

Integrated Planning and Advising Services: A Benchmarking Study



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Introduction

After a half century of remarkable success at widening educational opportunity, American higher education faces the question of whether it can continue to meet the needs of a society more dependent than ever on a well-educated population. Achievements in access and attainment remain evident: Most Americans today attend college at some point, and 31% of those 25 and older hold a bachelor's degree—two and a half times the rate in 1970.¹

But challenges are equally evident. College tuition has about tripled in the past three decades, yet students' chances of realizing the key milestone of that investment—completion of a degree—have remained flat, and in some sectors are painfully low.² Once the global leader in postsecondary attainment, the United States today ranks fifth among developed nations.³ Only about 58% of first-time, full-time degree seekers entering college in 2004 graduated with a bachelor's degree six years later. Among entering community college students, fewer than a third complete an associate's degree within three years, and only 17% earn a bachelor's degree within six years.⁴ Students who take nontraditional paths—delaying entry after high school, for example—fare worse, as do the large numbers who require developmental education.⁵

Political leaders, business executives, and educators alike worry that these patterns are incompatible with an economic future in which national competitiveness will depend on widespread postsecondary attainment.⁶ From President Obama's goal that by 2020 “America will once again have the highest proportion of college graduates in the world” to the American Association of Community Colleges' apprehension that educational underperformance puts “the American Dream at risk,” advancing the “completion agenda” has become a major national concern.⁷ Advocates for education have already flexed some political muscle: Sixteen states have adjusted higher education funding formulae to weigh educational outcomes more heavily, and many others are considering the idea.⁸

What can colleges and universities do to improve student success and drive completion? Research around this enormously complex problem is far from conclusive. But one important line of thought influencing student success efforts aims to bring more structure and better information to the way students choose and progress toward educational objectives.

Rethinking Educational Progress

One key factor in educational attainment has been labeled “momentum.” Simply put, students who progress steadily tend to complete. Direct entry into college from high school, full-time study, quick entry into a credential program, and continuous study without breaks are all associated with better completion rates.⁹

Fewer than a third of entering community college students will earn an associate's degree within three years, and only 17% will earn a bachelor's degree within six years.

Another important set of factors concerns the way students engage with their institutions and master the student experience.¹⁰ Successful students understand what their studies require and engage with faculty and advisors when they run into problems. Those who don't may not possess the study skills and motivation that better-prepared students take for granted, and they may lack the knowledge or confidence to take advantage of support services. If they choose courses unwisely, they may fail, withdraw, or pile up unproductive credits that don't secure progress toward a degree. Challenges like these are especially intense at institutions such as community colleges that accept large numbers of underprepared and economically disadvantaged students.

Encouraged by organizations such as Achieving the Dream, Complete College America, the Aspen Institute, and Completion by Design, colleges and universities looking for practical ways to heighten success often focus on situations where momentum is in danger of lagging and where engagement can be enhanced. Education planning, advising, progress tracking, and at-risk identification are prominent in the mix of success initiatives, though sometimes in forms that depart from tradition.¹¹ Formal educational plans ask students not merely to declare a major but to lay out detailed educational objectives and a time frame for completing them. "Intrusive" advising methods, coaching initiatives, intensive first-year programs, and academic early-alert processes reach out proactively rather than waiting for students to appear at the advising center. Streamlined "structured pathways" simplify program requirements and give students a more directed path to navigate.

Initiatives like these depend on accurate and timely data, effective analysis, and the ability to communicate the right information to all the people involved in student success, including students themselves. They also must scale well enough to reach large numbers of students. These are classic IT concerns. Yet historically, student progress, retention, and support services have been backwaters in the institutional technology landscape. To stimulate the development of better technology solutions and better understand how to use them, the Bill & Melinda Gates Foundation has promoted the concept of integrated planning and advising services (IPAS).

Integrated Planning and Advising Services

In this study, we define IPAS as *an institutional capability to create shared ownership for educational progress by providing students, faculty, and staff with holistic information and services that contribute to the completion of a degree or other credential*. The heart of the idea is collaborative effort across the institution and the flexible availability of resources. As our study shows, even institutions with a strong student success ethic can find this challenging.

Integrated planning and advising services: an institutional capability to create shared ownership for educational progress by providing students, faculty, and staff with holistic information and services that contribute to the completion of a degree or other credential.

The “institutional capability” IPAS envisions can be delivered in many ways and requires cultural and organizational commitments as well as hard assets. However, there are signs that technology solutions will play a particularly important role in the delivery and enhancement of IPAS services.

Education planning, progress tracking, advising, and early alerts are increasingly being incorporated into enterprise-grade solutions in several ways: through the evolution of long-established ERP suites, in the product lines of start-ups drawn by the student success phenomenon, and through institutional projects that have spawned commercial or open-source solutions. Such technologies promise to capture data more consistently and distribute it more effectively than traditional methods, and they offer self-service or automation possibilities that may reduce demand for expensive in-person services. Equally important in the modernization of these services is the robust academic analytics capability that student success champions universally promote as a foundational step.

Evidence that this potential can be realized is scattered and largely restricted to self-reported results. Still, some success stories are compelling enough to suggest that rewards may justify the risks of investing in these emergent technologies. Arizona State University credits improvements in freshman retention and a quadrupling of the percentage of students on a correct course path to its extensive, home-grown e-advising system.¹² Austin Peay State University reports that students earn substantially better grades in courses suggested by its Degree Compass course recommendation system than in courses it did not recommend.¹³ At Purdue University, students taking courses utilizing its early-alert system earn more Bs and Cs, and fewer Ds and Fs, than those in courses that do not utilize it.¹⁴

With all this in mind, it is not surprising that “improving student outcomes through an approach that leverages technology” was the number two issue in 2013 and the number one issue in 2014 in the EDUCAUSE Top-Ten IT Issues list.¹⁵ The fact remains, however, that we do not know a lot about the extent or direction of IPAS services and solutions. IPAS is a newly coined term not in wide use; the very fact that it was necessary to add an entry to the acronym-heavy vocabulary of IT indicates how little explored this area is. Our study addresses this lack of information with a benchmarking effort shaped by the emergent nature of the field.

Research Objectives

This study’s research objectives are to:

- Characterize IPAS capabilities, needs, and concerns as seen from institutional and stakeholder perspectives among a cohort of student success-oriented institutions.

- Measure adoption within the study cohort of IPAS-related technology solutions, and planned adoption and investment in the future.
- Identify best practices in the selection and deployment of IPAS systems.
- Develop recommendations that help higher education leaders successfully plan, implement, and assess IPAS initiatives.

Recognizing potential unfamiliarity with IPAS issues at many colleges and universities, and wishing to collect qualitative insights from multiple stakeholders, ECAR chose to work intensively with a small, select cohort of 36 institutions, most of them community colleges. Each institution was asked to provide responses from the chief information officer (CIO) and a “student success officer” (SSO) to our survey of IPAS practices and plans. In addition, 26 of the study-group institutions contributed participants to stakeholder focus groups. For additional details, see the Methodology section at the end of this report.

Reading This Study

Because of the small and targeted nature of our study group, the results we present here cannot be considered representative of U.S. higher education generally. Instead, we offer them as indicative of the experiences and needs of a set of institutions that have made student success a high priority. It seems reasonable to believe that although not selected solely as IPAS or technological early adopters, this group’s participants may have adopted IPAS technologies and practices that enable them to achieve a level of maturity in student success initiatives beyond what is typical in U.S. higher education. Just the same, we believe that the lessons our study-group participants have learned, the paths they have chosen, and the advice they have to offer will be of interest to the many other institutions that are considering addressing the student retention and completion challenge through technological and cultural innovation.

Key Findings

- Among survey respondents, 80% say IPAS services play a major role in their institution's student success strategies.
- Nine out of 10 respondents expect their institution's use of IPAS technology to increase in the next five years, and 8 in 10 expect significant investments in IPAS within two years.
- Top drivers of IPAS investment are the strategic priority of student success and the desire to reorient the institution from an enrollment to a completion culture. Making more efficient use of advising resources ranks much lower.
- Concerns about the growing use of IPAS technology tend to be modest. Potential faculty resistance to using IPAS systems is the top concern. Data privacy issues are highlighted by some but play little role in the concerns expressed by our respondents.
- Despite the importance respondents attribute to IPAS in their student success strategies, IPAS systems are far from universal. Key emergent systems such as education plan creation tools, advising case management systems, and early alerts are deployed at about half of study-group institutions. Prevalence will greatly increase, however, if institutions implement systems they are currently planning or considering.
- CIOs have mixed opinions about whether integration costs will be a major obstacle to the effective use of IPAS technologies. However, they overwhelmingly agree that they have the staff and infrastructure resources they need to carry out IPAS integration.
- Though most IPAS capabilities are available at about half of respondent institutions, they often are available only to a limited extent. Student success officers expect most of these capabilities to become more widespread within two years.
- Virtually all respondents agree that analytics will be increasingly important to their student success efforts in the next two years, and more than 8 in 10 anticipate significant analytics investments in that time frame.
- Though CIOs and SSOs usually are in accord about IPAS issues, they sometimes differ in their assessments, even at the same institution. CIOs, for example, are more likely than SSOs to report that their institution uses predictive or proactive analytics in student progress.

Investment Plans, Motivations, and Concerns

The student success orientation of our study group was evident in the nearly unanimous agreement that their institutional leadership places a high priority on improving student performance. In focus groups, members passionately described wide-ranging retention and completion initiatives. Some spoke of a paradigm shift from an enrollment to a completion focus that had led them to rethink curricula, advising and developmental education, faculty roles, and other aspects of the institution. Specific efforts included improvements in data collection and analytics, orientation and outreach programs, cross-departmental student success teams, and experiments ranging from course redesign to academic coaching.

IPAS: A Key Part of the Student Success Agenda

IPAS services account for an important part of this spectrum of student success initiatives, if not its whole. Focus group members readily identified education planning, advising, progress tracking, and early alerts as key elements of their success programs. Among survey respondents, 80% agreed that IPAS services play a major role in their overall student success strategies.

Coordinating IPAS Services Is Often a Challenge

Our definition of IPAS stresses shared ownership for student success and the ability to provide information and services holistically. These themes were reflected in focus group comments, which emphasized that successfully delivering IPAS services means coordinating efforts between people in different roles and offices—for example, alerting student affairs when instructors see signs of struggle. Similarly, technology systems must work together. Efficiency and effectiveness suffer where one system can't share data with another or where many systems must be consulted to complete a single task.

Survey results indicate that such coordination and integration remain a challenge (Figure 1). About 6 in 10 respondents agreed that the effectiveness of their institution's IPAS services suffers from lack of coordination between parties who support students, and an equal proportion said the same about lack of systems/data integration. The group was a little more positive about collaboration between campus units involved in using technology to support IPAS services, but even so, only about half agreed that such collaboration is effective.

“What’s exciting [about an institutional student success initiative] is the creation of cross-divisional conversations—recognizing that student success is really conditioned by what goes on in all of those divisions.”

—SSO

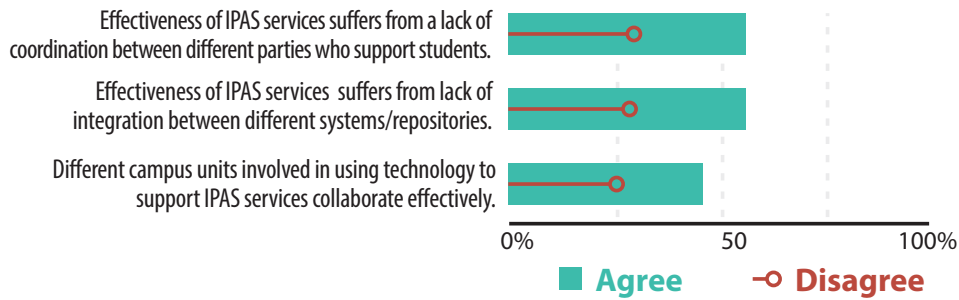


Figure 1. Coordination and Integration of IPAS Services

Investing for Success

Student success factors are the top drivers of IPAS investment, a result that aligns with our study-group institutions’ leadership priorities. The most frequently cited driver is the strategic priority of student success, chosen by 7 in 10 respondents (Figure 2). Next in line is reorientation from an access/enrollment culture to a completion culture.

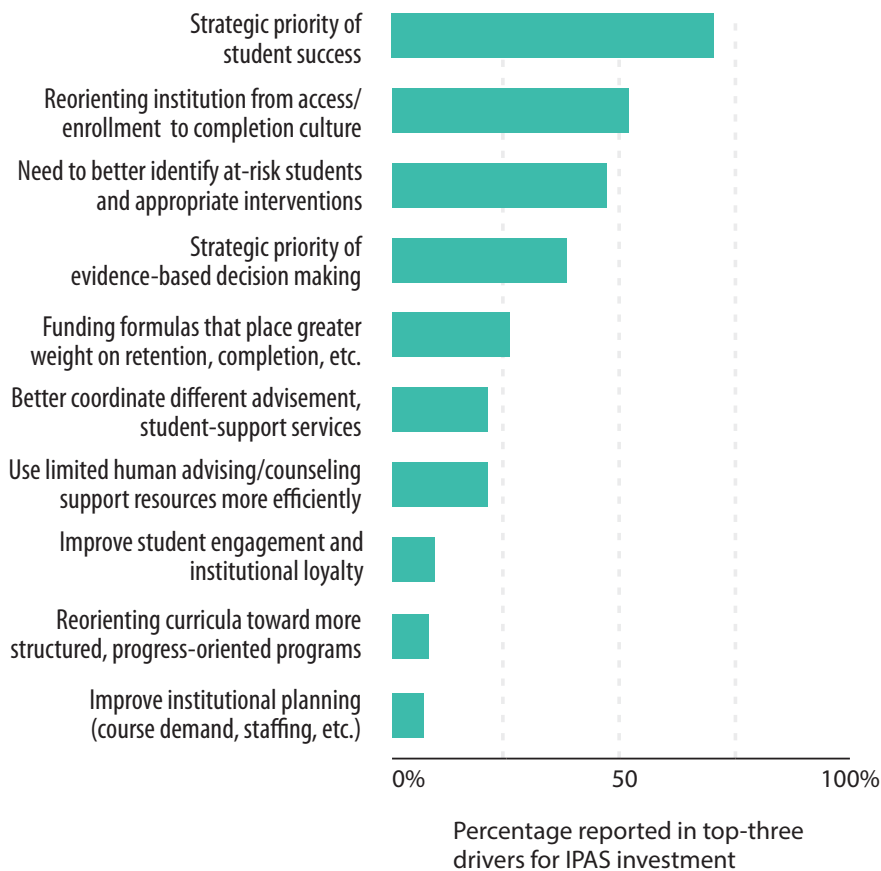


Figure 2. Drivers of IPAS Investment

In general, strategic concerns like these outweigh tactical ones such as process efficiency and improved planning. Notwithstanding the pessimistic view of student support coordination shown in Figure 1, relatively few respondents see better coordination or greater efficiency as a top reason to invest in IPAS.

CIOs and SSOs see this item a little differently, however. Though the strategic priority of student success is the top driver for each, SSOs cited it less often (60%) than did CIOs (80%). At the same time, SSOs were more likely to cite the more efficient use of human advising resources (30%) than were CIOs (10%).

Top Concerns: Faculty Adoption, Integration Complexity

We asked respondents about their concerns in connection with the growing use of technology to support and deliver IPAS services (Figure 3). Given the sorts of worries that new technologies can sometimes trigger, their concerns overall seem modest. Some of the biggest sources of concern had to do with worries that IPAS wouldn't be adopted widely enough, rather than that it might be too disruptive or expensive.

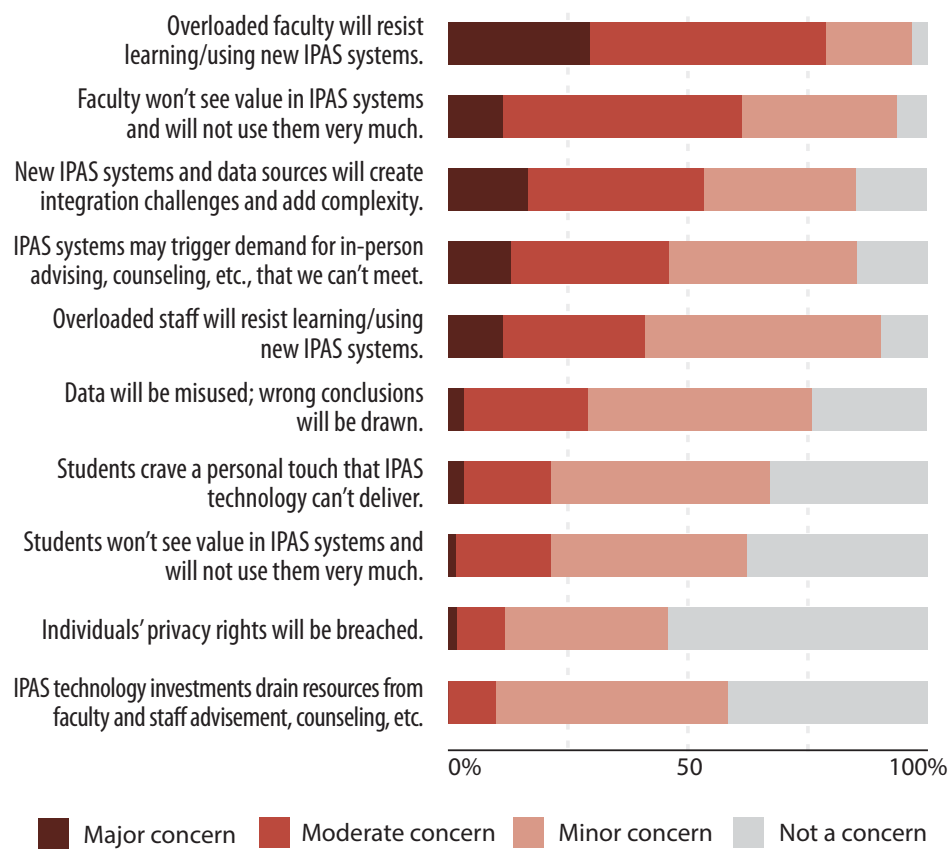


Figure 3. Concerns about the Growing Use of IPAS Technology

By far, faculty resistance to using IPAS systems was of greatest concern, especially among SSOs. In focus groups, a few administrators and staff advisors worried that a portion of the faculty does not accept responsibility for student success, especially when it comes to basic skills. Survey results found only a faint echo of this concern: Asked whether their faculty acknowledge a responsibility to help at-risk students improve basic skills, fewer than 10% disagreed, though more were neutral (30%). Respondents at two-year institutions were more likely to agree than were those at four-year institutions.

Other focus groups often saw faculty IPAS adoption as a question of workload: Advising and academic risk identification add work to already busy schedules. New systems that are hungry for inputs can take time away from higher-value tasks, including personal interactions with students. “It’s wonderful that [an early-alert system] would have a benefit to the students, but there has to be a benefit to the faculty too,” one faculty member told us. Focus group members encouraged institutions to shape and communicate IPAS benefits to faculty carefully and to design IPAS tools for the greatest possible ease of use—for example, by incorporating them seamlessly into tools faculty already know and use. They also noted that poor performance and system errors can quickly erode faculty patience.

Though some respondents worried about staff adoption of IPAS technology as well, the staff advisors we talked with in focus groups often thought they were undersupported by technology and welcomed the introduction of more. They particularly hoped that IPAS might reduce the number of poorly integrated systems they had to consult. “We are jumping around from system to system just to collect information on one student,” one advisor told us. Some shared our survey respondents’ concern that IPAS systems might, through mechanisms such as early alerts, trigger new student demand for already-stretched advising resources. However, they also hoped that improved analytics might help focus resources and better identify specific student needs.

Respondents were much less concerned about student adoption of IPAS technologies than they were about faculty and staff adoption. Our focus groups with students suggest that they may be right: Those students familiar with them were enthusiastic about such tools as online degree audits and transfer/articulation systems, and they hoped to see more of them as well as enhancements such as mobile device availability. On the other hand, respondents’ relative lack of concern about a potential loss of the personal touch in IPAS technologies doesn’t align as well with student focus feedback. Though not necessarily assuming that technology involves a loss of human advisor contact, students typically described connecting with a concerned advisor as the best thing in their advising experience; they were adamant that they did not want such contact to be sacrificed.

Our most surprising result was low levels of respondent concern about potential violations of privacy rights or misuse of data in IPAS systems. Focus group members, too, only occasionally expressed such concerns. By contrast, a meeting of data security and

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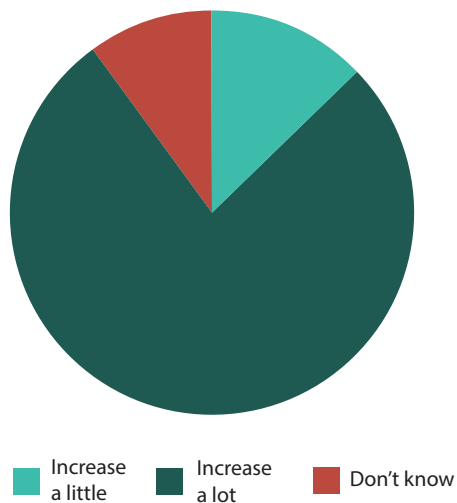
student affairs experts convened by EDUCAUSE in November 2013 identified substantial areas of risk related to IPAS systems, owing to their rich streams of personal data and the dangers of analytical misinterpretations that could stigmatize or misinform students. We take these survey results as a marker of the lack of experience with IPAS systems and anticipate growing awareness of privacy issues as the technology spreads.¹⁶

In an open-ended comment section of the survey, respondents were asked to identify additional concerns. Several characterized the marketplace as immature and worried that institutions will face development, integration, and product selection challenges: “Knowing which product will survive and continue to morph to meet the needs of the university will be a major decision point.” Other concerns related to training faculty and staff in how to use the new systems and how institutions might measure the impact of investments in IPAS-related systems and technologies on student success.

IPAS Investment Is on the Horizon

Concerns or no concerns, our study-group institutions seem to think that IPAS is worth a try. Respondents did not disparage their current technology systems; two-thirds agreed that they had the systems they need to deliver IPAS services effectively. Nevertheless, 8 in 10 agreed that their institution will make significant investments in IPAS technologies within the next two years.

When asked to look five years out, CIOs and SSOs likewise anticipated enhanced IPAS environments. Nine in 10 expect their use of technology to support and deliver IPAS services will increase at least a little, and more than three-quarters anticipate technology use will increase a lot (Figure 4). Although 1 in 10 indicated they are unsure about future use of technology, not a single respondent thinks their institution’s use of technology will decrease.



No respondents thought technology use to deliver IPAS services would decrease.

Figure 4. Anticipated Use of Technology to Deliver IPAS Services in Five Years

IPAS Systems: Prevalence and Plans

Though the services that IPAS encompasses have a long history, for the most part they have not been a core IT concern. In questions posed exclusively to CIO respondents, we asked about the status of their IPAS technology systems and found that only a few kinds of systems approached the ubiquity of learning management systems or student information systems. But both the number and the nature of planned deployments show that CIOs expect their IPAS technology portfolios to expand.

IPAS Systems: Deployed

Of 12 IPAS system types that we asked about, only two—degree audit/progress tracking and advising center management—are deployed at large majorities of study-group institutions (Figure 5). Both are familiar systems that have long been used to support traditional advising.

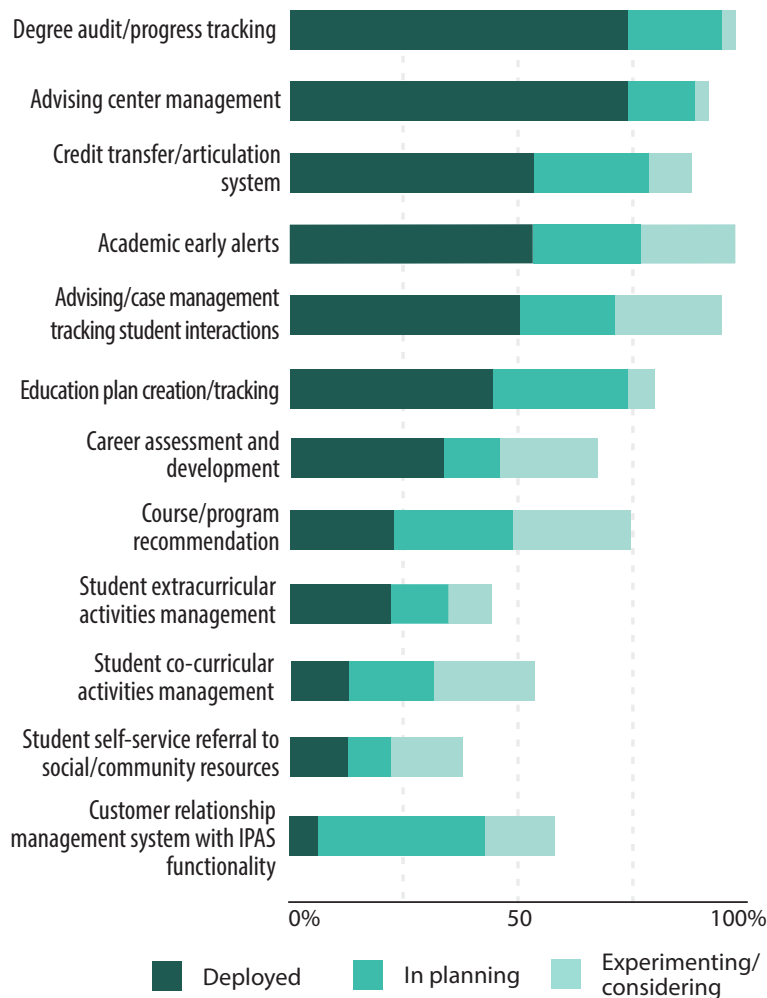


Figure 5. Status of IPAS Systems

Recent student success strategies emphasize techniques such as formal and structured education planning; “intrusive,” data-rich advising; and the early identification of academic difficulties. Systems associated with each of these strategies fall roughly in the middle range of adoption among our group. Slightly under half of the study group reported a system for education plan creation and tracking, while early alerts were reported by just over half. Advising/case management systems that track student advising and counseling interactions, also in the 50% range of adoption, are notably less common than the simpler advising center management systems used to make appointments and track advisee check-ins and check-outs.

Several emergent solutions claim a foothold among our group but remain relatively rare. Course/program recommendation engines are deployed at about one in five institutions, and systems for self-service referral to social resources at about one in eight. Customer relationship management (CRM) systems, sometimes promoted as having the potential to be all-purpose IPAS solutions, claim only two customers among our study group.

IPAS Systems: Planned and Considered

These modest rates of IPAS system deployment become more impressive when planned and considered systems are taken into account. All institutions but one reported planning or considering at least one system they have not already deployed. Three in 10 are planning—and another 3 in 10 are considering—four or more new systems. If all the institutions reporting that an IPAS system is “in planning” deploy one, the top-two system types would surpass 85% adoption, and the next four would approach or exceed 70%. All remaining types would experience substantial growth—sixfold growth in the case of CRM systems.

Are these reported plans just easy pie-in-the-sky dreams? Complete realization seems unlikely, but corroborating details suggest that many of these plans are reasonably firm. CIOs provided a product name (or “homegrown”) for half of the combined planned or considered systems and estimated a deployment time of two years or less for two-thirds of them. IPAS implementations at even the lower of these bounds would add up to a high level of new adoption. The planned system types most frequently identified were CRM with IPAS functionality, education plan creation/tracking tools, early-alert systems, credit transfer/articulation systems, and course/program recommendation engines.

Plans for currently deployed systems are not as dramatic but still suggest a lot of attention to IPAS functions. For 7 of 12 system types, 30% or more of CIOs expect to carry out significant enhancements to deployed systems. Other institutions expect to replace existing systems with new ones. Not a single respondent expects to decommission an IPAS system without replacing it.

If all planned or considered systems are deployed, there will be dramatic growth in IPAS systems adoption among all IPAS system types.

Solution Sources: From Homegrown to the Marketplace

The vendor and solution type profiles of deployed IPAS systems reflect the legacy of an emergent and evolving IPAS technology marketplace (Table 1). Most notable is the high incidence of homegrown systems, which account for a third of all the system functions reported. Though rare in the degree audit/progress tracking role, they are a sizable factor in almost every other category we asked about. Solutions from ERP vendors provide another 30% of the system functions reported, and aside from a small open-source presence largely accounted for by a single institution, products from third-party commercial vendors (identified here as “point solutions”) make up the rest.

Table 1. IPAS Systems Solution Type and Vendors¹⁷

System Function	N	Commercial		Homegrown	Open Source	Most Reported Vendors
		Point Solution	ERP Solution			
Degree audit/progress tracking	25	20%	72%	4%	4%	Ellucian, CollegeSource, Jenzabar
Advising center management (appointments, check in/out, etc.)	24	54%	13%	29%	4%	SARS Software, Ellucian, Redrock
Academic early alert	18	33%	17%	50%	0%	Starfish, Jenzabar, SARS Software
Advising/case management tracking student interactions	15	53%	0%	40%	7%	SARS Software, Starfish
Credit transfer/articulation system	15	13%	53%	33%	0%	Ellucian, CollegeSource, Oracle, PeopleSoft
Education plan creation/tracking	13	15%	39%	39%	8%	Ellucian
Career assessment and development	9	44%	11%	33%	11%	EMSI
Course/program recommendation	7	29%	29%	29%	14%	Ellucian
Student extracurricular activities management	6	50%	17%	33%	0%	Campus Labs
All others ¹⁸	8	38%	13%	50%	0%	
All systems	140	34%	30%	31%	4%	

The prominence of homegrown solutions in this mix raises the suspicion that even the modest levels of adoption shown in Figure 5 may exaggerate the degree to which advanced IPAS functionality is enjoyed at our study-group institutions. Some of our group’s homegrown systems, like those at Arizona State University and the South Orange County Community College District, benefit from generous funding and provide cutting-edge capabilities. But it is likely that many others are smaller and less ambitious—for example, the “super screen” one focus group participant described:

a simple advisor dashboard that displays information taken from disparate existing sources. Though describing the project as “not a huge effort,” this CIO worried about its sustainability: “Every time we go through a patch or major revision, we have to sit down and redo the screen.”

The history of administrative systems and e-learning shows that as solutions take on enterprise ambitions and reach beyond the first tier of improvement over manual processes, self-development often gives way to commercial or open-source alternatives. Few institutions have the resources to develop enterprise systems that break new ground, and where they do, these often evolve to open-source or commercial availability. Among IPAS products, Ellucian’s Course Signals, Desire2Learn’s Degree Compass, and CollegeSource’s u.direct all originated as institutionally developed systems, and Sinclair Community College’s SSP case management system is being migrated to open-source availability.

If the current mix of modest adoption rates and reliance on homegrown solutions can be called “IPAS 1.0,” our respondents’ plans for the future could leave IPAS 2.0—say, by the end of the five-year time frame in which most respondents say they expect IPAS technology use to “greatly increase” (Figure 4)—looking very different.

As Table 2 shows, among planned or considered systems for which we collected solutions information, homegrown systems play a much smaller role (approximately 1 in 10 versus 1 in 3) than they do among deployed systems, and point solutions play a much bigger one. Plans to maintain currently deployed systems suggest that today’s mix will continue to be influential, but if the directions indicated here for new systems hold true, IPAS 2.0 will see higher overall adoption, the fading importance of homegrown systems, and the rising presence of latest-generation point solutions.

IPAS 2.0 will see higher overall adoption, the fading importance of homegrown systems, and the rising presence of latest-generation point solutions.

Table 2. Planned/Considered IPAS Systems Solution Type and Vendors¹⁹

System Function	N	Commercial		Homegrown	Most Reported Vendors
		Point Solution	ERP Solution		
Academic early alert	9	56%	22%	22%	Starfish, Ellucian
Customer relationship management with IPAS functionality	10	60%	40%	0%	Hobsons
Education plan creation/tracking	8	63%	38%	0%	Ellucian, Hobsons, Starfish
Course/program recommendation	7	57%	14%	29%	
Degree audit/progress tracking	6	33%	50%	17%	Ellucian
Advising/case management tracking student interactions	6	100%	0%	0%	Hobsons, Starfish
Credit transfer/articulation system	5	40%	40%	20%	Ellucian
Student co-curricular activities management	5	80%	0%	20%	Campus Labs
All others ²⁰	11	100%	0%	0%	
Total	67	67%	22%	10%	

Central Technical Management, Distributed Functional Management

Technical management of IPAS systems is primarily the responsibility of central IT units at the campus or district/system level. For 8 out of 12 system types we asked about, central IT is responsible for technical management at two-thirds or more of study group institutions. Functional management, however, is much more distributed; it lies at the departmental or academic unit level at most institutions for 7 of our 12 system types.

This contrast in the centralization of management responsibilities underscores the challenges IPAS presents to IT units to work effectively across the institution and in partnership with units that may not historically have had strong interactions with IT. Student affairs is by far the most frequently reported unit with IPAS functional management responsibilities, but other units include advising, academic affairs, and the registrar’s office.

Caution about Adoption

In our focus groups, CIOs differed about the merits of choosing IPAS solutions that fit within an existing administrative suite, an approach that has the benefit of familiarity and seamless integration of institutional data, versus point solutions, which often promise better functionality and more modern technology. It’s an old dilemma that has bedeviled IT leaders since integrated suites first came on the scene, and it is likely

to play out in the IPAS arena for some time before clear best practices emerge.

Our focus groups agreed that the ERP vendors, despite much investment in student success-oriented products, do not yet offer a comprehensive IPAS capability. Some focus group members worried that systems rooted in older architectures and designed primarily to deliver efficient business transactions could not be easily adapted to the rapidly evolving student success role. “The ERPs play catch-up, module by module,” one CIO told us, “but in the meantime we have to supply that service to our users.”

Such gaps make purpose-designed point solutions attractive, and some CIOs thought that small, agile applications fit better with the spirit of modern technology than a monolithic suite: “Trying to be all things to all people in a generic big app probably is not going to do it.” Yet no sooner did such ideas arise than other CIOs returned to fears that integration costs in a data-heavy domain like IPAS would be unsustainable. Those from smaller institutions in particular worried not just about the direct costs but also about the feasibility of hiring sufficiently skilled technical staff.

Survey responses reflected the same split of opinion (Figure 6). Asked about their preferred overall approach to adopting new IPAS technologies, CIOs who said they favor existing suites and tools whenever possible roughly equal those preferring a middle-of-the-road approach of selective early adoption with a default for existing suites and tools. Only a small number said they would aggressively adopt new solutions.

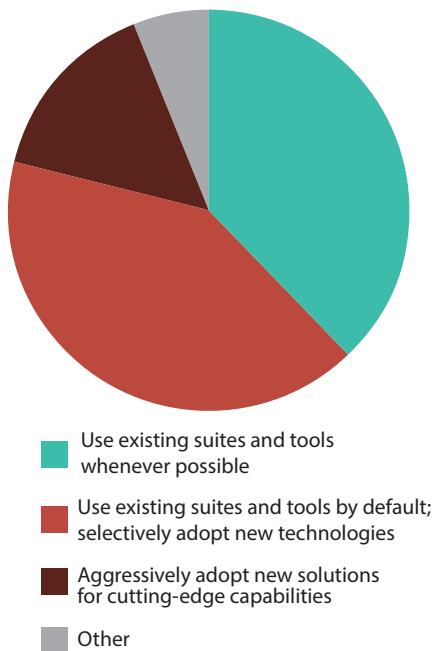


Figure 6. Preferred Approach to Adopting IPAS Technologies

“The ERPs play catch-up, module by module, but in the meantime we have to supply that service to our users.”

—CIO

IPAS Integration? Can Do

Frequently expressed concerns from CIOs and other stakeholders in our focus groups regarding integration costs led us to expect that our survey results would spotlight such costs as well. But on the whole, our CIO survey respondents expressed a can-do attitude about IPAS integration.

Study CIOs were almost evenly split between agreement, disagreement, and neutrality about whether integration costs pose a major obstacle to effective IPAS use (Figure 7). The closest they come to a pessimistic attitude is the plurality of about 4 in 10 who disagreed that academic units understand the costs of integration. But when it comes to potential limits on their ability to carry out necessary integrations, the CIOs were overwhelmingly positive: Large majorities agreed that they have both the staff and the infrastructure they need.

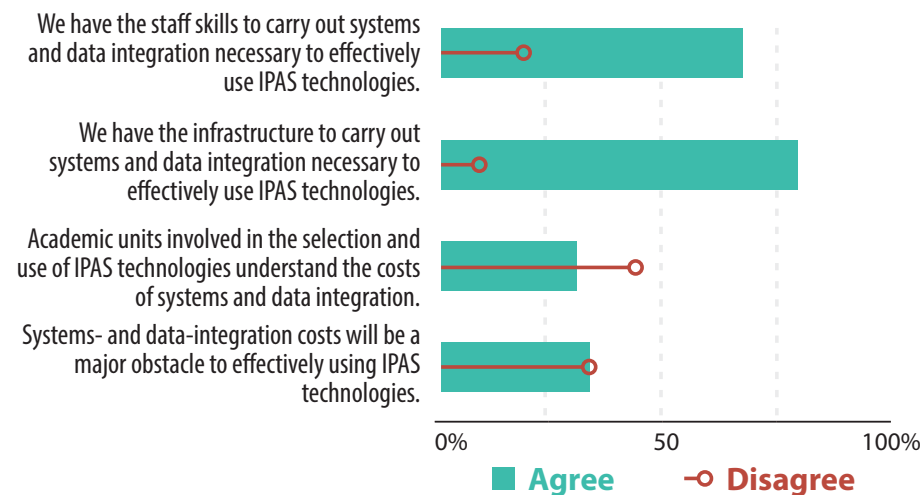


Figure 7. IPAS Integration

Despite mixed opinions about whether integration costs pose a major obstacle, CIOs overwhelmingly agree that they have the staff and infrastructure resources to carry out IPAS integration.

IPAS Capabilities

While the questions we addressed specifically to CIOs dealt mainly with IPAS *systems*, our questions for SSOs dealt with IPAS *capabilities*—functions the institution can or wishes to deliver, whether through technology or other means. We asked SSOs about 14 specific capabilities, ranging from basic to advanced functions and each belonging to one of three major IPAS service categories (education planning, advising and counseling, and early alerts).

In each case, we asked whether the institution currently has the capability or plans to develop it and about the current and planned extent of its availability. We also asked how the institution delivered it; the options included face-to-face or manual delivery, use of personalizable web or mobile self-service tools, and use of a dedicated technology solution.²¹

Capabilities Overview

What SSOs told us about institutional IPAS capabilities in many ways echoed the story the CIOs told about IPAS systems. IPAS capabilities are common though not ubiquitous (Figure 8). Most of the capabilities we asked about can be delivered by about half of our study group. On average, institutions have seven existing capabilities. But they want more: In most cases, where they lack one of these capabilities, SSOs say they plan to develop it.

Combined current and planned capability rates exceed 80% in every category, and they hit 100% for two of them: manual instructor flagging of at-risk students, and identifying deviations and corrective actions while tracking student progress.

Though most IPAS capabilities we asked about are available today at only about half of respondent institutions, combined current and planned capability rates exceed 80% in every category.

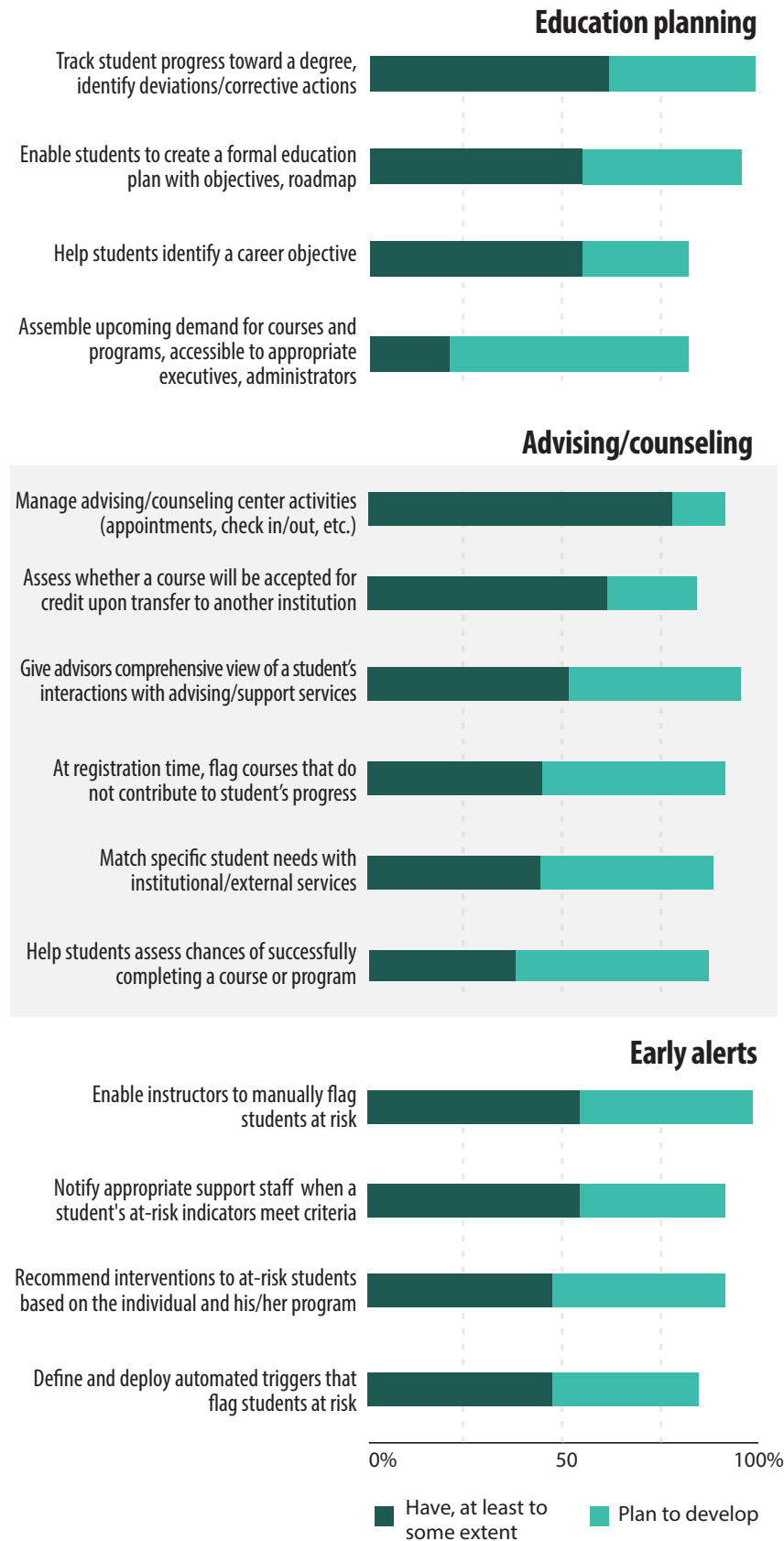


Figure 8. Status of IPAS Capabilities

There are some nuances in this gung-ho attitude. Where institutions have a capability, for example, its availability among students or programs may be limited or widespread, and the ways in which it is delivered may vary. In the following sections, we look at each of the major IPAS service categories in light of how widely available the related institutional capabilities are, how they are delivered, and how they relate to stakeholder interests and student success strategies as expressed in our focus groups.

Education Planning Capabilities

Education planning that captures a student's educational objectives in detail and sets a roadmap for completion is a widely discussed idea for improving completion rates.²² By documenting student intentions, education plans make it easier to determine whether a student's course registrations are taking him or her off track, and they permit a fuller picture of student progress and upcoming course demand. In a major endorsement of the idea, a recent task force of the California Community Colleges not only recommended "broader and more widespread use of student educational plans" but also proposed that state funds subsidize only those courses that support student educational plans.²³

Although about half of our study group said they enable students to create formal education plans (Figure 8), only half of these institutions offer this capability to a widespread extent—that is, making it available to most or all students or for most or all programs (Figure 9).²⁴ This may be because some institutions limit availability to particular programs or student populations or because they lack resources. SSOs at institutions with education plan creation capabilities seem, however, to believe it is appropriate for a wider range of students: 90% anticipate widespread use within two years. Focus group members typically mentioned using education plans today for targeted populations such as first-time students, those in developmental education, and those in targeted success programs, though they too anticipate their spread to wider populations.

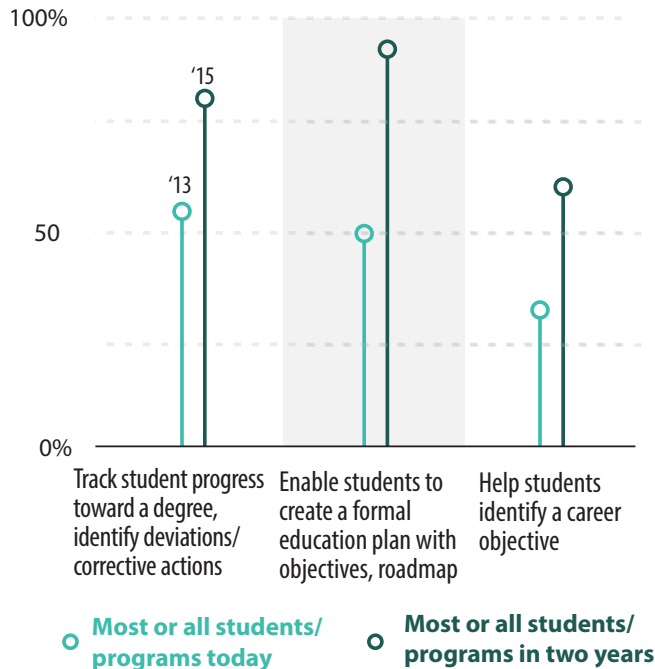


Figure 9. Availability of Education Planning Capabilities (among Institutions That Have Each Capability)

Advisors in focus groups felt that education plans provide a good structure for getting students organized and for triggering alerts when students stray off the path: “It’s great because now we can really track students. Any advisor can access that [plan].” But others noted that many students aren’t able to create a plan on their own and need advising assistance. “If we don’t have the counselors available, how are we going to work with all those students in a quality way?” one advisor asked. None of our student focus group participants had direct experience with education plans, though they tended to approve of the idea, a result consistent with other student research.²⁵

Limited availability also characterizes the other education planning–related capabilities—but so too does the ambition to reach most or all students or programs. Eight in 10 SSO survey respondents expect widespread availability within two years of student degree progress tracking. Likewise, helping students identify a career objective, a function now limited in availability at most institutions where it is offered, is expected to reach widespread availability at most institutions within two years.

Interest in student education planning is not matched by corresponding activity around improved course demand planning at the institutional level, a capability that one might expect student education plans to feed. Only one in five SSOs said their institution has the capability to assemble a view of upcoming course/program demand and make it accessible to appropriate leaders. Wider use of student education plans may help justify anticipated aggressive growth in this capability, but connecting

those plans with institutional demand will also require an extensive data-integration and analytics effort that could make this a lagging capability.

The core education planning capabilities of plan creation and progress tracking are each carried out with dedicated technology solutions at about 60% of participating institutions, while use of web or mobile self-service tools is reported by an additional, partially overlapping group (Figure 10). Manual modes of delivery (including personal interaction, paper-based processes, and use of general-purpose productivity tools) remain predominant, however, in career counseling and institutional demand planning. Manual processes don't seem to be going away: For all the education planning capabilities, majorities of institutions that have them now expect to deliver them in about the same ways two years from now.

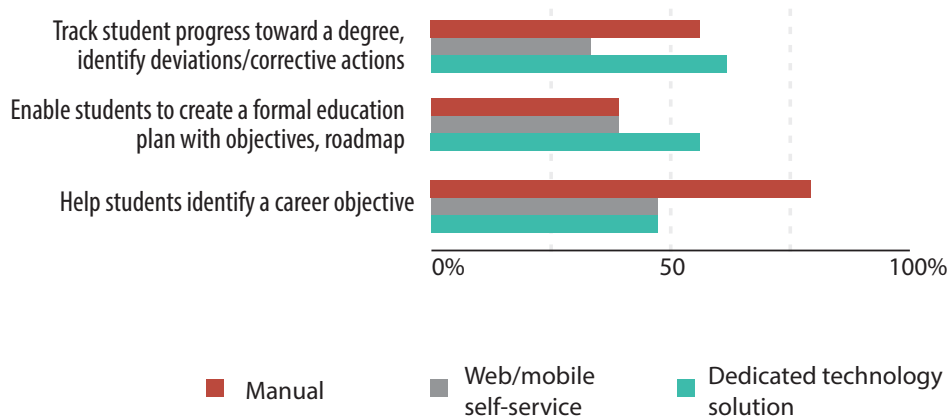


Figure 10. Education Planning Capabilities Delivery Modes

Advising and Counseling Capabilities

The student success movement has encouraged a more aggressive approach to advising, known by the blunt name “intrusive advising.” Our focus groups often mentioned efforts that typify this approach: proactively reaching out to students rather than waiting for them to present themselves, looking for risk indicators, and encouraging students to make timely decisions. This is a data-rich form of advising that relies on up-to-date and complete student information and the speedy recognition of warning signs.

Both survey results and focus group comments suggested that this information environment remains as much a vision as a reality. About 8 in 10 respondents reported

the capability to manage advising center activities, but most other advising-related capabilities we asked about were reported functional by only about half of the study group (Figure 8).

Even among institutions reporting them, capabilities are for the most part limited in availability within the institution (Figure 11). As with education planning, this may reflect a strategy of limiting services to particular groups in order to make best use of constrained advising resources.

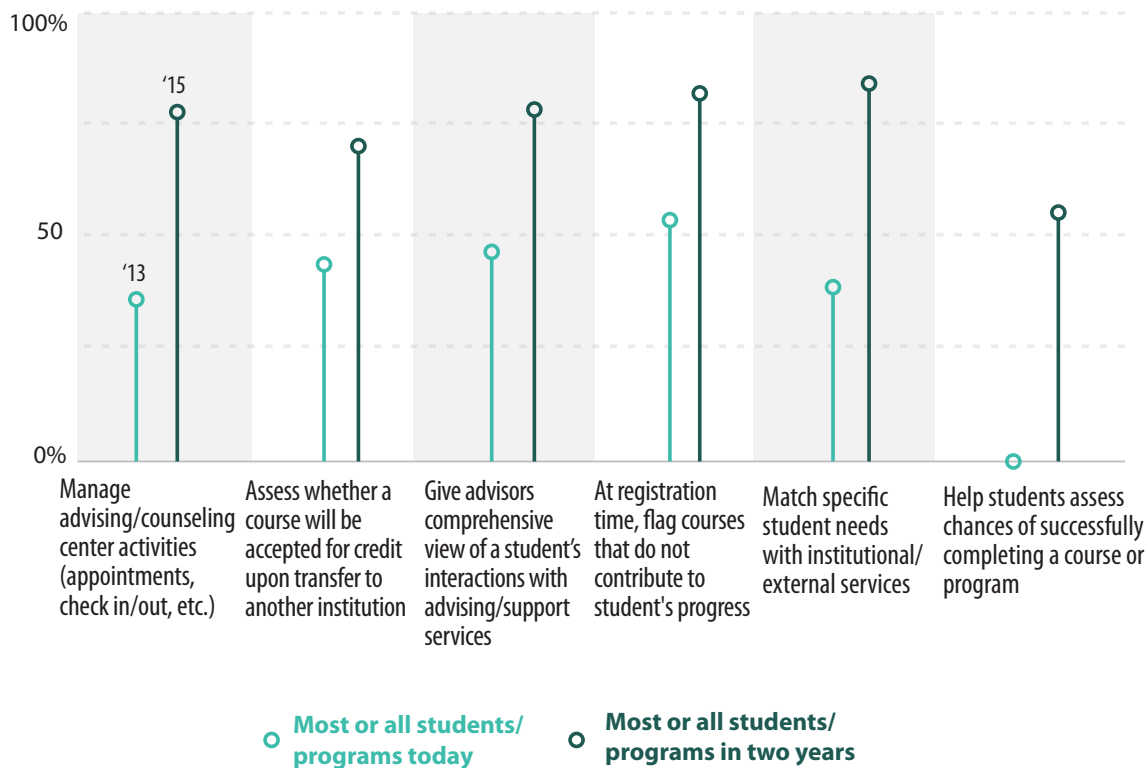


Figure 11. Availability of Advising and Counseling Capabilities (Among Institutions That Have Each Capability)

But focus groups also suggested that decentralization of advising—among central, departmental, and program offices, for example—often leads to scattered advising approaches and highly localized solutions. One campus advising center may have a dedicated management system recording check-ins and check-outs through card swipes, for example, while another relies on a paper sign-in sheet. The result is not only poor leveraging of technology but also incomplete capturing of student interactions. To collect such interactions on an enterprise basis and connect them flexibly with other data provided by instructional and administrative systems to construct a single, comprehensive view of student behavior is one of the key ways in which IPAS systems promise to help institutions effect a generational change in advising

capabilities. Respondents who now have the advising and counseling capabilities shown in Figure 11 generally expect much more widespread availability of each within two years, which suggests that they hope to see progress in collecting and coordinating advising information.

For most of the advising-related capabilities we asked about, approximately 60% of SSOs whose institution had the capability reported the use of a dedicated technology solution (Figure 12). Web or mobile self-service tools partially supplement this figure, but manual processes remain important, especially when helping students assess their chances of success in courses and when matching their needs to institutional or external services. SSOs largely expect to deliver their advising-related capabilities in about the same ways two years from now. The exception is the capability of helping students assess their chances of course success, where three-fourths expect a change in modes of delivery, almost all of them anticipating technological rather than manual modes.

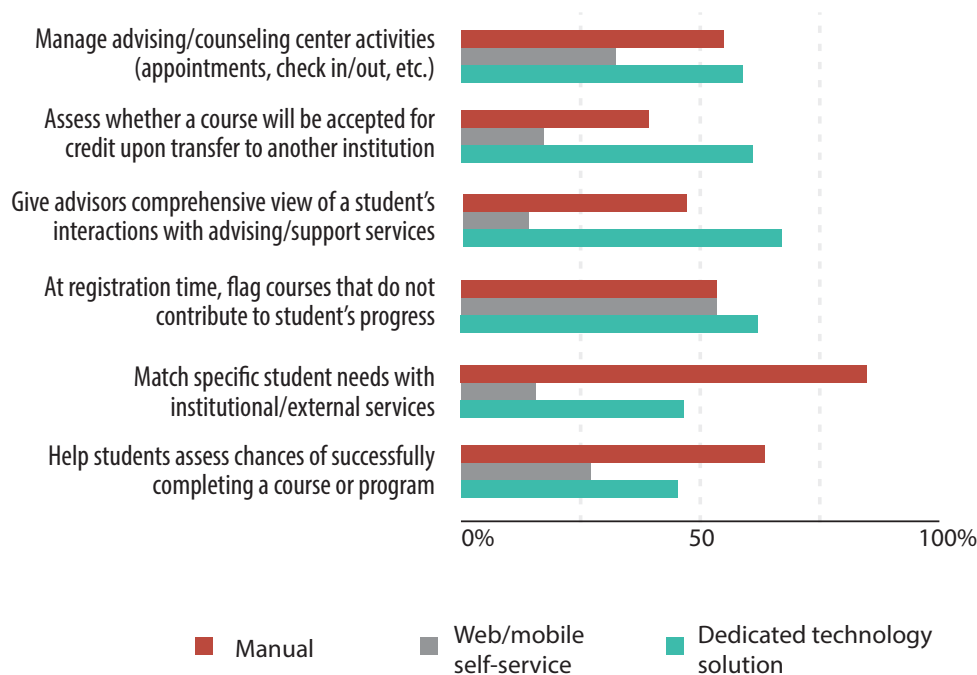


Figure 12. Advising and Counseling Delivery Modes

Advising is too often a numbers business for harried front-line staff. The median caseload for professional advisors at public doctorate institutions is 285 undergraduates; at two-year colleges, it is 441.²⁶ Our focus groups reported student-to-advisor ratios as high as 1,200 to 1. Faculty advising can carry much of the load, especially for upper-division students at four-year institutions. But advising is only one part of busy faculty schedules, and often the students with the greatest advising needs are those

who have not declared a major and so are hard to match with appropriate faculty. Many of our community college focus group participants told us their institution relies almost exclusively on professional advisors. While approaches vary, it seems clear that advising processes fail to reach many students. According to the National Survey of Student Engagement, about 10% of undergraduates never see an advisor at all; only 40% identify advisors as their primary source regarding academic plans.²⁷

Caught between heavy caseload burdens and the inability of campus information systems to provide complete or well-integrated student information, the staff advisors we talked to welcomed any assistance technology could provide. One said that a colleague counted 10 or 11 different systems needed to meet a student's advising needs. Another told us that "until we get something that allows us to record information in an easy and consistent way across the campus, we are never going to get the kind of information we need." Students, for their part, recounted the frustration of having to tell the same complicated story over and over again as they talked to different advisors and student services staff.

Just the same, advisors were dubious about the potential of technology solutions to take the place of human interaction in addressing the needs of those students struggling hardest to make progress. Though they told us that many students wanted only "cut and dried" answers about what courses would fulfill their requirements, they also reported that many do not take a sufficiently informed or proactive attitude toward their education and doubted their ability to get by without advising assistance. Again and again we heard variations on one advisor's simple declaration that "there is an assumption that students will respond more to technology, when in reality they crave the human touch and the human interaction."

Students, for their part, praised self-service tools that help them monitor degree progress, while confirming that for important guidance about their education, they value and seek out advisors who demonstrate what one called "genuineness in caring about you." They wanted technology to complement and improve personal advising but not to replace it. Indeed, some of our students said that they had been introduced to online progress-tracking tools through personal interactions with advisors and felt that they might not have been aware of them otherwise. Others preferred to let the advisors handle the systems: "I don't use a lot of the Internet. It feels more solid to me when I communicate in person with my advisor...she pulls up everything online for me." The challenge for IPAS advising solutions will be to reduce the load of mundane, transactional business on advising operations while helping identify and communicate with those students for whom intensive interaction can be most beneficial.

Early-Alert Capabilities

Better identification of at-risk students is among the top drivers our respondents cited for investing in IPAS solutions, and early alerts sparked animated discussion in focus

Staff advisors say they welcome any assistance technology can provide. One counted "10 or 11 systems" needed to meet a student's advising needs.

groups. Yet we often heard about a legacy of limited effectiveness in past initiatives. Sometimes conducted with paper forms or e-mail and spreadsheets, these older systems suffered from inconsistent faculty participation, incomplete information, and poor coordination between different departments.

Focus group members tended to welcome the new breed of enterprise early-alert systems but still worried that the same issues would haunt them as well. Their key advice was to make such systems as easy for faculty to use as possible and to “close the loop” between faculty, students, and support services so that all relevant parties can track outreach and interventions. Some focus group participants hoped that automated, algorithmic at-risk identifications would improve the reach of alerts and lower demands on faculty, though they noted that they might require prerequisite process changes, such as attendance taking and midterm grade reporting.

Early-alert capabilities of various types were reported at about half of institutions surveyed (Figure 8), but as with other IPAS capabilities, these tend to be limited in reach. Manual instructor flagging of students is the capability most likely to have widespread availability, though it reaches most students or programs at only a little over half of institutions that have it (Figure 13). Notification of support staff and personalized intervention recommendations are much more limited services, though respondents, as usual, reported ambitions to greatly expand their reach in the next two years.

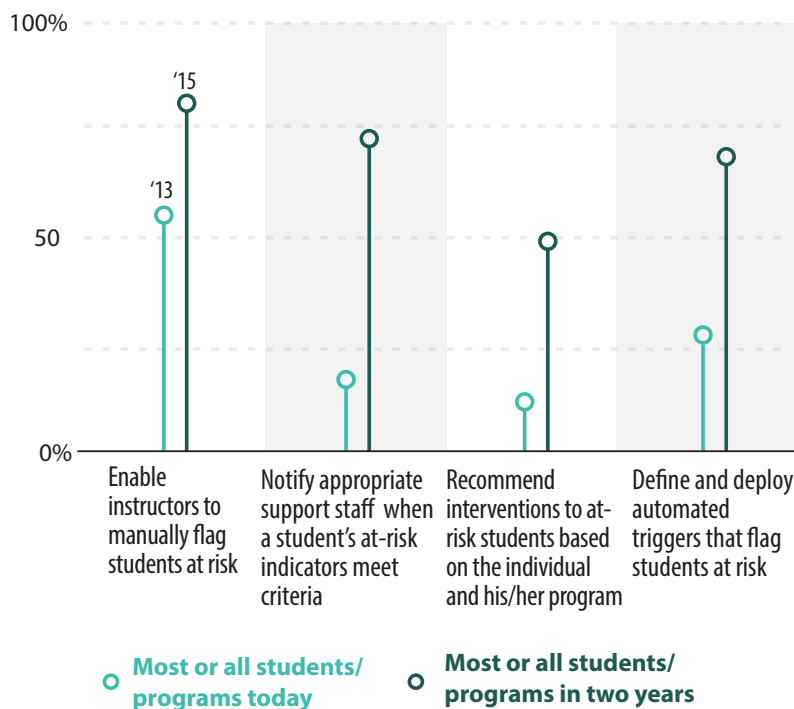


Figure 13. Availability of Early-Alert Capabilities (among Institutions That Have Each Capability)

Delivery modes for the early-alert capabilities highlight the manual character of much of this work (Figure 14). Eight in 10 study-group institutions that report the capability of recommending interventions do so through face-to-face or manual means; only a third reported a dedicated technology solution. Other capabilities enjoy higher levels of technology support, but manual modes of delivery are still in use at half or more of our institutions. As with other capability types that we have looked at, most SSOs at institutions that have these early-alert capabilities today expect to deliver them in about the same ways two years from now.

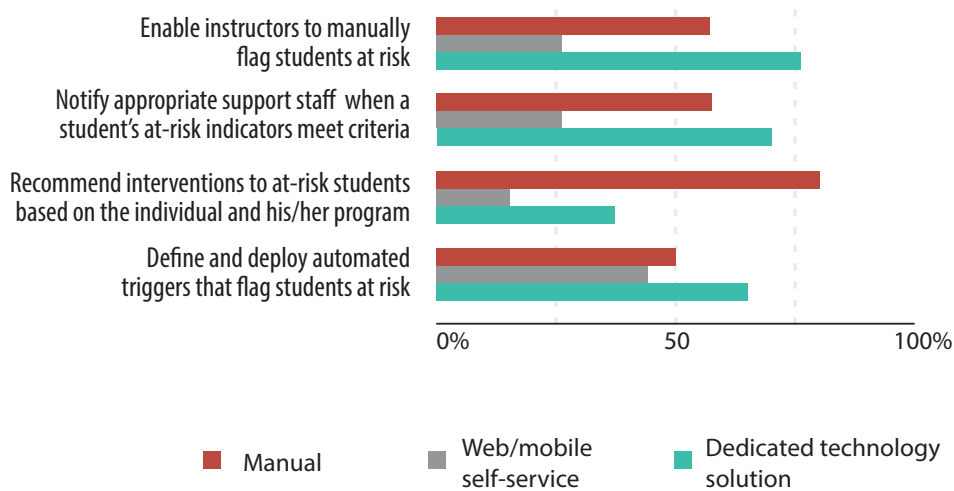


Figure 14. Early-Alert Delivery Modes

Among students responding to ECAR's 2013 student survey of undergraduates and technology, 40% said they were "very or extremely interested" in their institution's using information about them to send alerts about academic resources such as tutoring or skills-building opportunities. Most of the rest were at least moderately interested.²⁸ Only a few of our student focus group members were familiar with early-alert systems, but in general they approved of the concept. Their responses were consistent with research indicating that students welcome individualized outreach by text or e-mail.²⁹ One student who had received an erroneous notification was nonetheless grateful that the mistaken information that triggered the alert was brought to his attention.

Still, students raised concerns that were only tangentially mentioned by other stakeholders, if at all. Some expressed weariness with being monitored and wondered if they could opt out of automated tracking systems: "I'm working hard to be here. I really don't want somebody over my shoulder telling me how I need to be doing it." Others worried that alerts might prove discouraging. Institutions pursuing early alerts should be sure to include student input into the process and communicate the system's purpose clearly and positively. Probably most important will be to ensure that a student who responds to an alert finds sensitive and effective assistance.

Students generally approve of the concept of early alerts but worry about excessive monitoring. "I'm working hard to be here," one told us. "I really don't want somebody over my shoulder telling me how I need to be doing it."

CIOs, SSOs, and IPAS Systems

Reports by SSOs of the presence of a dedicated technology solution or web service for the delivery of a capability often clashed with reports by CIOs at the same institution about the deployment status of corresponding IPAS systems. For example, only about two-thirds of the time did an SSO's reported status of a technology-based capability to flag at-risk students match a CIO's response about the status of an early-alert system. The agreement was slightly below half for SSO characterizations of advising center management capabilities and CIO reports about advising center management systems. Disagreements included occasions when CIOs reported a system but SSOs did not report a dedicated technology solution or web self-service, as well as instances when CIOs reported no system but SSOs identified a technology-delivered capability.

We can suggest several reasons for the disagreement. Because most of the capabilities we asked SSOs about did not map directly to systems we asked CIOs about, there was much latitude for interpretation. The existence of a system does not necessarily imply a specific capability, and a few features that support a capability within a larger system may not strike SSOs as a dedicated technology solution. Decentralization may hide some systems from CIOs, and inconsistent usage across departments may leave an SSO feeling that a capability is not supported by a technology solution even though one is in place somewhere. On the whole, when it comes to system counts, we regard CIO responses as reliable, owing to the confirming information they supply about them. The disagreements suggest, however, that CIOs and SSOs don't yet speak quite the same language about IPAS technology. Institutions pursuing IPAS initiatives need to take extra care in this often unfamiliar territory to ensure that they share a common vocabulary and common assumptions.

Student Success Analytics

Student success has become one of higher education's signature ventures into the phenomenon of big data. Flush with a growing body of information captured in campus systems, institutions hope that they can not only better understand how students perform but also predict failure before it happens and intervene. Organizations promoting the completion agenda, including Achieving the Dream, Completion by Design, Complete College America, and the Aspen Institute, all start from the premise that better data and analysis is a prerequisite for better retention and completion outcomes.

These ambitions call for the aggressive use of analytics—a form of decision support based on the extensive use of data, statistical and quantitative analysis, and explanatory and predictive models. Analytics is intended to improve performance, whether individual or organizational. Attempting to be “explanatory and predictive” sets a high bar, and our focus group participants acknowledged that they often did not reach it. Still, for many, improving analytics is as foundational—and as challenging—to their student success efforts as major process changes such as curricular reform and redesigned advising programs.

Why such a challenge? Research by ECAR and others emphasizes that effective use of analytics requires far more than the technology tools for analysis. Besides data, reports, and tools, dimensions of analytical maturity include analytical expertise, data governance structures, the culture and processes needed to use data for making decisions, and plenty of investment.³⁰

To understand how they are approaching the analytics challenge, we asked both CIOs and SSOs about the uses they make of data, the elements of analytics progress that are in place at their institution, and their plans for investment. We also asked CIOs additional questions about the analytics infrastructure.

A Bigger Role for Analytics

Like respondents to ECAR's 2012 analytics study, virtually all of our respondents agreed that analytics will be increasingly important to their success in the next two years. More than 8 in 10 anticipate making significant investments in student success-related analytics in the same time frame.

Eight in ten respondents anticipate that their institution will make significant investments in student success analytics in the next two years.

Respondents are also thinking beyond their campus boundaries. Fully 90% agreed that their institution is interested in having access to student success data from other institutions (e.g., in a consortial or system-wide pooling arrangement). Three-quarters said their institution would be willing to share such data with others under appropriate safeguards. Most of the remainder did not disagree but said they didn't know. These attitudes bode well for the success of initiatives like the Predictive Analytics Reporting (PAR) framework, which is creating a multi-institutional, student-retention data-mining collaborative among U.S. higher education institutions.

Differing Views about Advanced Uses of Analytics

How do institutions use the student success data they collect? Monitoring, rather than predictive or proactive use, remains the predominant use of data in most areas, meaning that institutions often fall short of the threshold of “analytics” in our definition. The highest combined predictive and proactive uses are in enrollment management, student progress, and instructional management. These were all relatively advanced areas in ECAR's 2012 analytics study as well.

There are, however, differences in the ways CIOs and SSOs characterize data uses (Figure 15). Though they roughly agree about which areas have the most or least combined predictive and proactive use, CIOs are more inclined to identify an advanced use than are SSOs, and particularly predictive use.³¹ The difference is especially noteworthy in the core IPAS concern of tracking student progress and completion, where CIOs are more than twice as likely to report a predictive use of data. Evident when looking at all institutions in aggregate, this difference is notable at the individual institutional level as well. In only 36% of cases did CIOs and SSOs agree about the use of data within the same institution. Where they differed, CIOs mostly reported a more advanced use.

CIOs are more likely than SSOs to believe that data are being used in predictive or proactive ways for student success, even within the same institution.

CIOs reported that their institution makes predictive or proactive use of student success data more often than did SSOs. The figure below shows the frequency with which respondents in each role reported uses of different kinds of data.

Items are in descending order of combined predictive and proactive use as reported by all respondents.

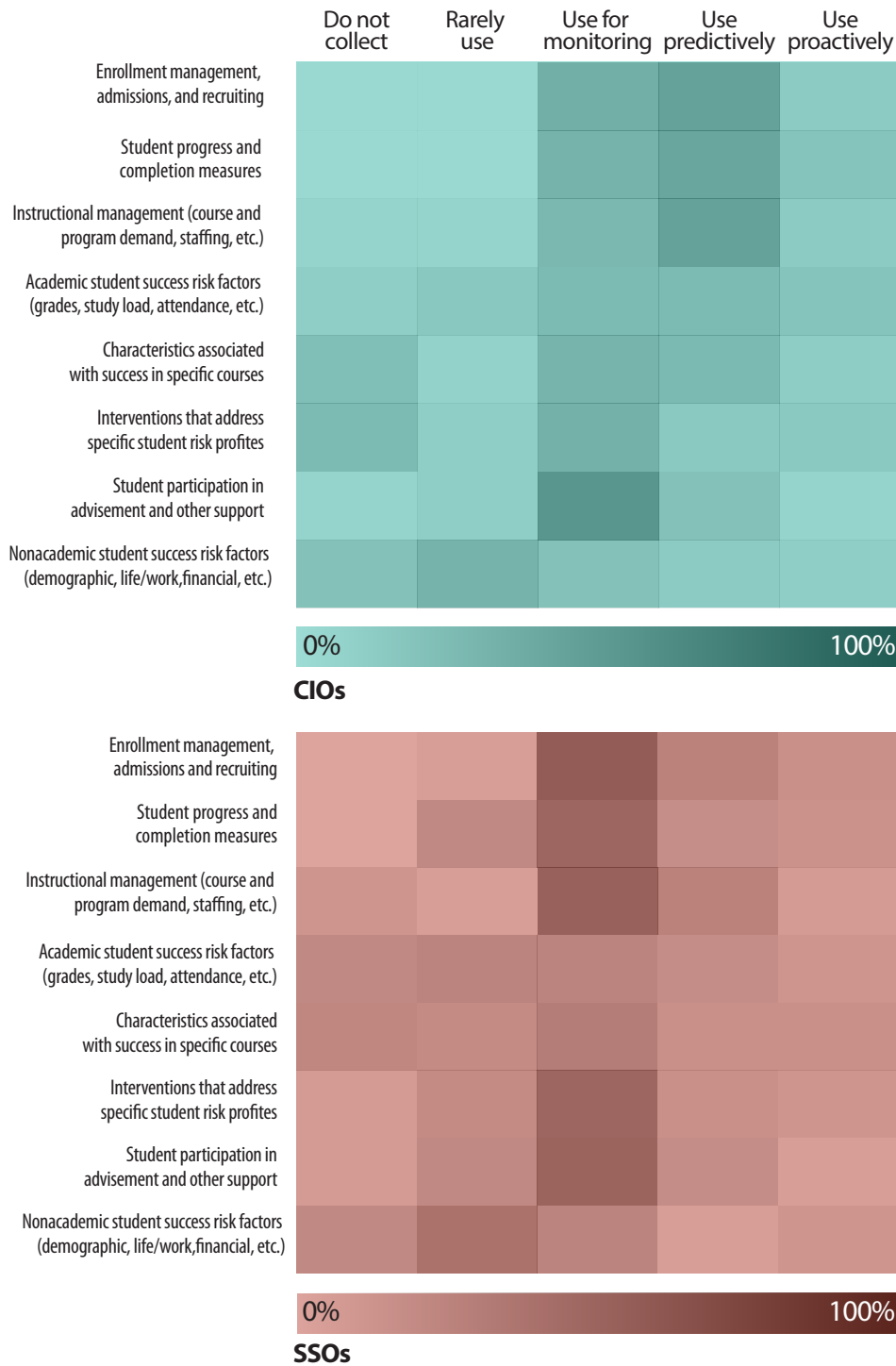


Figure 15. Current Uses of Data, as Seen by CIOs and SSOs

We can only speculate as to the reasons for this disparity. It may be that CIOs are more conscious of the potential of analytics and assume advanced use more often than it really takes place. Or they may be considering occasional or exceptional advanced uses that SSOs discount because the more typical use is monitoring. In any case, these differences highlight one of the key IPAS challenges we heard about: developing mutual understanding and common perceptions among different units of the institution.

Surprisingly, given the student success inclinations of the study group and their interest in early alerts, nearly half of SSOs said their institution rarely uses or does not collect academic student success risk factors. At the bottom of the list for proactive and predictive use, and highest for rarely used or uncollected data, is nonacademic risk factors, such as demographics, life/work status, and financial circumstances. Given the emphasis that much of the student success research literature places on such “noncognitive” factors in retention and completion, this seems to be an area in need of development.³²

Culture Is in Place, Access Isn't

When it comes to factors helping the institution make progress through the use of student success analytics, respondents were generally quite positive (Figure 16). Eight of 14 factors we asked about are in place at the majority of study-group institutions, in most cases to a large extent. Factors most often agreed upon as being in place are senior leadership interest in using data to make decisions and the identification of key outcomes the institution is trying to improve. These also stood at the top of ECAR's 2012 analytics study.



Figure 16. What Is in Place for Student Success Analytics

A notable difference from the 2012 results is higher agreement among our group that a culture accepting the use of data in decision making is in place: Two-thirds agree, versus half in the earlier study. The difference suggests that conscious efforts can promote a data-driven culture. Our group includes a number of Achieving the Dream participants and Aspen Prize finalists; these programs both systematically encourage data-driven decision making throughout the organization.

Focus group participants described active efforts to instill a data culture, including the creation of cross-functional student success teams that share student data, and placement of retention specialists and other data-oriented specialists in the student services departments. One SSO told us that when his institution redesigned the advising role, it rewrote job descriptions to include a strong data orientation. This in turn had cascading effects: “Very shortly after we had people in those positions, we realized they didn’t have enough access to data. So writing it into the job description created a demand for good data.”

That anecdote illustrates another empirical finding: Culture or no culture, our institutions struggle with data dissemination. All items for which “not in place” rates exceed “in place” rates relate to the ability to access and use analytics. Only one-third of respondents agreed that advisors, faculty, and staff have access to the student analytics they need, whereas half disagreed. Respondents were even less optimistic that people in these roles know how to apply analytics to improve student success, and a solid majority thought that they did not have an appropriate number of analysts in place.

In general, we did not find the disagreements between CIOs and SSOs about analytics factors that we found regarding uses of data. However, one exception does echo those results: SSOs (40%) were much more likely than CIOs (20%) to agree that student success data are siloed by individuals protecting data. As with the data-use discrepancies, this difference may reflect CIOs’ assumptions that where data exist, they are being put to effective use, while SSOs may be more aware of impediments in data flow.

Dashboards for Better Dissemination

Questions we asked CIOs about the use of dashboards to support analytics produced results consistent with the picture of limited data dissemination (Figure 17).

Reporting dashboards were the exception rather than the rule, in use at only a quarter of institutions even for executives, and at only one in five for advisors, instructors, and counselors. Yet the reported rates at which dashboards are planned or being implemented are much higher—60% for executives as well as for advisors, instructors, and counselors. If all such plans come to fruition, the prevalence of reporting dashboards would at least triple among all the roles we asked about.

All of the analytics factors for which “not in place” rates exceed “in place” rates relate to the ability to access and use analytics throughout the organization.

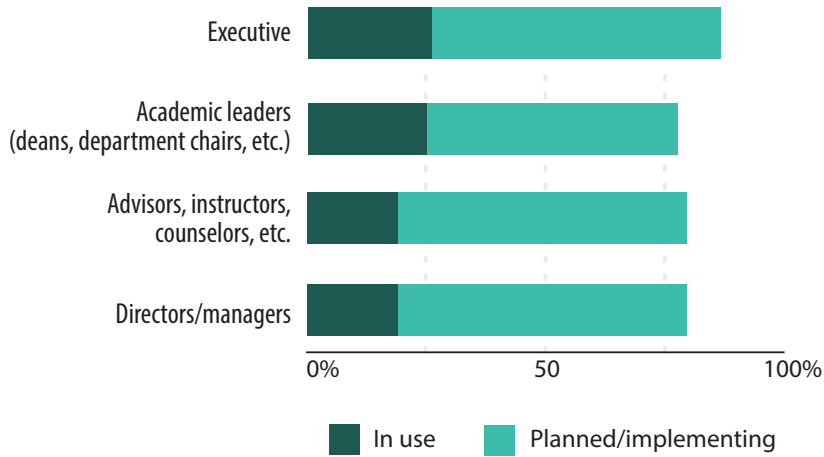


Figure 17. Dashboards for Reporting, by Institutional Role

More Data Infrastructure on the Way

Similar if less dramatic indicators also point to further investment in data infrastructure. About half of institutions have a data warehouse, and most of those without one plan to implement one (Figure 18). Operational data stores are present at three-quarters of institutions. Surprisingly, there is little difference between two-year and four-year institutions in the prevalence of these systems.

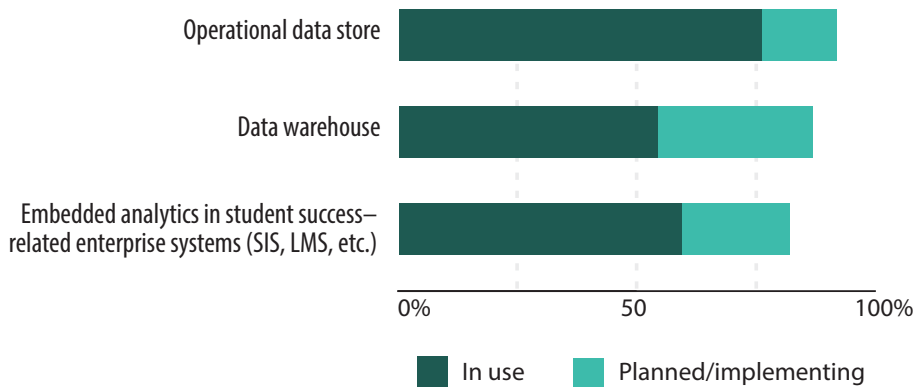


Figure 18. Data Infrastructure Components

Focus group CIOs whose institutions lacked a data warehouse passionately wanted one, and several agreed that they could not reach a mature level without the data integration and suitability for large-scale analytics that a warehouse affords. But those who had one sometimes warned of the inherent difficulties and the need to surround the data warehouse with both tools and expertise. “We have been investing millions of dollars in transactional-based systems and data warehouses for a long time,” one CIO

told us. “It has only been in the past five years that we have had a really effective set of analytics tools that lead to answers or to suggestions.”

For all their concern about data infrastructure, however, CIOs tended to return to “soft” issues as the real obstacles. As the CIO quoted above put it, “As hard as the technical problems are, they are by far the least of the challenges faced by institutions when they go down this path. The challenges have more to do with governance, with organization, with process, and ultimately, the ability to execute on what the data [are] telling you. You have to be able to ask the right questions, to get answers to those questions, and then do something about it.”

Technical challenges
“are by far the least of
the challenges.... You
have to be able to ask
the right questions, to
get answers to those
questions, and then do
something about it.”

—*CIO*

IPAS Selection and Deployment Advice

More than three-fourths of our survey respondents told us that they have been personally involved in the selection or deployment of IPAS technologies. We asked those respondents to relate the three most important pieces of advice they would give to institutions that are selecting or deploying similar technologies. Their advice is summarized below, fortified by supporting advice and observations offered by focus group participants.

Mobilize the Institution

The most common item of advice we collected is to ensure that an IPAS project is an institution-wide initiative. IPAS systems simply touch too many activities and depend on too many parties to be treated as anybody's special concern. Student success initiatives have to take into account the full student life cycle, the coordination of units that may historically have worked apart, and an interdependent chain of services, which, if interrupted through miscommunication or misunderstanding, can leave a student's needs unmet.

To capture all those perspectives, our participants encouraged inclusion of representatives from academic affairs, student affairs, IT, staff, faculty, and the student body to ensure a holistic understanding of institutional needs. (One respondent reported getting valuable insights from the janitorial and maintenance staff because they hear "unfiltered" student perspectives.) Respondents also stressed that inclusivity needs to be built in from the beginning of the process and that participants must have "authentic" opportunities for input and exploration. Others added that the effort needs the clear support of executive leadership and should be led by someone who has thorough knowledge of the institution's units and sufficient authority to attract the right participants and resolve conflicts. This leader should be from student affairs or another functional area, leaving IT to a supporting role.

One path to inclusion is to employ governance structures with representatives from multiple units. The use of governance structures to oversee the selection and use of IPAS technologies is widespread among our study group, though more common among two-year institutions (80%) than at four-year institutions (60%). Some version of a student success or retention committee is the most commonly reported structure, in use at about a third of both two-year and four-year institutions. These committees are typically cross-functional in nature, and their popularity suggests that institutions find them a natural focal point for inclusive decision making. Other commonly involved committees include academic affairs, student affairs, enrollment management, and deans' or college councils.

"Look for ways to pull support intentionally from across campus. Although it's painful at times, add people to your selection/evaluation committees who you know will challenge traditional thinking and methodology."

—SSO

Another typically cross-functional structure, the IT steering committee, is less commonly involved in overseeing the selection and use of IPAS technologies. Only one in five study-group institutions reported such involvement. In addition, CIOs are much more likely to report the involvement of an IT steering committee than are SSOs, suggesting that SSOs are either unaware of these committees or don't see them as relevant. Either alternative is worrisome. Among other things, a broadly representative IT steering committee might be an effective venue for addressing the balkanization of IPAS systems in separate institutional silos. CIOs who hope to use IT governance to align with institutional student success strategies should consider whether their steering committees have the right composition and visibility to do the job.

Take the Time to Plan and Communicate

Even the most inclusive process can reach only a small percentage of those affected by an IPAS deployment. To reach the rest, our respondents frequently emphasized the need for patient and systematic outreach. It is vitally important not to let an information vacuum encourage the spread of misplaced fears or unachievable expectations.

For many of our participants, this process begins with realistic planning that identifies clear goals and provides an overall philosophy that keeps the system from becoming what one called “an amalgam of disparate parts.” Participants were especially concerned with communicating goals and progress to faculty and students, the most populous groups affected by an IPAS implementation and those most crucial to its success.

Though acknowledging that extensive communication can slow progress, focus group members thought that it was worth the time and effort, and several mentioned backlash that they might have avoided through more communication. As one focus group member put it, “Sometimes you forget how important it is to just bring folks along with you even when you don't know all the answers. That trusting relationship piece is so important when you are taking on new tasks and asking more of faculty and others.”

To help get the word out, some respondents suggested a phased approach that develops a knowledgeable body of early-adopting champions who can then help inform the rest of the community about the system. To earn credibility with faculty, some suggested getting the Office of Institutional Research involved to develop empirical measures of system value. Others recommended working with student government to spread student awareness. Finally, many respondents stressed the importance of building robust training and technical support into the project plan, actively helping new users realize value from the system as early as possible.

“Consider phasing in a smaller group of students and faculty as the system is set up. In that way, you develop system champions who can assist others in adapting to the new system. They can also develop best practices and help communicate the value of the system and its contributions to student success.”

—CIO

Fix Problem Processes before Deploying

A common theme in respondent advice is to review and rethink institutional processes before undertaking an IPAS project, rather than just augmenting existing processes with new systems. Among the process initiatives our institutions undertook as part of an overall student success program were curriculum clean-ups to align offerings with program requirements, consolidation of student services to enable one-stop resolution of student issues, redesign of developmental education and key gatekeeper courses, introduction of academic coaches who track student performance across all courses, and refocusing of advising from a transactional approach to proactive, targeted “intrusive” approaches.

Our participants also recognized limits in what can be done. They warned that processes involving faculty take time to adjust and stressed that process review is valuable in part because it helps identify where scarce resources can be used most effectively.

Expect Customization and Shop Accordingly

We’ve already noted that our institutions rely on a wide mix of IPAS solutions (Figure 5) and that there is little consensus in their product acquisition strategies (Figure 6). Nevertheless, common themes emerged in their advice about product selection and implementation. They suggested that top administrators agree on a basic, overarching institutional approach to product choice to avoid needless duplication of systems in different departments. Stressing that the IPAS solutions marketplace is volatile, they also emphasized that some customization is usually necessary and that realism about its costs is essential. “The products are rapidly improving,” one CIO told us. “None of them will meet all of your needs. License the one that meets 80% and build the other 20%.” This in turn suggests the need for a strong technical bench skilled in implementation, enhancement, and maintenance.

CIOs repeatedly warned that much of the cost and difficulty of implementing IPAS arises from adding functionality not supported by the vendor and from getting systems to share enough data to comprehensively address institutional needs. Reality checks with institutions that are experienced in a product are a necessary counterbalance to optimistic vendor claims about the ease of integration or deployment. Understanding how IPAS systems will interact with ERP systems of record is especially important. “Integration between the academic systems and the administrative ones is really critical to these projects,” one focus group member told us, “because you are looking at needs across both systems, but traditionally they have not come together.” Another warned, “IPAS systems can reveal stale and confusing data” and recommended thorough clean-up of ERP data as early as possible.

“Take enough time to explore products and vendors thoroughly. Insist on interacting with product development people at the vendor company, since the sales people at the front of the process disappear as soon as the purchase is made.”

—SSO

Wariness about vendor claims notwithstanding, participants also advised choosing products and vendors for the long term. Points to consider include vendor support and product development capabilities and the compatibility of the vendor's technology "stack" with your institution's environment and staff skills. It may also be wise simply to wait for a fast-changing solutions marketplace to advance while addressing the process and data issues that make up a foundation for IPAS success.

Keep It Simple for the User

We noted earlier that user adoption, especially by faculty, was a top concern of our respondents. Their advice about the user experience was consistent to the point of repetitiveness: "Don't make it too complicated." "Don't select or develop a system that is too complex." "Easy to deploy, easy to use." IPAS systems can easily be perceived as one more thing layered on top of already heavy workloads; feature overreach or introduction of an unfamiliar interface may turn that perception into user resistance.

"Design is everything."

—*CIO*

Recommendations

- IPAS is coming to a student success effort near you. Our study-group institutions overwhelmingly said it is important to their efforts and that they plan aggressive adoption and investment. This is an area IT professionals should learn about and prepare for.
- Maintain a dialogue between IT and the departments tasked with student success initiatives. Don't ignore the possibility that common language may obscure differing perceptions and assumptions. Invite academic affairs, student affairs, and other student success leaders to join in compiling an inventory of institutional IPAS-related solutions and data repositories. IT may be overestimating the functionality of systems and data as they affect day-to-day operations; other units may be unaware of available resources.
- If considering an IPAS initiative, ensure that the project is embedded in a cross-institutional student success effort that includes all relevant parties. Dedicated student success teams or cross-departmental governance structures can be the vehicle for organizing consensus. Don't allow a perception of IT ownership to develop.
- Resolve problems in academic and business processes before implementation; don't adapt to dysfunctional processes.
- When implementing IPAS solutions, communicate early and often with key constituencies to head off potential user resistance. Shape messages to confront constituent concerns:
 - ▶ **Faculty:** Address workload concerns and offer evidence of student success impact.
 - ▶ **Advising staff:** Communicate the potential of IPAS to provide more comprehensive information, offload mundane work, and bring better focus to advising sessions without eliminating human contact.
 - ▶ **Students:** Stress improved convenience, and address concerns about over-monitoring or loss of personal advising interactions.
- Expect the IPAS solutions marketplace to be volatile for several years and enhancement and integration to be larger (and costlier) issues than in more developed solutions areas. Institutions moving aggressively should have a solid technical bench, goals that justify early-adopter risk, and leadership appreciation that many solutions remain incomplete and unproven.
- Consider a highly functional and flexible analytics capability to be foundational to student success efforts. Encourage the growth of a data-driven decision-making culture and ensure that the institution has the capability to disseminate and act on student success information.

Methodology

IPAS is an emergent field of IT practice and has only recently become an important part of the student success discussion. To enhance the chances of finding respondents who could articulate IPAS concerns and provide advice, ECAR chose to work intensively with a small group of institutions recruited for their participation in student success or IPAS activities. Candidate institutions were initially identified through web and literature search and then screened for indicators of student success and/or IPAS activity.³³

Because IPAS is particularly relevant to the pressing student success needs of community colleges, the majority of institutions recruited were community college campuses or districts. Our final study group consisted of 26 two-year and 10 four-year institutions. For a list of participating institutions, see the Appendix.

Institutional Participants. We asked each institution to identify two key participants: the chief information officer and a student success officer. The latter was defined as the individual tasked with overseeing undergraduate student success efforts and was typically a vice president of academic affairs or student affairs or a direct report to one of these. Some institutions also provided individuals who participated in our focus groups.

Focus Groups. To gather qualitative information about IPAS needs and perspectives and to shape a survey questionnaire (Table 4), we conducted a series of video-conference-based focus groups with IPAS stakeholders at study-group institutions. Four focus groups were composed of mixed CIO and SSO participants; three others involved faculty and staff advisors; and two were composed of undergraduate students. An honorarium was provided for each participant. Altogether, 50 individuals from 26 institutions took part in the focus groups.

Table 4. Focus Group Questions

CIO/SSO Questions
1. What student success initiatives are under way at your institution? What student support services are most important to these?
2. How does technology currently support or enhance completion-related services at your institution?
3. What challenges would you expect to accompany the introduction of IPAS technologies at your institution? What concerns might be voiced?
4. Let's say we develop a maturity index on a scale of 1 to 5, where 1 means an institution has no or barely minimal IPAS capability, and 5 means one of the most advanced IPAS institutions in the country. What would you look for or what would you need to be in place to move an institution up the scale?
5. Does our definition of IPAS make sense? Is there anything we should clarify, include, or exclude?
Staff and Faculty Advisors Questions
1. What are the goals of academic advisement? Is there a stated philosophy or approach? Do you expect it to change in the next few years?
2. How do the roles of professional staff advisors and faculty advisors differ?
3. What are the biggest challenges advisors face?
4. How does technology currently support or enhance advising and related services at your institution?
5. Let's say we develop a maturity index on a scale of 1 to 5, where 1 means an institution has no or barely minimal IPAS capability, and 5 means one of the most advanced IPAS institutions in the country. What would you look for or what would you need to be in place to move an institution up the scale?
6. If you could do one thing to improve advising at your institution, what would it be?
Student Questions
1. What has been your experience with advising? Did you talk with an advisor to help you decide on a major or career goal? Before registering for classes each semester?
2. What has been the best thing and the worst thing about your advising experience?
3. How do you use technology to learn about programs of study, plan your studies, and track your degree progress? Which tools are useful and which aren't?
4. What would make these technologies more useful to you? What factors might increase or decrease your use of them? Do you have any concerns about the use of technology in these areas?
5. How useful would you find each of these systems if it were available at your institution? (If it is, share your experience.)
<ul style="list-style-type: none"> • System to create a detailed plan for your education • System that captures all your interactions with advisors and counselors so that a single, consistent record is available • System that tracks your performance in courses and sends an automated alert if you are in danger of a low grade • System that queries you about your academic and nonacademic needs and informs you about resources that could help (e.g., tutoring, transportation, child care)

Survey. We asked the CIO and SSO at each participating institution to respond to an online survey. The 63 responses included 34 CIOs and 29 SSOs. Sections of the survey answered by both officers included questions on drivers of IPAS investment, the institution's ability to deliver IPAS services effectively, concerns about the use of IPAS technology, and the institution's student success data analytics capabilities. In addition, CIOs were asked a set of questions about IPAS systems adoption, and SSOs were asked questions about specific institutional IPAS capabilities. Open-ended text response questions asked of both sets of officers supplemented the qualitative data captured in focus groups.

The survey was in the field in September 2013. Because of the small sample size and resulting relatively large margin of error, quantitative results in the text of this report are rounded to the nearest 10%, though exact results are presented in charts and tables.

Table 5. Summary of Respondents, by Carnegie Classification and Role

Carnegie Classification	Institutions	Role		
		CIOs	SSOs	Total
AA	26	24	19	43
BA	1	1	1	2
MA	4	4	4	8
DR	5	5	5	10
Total	36	34	29	63

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Appendix: Participating Institutions

Arapahoe Community College
Arizona State University
California State University, East Bay
Canada College
Cecil College
Century College
Colorado State University
Community College of Philadelphia
Cowley County Community College
Eastern Gateway Community College
Front Range Community College
Hillsborough Community College
Irvine Valley College
Lee College
Lincoln College
Lone Star College System
Long Beach City College
Northampton Community College
Northern Arizona University
Northern Virginia Community College
Patrick Henry Community College
Pima County Community College District
Purdue University Calumet
Regis College
Saddleback College
Shasta College
Shoreline Community College
South Orange County Community College District
St. Joseph's College, New York
St. Louis Community College
SUNY College at Oswego
Tacoma Community College
Tarrant County College District
University of Central Florida
University of Hawaii at Manoa
Yavapai College

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18. “All others” includes systems deployed at fewer than five institutions. These were systems for student self-service referral to social/community resources; CRM systems with IPAS functionality; and student co-curricular activities management systems.
19. “Most Reported Vendors” identifies the three most frequently reported vendors named by more than one respondent, in declining order of frequency.
20. “All others” includes systems planned or considered at fewer than five institutions. These were student extracurricular activities management systems; advising center management; career assessment and development; and student self-service referral to social/community resources.

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