Navigating Emerging Student Success Technology
A Decision Support Framework for College Leaders

In just five years there's been a 2000% increase in companies selling software products to support higher education student success. The promise of these new technologies is great. Case management systems, analytics, and planning tools present an affordable path to strengthening student success. However, amid a sea of new vendors touting lofty promises and using a new lexicon, many colleges are struggling to make the most of this emerging software landscape.

The Aspen Institute College Excellence Program together with The Ada Center, an organization focused on helping colleges make the most of their technology investments, created this framework to support leaders in navigating the emerging software landscape. The framework provides a high-level picture of student success technology capabilities available in today's market along with the inputs—human resources, data, existing structures—required to bring them to life for your college.

This resource would not have been possible without the generous contributions of time and input from dozens of higher education practitioners and content experts who shared their perspectives on student success technology. Particular thanks are owed to the Bill & Melinda Gates Foundation's Frontier Set network, Phase Two Advisory, Achieving the Dream, and the AACC Pathways Partners.

While we hope the framework will provide a helpful starting point for student success technology decisions, it cannot replace the thought and hard work required to effectively purchase, implement, and integrate a major student success technology system. If your college has additional questions about this framework or where to find more in-depth technology support resources, please do not hesitate to contact Sarah Zauner at sarah@theadacenter.org and Keith Witham at keith.witham@aspenintitute.org.

This resource will explore how technology can support college efforts in six areas:

Engage and Prepare Prospective Students

Help Students Stay on their Path

Clarify the Path to Student End Goals

Support Student Learning

Help Students Choose and Get on a Path

Continually Improve the Student Experience

Engage and Prepare Prospective Students

How Technology Can Help

- Capture prospective student information, including demographic data, student interests, and possible fields of study
- Alert prospective students about resources to prepare them for higher education
- Strengthen communication among college staff, particularly during the critical hand-off of prospective students to enrolled students
- Reduce enrollment hurdles for students by pre-loading application data and creating a calendar of key enrollment activities
- Analyze data on attributes of prospective students

What Technology Can't Do

- Create strong partnerships with local high schools and community-based organizations that are home to prospective students
- Change state and college policies that elongate and complicate the college application process

Required Information Inputs

- Data on interactions with prospective students
- A prioritized list of critical student communications, including language on resources for prospective students, key enrollment milestones, and application processes
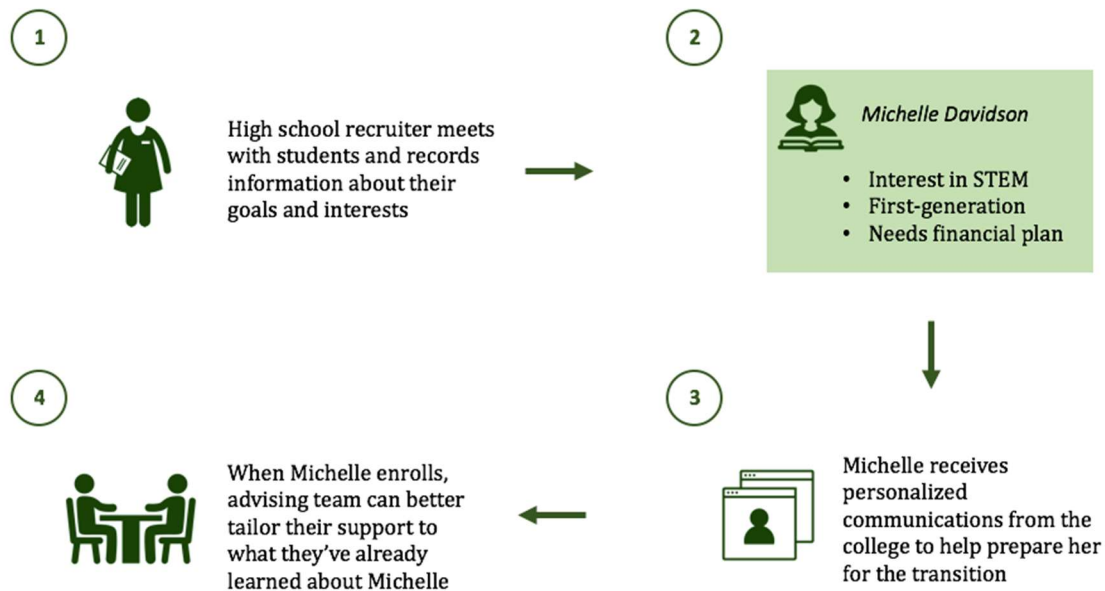
Human Resource Needs

- Staff capacity (including through partners) to capture new prospective student data and transition historic data to the new system
- Leadership development of a framework for how and when student communication responsibility will transfer as prospective students become enrolled students
- Training sessions and urgency-building for all staff, advisors, and administrators who will be tasked with using the new system
- Short-term IT capacity to ensure successful implementation and integration, along with FERPA compliance

Considerations for Technology Adoption

- Do we need to make changes to our enrollment, admissions, financial aid, or advising structures to effectively utilize this technology?
- Are we culturally and structurally prepared to streamline and centralize prospective student communication?
- How will this new technology integrate with our Student Information System (SIS) and current advising and case management systems?

Example: Using Technology to Engage and Prepare Prospective Students

1 High school recruiter meets with students and records information about their goals and interests

2 Michelle Davidson
- Interest in STEM
- First-generation
- Needs financial plan

3 Michelle receives personalized communications from the college to help prepare her for the transition

4 When Michelle enrolls, advising team can better tailor their support to what they've already learned about Michelle

Example Software Vendors

- Salesforce
- Hobsons
- Azorus
- Ellucian
- Jenzabar

*The Aspen Institute and The Ada Center do not endorse these or other software vendors, and encourage colleges to thoroughly explore multiple software providers before making a technology purchase.

Clarify the Path to Student End Goals

How Technology Can Help

- Collect post-graduate student outcomes data to inform pathway design
- Synthesize labor market data, including up-to-date regional employment trends, wages, and job listings in fields related to each of the college's programs
- Synthesize transfer requirements, including top transfer destinations by program and up-to-date program requirements
- Visualize comprehensive program maps, including job and transfer opportunities associated with each program

What Technology Can't Do

- Predict the future (past trends may not continue)
- Vet the quality and accuracy of program information
- Design pathways that map to strong transfer and labor market outcomes
- Automatically update student, advisor, and faculty data systems with new decisions such as revised transfer agreements or updated program maps

Required Information Inputs

- Transfer and labor market data from state, clearinghouse, college, or other data sets, including historic student information data
- Clearly articulated program maps, including program descriptions and recommended course sequences

Human Resource Needs

- College-wide effort to develop recommended program maps, including significant data analysis, planning with academic affairs, and feedback from advising
- Extensive faculty and staff time to ensure thoughtful interpretation of transfer and labor market outcomes
- Ongoing faculty and staff capacity to update and review accuracy of program maps, as well as transfer and labor market data
- Ongoing web developer capacity

Considerations for Technology Adoption

- How will we acquire the source data to feed the technology? Will we need to merge information (e.g., transfer requirements and employment data) from multiple systems? If so, what will need to be done to ensure strong integration?
- How can we prepare administrators, faculty, and staff to regularly examine and productively react to student outcomes data?
- What processes will we need to install to keep program information accurate and current?
- How can we prepare for the course and program demand shifts that will likely occur?

Example: Using Technology to Clarify the Path to Student End Goals

College Data

- College Program Information Tagged by ONET Code
- Student Post-Graduation Surveys
- Historic Student Outcomes Data

Cleaned →

College faculty and administrators clarify the path to student goals using software that supports data collection, aggregation, and analysis

← Analyzed

External Data

- Electronic Job Postings
- State Databases and Bureau of Labor Statistics
- National Student Clearinghouse

Example Software Vendors

- CollegeSource
- BurningGlass
- EMSI

- Civitas
- EAB
- Hobsons

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Help Students Choose and Get on a Path

How Technology Can Help

- Convey information to students and advisors about strong employment and transfer opportunities as well as how programs of study map to student interests and what comes next
- Help connect students with campus resources and activities such as financial counseling services, campus work opportunities, and transfer fairs
- Capture and monitor student progress through onboarding milestones, such as program selection, course registration, financial aid application, etc.
- Enable students and their advisors to build—and register for—a customized education plan

What Technology Can't Do

- Replace the critical role that advisors and faculty play in helping students find a path that fits their goals and strong post-graduation opportunity
- Check for and correct against biases in pathways selection based on race, ethnicity, income, and other factors that lead to inequities
- Personally intervene with students who fail to complete critical onboarding milestones, such as registering for wrong-fit courses or not completing financial aid forms
- Create activities and establish personal interactions that make students feel connected to the college
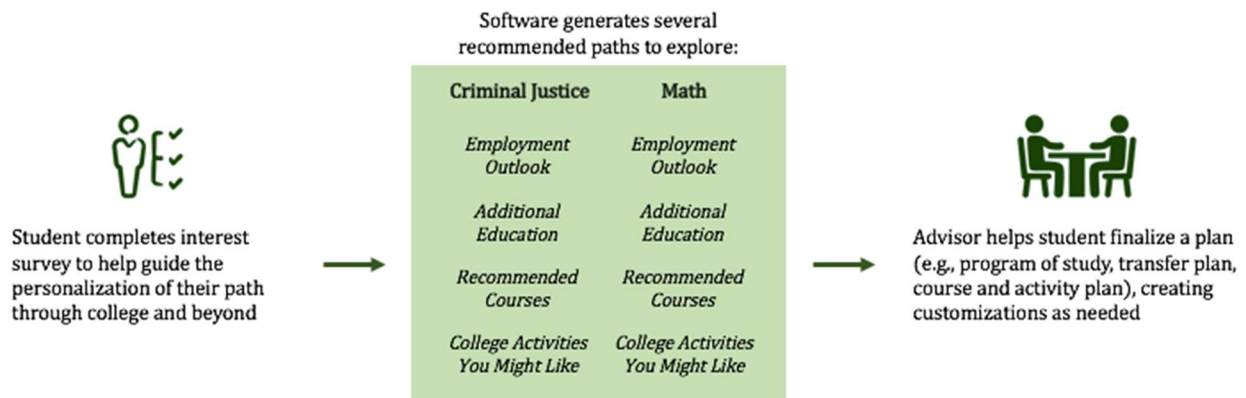
Required Information Inputs

- List of key milestones for helping students get on their path, including critical onboarding communications such as orientation and financial aid
- Data entry from faculty, staff, and advisors who counsel students on path selection
- Alternative education plan configurations for students unable to pursue the default path due to course capacity constraints or student work and life barriers

Human Resource Needs

- Staff, advisor, and faculty capacity to develop consensus and language around key onboarding milestones for different student groups
- Training for all individuals who will be using the new system, including students
- Capacity for staff to enter data around student interactions
- Professional development on how and when to customize student education plans
- Significant IT capacity to implement and integrate the system, along with a small amount of ongoing IT capacity

Considerations for Technology Adoption

- How will we devise our (formal and informal) advising model to enable the effective use of this technology?
- Is our college prepared for the centralization and streamlining of student communication that will result from this new resource?
- How will the technology integrate with our registration system?
- Do we have a clear sense of what the onboarding process should look like for different types of students? How will we leverage the technology to track student onboarding progress?
- How will the technology integrate with our Student Information System (SIS), Customer Relationship Management system (CRM), and other relevant technology?

Software generates several
recommended paths to explore:

Criminal Justice	Math
Employment Outlook	*Employment Outlook*
Additional Education	*Additional Education*
Recommended Courses	*Recommended Courses*
College Activities You Might Like	*College Activities You Might Like*

Student completes interest survey to help guide the personalization of their path through college and beyond

Advisor helps student finalize a plan (e.g., program of study, transfer plan, course and activity plan), creating customizations as needed

Example: Using Technology to Help Students Choose and Get on the Path

Example Software Vendors

- Ellucian
- EAB
- Hobsons

- EduNav
- BurningGlass
- Civitas

- Full Measure Education

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Help Students Stay on their Path

How Technology Can Help

- Provide students with information about progress, deadlines and requirements critical to their success, and suggested activities that can help them along their path
- Provide advisors, faculty, and administrators with role-relevant information about student academic progress, completion of key milestones, risk/profile information, and interactions with other faculty and staff
- Flag when students are at-risk of going off-track, and automatically trigger communication with those students
- Enable the updating of student education plans, visualizing how changes in degree choice impact student progress
- Strengthen communication among faculty, staff, and advisors

What Technology Can't Do

- Require faculty and staff to record student interactions electronically
- Personally follow-up on electronic alerts
- Diagnose why students are going off-track
- Determine how to handle complex cases when students go off track

Required Information Inputs

- A prioritized list of key student deadlines, requirements, and suggested activities including (1) who the activity applies to (e.g., veteran, developmental education students), (2) when the deadline or requirement comes due, (3) where students should go to complete the task, and (4) what happens if the deadline or requirement is not met
- Clearly defined roles and permissions for access to early alert and to student data
- Regular information from faculty, staff, and advisors on student behavior

Human Resource Needs

- Professional development for an early alert framework, including top priority alerts and who will be responsible for managing each type of alert
- Staff capacity to develop and continually update a list of key student activities, deadlines, and requirements
- Capacity for staff, faculty, and advisors to enter data about student interactions and to manage alert follow through
- Training and urgency-building for all individuals tasked with using the system
- Significant IT capacity to implement and integrate the system, along with a small amount of ongoing IT capacity

Considerations for Technology Adoption

- How will we create capacity for staff to respond to alerts triggered by our new system? Do we need to make changes to our advising model or student support services?
- How will we ensure that faculty and staff enter the student behavior data needed for the system to function?
- How will our knowledge about what behaviors cause students to stray from their path inform how we configure and utilize the new technology?
- Who should have access to student profiles? To student academic plans?
- Should we enable students—or a sub-group of students—to update their academic plan and register for courses without speaking to an advisor?

Example: Using Technology to Help Students Stay on Their Path

Faculty issue alert for students with significant attendance challenges several weeks into the semester

Early alert manager triages and sorts alerts, sending flags to the advisors of students with attendance challenges

Advisor outreaches to students with attendance challenges, encouraging an in-person meeting to discuss the challenge and brainstorm solutions

Advisor closes the loop with the faculty member who issued alert

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Example Software Vendors

- Hobsons – Starfish
- EAB
- Civitas

- Aviso Retention
- Oracle – Peoplesoft
- Ellucian

- InsideTrack
- Tutor.com
- Gradguru
- Campus Labs

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Support Student Learning

How Technology Can Help

- Provide students with a system to track upcoming class assignments, deadlines, grades, and faculty feedback
- Engage students with interactive lessons, tailored curriculum, and virtual academic support
- Equip faculty with tools for developing high-quality in-person, online, flipped-classroom, or hybrid course formats
- Capture and reflect course-level and department-level student learning outcomes

What Technology Can't Do

- Create the urgency for faculty to improve teaching and student learning
- Automatically transform a face-to-face course to engaging digital curriculum
- Replace the need for thoughtful faculty and student interactions
- Require timely faculty inputs of course syllabi, grades, and assignments

Required Information Inputs

- Syllabi, grades, and assignments for each course
- Digital learning curriculum and content
- Student learning outcomes (academic affairs and student services)
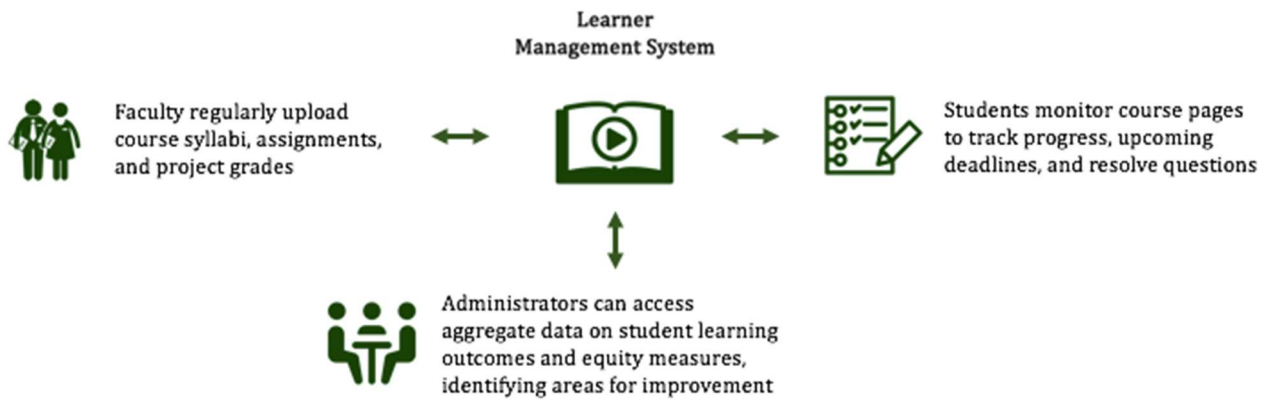
Human Resource Needs

- Ongoing professional development for faculty on developing digital curriculum and teaching in an online or hybrid format
- Capacity to train students, staff, and faculty on how to use the new system
- Moderate IT capacity to implement and integrate the system, along with a small amount of ongoing IT capacity

Considerations for Technology Adoption

- How can we support faculty members in harnessing new digital learning resources?
- How many technology systems can we reasonably expect faculty members to use?
- How will we merge data on student services with academic data to capture a more complete picture of student learning?
- How do we enable faculty members to have freedom in digital course design while limiting the number of technology systems we manage?

Example: Using Technology to Support Student Learning

Learner
Management System

Faculty regularly upload course syllabi, assignments, and project grades

Students monitor course pages to track progress, upcoming deadlines, and resolve questions

Administrators can access aggregate data on student learning outcomes and equity measures, identifying areas for improvement

Example Software Vendors

- Blackboard
- Chegg
- Desire2Learn
- Canvas
- Pearson
- Moodle
- McGraw-Hill
- Cengage Learning

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Continually Improve the Student Experience

How Technology Can Help

- Create a holistic picture of student activities and behaviors, running reports on student behaviors by subgroup (e.g., race/ethnicity, preparation levels, program of study) to continually build knowledge about what behaviors and interventions correlate with student success and about inequitable outcomes
- Run course demand analyses for critical courses within recommended paths, identifying course bottlenecks that inhibit student progress
- Provide possible indicators for gaps in student learning
- Track retention, graduation, and transfer-out rates for different student populations

What Technology Can't Do

- Marry data analysis with qualitative feedback from focus groups, secret-shopping, and other research methods
- Create the urgency and plans to correct for inequitable access and success of different pathways based on race, ethnicity, income and other factors
- Make tough decisions around course scheduling and student services resourcing based on data analysis

Required Information Inputs

- Access to a comprehensive set of data, including information typically stored in the college student information system (SIS), learner management system (LMS), case management system, customer relationship management system (CRM), curriculum management/student learning outcomes system, and course scheduling system.
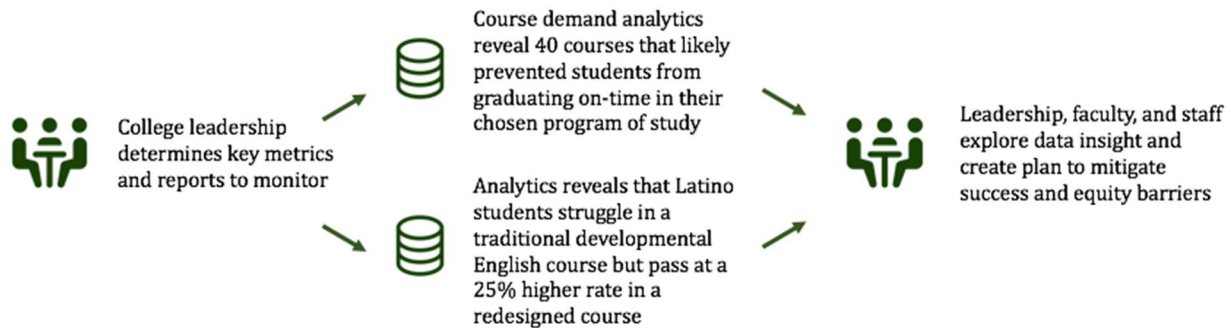
Human Resource Needs

- Leadership capacity to prioritize, analyze, and act upon reports
- Leadership capacity to productively engage faculty and staff with data analysis and reflection
- Significant institutional research capacity to develop system architecture and to prioritize reports
- Small amount of IT capacity to implement and maintain the system

Considerations for Technology Adoption

- What data reports are the top priority for our college given our specific goals for how we aim to improve student success?
- Specifically, how will an analytics system pull in data to run its reports? What are the costs of this aggregation (staff time and integration)?
- How should we norm data definitions across multiple systems? Do the vendor's data definitions match our needs?
- How can we prepare administrators, faculty, and staff to view, interpret, and react to data in a way that's constructive? How can we depersonalize "bad" outcomes?

Example: Using Technology to Continually Improve the Student Experience

College leadership determines key metrics and reports to monitor

Course demand analytics reveal 40 courses that likely prevented students from graduating on-time in their chosen program of study

Analytics reveals that Latino students struggle in a traditional developmental English course but pass at a 25% higher rate in a redesigned course

Leadership, faculty, and staff explore data insight and create plan to mitigate success and equity barriers

Example Software Vendors

- Zogotech
- AdAstra
- Civitas

- EAB
- Hobsons - Starfish
- Blackboard

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Key Considerations for all Technology Investments

- How will we build urgency around this initiative and connect it back to our broader theory of change?
- What are the internal staff roles and responsibilities required to effectively implement and integrate this new technology?
- How do we create the time and space to regularly assess whether the technology and processes used to support its use are serving our student success goals? Based on these assessments, what processes are in place to make needed changes?
- How will we phase-in the new technology initiative?
- How will this technology impact information flow across the college and to students? Do we need to adjust our organizational models, policies, and other data systems to ensure we don't have gaps in that information flow?

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