



# Technology-enabled Advising and the Creation of Sustainable Innovation:

Early Learnings from iPASS



# TECHNOLOGY-ENABLED ADVISING: **iPASS SOLUTIONS**

New models are emerging across higher education to improve student performance and outcomes. They include alternate delivery and instructional models, such as competency-based education, digital courseware, and open educational resources. Outside the classroom, new educational support tools and approaches are also helping students plan for, and successfully navigate, college pathways.

Technology-enabled advising tools are at the core of Integrated Planning and Advising for Student Success—or “iPASS”—solutions. iPASS encompasses tool and services that provide 1) course and/or degree planning, 2) coaching and career advising, 3) student progress tracking, and 4) early academic alerts and predictive analytics. Colleges can use these solutions to cultivate more integrated approaches to student support services.

Although rooted in technology, introducing new iPASS solutions is fundamentally about leveraging technology to elicit institutional change. Successfully integrating these solutions onto a campus requires change beyond simply buying and implementing new software. Systemic change includes reimagining how faculty and staff support students as they pursue college degrees. Technology investments are, in fact, only the first step.

This report describes the financial investment that 22 colleges and universities have made in various iPASS solutions as part of a 3-year grant initiative that began in July, 2015 with support from the Bill & Melinda Gates Foundation. The report describes a set of key financial metrics and findings from the first year of the grant, utilizing a “return on investment”—or ROI—perspective.



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# WHAT EXACTLY IS ROI?

Adopting and implementing iPASS solutions and other emerging models for traditional colleges and universities typically requires new spending. But how might the financial lens through which new initiatives are viewed shift from “What does it cost?” to a more useful understanding of “What do we get for the resources we spend?” This refocusing, from spending to return on investment, is critical to understanding and creating sustainable innovation.

**Transitioning to an ROI lens requires three fundamental shifts.**

1

## **A holistic understanding of resources**

First, acknowledge that this is not only about dollars spent, but about people and how they spend their time. Our research shows that the most significant investment that any higher education institution makes is in its people—its faculty and staff. Yet, there often is a very poor understanding of how those people spend their time. ROI demands a better understanding of how faculty and staff use their time, and how it translates into student success.

2

## **A focus on unit cost**

Second, the focus on total cost alone must move to one of cost per unit, and how unit costs change over time. The best example of such a shift is the cost per credential (degrees and certificates). Using this approach, an institution may elect to increase total spending on initiatives such as iPASS, while ultimately reducing the more important unit cost per credential awarded.

3

## **A connection between student success and financial sustainability**

The third component for applying an ROI lens is to tangibly connect student success and financial sustainability. As the various measures of student success—retention, progression, average student credit hour load, increase in credit completion—improve, so too may the net revenue earned by the institution. This increase in net revenue may be further enhanced by adopting student learning and advising systems that increase efficiency. The financial return on investment also applies to students, who translate their success into reduced tuition, quicker completion, and faster entry into the workforce.

»» These three components—a holistic understanding of resources, a focus on unit cost, and a connection between student success and financial sustainability—form the core of an ROI lens.

# WHAT CAN iPASS INVESTMENT PATTERNS SHOW?

Financial analyses of early investments in iPASS systems provide a broader understanding about the financial underpinnings of technology-enabled advising systems. iPASS grantee experiences can serve as a roadmap for other colleges whose leaders may ask “What will it take to implement this on my campus?”



This study presents findings from the first-year financial evaluation of iPASS grantees (see “Methodology” sidebar). The findings provide a holistic look at the financial commitment required to implement iPASS systems at participating colleges. The study extends well beyond “How did colleges spend their grant funding?” and reflects the totality of spending, regardless of the funding source.

It also offers a “look under the hood” at the time, money, and staffing resources required to implement these systems. Often, successful implementation utilizes resources beyond those that are specifically budgeted for the project, and relies upon the time and talents of staff across the institution.

By linking spending with the potential financial and non-financial returns from investing in iPASS, the study crystallizes what many college presidents and senior leaders want to know—“What is the return on investment?”

The study findings are framed around questions of interest to iPASS grantees and other colleges that may want to launch new technology-enabled advising solutions:

- » 1. How much was invested in iPASS activities?
- » 2. How were resources spent?
- » 3. How was iPASS funded?
- » 4. Is iPASS fully utilized and at what unit cost?
- » 5. How is sustainability achieved?

## Methodology

This data in this study are drawn from information reported by 22 of 26 colleges participating in an iPASS grant initiative funded by the Bill & Melinda Gates Foundation. The data were collected in August/September of 2016 and reflect information from the first of three planned annual data collections.

Grantees provided information on iPASS utilization and activity, revenue sources, and expenditures (operating expenses and personnel). Personnel expenditures were collected in an activity-based cost format: colleges reported the average hours per week staff spent on four categories of iPASS-related activity (planning, implementation, training, and operations); this time-use data was then combined with information on staff salaries and benefits to produce total personnel expenditures.

Information on a set of key performance indicators highlights the potential non-financial and financial returns from iPASS: annual student retention, term-to-term persistence, credit hour completion rate, and projected net revenue.

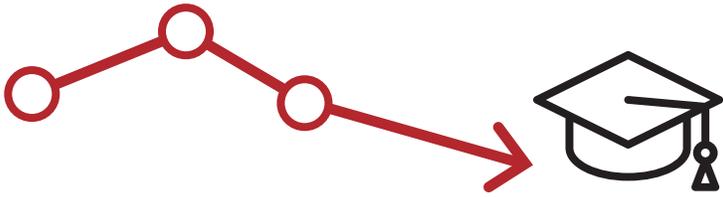
Grantees reported actual data for the first grant year (FY16) and projected data for the remaining two years of the grant (FY17 and FY18).

In addition, grantees reported any prior iPASS-related investment made by their institution (regardless of funding source) in the two years prior to the grant (FY14-FY15) if it was directly related to the current grant initiative (e.g., previously purchased technologies required for the current funded initiative to succeed). Investments in institution-wide enterprise resource planning, or ERP, systems such as Banner or PeopleSoft were excluded.

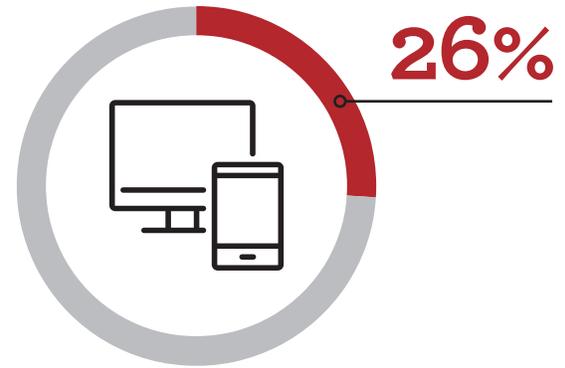
# iPASS KEY FINDINGS

## \$700,000

Grantee spending averaged more than \$700,000 on iPASS activities during FY14-FY16, but largely reflects a reallocation of existing resources rather than new money.



Costs per student are expected to decline as additional students have access to and benefit from these systems, but expansion opportunities remain to drive costs down even further.



Personnel costs were the largest expenditure; only about one-quarter of spending was to purchase iPASS technology/software.



The majority of iPASS activities are funded with institutional dollars.

## \$1 million, annually

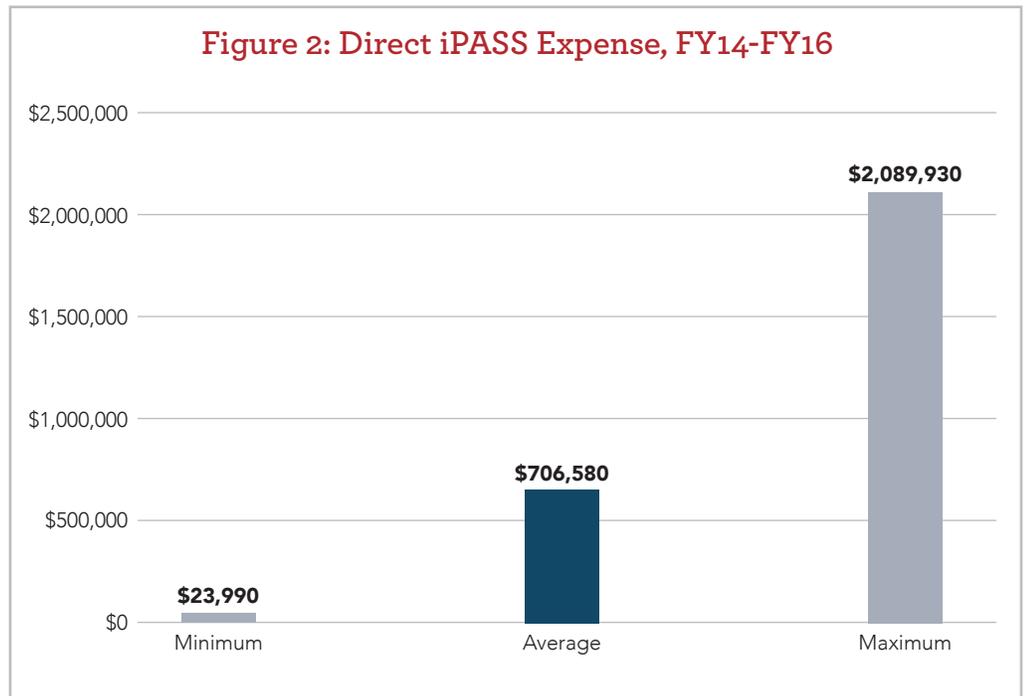
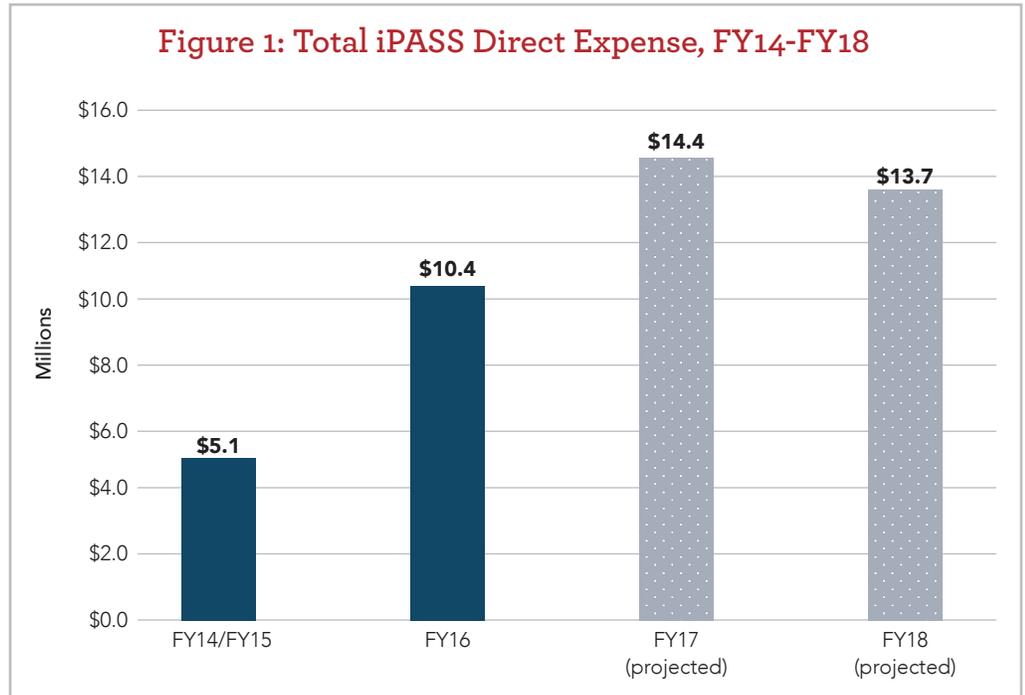
Expected increases in student retention rates could generate net revenue averaging \$1 million annually per institution (additional operating revenue from student credit hour activity, less the education-related expenses to provide those additional credit hours).

# HOW MUCH WAS INVESTED IN iPASS ACTIVITIES?

Grantee spending on iPASS-related activities totaled \$15.5 million in FY14-FY16 (see Figure 1). Spending includes the direct cost of technology, as well as personnel costs and other operating expenses (IT servers and maintenance contracts, conferences, training materials, etc.) necessary to successfully plan, implement, and use the iPASS technology.

Most spending occurred during the first year of the grant (FY16), but one-third of spending was “initial investment” that occurred prior to the onset of the grant. This spending was funded by the institution and/or other sources (e.g., other grant initiatives). Grantees expect their FY17 and FY18 spending will increase above FY16 levels as programs continue to roll out, and move from planning to implementation to operation.

There was wide variation in spending among grantees, depending on their stage of implementation. Grantee spending averaged about \$700,000 on activities related to the iPASS grant during FY14-FY16 (see Figure 2). But grantee spending ranged from less than \$25,000 to more than \$2 million. Some colleges were just beginning to plan for their iPASS initiative, while others had already made significant prior investment in FY14-FY15, and their current spending built on those earlier investments.



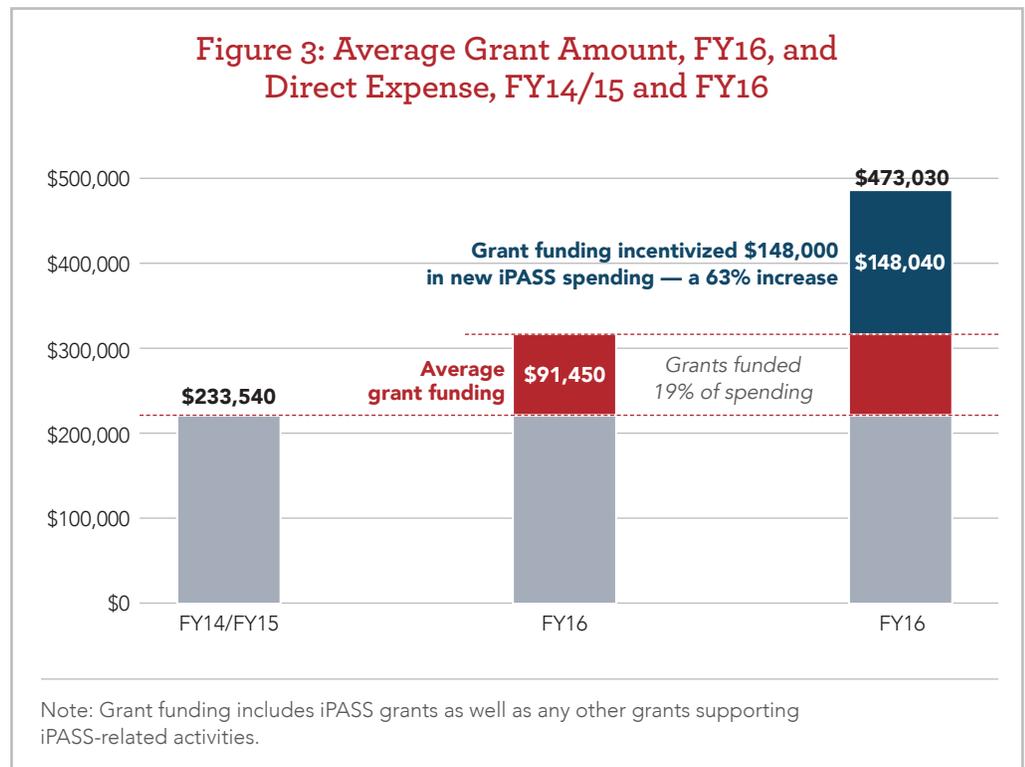
Looking separately at the initial investment period and the first-year of the grant shows a sharp increase in spending. In FY16, spending averaged about \$473,000, which was double the average initial investment of \$234,000 across all grantees in FY14-FY15 (see Figure 3).<sup>1</sup>

Considerations of pre- and post-grant period spending are instructive because they help frame conversations about sustainability. All too often, initiatives launched with grant funding flounder once the initiative is over because financial resources have evaporated, and the critical external supports and project champions are no longer readily available.

Comparing pre- and post-grant spending allows us to examine the role of grant funding within institutions, which is framed around two questions: 1) How much of overall institutional spending was financed with grant revenue streams (iPASS and other grant funding)?<sup>2</sup> and 2) Did the grant awards leverage additional spending by the colleges?

Figure 3 shows that grant funding averaged more than \$91,000 in FY16.<sup>2</sup> While this is a significant amount of external funding, it financed less than 20 percent of total spending in FY16. Institutions already funded about 80 percent of the initial investment required to implement and deploy these technology-enabled advising products. So, from a sustainability perspective, the expiration of grant funding may have less of an impact than expected.

Colleges certainly welcome grant funding, but its intended impact is



amplified by the additional institutional investment it leverages. If grant funding simply functioned as an add on to current spending, spending expectations would have averaged about \$325,000 (\$233,540 in previous spending levels plus \$91,450 in grant funding). Instead, spending in FY16 averaged nearly \$475,000, or \$148,000 more than expected. This additional institutional spending reflects a 63 percent increase over average FY14-FY15 spending levels.

» **81%**  
Amount of iPASS spending supported directly by institutions.

<sup>1</sup> Eight institutions reported no initial investment; spending in FY14-FY15 averaged \$367,000 among those 14 institutions with initial investment reported.

<sup>2</sup> iPASS grantees were awarded approximately \$75,000 annually for three years; however, some institutions also reported grant funding from other sources, which increased the average grant amount.

# HOW WERE RESOURCES SPENT?

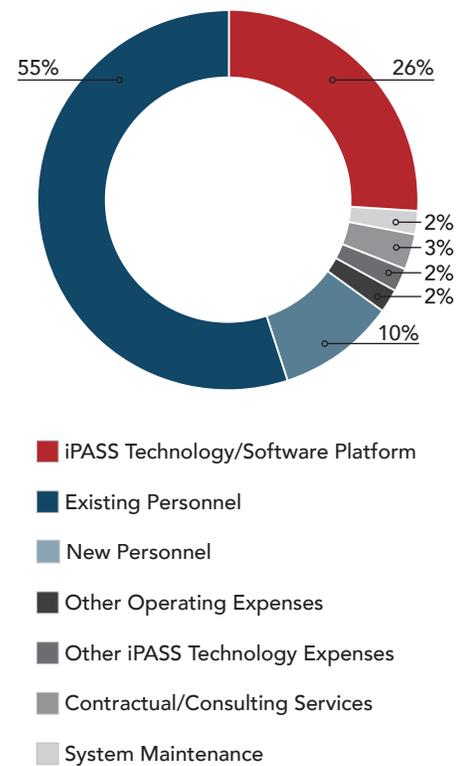
iPASS initiatives are usually viewed as “technology projects.” However, technology alone is insufficient to introduce transformative change to student advising. Adopting new technology-enhanced student advising models is intended to provide higher-quality, customized advising services more efficiently and effectively.

Technology is not a substitute for advising staff, and instead is intended to leverage change in advising approaches and roles. Typically, a significant amount of advisors’ time is spent processing course registrations and ensuring that students are meeting degree requirements. Implementation of degree planning software to perform these functions allows advisors to spend additional time providing essential guidance and counseling. Furthermore, electronic alerts that notify students and advisors when a student is veering off a successful path to degree completion lets advisors intervene early and provide more intensive guidance and support services.

Even during the initial implementation, a majority of project resources were personnel-related. Only about one-quarter of spending from FY14-FY16 went to purchase iPASS technologies and software platforms (see Figure 4). These technology investments averaged \$180,000 from FY14-FY16, with about half expended during the first grant year (FY16).

Two-thirds of iPASS expenditures were for personnel costs (salaries and benefits). Few new personnel were hired to assist with the projects, representing only 10 percent of total spending (\$70,000, on average from FY14-FY16). The majority of resources (55 percent) supported the cost of existing staff participating in iPASS-related activities. The types of staff involved typically included project team members, senior leadership providing overall guidance and direction, information-technology specialists, institutional researchers, and student services staff (including full- and part-time advisors). Compensation outlays for existing staff averaged \$392,000 during FY14-FY16, with three-quarters expended in FY16 alone.

**Figure 4:**  
Distribution of Direct Expense  
by Spending Category,  
FY14-FY16



Note: “Other iPASS Technology Expenses” includes IT hardware (e.g. servers) or other iPASS support software. “Other Operating Expenses” includes: training materials, marketing and communications, other contractual and consulting services, non-IT equipment, equipment replacement and repair, and other expense (e.g. travel).

**>>>** Technology is not a substitute for advising staff, and instead is intended to leverage change in advising approaches and roles.

Information was also reported on the time staff devoted to their iPASS project, and categorized into four activities:

- » Planning
- » Implementation
- » Training
- » Ongoing iPASS operations

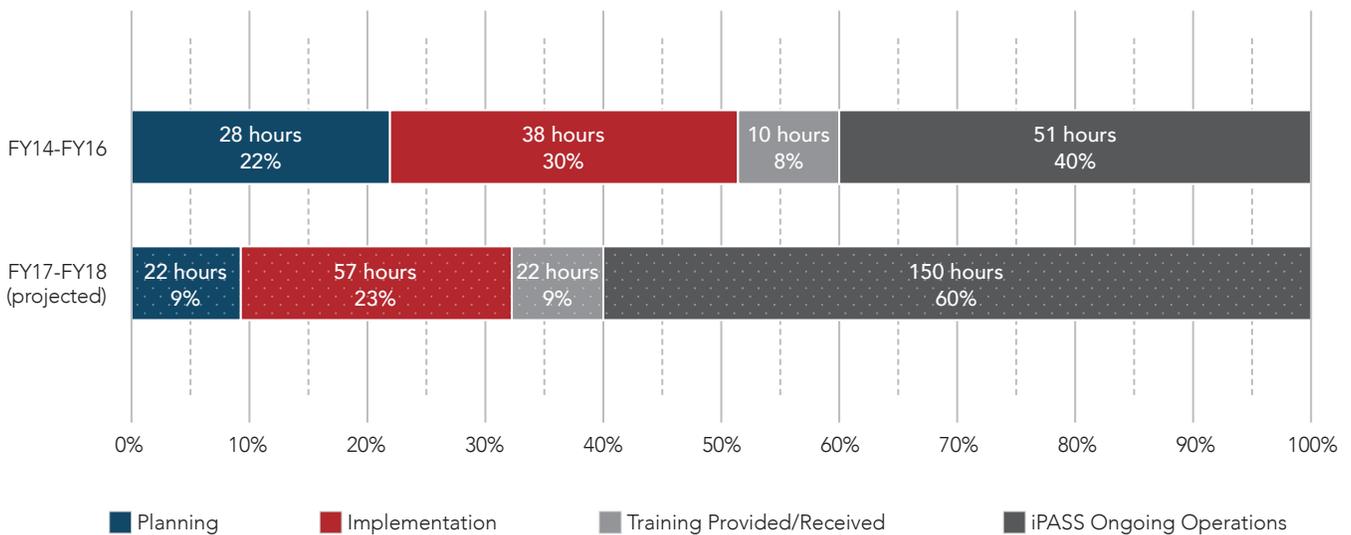
Faculty and staff across all grantee sites averaged about 125 hours per week of iPASS activity during FY14-FY15 and FY16 (see Figure 5). In the initial phase of the project, the majority of time was spent on project planning, design, and leadership (22 percent) and implementation of the technology (30 percent). Time was also devoted to ongoing iPASS operations (40 percent), as staff were deployed to use existing iPASS technologies related to the grant-funded initiative.

As the initiatives advance, total weekly iPASS activity is expected to increase in FY17 and FY18, averaging 250 hours per week annually per institution. Time spent using the technologies is expected to rise, and account for about 60 percent of iPASS activity each week. Average weekly implementation hours are also expected to increase, but planning time is expected to decline as resources are shifted to support the latter phases of the projects.

# » 66 hours

The average staff hours per week spent planning and implementing iPASS activities in FY14-16.

Figure 5: Distribution of Average Personnel Hours per Week (All Positions), FY14-FY18



Note: Ongoing operations includes time spent utilizing, maintaining, or updating the iPASS system (e.g. advisors time spent using the iPASS technology; staff time updating underlying data; system maintenance, etc.). Data show the institutional average of total weekly staff hours across all positions (per annum).

# HOW WAS iPASS FUNDED?

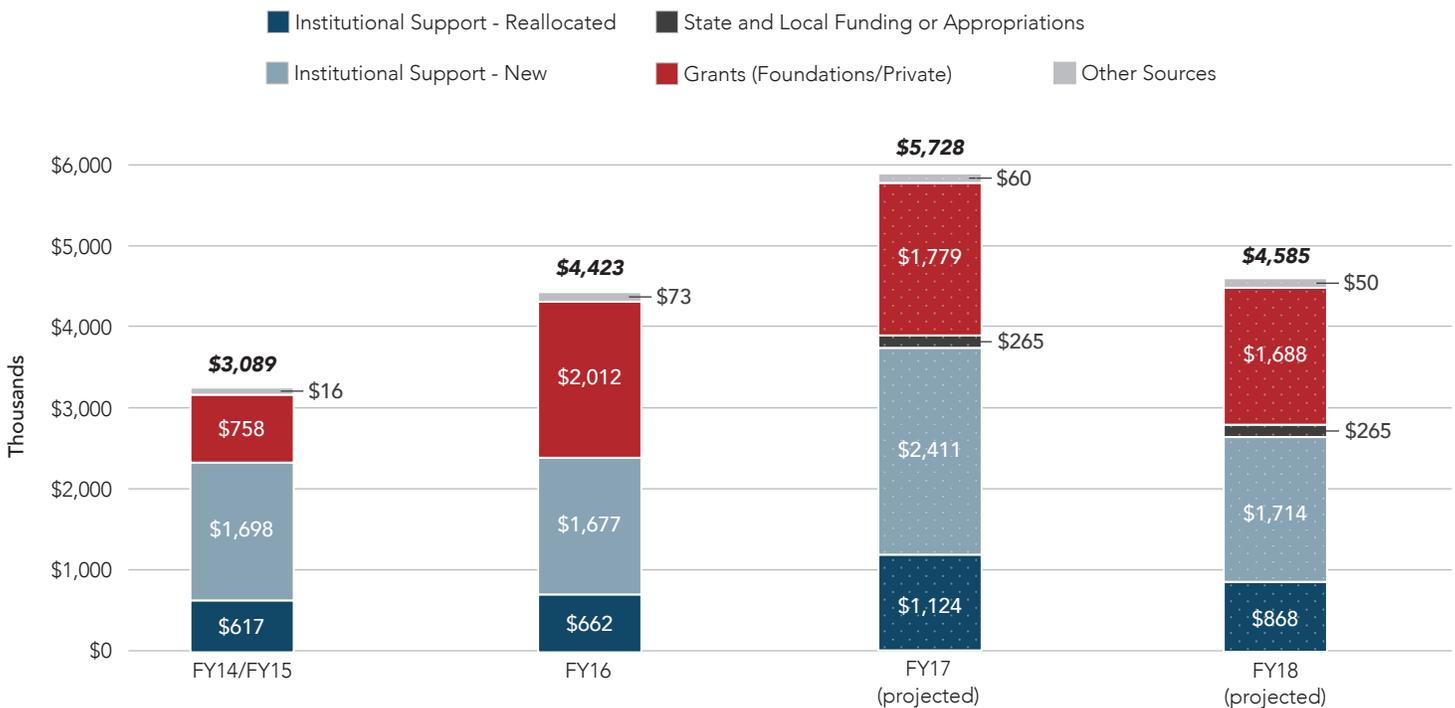
Revenues to support the implementation of iPASS solutions totaled \$7.5 million (see Figure 6) across grantees in FY14-FY16, averaging more than \$340,000 per institution. Grantees reported revenue streams that were budgeted to provide project support, but were not required to reconcile revenues and expenditures. As a result, the \$15.5 million in reported expenditures is twice as large as budgeted revenue during the FY14-FY16 period. The discrepancy is largely attributed to personnel costs that were supported by other costs centers instead of the project budget (e.g., planning and oversight by senior leadership; utilization of the iPASS technology by advising staff).

The majority of budgeted iPASS funding comes from institutions. Grant funding totaling \$2.0 million in FY16 accounted for 45 percent of revenues, while institutions provided \$2.3 million in budgeted support. Institutions are expected to provide additional support in FY17 and FY18, totaling \$3.6 million and \$2.5 million respectively. Grant funding is expected to decline and contribute roughly a third of the budget in the final two years of the grant, as other sources of grant funding may be coming to an end.

**>> 2.3 million**

Budgeted revenue institutions provided for iPASS in FY16 (excludes reallocated staff time).

**Figure 6: Source of Total Revenues, FY14-FY18**



# IS iPASS FULLY UTILIZED AND AT WHAT UNIT COST?

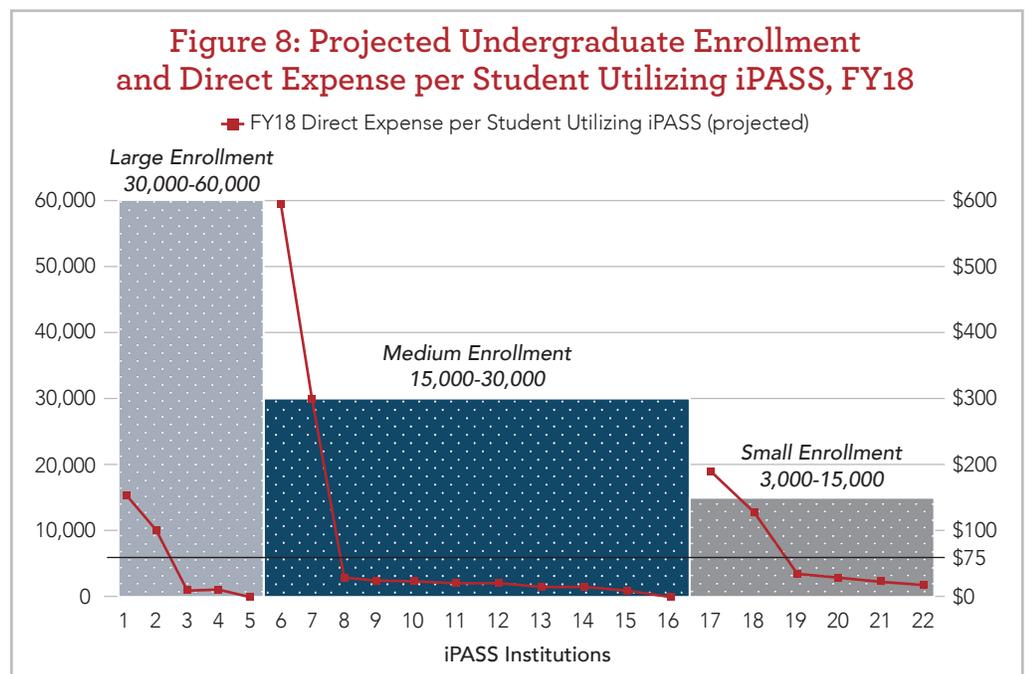
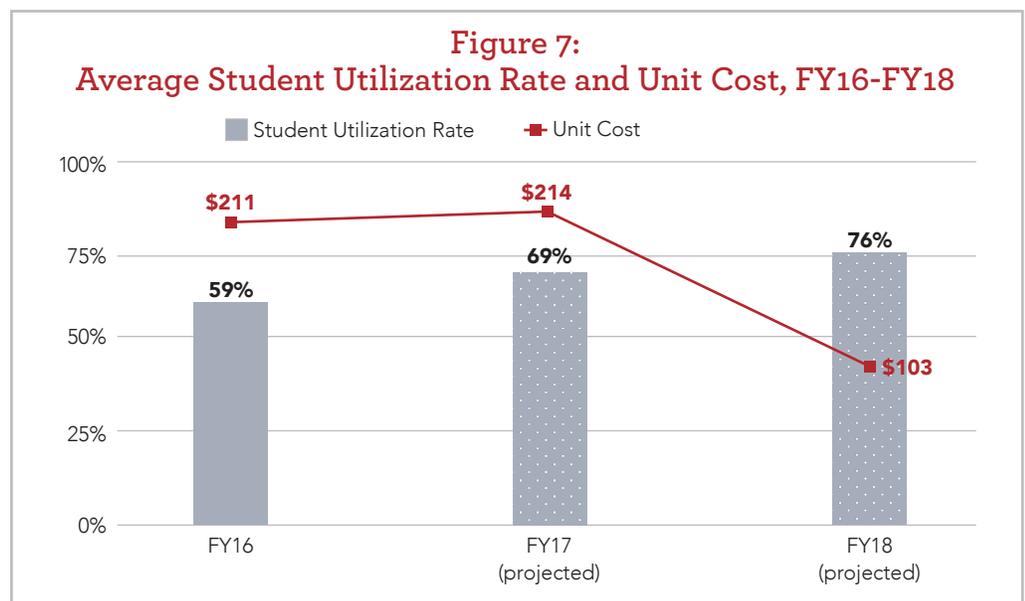
Moving from total revenues and expenditures to unit costs provides a new lens for evaluating the potential return on investment from iPASS or similar higher education investments. High unit costs may signify under-utilization, which is key to driving down costs. However, these unit costs can be reduced over time if there are still opportunities to expand access and usage. Alternately, high unit costs accompanied by full utilization are more problematic, because without a lever to reduce program costs, it becomes more difficult to generate a positive return on investment.

About three-quarters of grantees had operational iPASS technologies accessible to students in FY16 (see Figure 7). Nearly 60 percent of students with access to these systems were utilizing iPASS services in FY16, on average. Participation is expected to increase to 76 percent by FY18, yet there is still opportunity to expand utilization further. There are also opportunities to increase capacity by expanding access to other students. In FY16, only half of all undergraduate students, on average, were using the technology.

Combining direct expenditures with student utilization produces the cost per student utilizing iPASS. This measure of unit cost averaged \$211 in FY16. With expenditures and utilization both expected to increase in FY17, unit costs are projected to remain unchanged. But by FY18, they are expected to decline by one-half to just over \$100 per student. The sharp decline is a combination of projected reductions in spending coupled with increases in student utilization.

Although the size of an institution can make it easier to lower unit costs because of opportunities to scale up to more students, spending also has an impact. The iPASS grantees were organized into three groups based on their undergraduate enrollment, as shown in Figure 8. The majority of large- and medium-

enrollment institutions projected costs per student of \$75 or less in FY18, compared to only one-third of small institutions. While scale does matter, it's not the only factor. Half of all grantees are expected to spend more than \$75 per student in FY18, including at least 40 percent of grantees in each enrollment category.



# HOW IS SUSTAINABILITY ACHIEVED?

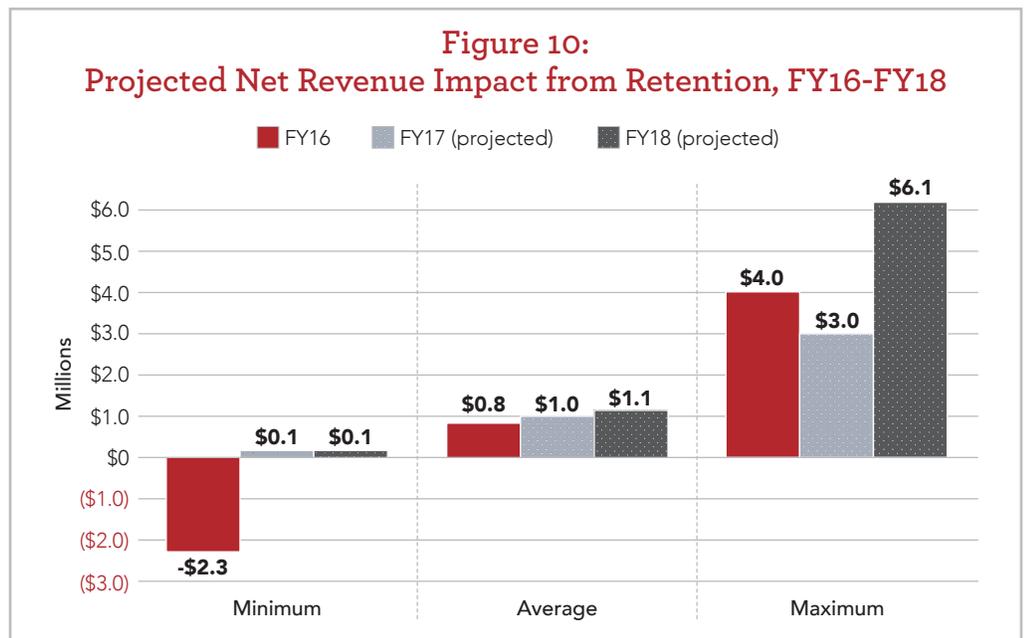
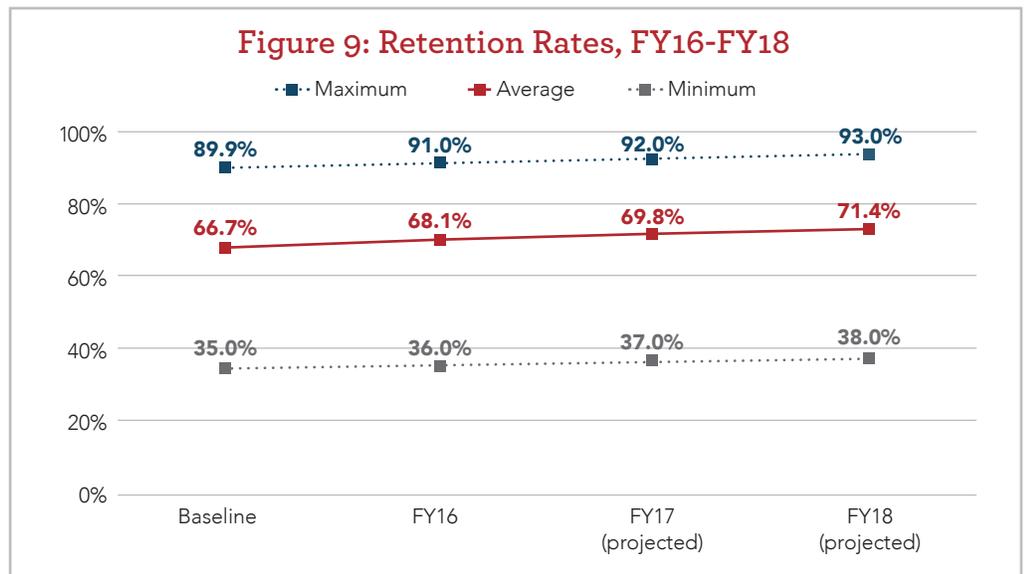
While the adoption of iPASS solutions are expected to boost measures of student success, they can also have a real financial impact for colleges and students. Improvements in standard measures of student success such as retention, progression, completion, and average student credit hour load are the traditional top-line metrics of success. But improvements in these measures can also produce secondary benefits by generating additional net revenue for institutions. Students may also see greater financial returns, as faster completion and fewer unnecessary credit hours can reduce tuition costs.

Looking at retention as a measure of student success shows a positive trend among grantees. One-year student retention rates at grantee institutions averaged 68 percent in FY16, and increased by more than one percentage point compared to the baseline year (see Figure 9).<sup>3</sup> Rates are projected to increase by more than 1.5 percentage points in FY17 and FY18.

Improvements in student retention effectively boost student enrollment. Assuming these newly retained students carry an average credit hour load similar to other students at their institution, the resulting net revenue increases (additional operating revenue from student credit hour activity, less the education-related expenses to provide those additional credit hours) are projected to average more than \$825,000 per institution in FY16 (see Figure 10). In comparison, the average iPASS spending per institution in FY16 was approximately \$475,000, resulting in a total return on investment of \$355,000 in FY16.

The revenue impact is expected to grow in FY17 and FY18 if retention rates continue to increase. But the expected revenue impact varies widely across institutions<sup>4</sup> and, in addition to

retention rates, depends on institution size, average student credit hour load, and revenue per credit hour from tuition and state and local appropriations.



<sup>3</sup> Changes in institution retention rates cannot be directly attributed to iPASS; however, randomized control trials currently underway may provide additional information about the direct impacts of iPASS.

<sup>4</sup> The \$2.3 million estimated decrease in net revenue in FY16 reflects a decline in retention at one college.

# CREATING SUSTAINABLE INNOVATION



**Connecting student success and financial sustainability is the final component in developing an ROI lens on higher education investments. Making this connection is critical to the long-term financial sustainability of projects, whether they are seeded with grant funding or institutionally financed. Together, the components of ROI can be used to generate momentum for investments in student success and garner continued support among college leaders.**

In addition to the financial components, leadership and communication are also critically important to sustainability. Sustainable innovation requires that colleges have the leadership and internal capacity for launching and supporting innovative practices. Program champions are particularly important in grant-funded initiatives where there are strong incentives to move onto the next new grant opportunity once the current initiative is complete.

Creating sustainable practices can sometimes prove difficult for colleges that are interested in innovating, but lack the organization structure, cultural climate, or buy-in from key constituents (leadership, faculty, staff, or students). In addition, higher

education funding models often are not designed to incentivize innovation. Finally, some college data systems may not be equipped to track the impact of innovative practices, which also makes sustainability more challenging.

Sustainability depends on connecting data to decision making and providing good communication around those decisions. Support can be cultivated by explaining the various investment opportunities and the preferred option for improving student performance. Communicating how these investments are expected to generate additional revenue is also important, as is an emphasis on how the college can then reinvest these resources in current or new initiatives.



**Sustainability depends on connecting data to decision making and providing good communication around those decisions.**

# CONCLUSION



**The three components that form the core of an ROI lens—a holistic understanding of resources, a focus on unit cost, and a connection between student success and financial sustainability—are the keys to making sustained financial investments in student support services that benefit institutions as well as students. Additional focus on cultural sustainability—ensuring that leadership, planning, and communication are in place—highlights the other elements necessary for creating sustainable innovation.**

This analysis of iPASS provides a new example of how higher education can utilize an ROI lens to select between various student success initiatives. What might the initiative cost, accounting for both new and existing resources? How will that cost be supported during the initiative's launch and over time? What is the expected return to both students and the institution, and how might that return be communicated? Finally, how might the initiative support financial sustainability at the institution? All of these questions are essential in making wise resource allocation decisions.

An ROI lens can also support an institution's need for greater accountability and transparency around these investments. With greater clarity around projected costs, institutions now have the ability to compare these projections to actual expenditures. Once the expected returns are established, these targets can be tracked over time. Ultimately, the use of an ROI lens allows an institution to make the case for continued investment, or to determine when further investment is no longer warranted.

Institutions participating in these grant-supported implementations of iPASS approaches now have an enhanced ability to consider their iPASS investment using an ROI lens. In addition, the institutions have identified possible connections between their investment, changes in student success and financial sustainability. Continued analysis over the next two data collection cycles will allow the institutions, and the field, to more deeply understand the positive impacts from these technology-enabled initiatives.

# rpk GROUP

**rpk GROUP is a leading consulting and advisory firm in higher education, supporting colleges and universities with their growth strategies by focusing on mission, market and margin opportunities.**

Key areas of focus include academic portfolio and efficiency reviews, financial modeling for new initiatives, administrative services evaluation, the creation of resource allocation processes, and business model development to support strategic and facility master planning. The rpk GROUP team operates nationally and internationally.

rpk GROUP's work has involved traditional institutions of higher education, as well as the creation of new institutions and alternative learning and business models. Through this work, rpk GROUP has become a leading voice in the development of a new business model for higher education, working in partnership with institutions and foundations throughout the higher education sector.

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