-wide Persistence Committee complements and supports the academic advocates and has evolved since forming in 2016, working with partners from USF's campuses, colleges and units to address systemic barriers to student success.

**“AS A GROUP WE CARE ENOUGH TO WANT TO BE HELPFUL. WE ARE A COLLECTION OF PEOPLE WHO WOULDN'T NORMALLY BE MEETING, PEOPLE WHO WILL LISTEN AND HAVE A COMMON INTEREST IN STUDENT SUCCESS.”**

One example involved a policy blocking students with more than \$100 in unpaid tuition from registering. The Persistence Committee worked with internal partners to raise it to \$500, enabling about 3,000 more students to register. The idea originated from USF's student financial services team. Students can also connect to a peer-to-peer financial education program that coaches students on financial wellness.

“As a group we care enough to want to be helpful,” said Thomas Miller, chair of USF's Tampa campus Persistence Committee and an associate professor in the College of Education who served as vice president for student affairs when the university began focusing on student

success. “We are a collection of people who wouldn't normally be meeting, people who will listen and have a common interest in student success and have the authority to make changes for improvement.”

Working alongside the advocates and Persistence Committee is a Care Team of more than 200 people across USF's three campuses who use information provided to them to engage the right students at the right time with targeted support. These partners include:

- staff and peer leaders from Residential Education;
- traditional academic advisors;
- degree certifiers;
- Academic Success Center staff;
- New Student Connections staff and peer leaders.

Following consolidation into one singly accredited institution in 2020, USF expanded the model to its St. Petersburg and Sarasota-Manatee campuses, which adapted it to suit their size, resources and structure. This work included the collaborative drafting of a university-wide Academic Advising Strategic Plan and training more than 150 professionals to communicate and coordinate delivery of student support services through the case management system.



**BRINGING IN OTHER DEPARTMENTS CAN YIELD UNEXPECTED IDEAS AND SOLUTIONS.**



# 04

## LESSONS LEARNED

The past seven years – and particularly the past three since the outbreak of the COVID-19 pandemic – have provided opportunities for student success leaders at USF and colleagues across the university to reflect.

Among the lessons learned during that time are best practices that may assist other institutions interested in creating their own models:

1

**ADAPTING THE MODEL:** USF’s model is adaptable virtually anywhere, and it works best when it aligns with an institution’s strategic plan and goals. It’s essential to identify data points and other factors that will reveal barriers to success based on the unique needs of a specific institution. This can include grade information (including the timeline of tests and grading deadlines); withdrawal information; the timeline for a semester; registration data and outcomes, including registration holds; persistence markers such as academic standing, progress and registration accessibility. On a more case-by-case basis, institutions may want to account for the politics and culture of their campus and how those unique factors affect the ability to create a supportive model. The size of the institution is another important factor, taking into account enrollment, the number of faculty, staff and administrators and the presence of branch campuses.

2

**SCALING FOR IMPACT:** Scalability is essential, and it depends largely on the student population and the dynamics of the institution. In USF’s case, that means more than 35,000 undergraduate students across three geographically diverse campuses, with student success support systems in place on each site. “One question we continue to ask is, ‘Can we be personal and still be covering such a large number of students?’” Tod said. Doing so, she added, requires a commitment of resources and buy-in from partners across the various departments and units that will provide students with the vital support they need to overcome barriers along their path to graduation.

**“ONE QUESTION WE CONTINUE TO ASK IS, ‘CAN WE BE PERSONAL AND STILL BE COVERING SUCH A LARGE NUMBER OF STUDENTS?’”**

3

**EMBRACING CHANGE:** Be prepared for constant iteration, because the data move quickly and now must be viewed within the context of COVID-19's impact on learning experiences during students' late high

school years. FTIC students arriving on campuses have experienced disruptions in learning modality and a loss of normal social interaction, leading to mental health concerns and other challenges that make it more complicated to assess their needs and predict success. "COVID changed everything," Miller said. "It made accurate prediction very difficult. But one thing we found was that when we identified students whom we predicted would need help, if we provided that help, they really did better."

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**"COVID CHANGED EVERYTHING. IT MADE ACCURATE PREDICTION VERY DIFFICULT."**

4

**CARING FOR CAREGIVERS:** Tod said the pandemic's toll on mental wellbeing extended not only to students but to members of the advocacy team and underscored the need for support. "We did a lot of training and self-care on our own," Tod said. "It's very important to support the advocates and encourage them to remember their spaces, and to provide them with help

when they need it." The team held regular meetings to discuss new challenges as they emerged and to reinforce the model.

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5

**BEING A GOOD PARTNER:** Remember that while the predictive analytics platform and advocacy teams are central to the success of the Care Management model, internal partners "are your most valuable resources," Tod said. "Listen to them, and when you want to help fix something, use care and caution, since there can be a tendency to want to protect their work." Equally important, particularly during stressful times and heavy workloads, is the need to avoid what Tod calls "student blaming," which can quickly become a distraction.

"Our role is to represent the student voice, connect the dots and manage the emotions from all sides," Tod said.

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**"OUR ROLE IS TO REPRESENT THE STUDENT VOICE, CONNECT THE DOTS AND MANAGE THE EMOTIONS FROM ALL SIDES."**

6

**TURNING INSIGHTS INTO ACTION:** Finally, it's essential for student success leaders to identify colleagues who have access to data and work with them to find ways to use those data in a predictive analytics platform to support an effective Care Management model. The next step, Tod said, is learning how to apply those insights to day-to-day case management.

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# 05

## OUTCOMES

**T**he university's increased retention and graduation rates resulted in higher levels of state support, as Florida funds universities in part based on performance and student outcomes. The improvements also helped earn the designation as a preeminent university, placing USF in the top tier among the state's 12 public universities and leading to additional state investments. In June 2023, USF achieved a longstanding strategic goal when it accepted an invitation to the Association of American Universities, joining a group of the top universities in North America. Along with research impact, faculty excellence, strength of academic programs and other factors, AAU includes among its membership indicators student access and outcome metrics, including undergraduate graduation rate.

Marshall, the academic advocate from the beginning of this case study, sums up how the cultural transformation of the past decade has positioned USF for continued success, even at an uncertain time for higher education.

"A lot of the focus in higher ed right now is on whether students are ready for college," Marshall said. "But a big question is whether colleges are prepared for students who are dealing with many different issues, including mental health challenges. The work we do helps ensure that we're ready for them."

### WHAT STUDENTS ARE SAYING

“ You helped me identify which obstacles I needed to overcome to clear my holds, receive reimbursement and be reinstated for [my scholarship]. **I am grateful for your willingness and eagerness to get me back on track.**” – N.B.

“ I was able to not only successfully complete my final course requirement to graduate, but I did so with nearly a 100% in the course, something I have not been able to do since my sophomore year in college. I owe part of this success to you and the guidance you provided me; **you reached out to me when I was afraid that my mental health issues would continue to plummet my GPA and prevent me from completing my degree.** You helped me to work past my mental roadblocks and showed me how to use USF's resources in ways that better suited me. I should be all set for graduation now. . .” – K.L.

“ I can honestly say this is the **most connected I have felt** to USF since I started here.” – J.C.

“ I didn't know what this meeting was going to be like but it was **amazing and what I needed right now.**” – D.C.

## **THANK YOU FOR READING.**

Your feedback is important to us. Did you find the information in this case study useful?

**YES**

**NO**

