

Driving transformation and supporting strategic initiatives in the cloud

A letter from Richard Forrest, vice president of global product strategy at Ellucian

As the leading provider of cloud solutions in higher education, Ellucian works every day to help customers accelerate growth, reduce risk, and deliver a better student experience in the cloud. It's our mission to help institutions and students succeed—and **cloud is indisputably the most secure, flexible way to meet competitive pressures and deliver the connected technology today's users expect.**

Yet we know that some institutions are still charting their course to the cloud and may be unsure about the way forward. That's why we partnered with Ovum on the white paper "**Steps to transforming the educational ecosystem: Practical pathways to leveraging the power of the cloud.**" By sponsoring the paper, we want to help clarify the benefits and demystify the process of moving from legacy, on-premise infrastructure to the cloud.

So how can you achieve this optimal state of modern, adaptable systems? How can you access the kinds of tools and capabilities that let you turn your data into meaningful, actionable insights? Put in the simplest terms, it's a two-pronged approach: execute a strategic program designed to modernize your institution's technology environment, then optimize the way your solutions work together. In the paper, Ovum breaks it down, and also describes how two institutions—Waukesha County Technical College and Loyola University Maryland—have taken the plunge and are realizing the value of moving to cloud-based systems and infrastructure.

Technology, together with campus-wide collaboration, can help you transform your institution and position it for future innovation and change. As you embark on your own path to modernization, **Ellucian is here for you every step of the way.** Please reach out to us at any time with questions—your success means everything to us.

RICHARD FORREST



Top 5 benefits of cloud

1. Delivers superior value
2. Enables a better, more connected user experience
3. Increases resource, financial, and technical agility
4. Accelerates institutional growth
5. Reduces risk (security, availability, performance)



Steps to Transforming the Educational Ecosystem

Practical pathways to leveraging the power of the cloud

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Summary

In brief

For an institution to create a modern, adaptable technology ecosystem that can increase the insights gained from all the institution's data and deliver a better user experience, it must embark upon a strategic program of both modernizing and optimizing the way in which its systems works together.

The ability of institutions to rapidly and cost-effectively leverage new technologies enabled by cloud services, coupled with a shift in IT focus from managing technology to supporting business change, creates an environment conducive to innovation.

Ovum view

The increasing range of challenges in the higher education industry, from decreased budgets to increased competition, requires institutions to take a new look at the technology solutions that support them. Schools must take a more flexible, adaptable approach to their systems and processes to meet modern student expectations and leverage data effectively for organizational and student success.

Two primary paths lead to generating a suite of modern, adaptable systems: a purposeful program of modernizing the overall education ecosystem, and optimizing the way the existing systems work together.

Cloud technologies can make a significant contribution to meeting these challenges, with their proven ability to overcome some of the burdens of legacy infrastructure and systems, optimize IT operations, and enable better user experiences.

While technology alone cannot enable institutional transformation, it is a powerful contributor, supporting campus-wide collaboration in realizing the institution's vision. As a result, IT should consciously move from being a system delivery and support unit to being a business transformation partner.

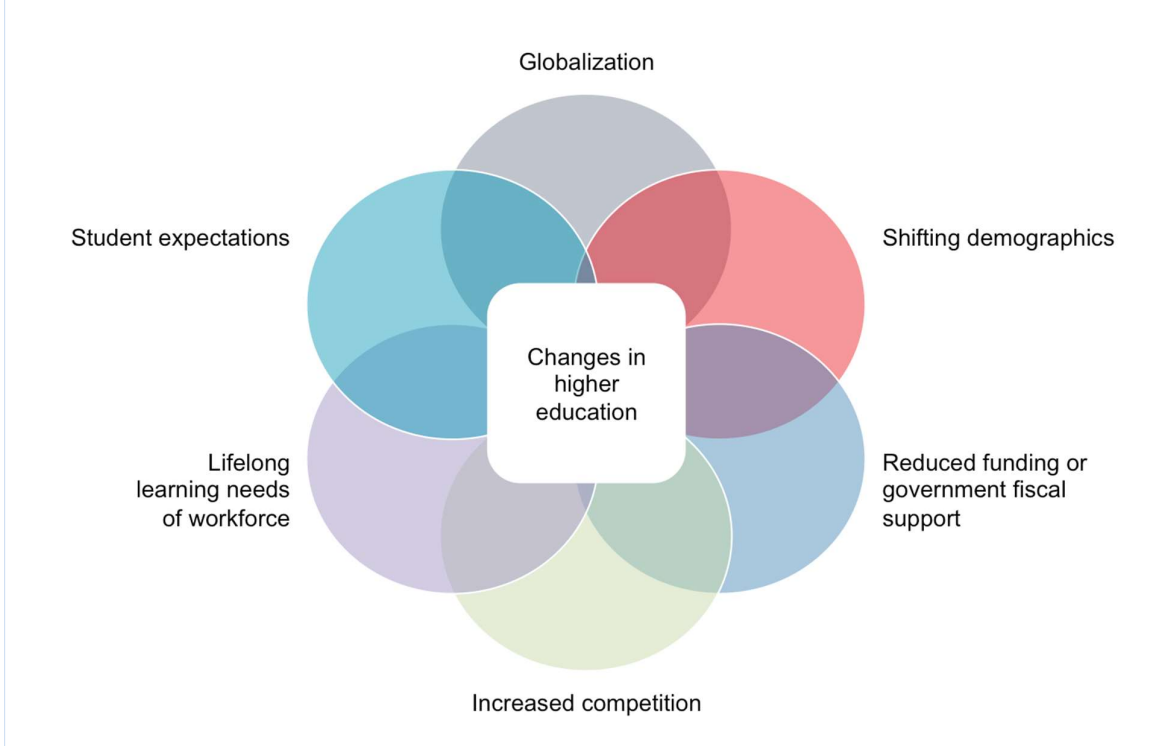
Key messages

- Higher ed needs to transform; cloud services are key to supporting this improvement.
- Embarking on a program of change requires a strategic evaluation of current systems and technologies and how they align with constituent needs and institutional goals.
- Institutions must look to **modernize**: ensure your IT systems are delivering maximum value to support institutional operations.
- **Optimizing** the existing technology ecosystem to improve the overall user experience is another important element of the cloud journey.
- The end goal is **innovation**: the ability to use technology to support institutional transformation through new projects and initiatives.
- Institutions are already seeing success with this approach, with the experiences of US institutions Waukesha County Technical College in Wisconsin and Loyola University Maryland serving as examples of the value of moving to cloud-based systems and infrastructure.

Higher ed needs to transform

The higher ed industry is facing a myriad of challenges, including dramatic increases in student expectations, increased competition, a more diverse student population, and, in the US, decreased federal and state funding (see Figure 1). These changes are affecting all institutions, regardless of size, mission, or degree offerings. US institutions are being forced to close, consolidate with others, or reallocate their resources and funding in various ways to maintain their fiscal sustainability.

Figure 1: Higher ed's many challenges call for a change in IT and business practices



Source: Ovum

Simultaneously, a student today – whether a "Gen Z," a digital native living on campus and pursuing a four-year degree, or an adult learner pursuing a part-time MBA online while working – has high expectations when it comes to their education technology experience. They are looking for student-centric engagement in which they receive a fully personalized, efficient experience that is customized to their needs and preferences – from academic and financial advice to career preparation and the on-campus experience. Efficiency is a core demand and expectation: it should be easy for a student to access administrative applications (e.g. financial aid and registration) at any time, from any device, with little to no downtime, and receive prompt confirmation of their choices.

Students want the technology platforms and tools they use to be as intuitive as possible and easy to access from their mobile devices. Real-time data that is being collected from a variety of sources, such as the learning management system (LMS), the student information system (SIS), and on-campus sensors, should not remain siloed but be collected and shared across relevant activities, while at the same time remaining highly secure and with student privacy respected.

These expectations place high demands on institutional systems and IT resources. Unfortunately, institutions may not have adopted newer functionality, leading to outdated user experiences or the inability to deliver a timely and seamless end-to-end experience, as business processes involve multiple, siloed applications.

To assure student and institutional success, there is a pressing need to become a data-driven organization. The flood of necessary but mundane tasks is threatening to drown administrative, academic, and technical staff. As a result, major systems need updating to support everything from a better user experience to seamless back-office processes and modern systems integration capabilities. Timely resolution of all these issues entirely in-house is simply impractical for many schools. Many are turning to cloud services as a means to gain access to the latest technology and to focus internal IT staff contributions away from managing the technology and toward leveraging it to benefit the organization.

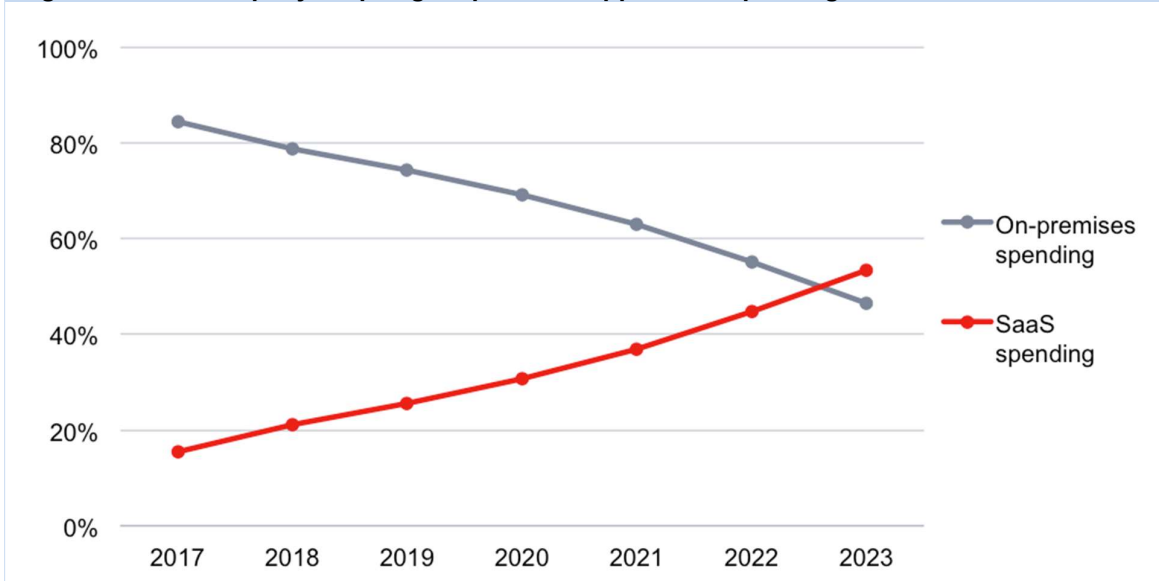
Cloud platforms provide a path away from legacy systems

Cloud services are a powerful contributor to the flexibility and adaptability needed in today's higher ed environment. Applications delivered via a software-as-a-service (SaaS) model offer several key benefits:

- New functionality is available more quickly than with traditional on-premises hosting.
- The latest user interface and engagement features enhance student satisfaction.
- Reliability is improved by the cloud provider's extended scale.
- Savings accrue from a smaller infrastructure footprint and reduced management and maintenance.
- Integration costs are reduced due to modern APIs.
- Staff resources are freed up to focus on the business of student success and innovation in the delivery of education.

According to Ovum's *ICT Enterprise Insights 2018/19* survey, 37% of higher ed institutions globally have prioritized the adoption of cloud services as one of their top three drivers. Though institutions today still allocate the majority of their applications spend to on-premises systems – approximately 75% in 2019 – the rate is rapidly declining. SaaS growth, at 23% per annum, is closely mirrored by the decrease in on-premises software (see Figure 2).

Figure 2: SaaS is rapidly eclipsing on-premises application spending



Source: Ovum's Global Higher Ed Technology Spending Forecast Through 2023

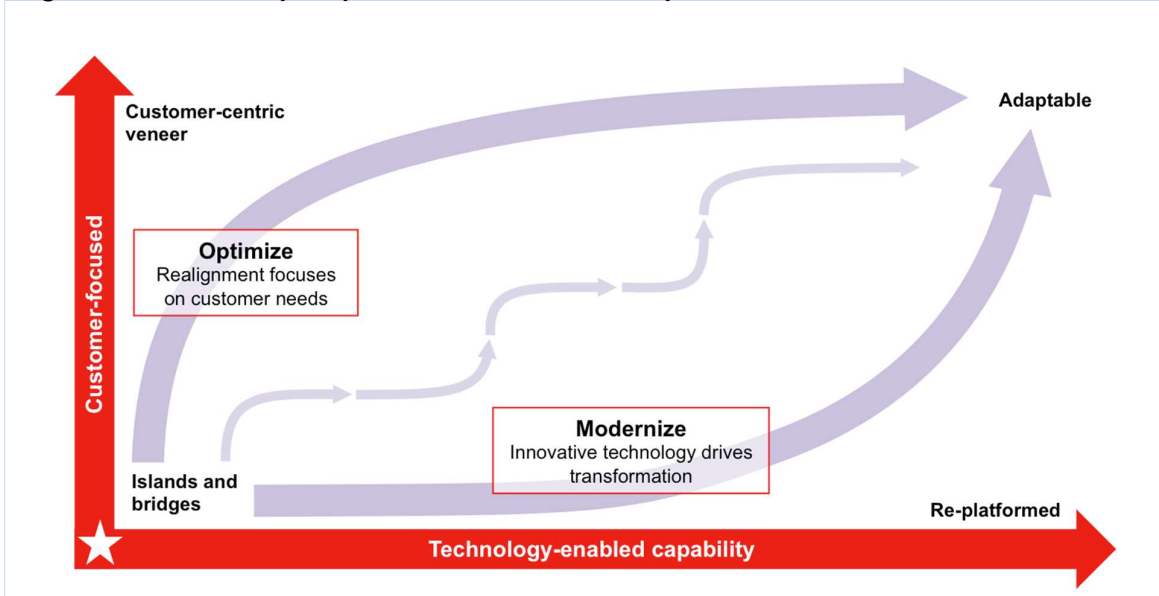
Finding the right levers for change

A recent Ovum study on digital transformation illustrates the different reasons for engaging with the cloud. Two core drivers are primary reasons:

- the transformative possibilities of new technologies (45%)
- meeting the demands of changing customer needs (37%).

These two drivers for change generate different behaviors (see Figure 3):

- modernizing – improving foundational systems and processes to support contemporary operations and innovative service delivery
- optimizing – employing unused features of existing systems, often supplemented with some new client-facing technologies.

Figure 3: Two drivers prompt different transformation paths

Source: Ovum

Focusing on improving the student experience while ignoring the need for modernizing the underpinning systems creates a thin veneer of applications that become increasingly misaligned with core systems and an increasing burden to maintain. Taking the other path, and putting all the effort into platform modernization, may result in student-facing benefits being delayed until late in the systems renewal program.

Recognizing that neither driver can be ignored, many organizations proceed down both paths together (see the "stairs" in Figure 3), coupling improvements to the customer experience with an underpinning modernization agenda. Successfully navigating this journey requires a clear vision of the future, tempered with a willingness to invest in some solutions that will need to evolve as modernization proceeds.

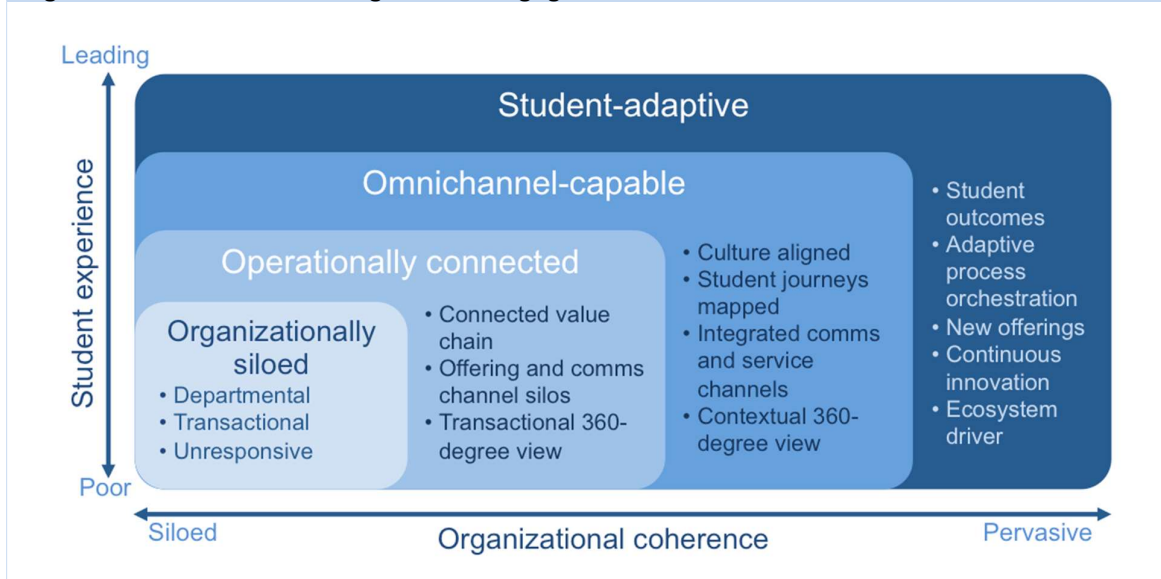
Setting out on a program of change

A program of change shares several characteristics with any other journey: it must have a destination in mind, the route must be planned, and the necessary resources must be gathered.

Improving the student experience

The starting place for many organizations is at the bottom-left corner of Figure 4. Student engagement is characterized by unconnected, department-level interactions. These poor, disjointed interactions mainly occur at a transactional level and cannot be tracked at the institutional level.

Figure 4: Phases in increasing student engagement



Source: Ovum's *State of Customer Experience* research

Through the stages to becoming student-adaptive, several themes mature:

- The student value chain is better understood and integrated, providing a better view of the student's overall interactions with the institution. Transactional information is supplemented with broader context and ultimately aligned with outcomes.
- Communications become more coherent, consistent, and integrated.
- Interaction moves from reactive to proactive, using data-led insights. Processes progressively move from the pure application of policy and procedure to those that adapt to an individual student's circumstances – generating higher levels of student retention and success.
- Offerings become more personalized, customer-focused, and responsive.
- Innovation, based on data insights, creates and captures new opportunities to drive excellence in terms of the offerings and the student, faculty, and staff experience.

Architect for a data-driven and student-centric future

While analysis of historic data from enterprise resource planning (ERP) and student systems was the backbone of the business intelligence (BI) era, today's schools have access to a far wider range of data, including social, interaction, and environmental data, and the opportunity to utilize it in more diverse ways.

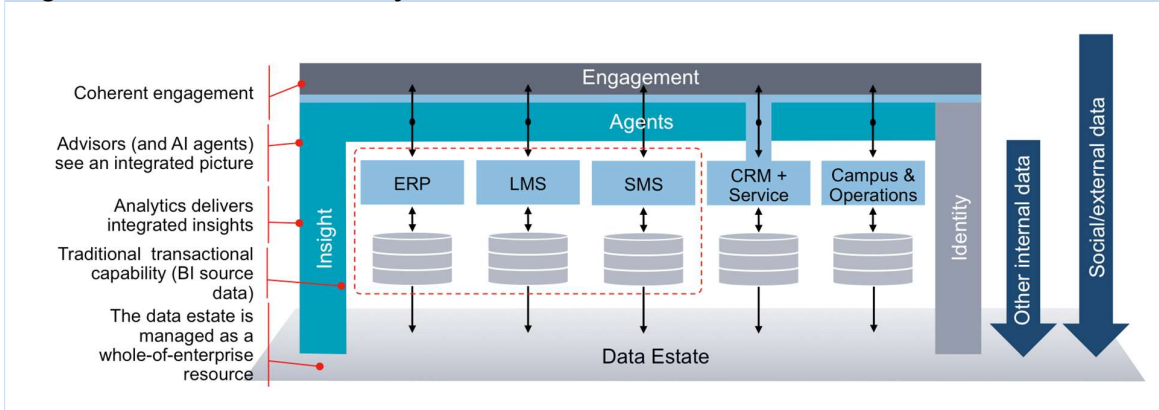
Growing the ability to capture, curate, and deliver insights from an ever-broadening data palette is critical for providing the kind of consistent, informed experience that modern students expect and the institution requires.

The dual challenges of providing an integrated student experience and drawing actionable insights from the entire institutional data estate suggest that some system elements are better delivered as foundational services that span institutional capabilities rather than within functional silos.

Four critical areas dominate (see Figure 5):

- **Engagement** – institutions need to deliver coherent engagement with students. Smart services must integrate who they are (identity), their activity (engagement, structural and transactional data), where and how they are interacting (location, operational, and Internet of Things [IoT] data), and what they should do next (insight), and present relevant information at all points of interaction.
- **Insight** and **agent** technologies, using analytics and increasingly enriched by artificial intelligence (AI), are rapidly evolving and will increasingly become a keystone of intelligent, personalized services. While these services may be embedded in applications, they should utilize all relevant data.
- **Identity** is at the heart of personalization and core to the protection of student privacy. Authentication and general access control are best implemented at the institutional level.
- Management of the underlying **data estate** needs to be considered as a foundational service that spans a variety of institutional data sources, including administrative systems, learning environments, engagement (CRM and service management), campus operations and activity, and social and environmental (IoT) data. While the data may be stored in multiple systems (federated), all relevant data needs to be available when seeking insight into the student and the institution.

Figure 5: It takes an entire ecosystem to deliver the benefits



Source: Ovum

Embedding these concepts in policy and architecture will provide a framework for individual business processes and systems to collaborate to best effect.

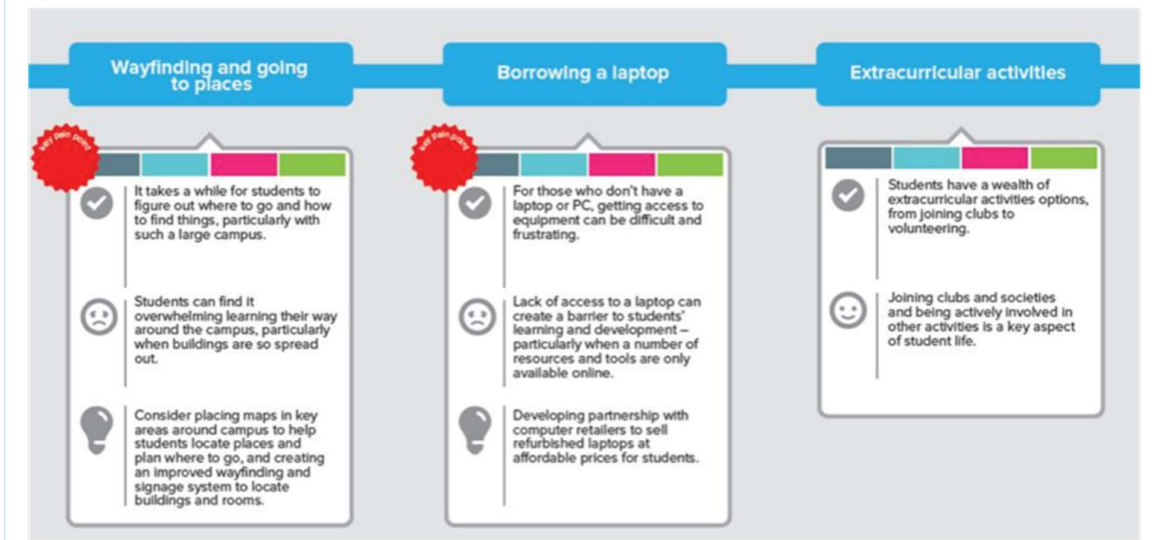
Take stock at the start of the journey

Aligning the academic vision and institutional strategy with a practical technology program is not a trivial task. Assessing the current state, from both the business and technology perspectives, provides a baseline for your program of change needed to achieve the desired future state.

One method of taking stock is to plot the technology and business "fit" of the systems in place on a student journey map (see Figure 6) or other business diagram such as a business-capability map. Activities where the existing systems effectively support business needs receive a green star on the left-hand side. Similarly, if the system is modern, safe, and well supported, it receives a green star on the right-hand side. Orange and red stars denote moderate and poor alignments. The complete

capabilities of software and services should be mapped, not just the features that are currently being used.

Figure 6: Mapping business and technical systems' "fit" on a student journey map



Source: CAUDIT (University of Auckland), Ovum

The second stage is prioritization: some areas of functional mismatch will have a substantial impact on strategy and delivery, others less so. Identifying the areas that strategically differentiate your school from others will indicate where beyond-the-mainstream capabilities may be required from your systems and service and where standard practices, and therefore standard functionality, will suffice.

The outcome is a business-focused heat map, easily understood by technical and nontechnical staff, of where change is most needed.

Where there is a clear deficit in the current experience, there are two basic remedies:

- Where the system cannot provide what is required: upgrade the system to gain the needed functionality or add complementary technologies (modernize).
- Where the core functionality is supported but the business process or user experience is not optimal: create a "skin" over the underlying system (optimize).

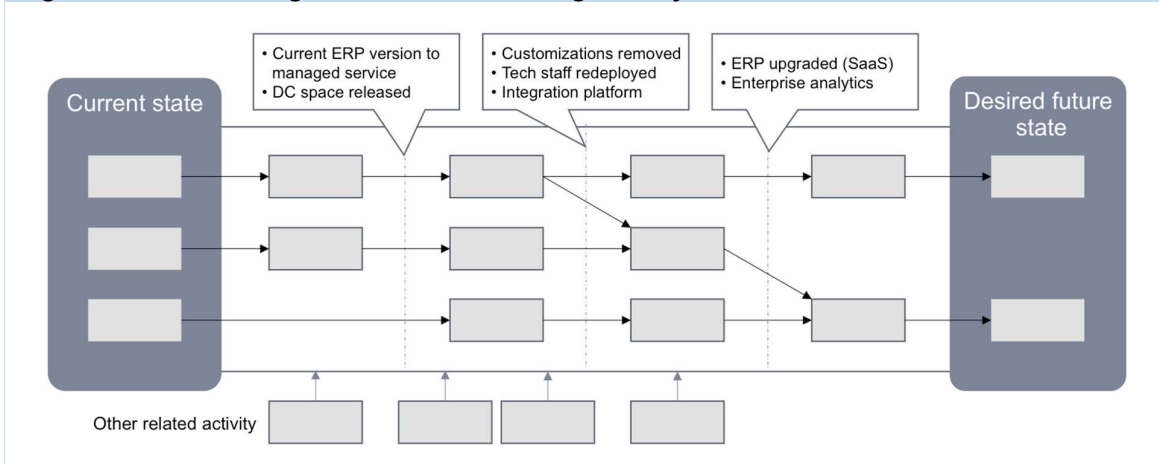
It is likely that both approaches will contribute to the overall program of work – the "stairs" in Figure 3.

Benefits are best delivered in digestible portions

Whether agile or traditional project management is employed, it is important to think about delivering benefits as early as possible in the program. While it might be convenient for IT to hand over all the outputs at the end of the program, business imperatives and good change management both suggest that regular delivery of smaller units of change is better practice.

Define several intermediate points in the overall program, aligned to business cycles, where specific value will be delivered to the business and/or within IT (see Figure 7). Assign specific outcomes or benefits to these intermediate goals, ensuring that any required business and organizational change activity is included in the program.

Figure 7: Intermediate goals deliver value along the way



Source: Ovum

Clarify the program's drivers to create the right business case

Usually some combination of three key issues – cost, quality, and risk – triggers the need and business case for change. Each should be adequately addressed in both the change proposal and the program plans.

Cost

When the total cost of ownership (TCO) of running the system in-house is greater than if it were outsourced, there is a clear case for change. All related costs, such as for infrastructure, staffing, licensing, and upgrade projects, and a proportion of data center capital and operating expenses should contribute to the calculation.

A specific trigger occurs when the time comes for an infrastructure renewal, a capacity uplift, or a substantial upgrade project. At that point, a determination should be made on whether further capital investment in the status quo is warranted.

Quality

Organizations continue to use older software versions with limited functionality for several reasons, the most common being the effort and disruption that an upgrade project would cause and customizations having completely blocked the upgrade path. If customizations are stalling the journey, it is worth checking if the functional gap that originally caused them has been filled in a newer version.

A significant proportion of IT effort goes into keeping systems running. If the load of infrastructure and systems management were reduced, a greater proportion of IT's overall effort could be employed more directly in business support and transformation.

Risk

Discussion of managing system risk is too often limited to system reliability, disaster recovery, and cybersecurity. While these are critical, two other risks also need to be addressed: the difficulty of acquiring and maintaining the depth and breadth of skills needed to effectively operate the system, and the risk that an aging system's functionality will be unable to support the institution's future educational and administrative needs.

Modernize

Educational offerings, business processes, and supporting technologies deserve continuous examination to ensure they are fit for purpose. This does not necessarily require institutions to replace their existing systems. However, it is a useful practice to conduct a periodic assessment, including:

- matching existing systems with future business needs
- revisiting feature adoption or technical updates delayed by project scheduling or prevented by extensive system customizations
- assessing the state of the institution's disaster recovery
- considering security and privacy
- evaluating system performance.

While it is important for the modernization program to be technically manageable, the academic strategy's timeline should drive the agenda, as timely delivery of the right technology-enabled capability is critical to institutional success today.

Steps to modernization

Many reputable vendors now offer cloud alternatives to applications that have been traditionally hosted on-premises. These come with multiple benefits:

- There is a decreased need for internal skills breadth and depth.
- Updates and upgrades are managed by the vendor, avoiding costly and time-consuming projects.
- Costs and capacity are often usage-based, allowing capital expenditure and idle infrastructure capacity to be avoided.

Modernization may occur in several stages:

- The current configuration is moved to the cloud and managed by the vendor or a partner that has the required breadth and depth of specialist skills.
- Next, customizations are removed, and necessary process or business-rule variations re-implemented using "non-blocking" configuration tools by expert vendor staff.
- It is then possible to upgrade to the most modern version, using well-tested tools and processes and undertaken by expert vendor teams.

While some may argue that a multi-tenanted cloud solution is the only viable target configuration, equivalent benefits are realized from single-codebase, single-tenant cloud hosting where there is a high level of automated testing and deployment shared across installations.

Reducing customizations creates a tailwind for change

Customizations will need to be attended to when upgrading an existing system. When asked about what they want in a new system, staff often answer, "It needs to do exactly what the current system does, but be easier to use." This makes it difficult to assess which local enhancements are still adding value.

Examining the different types of customizations provides some clues about how they might be most profitably addressed:

- Technical customizations that were introduced to allow the system to run on platforms for which it was not originally designed, or to improve performance. These become irrelevant as the system is moved to a standardized platform.
- Customizations that were needed in an earlier software version, but are now available in the baseline product. Some effort is required to de-customize and re-implement business processes using new baseline functionality.
- Those that arose from unique needs or differentiating factors for this institution and need to be carried forward. It is critical to clearly identify and prioritize these customizations, as re-implementation of equivalent functionality will not be cost-free.
- Process or presentation customizations that deliver little future value. It is desirable to "rip off the Band-Aid" with these customizations, as they deliver little if any enduring value.

Addressing technical customizations will not generally impact the end user. For each of the other three categories, some business change management effort will be required. While a re-implemented process may be functionally equivalent, it is unlikely to be presented identically. Staff will need to be informed and possibly retrained. When a low-value customization is removed completely, policy or procedures may need updating, and some staff re-education delivered.

Optimize

Particularly with systems that have been in place for some time, there are often valuable features in existing systems that are unused – either not needed when the system was implemented or added subsequently in updates.

In undertaking the business and technical systems mapping suggested above, users must pay careful attention to the current system's actual capabilities – as distinct from those that technical or business staff believe it may have.

Also, where the underpinning system's capability is still well aligned with current needs, it is often possible to deliver an updated user experience by adding vendor modules or third-party tools. Mobile apps, improved analytics, and engagement capabilities are common examples. Workflow tools may be able to improve process flow and the user experience, particularly where multiple systems are involved.

Making the most of data

For many institutions, actionable data is splintered across multiple systems and departmental silos. It is maintained in spreadsheets and documents on file shares, web content management systems, social media services, and even video libraries. Bringing disparate data together to deliver new insights can be difficult and the results can be suspect if the quality and provenance of the data are not well managed.

While analytics can be effectively applied within a functional (or system) silo, it is campus-wide capability that provides the greatest benefits. Consider a student arranging accommodation for their

first semester. For the institution to locate and secure the most appropriate accommodation, the student's enrollment, socio-demographic, and financial data all need to be taken into account. Likewise, even the best-designed curriculum can be undermined if poor timetabling means that other important resources such as private-study spaces, washrooms, and dining hall seating are unable to cope with peak demand.

Institutions should gain an overview of their overall data estate (see Figure 5) and mandate effective data management practices for it. Provisioning a repository to curate this actionable data should also be considered, possibly comprising several technologies as part of an overall data lake.

While capturing and curating data is important, no value is gained until it is in the hands of end users, preferably embedded within their line-of-business systems. Dashboards and visualizations are commonly used to present analytic insights, and natural language interpretations are becoming increasingly common as AI is applied.

Ellucian's Ethos and Analytics platforms provide a good example of how greater value can be gained from existing data, even with a mixed vendor landscape. Ethos provides a unifying platform for enterprise-wide data management and integration. Its data model defines a common language across institutional applications and platforms, including third-party systems. The data repository manages near-real-time data updates to ensure that data is accurate and relevant for all roles. Ellucian Analytics leverages Ethos' enterprise-wide data capability to unlock analytic insights across financial, HR, and student data, and deliver them wherever they are needed – on the desktop, tablet or smartphone.

Realigning IT capability

Moving to the cloud changes the balance of IT responsibilities away from directly managing infrastructure, platforms, and applications and toward directly supporting the evolving college or university: designing and transforming the user experience, reforming business processes, and turning data into insight. With a greater focus on business design and change management, it becomes possible to start thinking about IT sharing responsibility for an initiative's business outcomes, not just the technology outputs. This is paramount if IT is to become a transformation-enabling business partner, rather than simply a technology supplier.

It is unusual for the transformation of IT staffing to occur all at once. As each system moves to the cloud, staff resources are incrementally freed up for other tasks. However, it is often quite late in the overall journey before people are able to move fully into new roles. It is useful to keep job descriptions up to date as the program proceeds, so that expectations remain clear to all, at every step along the way.

Innovate

While modernizing and optimizing their technology ecosystems, institutions should not miss opportunities to innovate. As the door to the cloud is opened, two key enablers of innovation arise: a broad palette of new technologies and freed-up staff resources. Design thinking, a well-tested approach to finding innovative solutions to business problems, provides a powerful framework within which to put the released staff resources and new technologies to productive use.

Freeing up the IT organization from mundane tasks releases capacity for innovation

The modernization pathway frees up staff over time from managing technologies, and these resources can be refocused on supporting innovation. While it could be argued that back-room staff are not optimal to work closely with the business, it is clear from many institutions' agile project experiences that teams with very diverse capabilities and approaches are very successful when well led.

The cloud offers an array of technologies

The broad range of ready-to-use cloud components can be potent enablers of business innovation. Time to market can be cut to a fraction of traditional development, leveraging modules with powerful and well-defined behavior.

SaaS offers ready-to-use capabilities, which is an excellent proposition when your organization has a business idea that has relatively mainstream needs but is beyond the capability of your current systems. Many leading SaaS vendors provide a platform on which to create extensions to the core system, allowing unique business needs to be satisfied as well.

Application-platform-as-a-service (aPaaS) offers the ability to prototype unique applications in days or even hours, coupled with low upfront costs, allowing ideas to be explored that might previously have been deemed too resource-consuming to pursue.

Design thinking provides a solid path from ideas to implementation

Alongside agile project management and DevOps, design thinking is proving to be a powerful innovation tool. It iteratively re-evaluates user needs, challenging assumptions and redefining problems in an attempt to identify alternative strategies and solutions that might not have initially been apparent. It focuses on working toward the best available solution as the understanding of the problem evolves.

Cloud customer stories: Waukesha County Technical College and Loyola University Maryland

Waukesha County Technical College (WCTC) and Loyola University Maryland are two schools that seem very different in terms of mission, size, and program offerings. WCTC is a member of the Wisconsin Technical Colleges system and serves 20,000 students across 150 programs, from associate degrees to technical diplomas and apprenticeships, whereas Loyola University is a private Jesuit university in Baltimore, Maryland, with around 6,000 students. They rely on different Ellucian ERPs to support their institutions: WCTC has been a Banner customer for 24 years, while Loyola has been using Colleague since 1981. Nonetheless, their stories demonstrate how moving to cloud infrastructure can manage risks, reduce costs, and improve system functionality.

Because of the diversity of WCTC's programs and students and the relatively small size of its IT department, the school needed a technological system that was as flexible and robust as possible. In

2016, the school elected to host Banner in Ellucian's cloud infrastructure (which is built on Amazon Web Services). Similarly, in 2016, Loyola's leadership began exploring ways to improve the relationship between the Technology Services department and Loyola's overall user community. Recognizing issues such as underperforming technology and inefficient IT processes across the campus, Loyola began moving its IT infrastructure to Ellucian Cloud in fall 2016. Both schools recognized that cloud infrastructure would provide them with support for core challenges such as disaster recovery and business continuity, and carefully communicated with all relevant stakeholders about the timeline, risks, testing periods, and benefits.

Moving to Ellucian Cloud has enabled both institutions' IT staff to offload maintenance-related tasks such as managing servers and patching software to the infrastructure vendor, focusing instead on core business objectives. These schools now have the assurance that their systems are protected and secure at a higher level than could be ensured on-premises, while providing a more modern, efficient technological experience for students, who no longer have to worry about downtime or interrupted service during heavy usage periods, such as during registration.

Optimizing efficiencies and improving the constituent experience were perhaps the two biggest motivators for moving to Ellucian's cloud infrastructure, but cost savings have also been another major benefit. WCTC predicts that its decision to move Banner to Ellucian Cloud will save the institution \$1.5m over the next three years by reducing on-premises hardware costs and eliminating the need to hire additional IT personnel. Loyola has saved over 6% of its IT budget (around \$678,000), exceeding its initial project goal of 5%, and it expects to see further cost savings as it will no longer have to manage on-premises servers and equipment.

Both institutions saw the move to cloud infrastructure as a concurrent opportunity to reexamine IT departmental practices. WCTC's IT staff can now spend more time working with the different business departments to effect further digital transformation. One of its recent projects has centered around implementing Recruit CRM to optimize the recruitment of diverse constituent groups such as adult learners and Hispanic students. Loyola's Technology Services department moved from a fully centralized organization to a shared services model with greater transparency around projects – their total costs, their alignment with institutional goals, and their allocated resources. Its Enterprise Architect staff members are now embedded across various business units to gain a better depth of insight into each department's operations and liaise between the business units and Technology Services. The increased agility and functionality of both institutions, enabled by cloud services, will allow the schools to focus more strategically on supporting student, staff, and faculty excellence.

Appendix

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Ovum Consulting

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