One System, One Vision, OneSIS
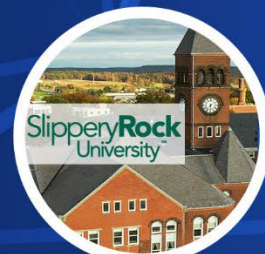
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Executive Summary

Pennsylvania's State System of Higher Education ('State System,' 'PASSHE'), consisting of 10 universities and 14 campuses, provides 753 undergraduate and 269 graduate programs across 259 major academic areas to over 70,000 students supported by close to 11,000 employees. The State System has been on a journey to transform itself since 2016 under a broad initiative called 'System Redesign,' a strategic review of its operations from top to bottom to identify areas of necessary change to help ensure the long-term success of its universities. One initiative borne out of System Redesign was OneSIS, a move to a common student information system (SIS).

The State System operates in a federated manner as defined by legislation established in 1983 although the original universities have a much broader history, dating back to the 19th century; as a result, the central System Office cannot mandate or dictate directives to the universities. The State System had failed previously to migrate to a single SIS using an approach that mandated a high degree of commonality and sameness. As a result of these lessons, the OneSIS project utilized a completely different approach that was university driven, maximized federation for local university administration, and adopted a "minimum level of sameness" for the core solution.

Before OneSIS, each institution managed and maintained a local, on-premise SIS responsible for primary functions on campus, including student recruitment, admission, registration, billing, financial aid, grades, transcripts, and everything in between, along with hundreds of disparate systems that interfaced with each local SIS.

In October 2019, the Board of Governor's affirmed the transition to the OneSIS. The team selected the Ellucian Shared Technology Platform (STP) in the Cloud for the project, which launched in January 2022, with the first go-live in October 2022.

Migrating to a single SIS has helped PASSHE function more like a university system (systemness) across several areas. It has:

- Established a framework for common business processes
- Improved student outcomes
- Enabled common IT modules

- Delivered a modern, cloud-based platform
- Improved efficiency
- Improved IT maturity
- Improved cybersecurity

As a result, for the first time, students will be able to take advantage of the breadth and scale of academic programming available at all PASSHE institutions. Adopting OneSIS as a shared service resulted in a **193% cost avoidance** over each institution establishing its own individual physical environment within the Ellucian cloud. Additionally, compared to what institutions were paying for on-premise infrastructure, licensing, and support, PASSHE schools will realize **$1.7M** in cost savings over the term of this contract once all schools are in steady state.

The OneSIS project has earned PASSHE the distinction of being the first university system in the country to implement a single SIS in a hybrid manner that simultaneously supported a base level of standardization across specific components and a significant degree of university autonomy. The impact of this transformation in such a short time will likely change the trajectory of academic and student success in the State System. Combined with systemic financial challenges, years of declining student enrollment, and other pressures and priorities exerted on PASSHE universities simultaneously, the success of OneSIS has showcased how creativity, hard work, and a desire to serve our students can overcome any obstacle.

Idea

To help frame the OneSIS project, it is crucial to underscore PASSHE's position before initiating this project. First, the State System has struggled with structural financial issues and enrollment declines since its peak in 2010 with 120,000 students. Second, the State System did not have a positive track record for implementing systemwide IT transformations at scale. Lastly, the decentralized nature of PASSHE required consultation and collaboration at unprecedented levels to reach consensus on this initiative.

In response to these factors, the State System embarked on a broad 'System Redesign' initiative in 2016 to put the system on more stable financial footing and help ensure the long-term success of its universities. In 2020, the Governor signed a new law seeking to evaluate and consolidate PASSHE institutions to reduce costs and expand the breadth of programming available to students. As a result, in 2022, six PASSHE institutions were integrated into two – as depicted in the graphic below.

Federated Model. 10 institutions, 14 campuses geographically located all over the state; each with their own legacy student information system.

★ New PennWest University   ☆ New Commonwealth University

One initiative borne out of System Redesign was a move to a common student information system – OneSIS. OneSIS was identified as a critical foundation for furthering the objectives of System Redesign because, to a large extent, technology runs campus operations. The vision for OneSIS is to establish a forward-looking framework for a student information system that promotes student success and facilitates lifelong learning, from prospective students through alumni, as cost-effectively as possible. Further, OneSIS intends to align each institution's goal to move greater workloads to the cloud to enhance cybersecurity maturity, promote greater cross-university collaboration on common challenges, and digitize student facing information to the greatest extent possible.

The State System established the following objectives with the OneSIS project:

- **Enable** the State System to standardize systemwide core business processes and data elements while also supporting institutional uniqueness by leveraging a 'minimum level of sameness approach' to further academic sharing – essentially the ability for a student at one institution to be able to register for and take courses at any other PASSHE institution.
- **Implement** processes that are aligned with industry best practices in a configurable manner.
- **Establish** a common set of functional modules from which all students, faculty, and staff can benefit.
- **Realize** efficiencies and savings in the support and maintenance of the system.
- **Provide** State System institutions with innovative technology to meet student expectations and support student recruitment and retention.

Why does it matter?

The success of OneSIS is significant because it proved that our universities could implement large, complex transformations at scale. Why?

- **History** – Over 20 years ago, the State System attempted to migrate to a single SIS and was unsuccessful, despite nearly seven years of effort. The prior approach mandated a high degree of commonality and sameness, which was challenging given PASSHE's statutory structure and culture. Therefore, this new approach with OneSIS had to be different – essentially aligning the project and technical implementation to the operating model and culture.
- **Maturity** – PASSHE has operated as a highly decentralized environment since its formation in 1983, with only a handful of enterprise IT shared services. Many foundational IT governance, enterprise architecture, and service management processes had to be established to grow this maturity.
- **Competing Priorities** – Most notable was that the first cohort of universities to adopt the OneSIS went live in October 2022, while six PASSHE institutions were integrating to become two newly formed entities simultaneously.
- **Fragile Financial Position** – The last central element unique to the State System was meeting these challenges head-on while still in a weak financial position before COVID-19. Access to a minimal set of resources (financial and otherwise) drove creativity and forced the State System to innovate to produce optimal results for all PASSHE students.

What makes it different?

PASSHE's approach to implementing a OneSIS was unique, being that the State System was the first in the country to implement a single SIS in a hybrid manner that simultaneously supported a base level of standardization across specific components and a significant degree of university autonomy. Therefore, the implementation approach and design principles were critical to driving this unique project.

- **University Driven** - While the central System Office did play a role in quality assurance and project monitoring, many of the unique configurations and architecture decisions were locally managed. In addition, organizational change management, communications, and training were also locally managed.
- **Maximum Federation on a Single Platform** - Because this project would not result in any centralization of IT staff, it was critical that the solution supported a maximum degree of federation to enable local university administration across the 28 modules.
- **Minimum Level of Sameness** - Given PASSHE's federated nature, a 'minimum level of sameness' was adopted within the base solution used by all universities, anchoring on what needed to be common to support academic sharing across the State System. Universities were encouraged to adopt the Ellucian Gold Image – a set of industry-standard delivered configurations within the platform that aligned with best practices.
- **Simultaneously Integrating Institutions** – PASSHE's approach was unique given that six institutions were merging to become two while also working to migrate to the OneSIS platform. In the case of PennWest University, three legacy SIS' were integrated into a single on-premise system adopting the Ellucian Gold image first before migrating to OneSIS in the Cloud. On the other hand, Commonwealth University migrated directly from three on-premises systems to the OneSIS platform, also adopting the Gold image. Merging course catalogs and schedules was not an easy accomplishment, but ensuring the new universities were functioning as one institution was critical. While the approaches were different out of necessity, the challenge of becoming two net new universities – merging disparate admissions, registration, financial aid, academic calendars, catalogs, and all supporting processes into one before going live – was undoubtedly unique.

This hybrid implementation method (supporting both a base level of commonality while also supporting institutional autonomy within a SIS) had never been done before in a multi-university system setting – the SIS implementation methods in the higher education industry up to this point were either total centralization or total federation. As a result, several other university systems across the country have reached out to PASSHE to understand the OneSIS project was accomplished.

What makes it universal?

Multi-university systems are a specific segment of the higher education industry that differs from the traditional single-university structure. University systems often have very complex governance structures supporting many operating models (ranging from highly centralized to highly decentralized), requiring engagement with many potentially competing stakeholder constituencies and navigating complex politics. Implementing the OneSIS in the manner that PASSHE chose proved to university systems across the country that this type of implementation method was possible and that a more efficient method of truly operating as a higher education system for the betterment of faculty and student success was achievable.

Implementation

Implementing OneSIS was a foundational component to functioning more like a State System as it provided the core infrastructure to meet System Redesign objectives. All campuses offer a common set of services to faculty, staff, and students within a student information system. However, because each SIS was implemented individually, each campus had to creatively problem-solve independently. Adopting a common solution set allowed institutions to collaborate on common challenges, ultimately enabling institutions to serve students better.

The project management approach comprised a set of 'base solution' sessions which included all institutions to define the core platform common to all, followed by the launch of institutional sessions grouped by cohort. To formally monitor the project, a project health rubric was defined to objectively measure deviations to scope, schedule, cost, risks, and issues. Success was

defined as migrating institutions from their on-premises implementations to a single implementation in the Cloud leveraging the Ellucian Gold Image.
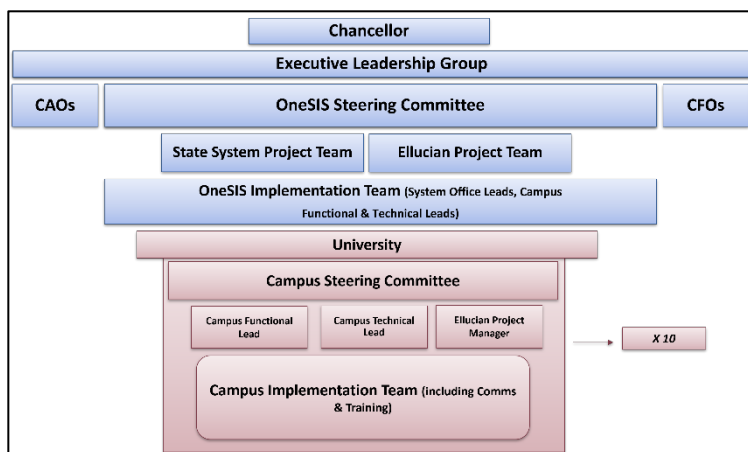
Who was involved?

Figure 1. OneSIS Project Governance Structure

All institutions had a voice in this process. They helped to draft the business case, prepare the procurement, select the vendor, and define the architecture, establish design principles, and the deployment methodology. The project impacted every stakeholder group on the campus, from functional users (financial aid, registrars, bursars, academic departments, etc.) to the entire campus IT organization to the President and the university executive cabinet. Each school was asked to establish a local campus implementation team (roughly 12-15 members per institution) to govern the local implementation, with a campus functional and technical lead representing the university on a systemwide steering committee. For the campus implementations, students were engaged from the beginning, including email campaigns, social media posts, messaging, and meetings with student government and other groups. There were also students on planning and testing teams.

How did you do it?

PASSHE began the OneSIS journey by making a strong case for change along with an intentional evaluation of why the prior attempt failed and how this attempt would be different. Implementing OneSIS in the middle of the pandemic was fortuitous in that OneSIS could leverage one-time funding provided to higher education institutions to incentivize PASSHE schools to move forward, specifically for the implementation services and institutional staffing needs. Because the central System Office did not have a large IT staff, PASSHE elected to partner with one of its institutions, Indiana University of PA (IUP), to serve as the central administrative group for those areas of the system that required a single administration approach. This proved to be a game changer because IUP had strong relationships and a reputation for delivery success.

The technical architecture was the most crucial aspect of the project. In PASSHE's journey toward a greater degree of 'Systemness,' the State System intentionally chose to land in the middle of the spectrum, recognizing that OneSIS may evolve in the future. The OneSIS team validated the architecture for each of the 28 modules offered to ensure that a high degree of federation could be supported. In doing this review, the team found several products that did not meet PASSHE standards and,

as a result, project leadership worked with Ellucian to modify the product or, in some cases, build new components to meet OneSIS needs.

Leaning into the architecture, PASSHE IT leadership formally introduced Enterprise Architecture modeling into the project – something not widely adopted within higher education. In addition, all system components were mapped to business capabilities and other system components to provide university teams with a holistic understanding of interdependencies and change management impacts.
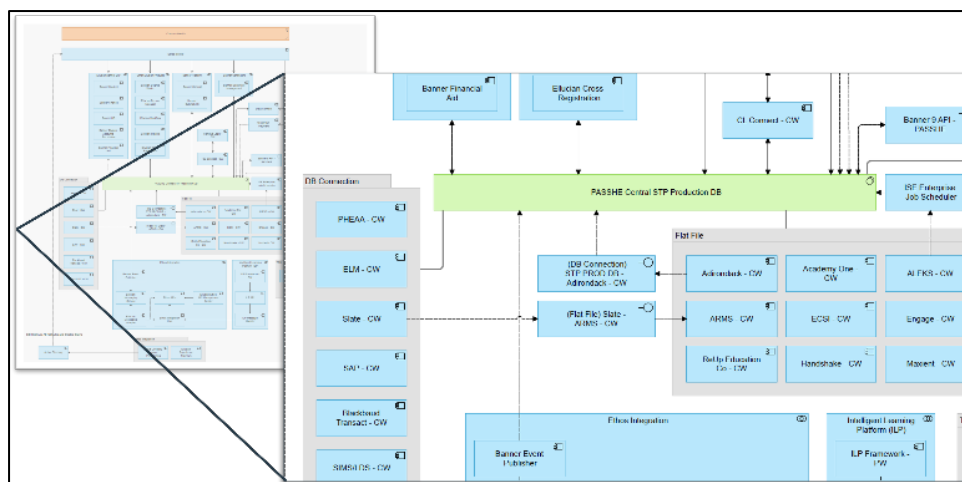

Figure 2. OneSIS Enterprise Architecture Map

Impact

Migrating to a single SIS has helped the PASSHE function more like a university system across several areas. It has:

- **Established a Framework for Common Business Processes**– By adopting the pre-configured Gold Image, institutions were making a strategic decision to adopt industry-standard methods, which will ensure best practices are followed, help increase cross-university collaboration on common challenges and minimize impact during future upgrades.

> *"If we are to unlock the true potential of our State System, we must do everything possible to remove barriers that stand between students and their success. OneSIS is helping us take a big step in that direction."*
>
> Dan Greenstein, Chancellor

- **Improved Student Outcomes** – For the first time, the State System will have a master person index to uniquely identify individuals with vast amounts of data in a central platform that can be used to better measure and track student outcomes. This, coupled with a standard set of common reports and common integrations to third-party applications, will enable institutions to view data more consistently.

- **Enabled Common IT modules** - A common and broad toolset is now uniformly offered to all faculty, staff, and students across PASSHE institutions – these modules would not have been available or affordable individually. In addition, faculty and student portability will be easier as retraining will be minimized.

- **Delivered a Modern, Cloud-based platform** – In several cases, State System institutions had end-of-life legacy systems. Migrating to a modern, cloud-based platform has significantly improved the student experience. This has been critical since a university's digital presence is often the student's first and most important impression.

- **Improved Efficiency** – This project has offloaded some workloads to the Cloud - activities that have enabled more efficient use of campus resources. Individual campus staff now know they can reach out to sister institutions when presented with a problem they would have had to face alone.

- **Improved IT Maturity** – Being on a common platform on a shared infrastructure has enabled IT professionals across the State System universities to function more like one cohesive IT group. For the first time in the State System's history, IT governance processes are in place to establish common maintenance calendars, common release upgrades, common code repositories, common change control, and application development sharing, resulting in slow and steady shifts toward technology convergence.

- **Improved Cybersecurity posture** – Migrating to a Cloud hosted platform has immediately provided a force multiplier to existing IT staff at the Universities. Ellucian provides 24x7 cyber monitoring and remediation, more frequent backup and recovery processes, and regular vulnerability scans. Before OneSIS, each institution was responsible for these activities across varying resource and funding levels.

These achievements are notable given the federated and decentralized nature of PASSHE; the universities are collaborating and realizing outcomes by choice, not by mandate.

How do you know?

OneSIS already realized the benefits PASSHE set out to achieve and will continue to pay dividends over time. Specifically, the project team has confirmed the following:

- **Minimum Degree of Sameness is Possible** – PASSHE started this project with the design principle of implementing a 'minimum degree of sameness' approach, given PASSHE's federated nature. OneSIS has proven that this is technically possible – during base solution sessions, in which every school participated, every table in the core system was evaluated. As a result, of the **4,092** tables in the core system, only **478 (or 12%) are shared**. **Eighty-eight percent** of the system is university administered and managed, ensuring our institutions can brand and tailor the solution to meet campus needs within the Gold image standard.

- **Improved Access for Students -** Students are now on a common platform that will enable them to access courses across the State System. The percentage of remote courses offered at our institutions has gradually increased year-over-year post-

pandemic, but students from across the system could not take advantage of it. PASSHE is currently hovering at **27%** of remote courses offered, and OneSIS creates new opportunities for students to take advantage of a broader programmatic array of courses previously unavailable to them. This is important as it can accelerate a student's progress toward degree attainment in the most affordable way possible.

- **Functional Governance** – For the first time, the State System has established a functional governance group over shared areas within OneSIS impacting registrars, financial aid, academic sharing, general person, etc. Some notable decisions the group has been able to make include critical master data management, common student demographic standards, and data validation practices.

- **Improved IT Maturity -** There has been considerable activity regarding how the PASSHE Central Administrative group manages the OneSIS with Ellucian. Since going live, the group has established a technical governance group to oversee maintenance calendars, release schedules, testing, and validation approaches. It has been able to process **639 cases/work items** successfully. Each case has followed standard ITIL change management practices – a first for State System universities. For the first time, PASSHE has adopted the principle of least privilege across OneSIS. PASSHE Central Administration now manages a documented list of users with elevated privileges and has implemented an 'Elevated Privilege Form' for all universities using it. Being on a common platform has allowed PASSHE to implement industry-standard best practices which were siloed before.

- **Reduced Cost** – While transitioning to a shared physical environment did carry a significant effort to establish and grow maturity in IT governance processes, it also came with a **193% cost avoidance** over each institution establishing its own individual physical environment within the Ellucian cloud. Additionally, compared to what institutions were paying for on-premise infrastructure, licensing, and support, PASSHE schools will realize **$1.7M** in cost savings over the term of this contract once all schools are in steady state.
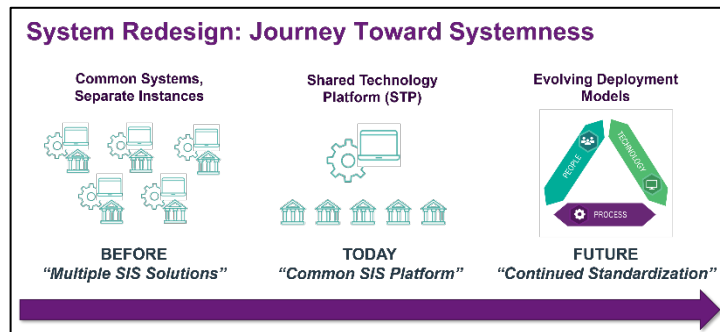
What now?

Figure 3. PASSHE Journey toward Systemness

Other higher education institutions continue to reach out to PASSHE to learn how the OneSIS project and other System Redesign initiatives were accomplished in such a short time. Because most State System graduates decide to stay in the Commonwealth of Pennsylvania, the institutions' impact on their local economies is too significant not to transform. The competitive nature of higher education places a higher burden on institutions to transform to remain viable. An institution's digital face is typically a student's first interaction with the university, a modern, mobile, and cloud-based digital presence was paramount.

Longer term, OneSIS has established a solid foundation on which the State System will continue to transform. Of course, back-office transformations are challenging projects, often leading to other back-office issues that must be addressed. PASSHE did not shy away from tackling the core foundation underpinning all campus operations because it recognized how critical it was to the broader goal to set the State System on a new course. As a result, for the first time, students will be able to take advantage of the breadth and scale of academic programming available at all PASSHE institutions.

The scope and speed of this project could only have been accomplished with the bold leadership of university presidents and the extensive work of all university faculty and staff. The disruption and transformation PASSHE has experienced over the past few years were challenging. Still, it is a testament to the resiliency of the State System to adapt and change for the betterment of its students and their academic success.