

Using Technology to Reform Advising: Insights From Colleges

Faced with the need to improve student outcomes, colleges frequently look to new technology for solutions. One approach is to use technology tools to address challenges created by high student-to-advisor ratios and by student unfamiliarity in navigating college. Sometimes referred to as Integrated Planning and Advising Services (IPAS), these technologies provide an array of student support-focused functions, including course management, degree planning, and early alerts.

Yet the value of IPAS extends well beyond the additional functionality it provides. Ideally, it motivates a college to rethink its advising system and, in particular, the way advisors do their jobs, thus encouraging and enabling large-scale and fundamental reform—reform that restructures college processes and that alters the attitudes and behaviors of college staff and students.

Despite its transformative potential, however, colleges and college personnel often approach IPAS as a technology deployment rather than as a mediator of reform. They focus on *implementing* the technology rather than on ensuring that it is *adopted* by end-users and *integrated* into college restructuring efforts. By focusing mostly on technical implementation, colleges often overlook the value of revising policies, systems, and approaches. Unfortunately, using the same approach under the same structures, but with better technology tools, is unlikely to substantially change student advising experiences and student outcomes.

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This guide and the accompanying *Questions to Ask* supplement are part of a growing set of CCRC publications about the IPAS reform process, which includes a report presenting a Readiness for Technology Adoption framework and a self-assessment tool for colleges. These resources can be found at the [IPAS project page](#) of the [CCRC website](#).

How can IPAS be used as a means to substantially improve student support services? One way is to learn from the experiences of early adopting colleges as they engage in IPAS-mediated advising reforms. Advising reforms are multi-faceted and often unexpectedly difficult to carry out. As the use of IPAS rises and as new IPAS products continue to emerge, it is critical to understand the challenges colleges have thus far confronted in the IPAS-mediated reform process.

This guide summarizes findings from a study in which we examined how six colleges planned for and began IPAS implementation and associated reform, and how they addressed the surprises and challenges they encountered. The guide aims to help colleges embarking on advising reform anti-

pate and plan for the kinds of challenges that peer institutions have faced, so they can improve their chances for successful implementation and end-user adoption.

We identify three key lessons: (1) implementation is about more than technology; (2) good project management is essential; and (3) an IPAS-ready culture facilitates reform. In describing each lesson below, we provide specific examples from the six colleges, and we share strategies they used to move their projects forward.

Study Method and Data

To understand early IPAS experiences, we interviewed 102 stakeholders, including end-users (largely advisors and faculty), administrators, and key project personnel at six colleges. We sampled a cross-section of colleges, including three non-urban community colleges (Treetop, Lakeside, and Bluffview), one urban community college (Crescent), one urban four-year state university (Harbor), and one non-urban four-year state university (Forest Hill).¹ The interviews were conducted as part of a larger study on IPAS reforms. Colleges independently selected vendors and IPAS technology products. In total, four vendors and six different products were chosen for implementation by the six colleges.

Our findings are based on two rounds of data collection. First, we conducted on-site interviews with participants, timed to coincide with initial IPAS implementation planning and activities. While one college had just gone “live” with a new product, the majority were approximately 3–6 months from their expected launch. The first round of interviews focused on understanding how colleges approached technology-based reforms, including product selection, project team roles, expected impact, and the fostering of end-user buy-in. The second round consisted of telephone interviews with key project personnel approximately six months after our initial visit. This second round provided an opportunity for colleges to reflect on their progress, update project timelines, and share what they learned about implementation.

Lesson One: Implementation Is About More Than Technology

To facilitate beneficial advising reforms, colleges should recognize that the successful selection and implementation of new IPAS products involves detailed knowledge of how end-users will use such products. Colleges in our sample often focused on the technical requirements of a potential or selected product, such as operability and compatibility. While challenging and time consuming, these requirements were usually relatively straightforward to meet. More difficult, however, was determining if and how existing policies and procedures would work with or be optimized using the new technologies. In fact, most colleges delayed confronting how the implementation of new products would affect frontline end-users such as advisors and faculty. By focusing on getting “live,” colleges often encountered unanticipated challenges, which ultimately delayed implementation and likely hurt end-user adoption.

The approach to product selection has far-reaching consequences.

Colleges in our sample generally made product decisions in one of three increasingly nuanced ways (see table). Some colleges focused primarily on the technical requirements and function-

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alities of the new product, including ensuring compatibility with current platforms. A college taking this approach would ask, “Is this product compatible with current IT infrastructure, and does it provide all the functionalities we want?” A second product selection approach considered the technical requirements and functionalities of the tool, *and* also evaluated the product on how it would fit into the college’s current advising system and processes. A college taking this approach is thinking more holistically about implementation and may consider questions including, “In addition to providing us the functionality and tools we want, does the tool align with and support our current processes? If not, what updates or reforms will we need to undertake to maximize the potential of the product?”

Finally, some colleges approached product selection from a “visionary” perspective. In this approach, a college undertakes a process of self-evaluation to determine the overall set of changes they would like to make. Thus, the college might ask, “In an ideal world, what does the advising process look like? Does this tool help us get where we want to go?” These colleges examined their current and potential products in order to consider how those products would best support their future plans. While they made some of the same considerations as in the other approaches to product selection, such as weighing the ability to integrate products, they did not let the characteristics of the products drive their decision-making—nor did they let their *current* needs do so. Rather, the driver was their vision of future processes. They thought about where they were going, not only about where they were.

THREE APPROACHES TO PRODUCT SELECTION

APPROACH (COLLEGES)	DESCRIPTION	ILLUSTRATIVE QUESTIONS
1. Technical/functional (Crescent, Treetop)	Focuses on the technical requirements and functionalities of a product.	Does this product provide the functionalities we want?
2. Process-oriented, present-focused (Forest Hill, Harbor)	Focuses on how the product interacts with <i>current</i> processes.	Does this product align with and support what we currently do?
3. Process-oriented, future-focused (Bluffview, Lakeside)	Focuses on how the product can support anticipated <i>future</i> processes.	Does this product help get us to where we want to go?

All the colleges faced implementation and end-user adoption challenges, regardless of the selection approach they took. However, the types of challenges differed across approaches. In general, the colleges taking the first approach were focused almost exclusively on technical requirements and were surprised by the changes in work processes required by IPAS reforms. They found themselves addressing process changes reactively, mid-implementation, rather than proactively.

Colleges taking the second approach were attendant to the broader context of IPAS use but generally focused on the here-and-now. Thus, they often underestimated the strength of potential IPAS-mediated reform changes. They also ran the risk of overlooking products that did not fit their current systems but that could encourage broader shifts in advising structures and practices.

By considering the potential benefits of the new system and weighing the selection of the tool in light of broader reform, colleges taking the third approach were the most prepared for subsequent process changes. However, these colleges struggled most acutely with building stakeholder buy-in and ensuring widespread end-user adoption. The often dramatic change in processes required by deeper reforms led to more “people-oriented” surprises and challenges than were faced by colleges

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taking a more technical approach. Such challenges are often harder to address than technical ones, even if their solutions are likely to produce important benefits that can affect the student experience.

Technological success is dependent on underlying processes.

As noted, colleges often approached IPAS reforms with an eye toward technological success, focusing on the integration of useful tools. In doing so, however, they often found that underlying processes, rather than the technology itself, created serious challenges for implementation and adoption. Overall, colleges found that they needed to clarify processes and policies—both technological and non-technological—before they could fully implement and take advantage of new technologies.

For example, a degree-planning tool may enable students to map out their courses over multiple semesters and register for courses from the same portal. However, the colleges in our study that adopted this type of technology found that they first had to systematize program requirements, course prerequisites, the timing of courses within programs of study, and if and how courses transfer.

At Bluffview College, for instance, the IPAS team discovered that over the years course requirements had been entered and modified in the student information system without any consistent approach or oversight. Moreover, the college used a confusing, user-unfriendly course numbering system. The resulting complexity and ambiguity in program requirements meant that their program planning tool could not systematically help students create coherent programs of study. The college needed to refine its course catalog before further deploying the tool. It thus restructured the numbering system to both more effectively work with the new technology and improve end-user understanding.

The need to backtrack and address process questions mid-implementation at colleges often led to unintended delays—but it also led to unanticipated benefits for end-users and students. At Treetop College, inconsistent program requirements led the college to realize that it did not have a consistent process for recording program requirements across departments. Project team members came to recognize that centralizing program requirements at the institutional level (and formalizing articulation agreements with other colleges) was a strategic next step needed to maximize their IPAS system—a system that seeks to empower students to plan out programs of study semesters in advance.

Challenges also arose around the issues of information sharing, professional roles, and student privacy. Whereas their current technology systems often did not readily facilitate information sharing, new technologies allowed the colleges to collect and share information on students in a single central location. However, not all types of information are appropriate (or legal) for all staff to have access to. For example, academic advisors, wellness counselors, and professors may need access to different types of information.

Improved information sharing using new technology prompted colleges to clearly define staff roles and corresponding levels of information access, but the process was time-consuming and difficult. College personnel had to confront philosophical questions, such as their beliefs about how important students' past performance may be to current instructional staff, as well as legal ones. As one school administrator noted, discussions about data access “become this overwhelming thing ... and it's scary because you don't know if you made the right choice.” Additionally, some staff, such as faculty advisors, serve multiple roles, which often change each semester, so colleges had to determine how to update information-sharing procedures over time.

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College personnel may be surprised by lost functionality.

We found that colleges were often surprised by the unintended consequences for end-users of implementing new technologies. Though new products were meant to improve functionality, sometimes existing functionalities were lost as well. By not being attentive to how end-users do their jobs, colleges, particularly those taking a technical approach to product selection, were surprised at this loss of functionality, which frustrated end-users.

To some extent, these surprises stemmed from limited information prior to purchasing a product. Vendors often provide mock-ups or screenshots to demonstrate how a new product works. Although such samples provide insight into the product's functionality or workflow, colleges often cannot navigate the page directly. Even if they can navigate a sample product, the lack of real data populating the page decreases a college's ability to fully determine how, post-implementation, a technology can be used. Despite these limitations, we found that colleges that spent more time upfront exploring and testing product options often had more accurate expectations of what functionalities they ultimately received or lost.

We also found that colleges sometimes deliberately eliminated functionalities when switching products, either because the new product required them to do so or because they believed it would improve end-user processes. However, we found that college personnel were often surprised by these losses. At Forest Hill, for example, end-users did not like the fact that their new IPAS tool relies on older data than the prior system did. When end-users update a student's record—for example, by entering registration information or by noting a withdrawal from a course—the IPAS system does not reflect the change immediately. As one administrator noted, “A big drawback on [the new system] is not having real-time data. Data will be a day old. [There is] nothing worse than conflicting information.” Without an upfront focus on end-user processes, key project leaders at colleges taking a technical approach to product selection were unable to anticipate functionality loss, and did not realize that such loss would negatively impact end-user buy-in.

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Lesson Two: Good Project Management Is Essential

Successful reforms require the right people working with the right partners and with sufficient time. Colleges in our sample found it challenging to identify who should work on their projects, and how to shepherd the work from both a technological and end-user-process perspective. They were also surprised at how time-consuming the IPAS implementation process was.

It is important to include three types of team members on a project.

Stakeholders at all of the colleges in our study expressed concern about the creation of project teams. They felt that project teams should be structured in ways that could best advance the project forward over the long-term, be flexible as the project evolved, and help garner stakeholder buy-in. But they were not always sure what type of team structure would accomplish these goals. The colleges that had the most successful early implementation experiences established multi-faceted teams with three member types: content masters, influencers, and decision makers. Importantly, team membership was based not solely on job title or department but also on individuals' expertise and the role they could play in the implementation and adoption processes.

Content masters possess the necessary technical or process information to complete the project. Content masters often include IT personnel, who provide information on how to get a product up and running, and end-users such as advisors, who provide details on current work practices and

procedures. *Influencers* include key personnel valued and trusted by project staff and the broader college community. Influencers may include faculty leaders, director-level staff, or individuals who are respected by their colleagues. Influencers may also include top-level college officials. They are able to help those outside of the project team understand and gain confidence in IPAS reforms. Lastly, *decision makers* are those who have authority to move the project forward or who can cast a vote for a constituency of the community.

Single team members can fulfill more than one role. For example, the success of one project in our study, the incorporation of an early alert system at Harbor University, relied heavily on faculty buy-in. Key faculty members were thus recruited to serve on the project team. When faculty input was required, faculty representatives were already positioned to provide feedback and guidance. In this example, faculty representatives served both as influencers, as they communicated and facilitated buy-in among their fellow faculty, and as decision makers, as they represented the faculty point of view.

What happens when project teams contain only one or two types of members? We found that teams encountered different challenges depending on who was missing. Colleges that did not include content masters, particularly advising content masters, were unable to understand the implications of new technologies for advising processes, and were more likely to encounter process-related surprises. Colleges that took a technical or functional approach to product selection often neglected to include end-users such as advisors as content masters. However, because end-users are the ones who interact with students and technologies on a daily basis, they are best positioned to understand how changes will impact the “front line.” As one end-user noted, “Someone who isn’t in the trenches won’t understand how that affects what we do. ... Even our dean ... does not know how we advise here. So if he makes a decision, he may not understand the implications of how this actually impacts how we work with students.”

Strong influencers bring credibility to the project team; when well-respected individuals who are good communicators are involved in a project, end-users are more likely to view the work as critical and of high value. In our study, those project teams with “heavy hitters” were given more respect campus-wide and were more likely to receive timely cooperation. Importantly, what constitutes “influence” is context specific—what matters on one campus may not matter elsewhere. For example, Forest Hill University faculty were actively engaged in nearly all reform efforts and decision-making at the college. Consequently, the faculty president was included on all IPAS project communications, so he could then disseminate information to fellow faculty for feedback and buy-in. Lakeside College’s IPAS project stretched across a number of strong, mostly autonomous departments, including IT, student services, and enrollment. From each of these departments, influencers were brought into the IPAS project team so that they could then serve as the spokespeople and advocates of the project to their respective departments.

We found that project teams that lacked decision makers (either college leaders or project leaders empowered to make IPAS-related decisions) often stalled or put off important decisions until external decision makers could provide their approval. This delayed progress and negatively impacted the team’s motivation and buy-in. For example, the IPAS team at Treetop College found that they would make decisions that were later overturned by other decision makers who had not been part of the original discussion process.

The accompanying table summarizes the types of project team members identified in our data, and the implications for colleges when they do not include this type of member on a project team.

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THREE TYPES OF MEMBERS IN PROJECT TEAMS

MEMBER TYPE	ROLE	CHALLENGE IF OMITTED FROM TEAM
1. Content master	Helps others understand technical or end-user processes, as well as the implications of IPAS reforms.	Team may not identify implementation and adoption challenges early in the planning process.
2. Influencer	Helps others see the value in IPAS reforms.	Team may lack buy-in from team members or from the broader college community; end-user adoption may be low as a result.
3. Decision maker	Helps keep the project moving forward.	Project may be held up while waiting for permission to proceed; decisions made outside of the team may cause frustration.

Strong vendor collaboration can be a key to success.

The technology vendor a college chooses is an important decision—and one that goes beyond the functionality of the actual tool. We found that the support offered by vendors varied greatly at the colleges. Some vendors provided little to no additional support once a product was delivered. Other vendors provided expansive, detailed documentation, which included both information pertaining to the technical aspects of implementation and step-by-step usage guides for the eventual end-users. A number of vendor representatives served as essential project team members. They joined meetings remotely and provided solutions in real-time. Thus, questions did not impede the team’s progress.

The importance of the need for an ongoing vendor relationship was surprising and, often, frustrating for respondents in our study. In selecting products, IPAS leaders often focused on the technical and functional requirements for going live with the new technology—but they often did not consider what role they wanted the vendor to play in terms of technical support and training afterwards. Many college personnel were unclear about the types of support they would receive once the product was fully up and running.

Importantly, many of the products were new; some were still in production or had kinks to work out. The colleges in our study were surprised at the extent to which they had to address bugs, incomplete integration, and other technical challenges stemming from the newness of their IPAS products. When vendors were unresponsive, did not acknowledge colleges’ challenges, or provided limited support, understandable product-related headaches were magnified and grew into large-scale frustration.

However, some vendors took a collaborative approach to working through new product bugs. In these partnerships, vendors took suggestions from college personnel, integrating improvements or additional capabilities into the product. When vendors took this type of team-oriented approach, colleges found that technological glitches were annoying but manageable and that vendor collaboration ultimately led to a better product.

Vendor support influenced implementation and potential adoption beyond the project team. Nearly all colleges experienced some technical challenges implementing new technologies. Not surprisingly, how the vendor responded to those challenges mattered a great deal. Quick responses by vendors were of course appreciated by IPAS team members, but also helped generate support for the product among campus-wide stakeholders. Having responsive vendors helped end-users and other stakeholders feel that their concerns were heard and acted upon with urgency. Vendors also supported end-user buy-in by providing data on the new technology’s potential impact, such as usage data. As one college official noted, “If you have no data

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to prove that it has value ... they are not going to use it.” When officials shared data about the product, more end-users typically came on board.

Implementation can take much longer than anticipated.

Overall, colleges greatly underestimated the time it would take to complete implementation. Time, or the lack thereof, was a consistent theme in our interviews; however, the reasons for needing additional time varied. To some extent all colleges—even those most focused on technical and functional requirements during their selection process—encountered technical challenges that delayed product roll-out.

The more difficult and time-consuming issues related to updating processes, policies, and procedures to fit the requirements of the new technology. All colleges in our sample had to confront these questions. The difference was that process-oriented colleges did this work upfront and so were not as likely to be derailed by it mid-project as were colleges that took a more technical approach. This latter group found that they had to stop mid-implementation to confront process and policy changes. Moreover, regardless of approach, the fact that technology-based reforms reached departments campus-wide meant that project teams had to coordinate with many different stakeholders—which increased the amount of time it took to make progress.

Time was also needed once a new technology became available for use. Whether colleges used a soft-launch or launched campus-wide all at once, project teams needed additional work time post-launch to continue refining the product. For many products, the full range of functions was not available until data populated the system, so end-users, including advisors and students, could not fully interact with a system until the system was completely “live.” Therefore, end-users needed time post-rollout to experiment with the system, report problems, and figure out how best to leverage the tool.

Some colleges viewed the actual launch date as one of the concluding events of the new product. These colleges did not plan for time or resources to continue product refinement after the launch. In contrast, Lakeside College saw the launch as just the first phase. As one key project member noted, “The ‘go live’ is not going to be perfect. ... We had to let this roll for a few months and then needed to do a review and say—okay, what’s working and what’s not working? ... So I’m already thinking of phase two.” Process-oriented colleges tended to budget time for ongoing implementation needs that focused on what happens after product launch, not just getting to the launch point.

When the amount of time that IPAS implementation took unexpectedly dragged on, project staffing at the colleges sometimes became thinly stretched. Staff challenges were exacerbated because team members were often assembled from a number of different departments, reported to different supervisors with competing agendas, and only worked on implementation-related tasks part-time. As a result, team members did not always have sufficient time to devote to implementation efforts, which had a direct impact on the ability of the team to meet deadlines.

Importantly, colleges that took a process-oriented approach to product selection and implementation were better able to identify the likelihood that staff would need additional time for IPAS-related tasks and plan accordingly. As one president noted, “We cannot simply ask staff to do more; they are already doing more.” This college found ways to ensure that IPAS efforts were integrated into staff duties in order to provide them with time to work on the project.

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Lesson Three: An IPAS-Ready Culture Facilitates Reform

To ensure that advising technologies are used in ways that can have an impact on student experiences and outcomes, colleges should cultivate an organizational culture that supports IPAS reforms.

Project teams in our study that did not cogently explain the rationale behind a reform to the wider community before implementation began were often surprised later when end-users did not understand the reform or did not think it would be helpful to them.

Buy-in increases when stakeholders understand how reforms support student success.

A key challenge for IPAS reforms is having members of the college community agree that the proposed changes will be beneficial, so that they will adopt IPAS technologies and engage in new or altered student support practices. When project personnel at our sample colleges were able to clearly articulate the need and purpose of IPAS technologies, stakeholders were more likely to accept the credibility of the reforms. The project teams of colleges most ready for implementation and adoption could more precisely articulate the potential benefits of IPAS and how a given reform could support the college's student success goals.

Our interviews suggest that, to ensure buy-in, end-users need to believe that the new product is needed. When a product or reform was seen as unnecessary, end-users often resisted implementation efforts. For example, at Forest Hill, current technologies were well-liked by staff members; they were thus unenthusiastic about IPAS-related changes. This college was the only one in our study to halt their IPAS project mid-process. In contrast, at Crescent College, overburdened staff members felt that IPAS products had the potential to improve their efficiency, and so they were open to learning more about the reform.

Our interviews also revealed that creating an IPAS-ready culture goes beyond demonstrating to end-users that a new technology will be an improvement over the old one. Rather, colleges poised for IPAS success were able to identify broader student success-oriented needs that, while more complicated, were integral to meaningful changes in student experiences and outcomes. There is, for example, a difference between identifying a need for an easier, more user-friendly early alert system (as at Harbor) and identifying a need to use early alerts to support holistic case management (as at Lakeside). Moreover, it was not enough that senior level officials knew how a technology fit the broader institutional strategy. End-users needed to understand as well.

The process-oriented colleges in our study were able to create a vision for how IPAS technologies could be used to meet overarching institutional goals. At Lakeside, college stakeholders identified ways that their entire advising process would need to change in order to better support students from entry to completion. They then identified which IPAS products could streamline revised advising processes and how they would do so. Having such clarity about which needs IPAS could address and creating a clear vision about how IPAS would be used enabled the Lakeside project team to communicate the need and expected outcomes of IPAS reforms to stakeholders. This effort was likely successful in part because the project team worked with, not around, the larger college staff.

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Ongoing communication, even when there are unknowns, builds trust.

Once a vision for how IPAS addresses institutional needs is created, broad communication of the vision is required in order to ensure an adoption-ready organizational culture. The colleges in our

sample struggled with figuring out when to share information about coming IPAS implementations. A number of colleges waited to provide end-users with details. These colleges argued they did not have all the answers and thus did not want to communicate too many unknowns. They reasonably felt that, in the absence of good information, no information was preferable.

The end-users at these colleges indicated otherwise, however. We found that end-users appreciated honest, transparent communication—even if the information was imperfect. In colleges that took a wait-and-see approach to informing end-users of coming IPAS reforms, the end-users we spoke with still knew that a change was coming and indicated that it felt to them like it was being kept a secret. They received IPAS-related information through unofficial channels and thus were often distrustful of the project team and impending changes. This distrust was based on lack of communication, inaccurate information, and fear of the unknown. End-users in these colleges frequently voiced frustration about not knowing “the point” of reforms, and they felt left out of the conversation.

In contrast, colleges that proactively communicated updates to the wider college community found that end-users were open to conversations about IPAS reforms. For example, at Harbor, the project lead solicited input from of the college’s divisions as soon as the IPAS grant was awarded. Thus, stakeholders knew about IPAS even before there were many details to know. Our interviews suggest that because stakeholders felt informed from the beginning, they were receptive to the coming changes as details emerged.

The need to develop an open, communicative IPAS-ready culture underscores the importance of having influencers on the project team. Influencers help communicate information about IPAS outside of the project team, helping generate end-user trust and support. They can also solicit end-user feedback that informs implementation decisions. Harbor University used influencers to ensure that information about IPAS was provided to faculty members in all departments; these influencers were charged with reporting on IPAS to their peers, soliciting feedback, and generating enthusiasm for the coming changes.

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Conclusion

The availability of a new IPAS technology tool does not in itself guarantee improvement in advising or in related student experiences. Rather, colleges engaged in IPAS reforms need to leverage new technology to improve student support systems in meaningful ways. Doing so requires the engagement of advisors, faculty, and other college staff in adopting IPAS products and in shaping changes to advising and support. As IPAS reforms become increasingly popular, more colleges will undertake the difficult work of thinking through potential technology-mediated advising and support process changes, making choices about particular products and creating a clear vision of how reforms will create changes in practices. By reviewing the experiences of the six colleges as described here, other colleges contemplating IPAS reforms may be able to engage in a more deliberate assessment of how IPAS technologies can be used to modify advising processes and structures to improve student outcomes, and they may avoid some of the pitfalls in planning and carrying out fruitful reforms.

Endnote

1. All college names are pseudonyms.

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