



Digital transformation: shared technology environments deliver greater benefits than going it alone

Shared technology environments empower state systems of higher education to enhance efficiency and enrich the student experience across multiple campuses by leveraging a common platform. As they become an increasingly attractive option for state systems seeking to drive digital transformation at their member institutions, we at Ellucian are proud to sponsor this Ovum's white paper Digital Transformation: Shared Technology Environments Deliver Greater Benefits than Going it Alone.

This aptly titled paper delves into three state systems where shared technology environments are being leveraged to achieve the strategic objectives of digital transformation. These systems are absolutely essential to the economic wellbeing of their respective states (Colorado, California and Connecticut) – and while their approaches to building a common platform are unique, all three case studies reveal insights into how shared technology environments:

- Enable institutions to pool their resources and drive innovations that otherwise might not be possible;
- Create standardized, modernized business practices that introduce new efficiencies;
- Deliver improved student outcomes through the sharing of actionable data; and
- Create an improved, consistent and seamless experience for the many students and lifelong learners who are transferring within a system at ever increasing rates.

These case studies also provide a candid examination of the technical and cultural questions that a system must consider when embarking on a shared technology journey – such as how best to chart the course to successful implementation, and how best to support differentiation among diverse institutions seeking to maintain their identity and competitive positioning.

I hope you enjoy this white paper and find value in the insights it provides. Most important, I hope you come away with a sense of how systems of institutions can become **stronger together** when united by a common purpose and collective vision of higher education's digital future.

KARI BRANJORD

Digital Transformation: Shared Technology Environments Deliver Greater Benefits than Going It Alone

System leaders, campuses, and students all win with a common higher educational ecosystem

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Digital transformation is a journey best taken together

As cloud software grows more pervasive, shared technology environments (digital frameworks that connect multiple campuses by leveraging a common platform) are becoming increasingly attractive to state systems of higher education. Access barriers presented by local, on-premises installations have been removed, and different needs can now be supported by configuration rather than customization. Perhaps most importantly, shared technology environments present viable paths to digital transformation for institutions that would otherwise find the journey too costly or onerous to pursue.

The move to shared technology environments is also well aligned with what recent Ovum research shows to be the primary drivers for digital transformation in higher education: student expectations and operational efficiency. In response to these drivers, Ovum has seen rapid advancement in analytics, enterprise applications, and the technology platforms that house them. All have enabled leading players to gain greater efficiency and effectiveness from internal processes while improving student retention and success, and all are made accessible in shared technology environments (both in the cloud and on-premises).

While the student experience, analytics, process reform, and cloud adoption can be addressed as individual issues, common platforms create a modern educational ecosystem that comes with most of the benefits already integrated. At the same time, they do so at reduced cost to the institutions involved. Ovum's research indicates that fewer than 20% of all educational institutions have completed their deployment of modern analytics. Similar numbers apply to successful cloud journeys. As such, shared technology environments can be viewed as ways to overcome the resource constraints holding back many public institutions.

Perhaps most important of all, cost savings are not only achieved during purchase and implementation but through the standardizing of best business practices, which delivers greater efficiency and effectiveness at both the campus and system levels. And it is not just the institutions themselves that benefit from faster, better-connected processes. With increasing student transfers, common platforms are enabling state systems to make moving from campus to campus more seamless and improve system retention as a result.

As excellence in efficiency and experience becomes table stakes for both students and the institutions that serve them, state systems are pooling resources and leveraging shared technology environments to overcome the barriers to digital transformation. This paper provides a detailed look at how they are doing it and the benefits they will achieve.

Insights from others on the journey can springboard success

There are many lessons that can be learned from others that are further along the change journey. This document introduces three case studies related to implementing shared technology platforms across multiple campuses. While drivers and maturity vary, there is a collective story of benefits accruing to each campus as well as to the system overall:

- The Colorado Community College System is leveraging a common technology environment to improve processes and student engagement and success while managing costs.

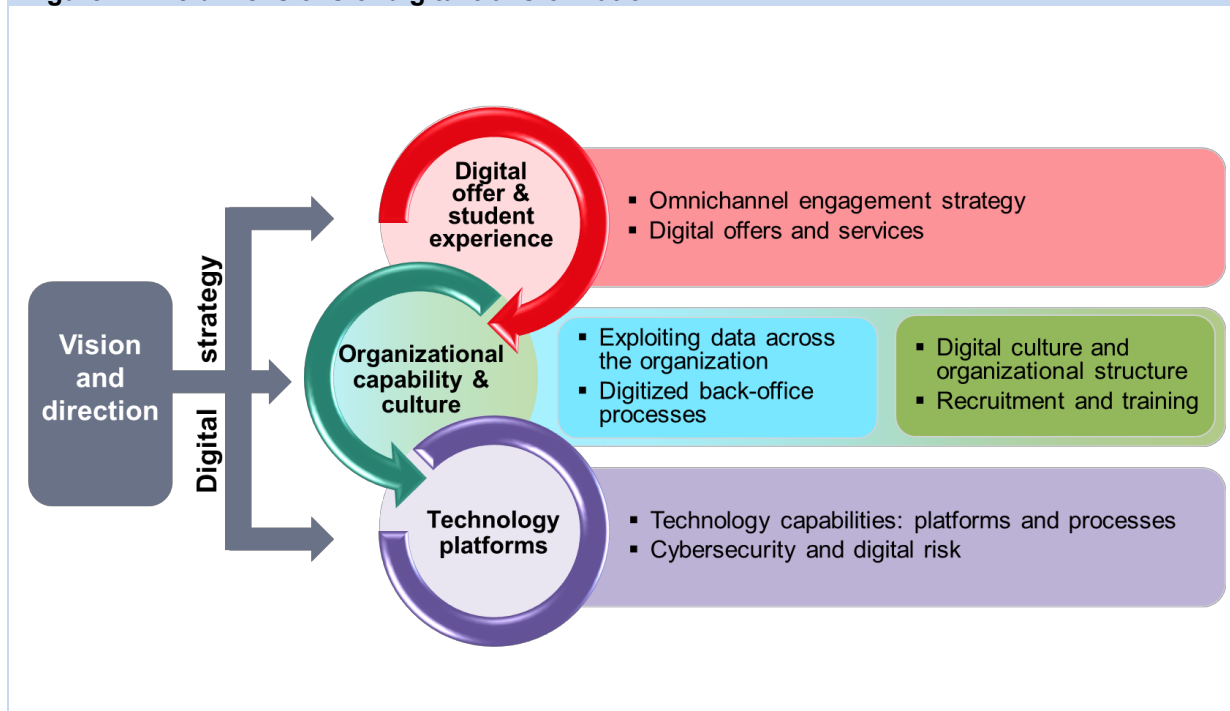
- California Community Colleges had three districts go live in late 2018 on a common student systems platform in the cloud.
- Connecticut State Colleges & Universities is implementing a common environment in the cloud to reduce per campus costs, facilitate better student outcomes, and enable easier mobility between schools for faculty and students.

The dimensions of digital transformation

To address today's digital agenda, Ovum believes organizations must focus on several core themes (see Figure 1); these themes have been significant drivers for the three case studies presented in this paper:

- Strategy: having a clear high-level view of how the organization will harness the opportunities of the digital era is essential to successfully navigating a turbulent marketplace
- The digital offer and student experience: how learning and administration is consumed by the student online, and the seamlessness of integration of their physical and digital experiences
- Organizational capability and culture: realigning skills, processes, and structures to deliver digital products and services; realigning culture to value insight from data over tradition; and building capacity for continuous evolution
- Technology platforms and IT processes that underpin safe and timely delivery of what the business needs in a rapidly evolving strategic and operational environment
- Unlocking data's value: deriving value by diminishing the time and resources needed to access and integrate the disparate pieces of data that provide a clear and complete picture of systems, institutions, and students.

Figure 1: The dimensions of digital transformation



Source: Ovum

Strategy

A hallmark of the digital era is that opportunities, and the capabilities and technologies needed to deliver them, are constantly evolving. Without a clearly articulated overall strategy to navigate these changing times, organizations will be hard pressed to succeed. A specific digital strategy anchored to the core institutional strategy is critical to address the demands and opportunities of the digital era. A traditional five-year, hard-baked approach, however, will probably be less useful than a regularly updated working strategy incorporating flexibility in execution.

The questions of product offerings and supporting services, how the customer engages with them, the internal processes of the organization, and the overall delivery network still form the core of strategy in the digital era. Ovum research reveals that digital strategy remains the least mature of all the factors contributing to digital maturity, with 79% of all educational institutions having their strategy less than "well advanced."

We include omnichannel customer engagement as a strategic theme, because student interaction preferences are rapidly evolving as are the social media and mobile app environments in which learning and administration ever-increasingly occur. Also, social media sentiment, which is largely managed through high-quality coherent digital engagement with relevant stakeholders, has a significant impact on reputation. Omnichannel engagement is the second-most immature digital category, with 77% of institutions lacking a well-advanced strategy.

Across an educational network, additional strategic flexibility is required to account for local differences; however, these should mostly be student and discipline related, while underpinning organizational and technical capabilities and culture should, by and large, remain common. Supporting differentiation that delivers little benefit comes at high cost and with reduced margins.

While customized local processes may appear efficient on the surface, the cost of developing and maintaining them, at both the business and technical levels, often outweighs the benefits obtained. Shared applications can be a significant contributor to common processes, which then encourage common culture, as well as reducing the implementation and ongoing operation costs of technology.

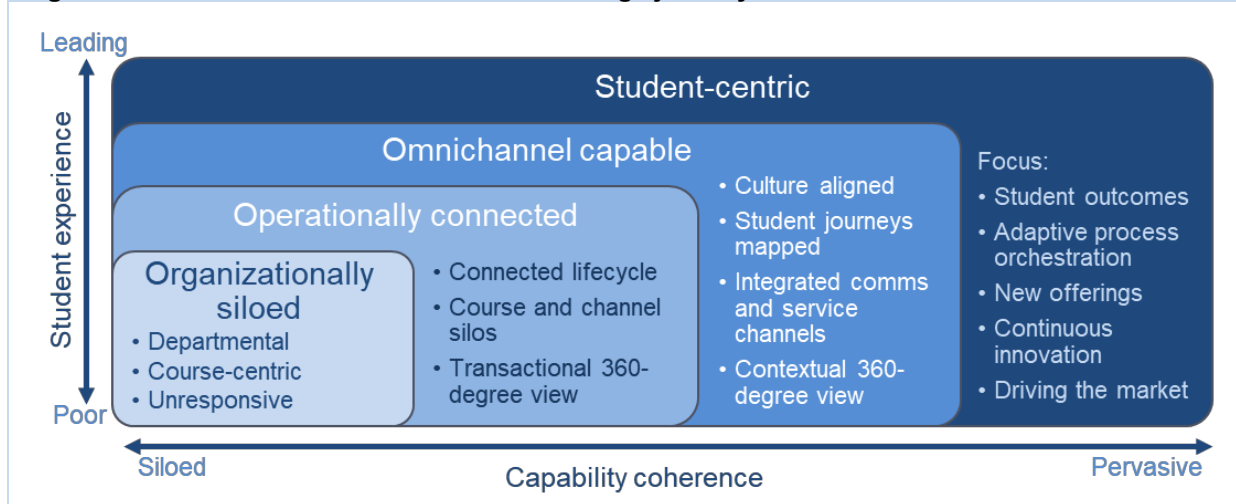
Given the emergent nature of the digital education landscape, it is unsurprising that 93% of institutions are not completely satisfied with their core digital and engagement strategies. However, institutions that are not seriously assessing digital options and approaches put themselves at significant strategic risk: it is difficult to comprehend how the 17% of institutions that have not begun the journey of thinking through strategies for the digital era will navigate their way to continued success. Whatever the reasons, the case studies below crystallize the benefits of working together to overcome barriers to change: costs are shared and benefits multiplied when campuses cooperate to create a shared application environment.

Student-centricity means "outside-in" design

In a student-centric world, service design needs to start at the student's needs, expectations, and success, rather than those of the department, and work inward to satisfy them. This is a second key theme in becoming more customer-centric (Figure 2). The internal structure of the organization should become largely invisible to the student, and process execution should be seamless. Communication channels should be aligned with the student's (rather than the department's) preferences.

Understanding and mapping student journeys from the student's perspective is an important step in becoming more customer-centric and is the primary driver behind guided pathways programs aimed at better supporting the full student lifecycle.

Figure 2: Siloed to student-centric is a multistage journey



Source: Ovum

Shifting to student-centric thinking can have a transformational impact on an organization and how it operates. In student advisement and support, for instance, it is common for several student touchpoints to combine into a single organizational unit handling all engagement channels with a substantial number of decisions being delegated to frontline staff, supported by a comprehensive codification of knowledge that was previously held by local experts.

Data on factors influencing course selection and student retention and success underpin continuous reevaluation of marketing, advice, and support practices (a further theme of Figure 2 and discussed more fully below). Moreover, student and employment marketplace needs are not static, so there is a need to be constantly sensing and adapting processes and offerings to initially follow, and potentially drive, demand as well as to achieve desired student and institutional outcomes.

These themes need to mature together to progress through the stages from siloed to customer adaptive. For instance, it is difficult to coalesce all student touchpoints into a successful omnichannel-capable service unit if student journeys are not well understood and a comprehensive, contextual view of the student is unavailable.

Even if a complete *transactional* view of the student is available to advisors, bringing service touchpoints together will simply result in an impersonal experience if the student's *engagement* history is not also providing the context for each new interaction. In addition, disparate service cultures across the teams merging into a combined unit will need to be addressed before a unified service organization can perform optimally.

Engagement becomes a key theme as the journey progresses. With more channels of interaction, and more student-facing activities moved to a central frontline unit, there is a danger of both core administrative teams and faculty becoming disengaged from a student's journey when most support activity is at arm's length from their local departments. However, shared systems, with their ability to improve collaboration, share data, and align processes, can facilitate a seamless and successful experience for students. .

Data fuels delivery and transformation insights

The aphorism "data is the lifeblood of an organization" is particularly true in the digital era. Every aspect of digital learning, service provision, administrative operations, and decision-making needs to leverage insights from data to improve its value and remain relevant. Data that is as comprehensive, accessible, and timely as possible provides insight into opportunities for new or enhanced educational offerings and supporting services. It can also resolve existing issues in the educational delivery chain and improve student engagement.

Many organizations, however, are still focusing solely on transactional data, the bread and butter of traditional business intelligence and institutional reporting. This keeps them looking mostly backward on past performance rather than gleaning forward value from other insights that data can provide.

Today's campus has additional rich veins of data available to be mined for insight and value creation: from social and engagement data (e.g., web experience management, customer relationship management, and service support solutions); educational data from a learning management system (LMS) and related learning applications; and operational data from campus services and IT that provides valuable information on the physical and digital environments and how students are interacting with them.

Looking forward is the realm of predictive analytics, which seeks to answer the question: "What is likely to happen if I take this approach, in this situation?" Where there is a substantial pool of relevant high-quality historic data to draw on, artificial intelligence (AI) technologies (in particular machine learning) are now becoming capable of predicting which actions are most likely to lead to success. These insights, when embedded into run-of-business activity, can have substantial and rapid impact.

As well as properly curating the overall data estate, institutions should look for solutions that provide data visualization tools that support simple and effective storytelling. As analytics becomes a responsibility of mainstream users (and not solely the purview of institutional research data analysts, as in previous generations), it is important that users have an intuitive and visually compelling experience as they explore data. Ovum suggests that schools look for opportunities to embed analytics within processes, which enables business users to drill down into data and interrogate it themselves in user-friendly dashboards and visualizations.

While schools can purchase generic tools and implement their own analytics capability, most schools will find it difficult to remain at the forefront relying solely on in-house capability; given the ever-increasing sophistication of educational analytics, it is more practical to look for a vendor that is creating analytics specifically for education, because out-of-the-box integrations with common educational applications are likely to significantly reduce implementation costs and provide a steady stream of increased value as the vendor's product matures. Ellucian's Ethos platform, for instance, offers a consistent data vocabulary and extensive interconnections (APIs) across the educational ecosystem, enabling accurate, real-time data to be shared with a variety of solutions. Ellucian also offers a benchmarking service across participating Ethos clients, allowing institutions to base their improvement activity on broader industry insight.

Benchmarking across the system can help campuses identify more effective practices and potential partners for improvement activity. At both the campus and system level, having coherent and actionable data available to enhance insight can only serve to enhance student success and institutional outcomes.

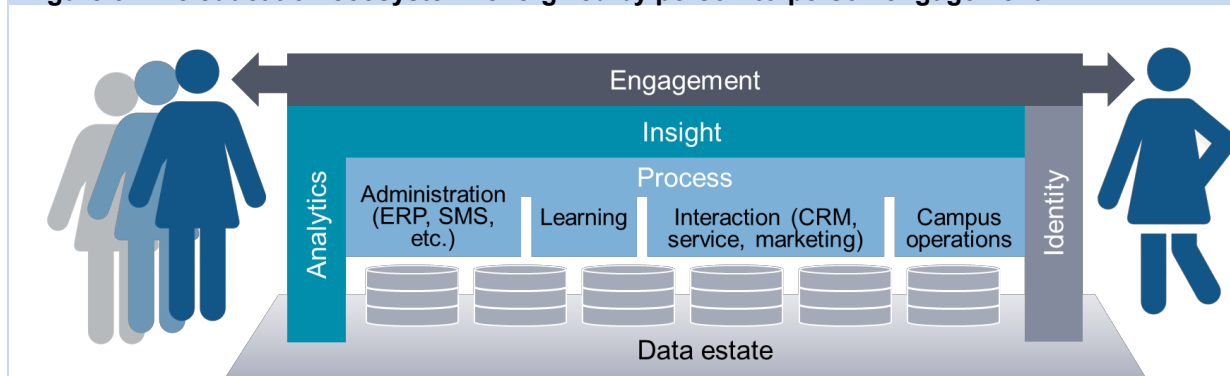
Technology enablement

A coherent technology base significantly simplifies the delivery of a seamless student experience and increases the ability to support good choices on a student's educational journey.

In Figure 3, each of the (vertical) applications contributing to engagement, insight, and transactions need to work together horizontally to create a contextual 360-degree view of the student, supporting an integrated technology experience aligned to events in the student lifecycle rather than having to transact, individually, with multiple solutions supporting functional silos. For maximum impact, relevant analytic insights need to be delivered as engagement occurs, rather than in a separate application.

The three horizontal layers at the top of the ecosystem architecture in Figure 3 are aligned to human and business concerns that are critical in the digital era, complementing individual applications, which tend to deliver a specific vertical slice.

Figure 3: The education ecosystem: energized by person-to-person engagement



Source: Ovum

While the most direct way to achieve this outcome is to source a well-integrated suite of applications from a single vendor that has designed its offerings to deliver coherent engagement and insight, it can also be achieved by explicitly designing coherent engagement and insight into an ecosystem built with components from several vendors and linking disconnected process silos with workflow tools.

Very few schools begin with a blank slate; however, there are several unique opportunities to build for the future as schools embark on the journey to the cloud. Among the most important is the opportunity to move beyond low-value, upgrade-blocking customizations to gain access to the latest functionality. Well-engineered cloud services also provide a modern user interface and secure access from anywhere.

The cloud also changes the balance of IT responsibilities, away from directly managing infrastructure, platforms, and applications and toward directly supporting the evolving needs of the college or university. This is further enhanced by the general practice of cloud software providers of providing a regular stream of enhancements facilitating continuous evolution of business processes to help the institution stand out among its competitors in delivering an enhanced student experience and promoting greater student success.

From a system perspective, there is much lower cost and effort required to introduce cloud applications to multiple colleges. With procurement and project costs shared, some initiatives that are beyond the reach of individual institutions become practical at system level. For instance, when student analytics are implemented, a substantial portion of the work is in ensuring the right data sources are available, are of sufficient quality, and have meaningful analysis applied. Where the objectives and indicators are agreed and there are common systems, a single implementation can be rolled out across multiple sites with relatively low additional cost. To achieve the greatest benefit from common applications, policies and procedures will need to be aligned across participating sites, with flexibility to retain some autonomy for institutions within a system.

A focus on culture and governance is key to a successful journey

While faculty, administration, and IT teams are each impacted differently by the digital agenda, there are some common themes:

- increasingly focusing on cross-department collaboration to enhance student success

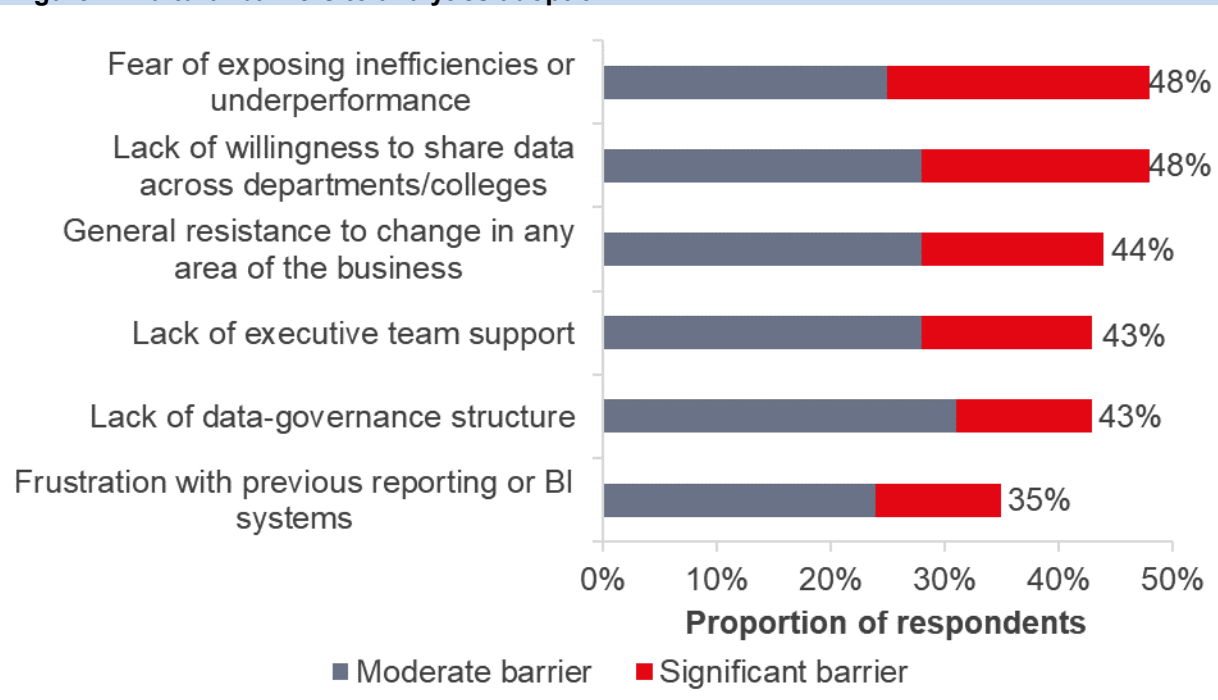
- embracing and becoming competent in navigating continuous change
- effectively utilizing technology to understand needs, deliver services, and engage with colleagues and students.

Organizational structures and practices will need to adapt to changing circumstances:

- Student-facing service roles will steadily migrate from functional departments to a unified frontline team. This often begins with several student-facing support teams coming together at a single location, for instance, student administration, housing, and IT. Next, handoffs between teams are facilitated by common service-support systems. Often later to join are course advisors from academic departments. As integration proceeds, knowledge is codified, and support staff from any of the specialist functions become able to handle an increasing proportion of straightforward inquiries and service requests.
- Repetitive, rule-driven administrative and technical work will become automated, and the remaining roles will be refocused toward higher-order knowledge work.
- Existing policy, procedure, and practices will be challenged by evidence (delivered by AI-powered analytics) of more effective approaches. These insights, once painstakingly compiled and disseminated by experts, will become embedded in line-of-business systems, directly prompting the most effective behavior at every touchpoint.

Culture, however, is likely to pose the most complex challenges. Ovum research into implementation barriers for analytics revealed that the most basic human drivers remain at play (Figure 4). Personal performance, knowledge being equated to personal power, and general resistance to change are at the top of the list. The potential springboards for successful change come next in the list: executive team support and good governance. All too often, executives fail to align the supports necessary for successful change, particularly alignment of policies, processes, risk management, and incentives with the future rather than the past.

Figure 4: Cultural barriers to analytics adoption



Source: Ovum

Previous-era governance can be a significant drag to faster-paced change programs, particularly those that need to be responsive to changing business circumstances. Budgeting processes that can delay a good idea for more than a year, are slow to respond to changes in requirements based on learnings gained or changes in the business environment as the project proceeds, or cannot allow for dynamic allocation of effort and funds across different projects in a change portfolio to achieve maximum total impact are common examples.

Traditional project management tends to deliver all the outputs toward the end of the initiative and has an unstated assumption that the needs of the future can be fully planned at the start of the journey. Agile initiatives focus on early delivery of a minimum viable product, a regular stream of outputs, and perhaps most importantly, the ability to learn and improve the product as the project proceeds. Disciplined Agile methodologies, such as SAFe (Scaled Agile Framework), have been proven to deliver superior results and are ready for mainstream adoption. In the realm of people/process/technology, Agile can be an effective way to deliver constant business value.

Learning from others multiplies the benefits

The following case studies explore how three institutional systems are implementing common technology environments to address the themes stated above. They encompass a range of different approaches to change management, from all-at-once adoption to a pilot engaged in by a small group of stakeholders and followed by broader adoption. What they share are the benefits that have accrued to student outcomes, compliance, and reporting as well as to the campus and system bottom lines.

Case Study: Colorado Community College System

The CCCS (Colorado Community College System) is made up of 13 colleges across 40 campuses and supports around 131,000 students. In 2004, the Colorado state legislature passed House Bill 1086, which required CCCS to use a single enterprise resource planning system (ERP) and LMS and centralize other services as possible. This move to a shared technology platform would help the system reduce costs while improving its data collection and management procedures and optimizing its staff and resources. Ellucian Banner was chosen because of its ability to support the administrative needs of all 13 colleges on a single database.

CCCS's journey to a consolidated ERP

CCCS embarked upon a five-year journey to transform its IT environment and business processes. The first phase involved creating common data definitions and business processes. As each campus previously had its own workflows and processes, this standardization was a crucial step that needed to be undertaken before consolidating their ERPs. The CCCS IT team worked with functional leads in different departments at various colleges (e.g., registrars, financial aid, HR, legislative changes) to ensure that all data definitions were agreed upon and process requirements were met. This intense collaboration across campuses and groups was necessary to ensure that CCCS balanced system-level needs while respecting and preserving each college's unique culture.

The second phase involved the actual building and implementation of the shared technology platform itself, which handles all major transactions including Banner Student, financial aid, finance, and HR/payroll as well as allowing across-the-board updates to financial aid and legislative changes that impact all 13 colleges. This phase also included the establishment of guidelines for IT governance, reporting, and communications.

Future projects for CCCS include continuing to enhance data analytics and reporting capabilities across the enterprise. As one can imagine, developing data definitions is an ongoing process, and some areas previously managed locally have been identified for cleanup in order to support and enhance more rigorous system-wide reporting and analytics. CCCS also plans to further optimize the shared technology environment by making sure that it only licenses solutions that can provide a multi-entirety environment, such as Ellucian Degree Works and Ellucian Mobile.

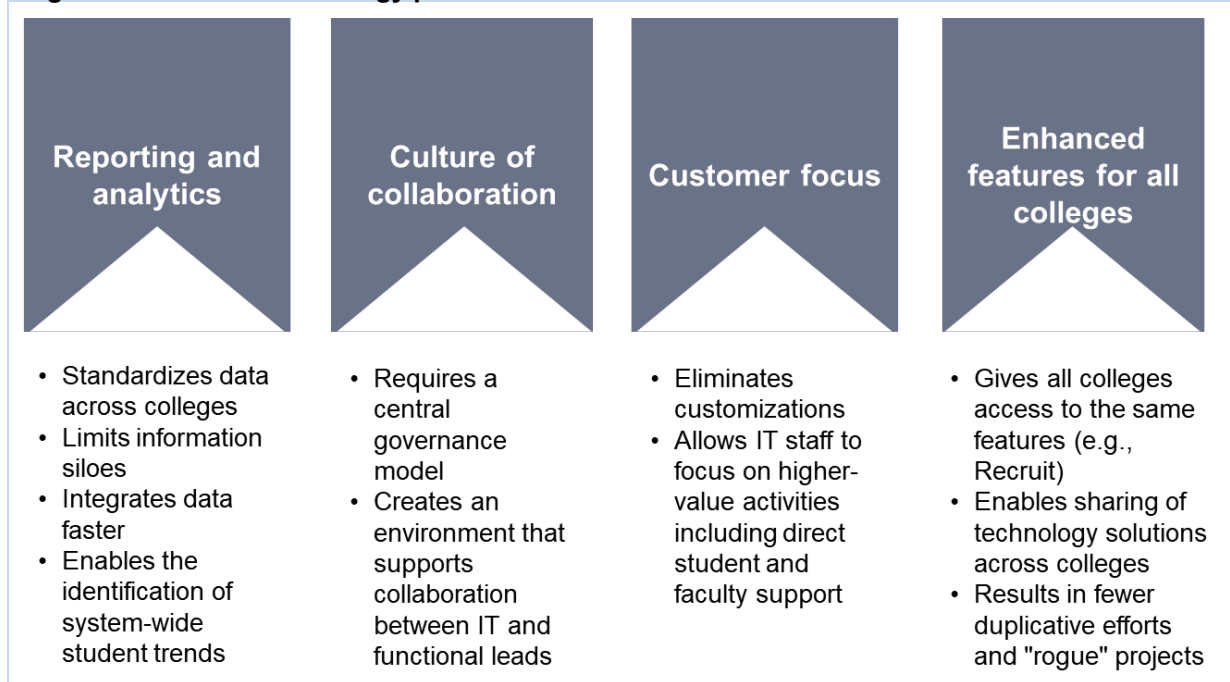
CCCS improves its management of data and IT resources

A single ERP with a shared database has enabled CCCS to address system-wide challenges including control, costs, inconsistencies, and data management. While some college data remains segregated (such as course enrollment, student transcripts, and financial aid), CCCS elected to share/aggregate other data (such as general person data, vendor data, course catalog, and chart of accounts). This system-wide view of data allows staff to more easily identify issues and trends (such as resident vs. nonresident student enrollment) and ensure that all colleges are following standard data coding and collection processes to improve reporting speed and accuracy.

This approach ensures that institutions are able to maintain their own identity and competitive advantage while at the same time optimizing efficiencies, improving student services, and sharing resources. In addition, colleges have access to the same features. For example, some of the smaller, more budget-constrained schools can now take advantage of shared solutions such as Ellucian Recruit CRM. In other words, this shared technology platform enables all schools, regardless of size,

location, and individual budget, to have access to robust features and support that they had previously lacked, while their staff on campus can focus on more qualitative, student-focused tasks (see Figure 5).

Figure 5: A shared technology platform has resulted in several immediate benefits for CCCS



Source: Ellucian

CCCS has already reaped significant financial cost savings as a result of this shared technology platform. The overall cost of implementing all ERP modules across CCCS was significantly lower than paying for 13 separate ERPs. Furthermore, its new technical support model, in which one centralized team maintains and supports the platform environment, has reduced costs and simplified CCCS's IT practices. This move will lead to further economies of scale, because CCCS will no longer require 13 separate versions of an ERP.

CCCS now follows a more centralized IT model where colleges need to agree on common customizations, a practical exercise from which many institutions could benefit. IT management is more streamlined, and projects are prioritized based on their alignment with overall CCCS goals. Selection of vendor products is now prioritized based on their ability to integrate with the shared technology environment (rather than individual members being allowed to select their own), enabling greater and easier scalability of single solutions across multiple campuses. CCCS believes this centralized model allows it to use IT resources more effectively and collaborate more effectively with stakeholders with clearer insight into how IT projects touch different functional areas.

Case Study: 4CIS (California Community Colleges Cohort Information Systems)

The California Community Colleges System is the largest higher educational system in the US, with more than 2.1 million students attending 115 colleges in 72 separate districts. As California's higher education institutions refocus on drivers such as supporting lifelong learning, student persistence, and

completion rates, it is all the more important that its schools be able to share and collect data in real time and thus support their students more effectively. However, unlike the CCCS, these districts operate as discrete entities, with a separate student information system (SIS) or ERP to manage student and administrative data. As a result, sharing data and standards between districts is an inefficient process. The chancellor's office's management information system (MIS) unit, whose responsibilities include collecting term-based and yearly data and creating accurate, auditable system-wide reports for federal and state agencies, continues to improve how it aggregates data from these district-level ERPs with speed and accuracy.

The 4CIS Consortium comprises three community college districts – Coast, Foothill-De Anza (FHDA), and Kern – that are using a common configuration of Banner 9 in the cloud to improve their IT effectiveness and efficiency. The 4CIS districts envision that a standardized, cloud-based ERP will help them integrate and streamline processes and utilize their resources more effectively. This approach will allow institutions to more easily maintain legal and regulatory compliance, share best practices, monitor costs, and integrate across their solutions.

A California configuration of Banner

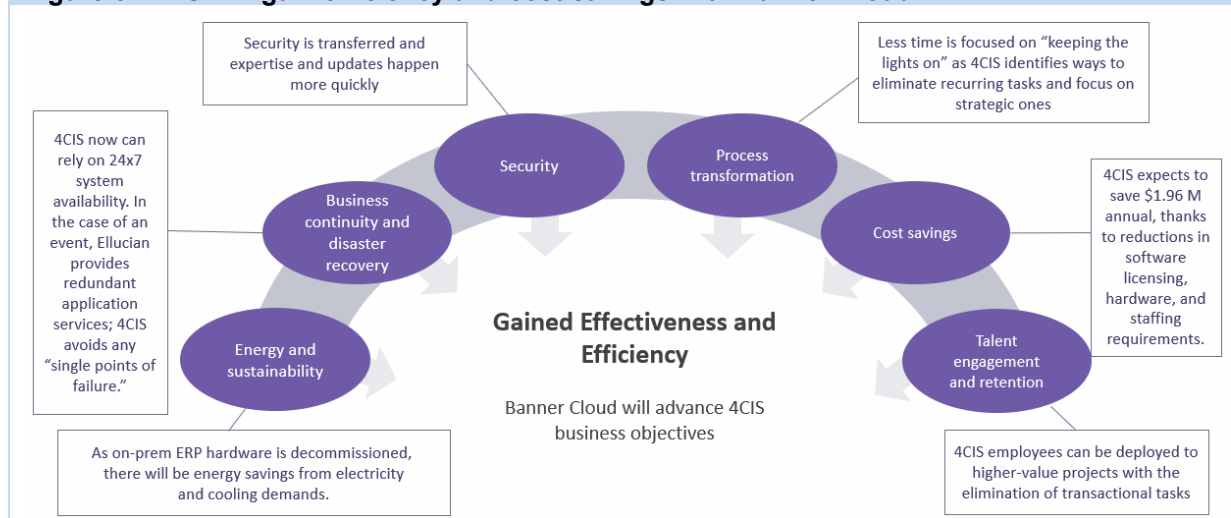
Working with Ellucian, 4CIS is creating a unique California configuration of Banner, which includes

- core business processes for Banner Student, HR, financial aid, and finance
- a set of configurations that meet California regulatory requirements
- configurations based on industry best practices
- configurations that support unique characteristics at the local level (such as academic structure, terms, and faculty)
- an Ethos layer for integrations, which will extract and rationalize data from Banner to generate reports that can be used by the MIS unit
- other enabling capabilities such as workflows that augment core Banner capabilities to specifically support California community colleges (e.g., for the California Community College Banner Group [3CBG]).

Each district took a different route for modernization. In December 2018, Kern CCD moved to Banner 9 and then the cloud, while Foothill-De Anza first moved to the cloud in September 2018 and then upgraded to Banner 9. As of September 2019, Coast has moved to the cloud and is finalizing its Banner 9 upgrade.

In addition, 4CIS is exploring which integrations and automations should be included in this configuration to augment and optimize the solution. As Ellucian is the ERP provider to 83% of the California Community Colleges System (with 41 colleges on Banner and 43 on Colleague), 4CIS hopes that other schools will move to this model in the future. It expects that new institutions will be able to be onboarded directly onto the Banner configuration, thus reducing the go-live timeline.

Figure 6: 4CIS will gain efficiency and cost savings with Banner Cloud



Source: Ellucian

ERP consolidation offers potential state-wide benefits for California's Banner schools

While the initiative is still in the early stages, 4CIS expects several major benefits from operating in a single system environment (see Figure 6). The first is cost savings, reducing the need to buy hardware or support data centers as well as the need to compete for and hire specialized staff to perform these tasks and manage the ERP. Instead, those responsibilities are managed by Ellucian's staff, who will also be in charge of security and disaster recovery. As a result of moving to this standardized, cloud-based model, 4CIS expects that it will see at least \$1.96m of savings in annual IT spend. These savings arise from a variety of sources including reductions in software licensing, hardware, and energy costs. In addition, 4CIS IT staff will be able to concentrate on higher-value activities such as supporting students and other staff members directly. This will not only increase employee satisfaction and talent retention rates but will expedite momentum in meeting broader institutional goals and business objectives.

Accurate data analytics and reporting is another challenge faced by many schools in California and elsewhere; this common technology platform enhances reporting capabilities and gives 4CIS schools as well as MIS staff the ability to build more accurate, timely student performance reports that will help them respond to legislative inquiries, optimize data for funding requests and reports, and provide better support for their students.

The 4CIS project is intended to serve as a proof of concept for a state-wide solution. The proposed vision for California Community Colleges is to start with a multitenant solution that could eventually be consolidated into a single instance of Banner; several additional schools have indicated their own interest in joining the 4CIS Consortium.

Case Study: Connecticut State Colleges & Universities

Known for its commitment to a low-cost, high-quality education, CSCU is Connecticut's largest higher education system, enrolling 85,000 students across its 12 community colleges and four four-year universities (CSCU also has an online school, Charter Oak State College). Its long-term institutional

goals include boosting graduation rates (which will directly impact the state's economy), increasing enrollment, and fostering financial stability, especially for some of the smaller, more resource-constrained schools.

In addition, CSCU wanted to improve and unify the student experience. While a quarter of all CSCU students attend more than one community college, the 12 community colleges were extremely siloed, with separate procedures for admissions, financial aid, and registration. Furthermore, the colleges' differing requirements for degree offerings, prerequisites for majors, and transfer procedures made it difficult to move from one school to the other.

CSCU's "Students First" initiative rests on a shared ERP

CSCU knew it needed to increase recruitment and completion and improve student services without having to increase tuition costs. In response to these issues, in 2017 CSCU announced its "Students First" initiative. A major component of this project is to consolidate the separate 12 community colleges into one accredited college (with 12 campuses across three regions) by 2023. This consolidation will enable the campuses to prioritize students' needs by focusing resources on student-facing services and to consolidate administrative departments to funnel savings to student services.

To enable this system-wide transformation, CSCU decided to consolidate its ERP and move it to Ellucian Cloud. All 12 community colleges have migrated to the cloud and are in a shared technology environment (the four four-year universities also moved to Ellucian Cloud but retained their own separate environments). Essentially, for 12 separately accredited institutions, having a single shared ERP suite is far more cost-effective in terms of operations and support costs than retaining individual instances. One of the benefits of this approach is a shared student record. Such consolidation enables the schools to address many of their IT-related issues at individual campuses, including constrained resources, varying IT policies and processes, and difficulty maintaining applications. In addition, hosting this mission-critical solution in the cloud would allow CSCU to provide 24-hour support and security with no downtime or latency, thus improving the technology experience for students and staff.

CSCU's Banner Modernization and Standardization project

CSCU created a Banner Modernization and Standardization (BMS) project, with members from CSCU's information technology department; users from different business departments at individual colleges including student affairs, enrollment management, academic affairs, and finance; and Ellucian staff. In consolidating its ERP instances and moving ERP to the cloud, the BMS team had to first review and eliminate its customizations (in favor of configurations) and institute a shared standardized student record for the 12 community colleges.

The first stage of standardization was finalized at the kickoff meeting in April 2016, notifying all stakeholders that standardization was the basis for streamlining operations and technical expertise. The next stage of cloud migration took place successfully between November 2017 and March 2018, with staggered go-live dates for the four universities and the community colleges. This move to a consolidated, cloud-based ERP will enable CSCU to more easily take advantage of Ellucian's Ethos platform, allowing for easier integration of its Ellucian and third-party systems (e.g., Eastern Connecticut State University's integration with Adirondack, a housing management system). CSCU also plans to further optimize its usage of the ERP. It recently completed a new chart of accounts for all five ERPs (one ERP supporting the 12 community colleges and an ERP supporting each

university), and in a future project will define its data warehouse standards and definitions. . Additionally, CRM Recruit is being deployed and is operational at several campuses; CRM Advise will support all CSCU students; Ellucian mobile is live and providing students with direct access to administrative functions on their smartphones; and imaging will streamline many functions across the enterprise.

One of the greatest benefits of a centralized ERP is that it is now much easier for CSCU's schools to manage their data. For example, with standardized data definitions, the shared technology solution supports a single person record, with controls to mitigate duplicate records. Data integrity will initially be addressed during the conversion effort in which duplicate records will be identified and properly merged (typical sources of duplicate records include student account balances, student academic history, and student record details). During implementation, access to person records will be established to restrict specific users for action/edits/updates while still granting query and view access based on institution and role, which is particularly important (and incredibly complex) in managing data across a multi-institutional system. The system can now identify trends that will help it address student success and strategize on ways to improve overall objectives such as retention and completion. In addition, CSCU can now send more timely reports to remain in compliance with US and state legislation and with its accreditor, NECHE.

Costs savings are another major benefit. CSCU predicts it will reduce its IT operational budget by more than 50% by creating a shared technology platform that can be supported by a smaller, more agile central IT team (see Figure 7).

Figure 7: CSCU will see a significant decrease in costs by moving to Banner Cloud

		Estimated costs (rounded figures)			Coverage hours/week
		Universities (4)	Colleges (12)	Total	
Cost savings	Salary costs	\$4.0m	\$2.3m	\$6.3m	Business hours only 21% (35)
	Additional cost for DR, including cost of replicating five different data centers	\$4.9m	\$2.5m	\$7.4m	
Ellucian hosting per year				\$3.0m	24x7 100% (168)

Source: Ellucian

Moreover, this significant cost saving comes with other benefits: CSCU has far greater confidence in its system availability, increased levels of security, and disaster recovery (DR) and business continuity assurance (it would have cost the university \$7.4m to develop a similar level of DR on campus). Ellucian Cloud monitors, patches, secures, and operates the ERP, ensuring that its solutions are up to date with current application functionality. With 24x7x365 availability, the total cost per hour is only \$342, compared with the \$3,500 an hour it would cost CSCU for its staff to perform a similar role.

System modernization will enable CSCU to devote more resources and staff to supporting students: the end goal of the "Students First" initiative. Today's students demand a digital relationship with the

administrative and academic applications at their campuses and expect that relationship to be delivered on a mobile device. By using CRM Recruit for its graduate programming, CSCU has dramatically speeded up the admissions cycle by making it more convenient for students to engage with the institution via their devices. The system is also leveraging Ellucian CRM Advise and Degree Works for all its students. Students have greater insight into their institutional progress and can more easily communicate with advisors and other relevant staff members from their mobile device when problems or alerts occur. By providing students with access to these mobile-friendly, personalized tools, CSCU believes it will improve its students' overall institutional experience and help the system meet its retention goals of graduating students on time (for both its two-year and four-year schools).

Conclusion

Where there are business benefits available from having coherent and actionable data – reducing IT project and licensing costs, refocusing IT staff on more business-focused activity, having more uniform business practices, or improving the student experience – implementing shared technology environments provides a solid platform on which to improve student retention and success as well as the institutional bottom line. The capacity for continuous evolution is enhanced by the cloud's regular feature updates coupled with a shift from traditional to Agile project management. Costs are shared and benefits multiplied, because these initiatives are delivered at system rather than individual campus level. The stories of 4CIS, CCCS, and CSCU exemplify the ways in which this technological change can facilitate greater institutional (and system-wide) innovation.

Appendix

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Ovum Consulting

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