EAB

RESEARCH BRIEF

Cloud-Based Enterprise Resource Planning (ERP) Selection and Implementation

IT Forum

IT Forum

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Table of Contents

1) Executive Overview 4
Key Observations 4
2) Selection and Implementation Planning 6
Prior and Current ERPs at Profiled Institutions 6
Cloud-Based ERP Selection Criteria 6
Data Preparation 7
3) Implementation 10
Timeline 10
Implementation Planning and Leadership 10
Staffing Structure 11
Campus Communication 14
ERP Training 14
4) Outcomes 16
Cost 16
ERP Satisfaction 16
5) Research Methodology 17
Project Challenge 17
Project Sources 17
Research Parameters 18

1) Executive Overview

Key Observations

When selecting a cloud-based ERP, IT leaders at profiled institutions consider factors such as compatibility with current data, anticipated use of data analytics, available implementation support, and user interface. Administrators at **Institution A** selected Workday in part because of Workday's experience in the higher education sector. Administrators at Institution A believed that Workday had better capacity than Oracle Cloud to tailor implementation support to their small campus. In contrast, **Institution E** administrators chose Oracle in part because they felt its implementation support was better than Workday's. Contacts conveyed that Workday relied on clients to hire third party consultants for technical implementation support.

Profiled institutions anticipate future use of legacy system data to determine which data to migrate to the cloud-based ERP. To enable analyses with current and legacy system financial reports, staff at the **Institution D** programmed data translation rules to map (i.e., standardize conversion) between old and new charts of accounts. **Institution B** archives infrequently-used historical data for access during audits. Because administrators infrequently request reports, contacts are satisfied that they did not take time to map data.

Implementation length depends on existing technology infrastructure, business processes to prepare for implementation, data preparation, and staff leadership. Three of four profiled institutions' first cloud-based ERP implementations lasted between two and three years. **Institution E** administrators expect its ongoing Oracle Cloud implementation process to last two years. Administrators at the **Institution D,** one of Workday's first higher education clients, note that the lack of Workday implementation professionals extended implementation. **Institution A** completed its first Workday implementation in nine months.

Administrators hire staff and create user trainings based on the new ERP's anticipated effect on current business operations. Institutions recommend that administrators begin preparation as early as possible and secure senior executive buy-in to lead and fund the project.

Profiled Information Technology divisions employ project leaders to coordinate all aspects of ERP implementation. Although prior ERP implementation experience is helpful, contacts recommend that project leaders possess technical and general management skills adaptable to ERP change management. Most profiled institutions employ one implementation leader. **Institution E** administrators hired a full-time implementation leader from within the institution to manage the institution's Oracle implementation. Contacts attribute the project leader's effectiveness to her prior business administration, IT, and provost office experience. Rather than a single leader, the **Institution C** employed five functional area project leaders to manage campus implementation.

During implementation processes, enterprise technologies staff communicate with system users through task force meetings, emails, webpages devoted to ERP implementation updates, and campus-wide presentations. Contacts explain that consistent communication minimizes campus pushback and employee dissatisfaction with additional work to learn the new system.

Cloud-based ERP implementation and ongoing cost is significantly higher than prior systems, but costs align with institutions' expectations. Cloud-based ERPs require staff dedicated to system maintenance, security, updates, report writing, and data management. All contacts are satisfied with their cloud-based ERP despite the significant cost.

2) Selection and Implementation Planning

Prior and Current ERPs at Profiled Institutions

Institutions Replace Homegrown Systems and Other Information Systems with Cloud-Based ERPs

Profiled institutions implement cloud-based ERPs to replace aging mainframe systems, to simplify system updates and customization, or to consolidate single-function systems (e.g., finance, student information, Human Resources). The homegrown systems at **Institution C** and **Institution D** were 25 and 30 years old, respectively, prior to replacement. **Institution B** administrators found its ERP, PeopleSoft for Human Capital Management (PeopleSoft HCM), time-consuming to update and customize. Cloud-based systems facilitate adaptability because ERP vendors provide software updates and a customizable infrastructure. Cloud-based systems also increase efficiency because users can access their portal from any computer and most mobile devices.

Cloud-Based ERP Migration at Profiled Institutions

Institution	Current Cloud-based ERP Vendor	Prior ERP and/or Information System	Year that First Cloud-Based ERP Implementation Began
Institution A	Workday	Various vendor products: Datatel, Hobsons, ADP	2014
Institution B	Workday	PeopleSoft HCM	2010
Institution C	Workday	Homegrown system	2013
Institution D	Workday	Homegrown system; FRS	2012
Institution E	Oracle Cloud (implementation in progress)	Homegrown system	2016

Cloud-Based ERP Selection Criteria

Institutions Evaluate Scalability, User Interface and Adaptability for Future Needs

Workday first delivered a cloud-based ERP for higher education institutions in 2011[1], and Oracle announced its first cloud-based ERP for higher education in 2014.[2] Information technology (IT) staff conducted market analyses of potential ERP vendors. Administrators at **Institution B, Institution C,** and **Institution D** selected Workday because of its scalability, adaptability, and operational efficiency for administrative tasks and data entry. Oracle did not yet offer a cloud-based higher education ERP during Institution B, Institution C, and Institution D's selection process. Administrators liked Workday's self-service functions, such as the ability for all users to generate reports, track time off, enroll in benefits plans, and update their contact information. Administrators at **Institution A** considered Oracle Cloud, but selected

1) Workday, July 2011, https://www.workday.com/en-us/company/newsroom/press-releases/press-release-details.html?id=1470271&_rda=/company/news_events/press_releases/detail.php (accessed January 2017)
2) Oracle, April 2014, http://www.oracle.com/us/products/applications/peoplesoft-enterprise/faq-investment-in-higher-ed-2164844.pdf (accessed January 2017)

Workday in part because of Workday's experience in the higher education sector. Contacts at the institution also noted Workday's attractive user interface (UI) as a factor in its selection given the institution's focus on design.

Assess Implementation IT Support Infrastructure and Compatibility with Current Information Systems

Cloud-based ERP implementation requires institutions to convert some prior system data to the new ERP and cross-reference data between functional areas (e.g., finance and human resources). **Institution E** administrators recognized Workday's superior UI, but selected Oracle Cloud for its compatibility with their student information system, which is an Oracle product.

Administrators at campuses that migrate to cloud-based ERP systems consider vendor support for technical implementation and organizational change management. Administrators at **Institution A** believed that Workday had better capacity to customize implementation support to their small campus. In contrast, **Institution E** administrators felt that Oracle's implementation support was superior to Workday's. At time of the institution's market research, Workday relied on clients to hire third party consultants for technical implementation support.

Considerations for ERP Selection

Data Preparation

Determine Data Storage Strategy Based on Anticipated Use of Stored Data

Institutions that implement cloud-based ERPs typically archive historical data from the prior ERP or legacy system in a data warehouse. Contacts note that data warehousing enables staff to create reports that combine cloud-based ERP and prior system data. Institutions also retain historical data for access during audits and work history information for tenured employees' retirement benefits.

Historical Data Storage Solutions at *Institution B* and *Institution D*

Type of Historical Data	Data Storage Solution
Institution B	
PeopleSoft HCM data	• Archive data for audits as needed • Freeze PeopleSoft HCM data and conduct manual analytics for reports between Workday and PeopleSoft HCM data
Institution D	
Financial data (e.g., grants management and charts of accounts)	• Programmed data translation rules to map (i.e., standardize conversion) between old and new charts of accounts

Consider Historical Report Demand before Investing in Data Integration

Institution B administrators faced faculty staff pushback when they chose to freeze PeopleSoft HCM data rather than integrate it for Workday reporting. Analyses between current and legacy system data require manual extraction and integration. However, because administrators infrequently request reports, contacts are satisfied that they did not take time to map data.

Implement a Data Governance Plan Prior to Migration to Facilitate a Smooth Transition to Cloud-based ERP

Three of five contacted institutions did not create a data governance plan prior to cloud-based ERP migration. **Institution E** contacts believe that the institution's data governance plan, created about two years prior to implementation, streamlined data migration. Administrators at **Institution D** note that data governance was not a top priority during implementation in 2012, but estimate that a plan may have improved their migration of grants management data. Contacts intend to create a data governance model in the next year. **Institution A** administrators hoped to create a data governance plan prior to implementation, but the project's advisory committee delayed the process because they did not understand its relevance. Administrators implemented the data governance plan in parallel with Workday, but contacts believe it would have been more effective if established prior.

Clean Data to Ease Conversion Process

While administrators typically archive historical data for occasional access, institutions must migrate data essential for ongoing operations (i.e., staff addresses, student identification numbers) to the cloud-based ERP. Clean and accurate data prevent data loss and ensure correct translation. **Institution B** administrators did not create a formal data governance plan for legacy data. Contacts note that a small group of trained specialists entered legacy system data, and thus administrators trusted its accuracy. After the Workday conversion, over 250 staff entered data into the system, which increased data entry errors. The institution's human resources information systems department created a data integrity initiative to train faculty and staff to

enter data correctly and track data integrity. Contacts note that the initiative effectively taught users the importance of accurate data entry and led to reduced errors. At **Institution A**, IT staff cleaned legacy system data and electronic records during implementation. Contacts note that Workday Financials implementation went smoother than that of Human Resources in part because financial electronic records were more accurate than that of HR.

Institution C administrators did not migrate user contact information from the legacy system. Instead, administrators required each user to enter their information into Workday. The institution's Workday implementation team emailed users with instructions and the reason for required data entry. Contacts report that this strategy was successful and that users correctly entered their own data. However, contacts believe that users took extra care in data entry because its accuracy directly benefited them (i.e., ensured they receive paychecks and benefits). Contacts caution reliance on users for data whose accuracy does not benefit them (i.e., departmental data), suggesting users are more likely to make errors.

3) Implementation

Timeline

Implementation Time Varies from Nine Months to Three Years

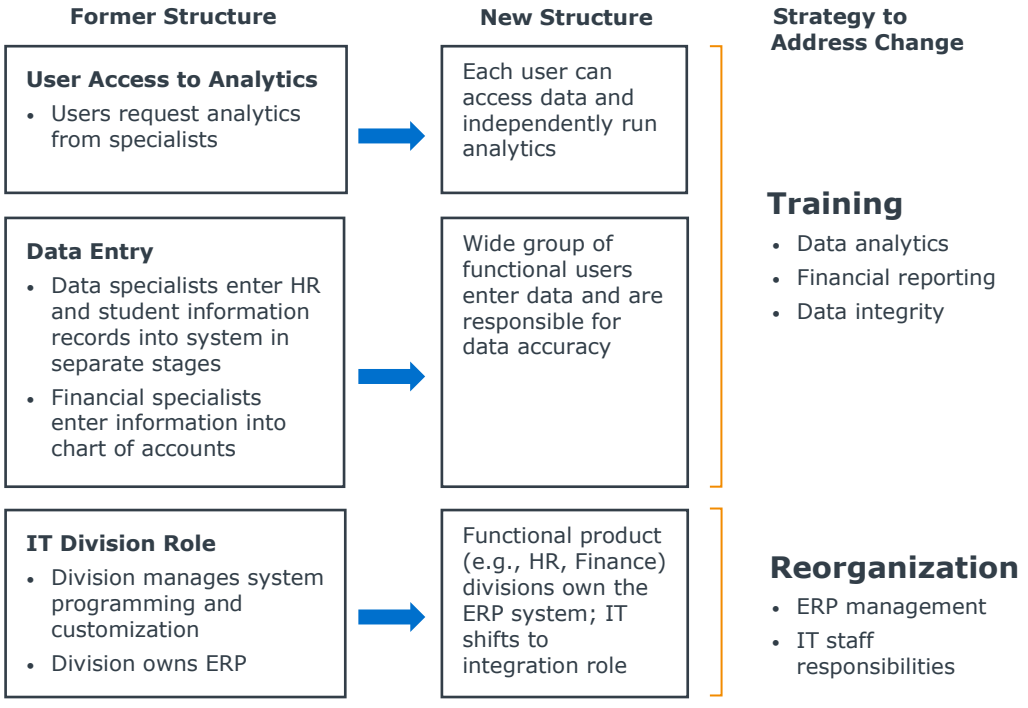
Implementation length depends on the state of prior ERP or legacy system, data, and business processes. For example, the implementation of Workday HR at **Institution B**, which began in 2010, was one of the first Workday implementations in higher education. The process lasted three years because the institution had to coordinate with Workday to adapt Workday's system to the higher education environment. Contacts at the **Institution D**, another early Workday campus client, believe that the lack of Workday implementation professionals at the time of implementation extended the process. The first Workday implementation at **Institution A** lasted nine months, but contacts note implementation challenges as one of the first small institutions to adopt Workday. **Institution E** started their Oracle Cloud implementation in March 2015 and their projected timeline is two years.

Implementation Planning and Leadership

Cloud-Based ERP Implementation Requires User Training and Functional Reorganization

Cloud-based ERP implementation requires user training and functional reorganization to develop, use, and maintain the new system. Administrators develop user trainings and hire staff based on the new ERP's anticipated effect on current business operations. After implementation, cloud-based ERPs require staff dedicated to system maintenance, security, updates, report writing, and data management. Institutions recommend that administrators begin preparation as early as possible and secure buy-in from campus executives (e.g., CIO, CBO, and Provost) to lead and fund the project.

Strategies to Address Changes in IT Division and User Responsibilities After Cloud-Based ERP Implementation



Profiled Institutions Hire Temporary and Permanent Employees to Support Implementation and Ongoing Operations

IT divisions designate staff members to lead project implementation activities such as data migration, data cleaning and conversion, technical integration, and testing. Contacts recommend that the IT staff involved in these projects dedicate most or all of their time to the implementation duties, rather than balance two roles ineffectively. Most profiled institutions hire employees to fill roles in project management and hire temporary employees to backfill positions left vacated by leadership positions.

Potential Staff Positions to Support Cloud-Based ERPs

Roles to Support Cloud-Based ERP Implementation

Profiled institutions hired or created the following roles:

- Implementation project leader
- User training leader
- External consultant for project change management
- Live help desk support staff
- Employees to backfill positions vacated by implementation leaders

Roles to Maintain and Manage the Cloud-Based ERP

Institution D hired nine additional full-time employees to manage Workday system maintenance, an increase from their original one-person staff to maintain the legacy system.

Staff consist of:

- 3 Business Analysts
- 2 Report Writers
- 2 Data Integration Staff Members
- 1 Security Administrator
- 1 Workflow Administrator
- 1 Manager

Institution E administrators shifted some IT staff into full-time implementation roles. To limit ongoing costs and avoid worker displacement once the project finishes, the CFO banned backfilling for implementation staff's former roles. Instead, departments divide implementation staff's prior responsibilities amongst existing employees and hire temporary contractors as needed. Contacts estimate that 90 percent of implementation project staff dedicate all their time to implementation. Contacts report that this full-time dedication increases productivity and eliminates the stress of balancing two roles.

Similar to Institution E, **Institution D** IT staff assigned to implementation dedicated most of their time to implementation. The division backfilled roles as necessary and contacts report that this effectively managed operations. Contacts note that they did not backfill highly specialized positions because other staff did not possess the required skills and knowledge. Instead, staff in specialized positions split their time 70 percent on implementation and 30 percent on their prior role. This typically translated to 3-4 days of project work per week and 1-2 days in their prior position to manage and support staff. Contacts note that the success of this model varied by each employee's capabilities and capacity for time management, but was effective overall.

Institution C project managers hired new staff to support Workday implementation and its ongoing operations and reassigned some existing staff to implementation. The institution both hired temporary employees and backfilled roles to continue implementation staff's former responsibilities. New hires included a communications staff member and a technical implementation leader. Administrators at the institution included funds for position backfills and temporary employees in the Workday

implementation budget. Administrators also dedicated funds in the project budget to increase pay for staff who absorbed additional responsibilities during implementation. Contacts report that such early financial planning secured sufficient project staffing.

Ten to 15 staff worked on implementation for each Workday product (i.e., HR and Finance). Each product implementation team included:

- Five to 10 technical support staff (e.g., integration, security, support writing)
- Approximately 10 change management staff (e.g., communication, training, staff development, organization)

Three of ten **Institution A** IT staff assisted with Workday implementation. Other IT employees backfilled those roles while the remaining staff maintained day-to-day operations. Remaining staff de-prioritized administrative tasks such as equipment management and leasing in order maintain normal business operations. Contacts at Institution A note that it is more effective to backfill positions than to require staff to split their time between two roles. However, contacts anticipate the need for more IT staff to backfill roles in their upcoming implementation of Workday Student because it is more complex than prior product implementations.

Staffing Models during Implementation at Four Profiled Institutions

	Institution A	Institution C	Institution D	Institution E
Split Employees between Implementation Duties and Prior Role			✓	
Assign Implementation Staff to New Roles and Backfill Vacancies	✓	✓	✓	
Hire Temporary or Contract Employees		✓		✓
Hire New Permanent Employees for Implementation and Ongoing Support		✓		✓

Connect with Current Users to Share Implementation Strategies

Workday user communities enable Workday clients to share updates and best practices amongst peer members. Contacts at **Institution A** and **Institution B** noted that the Workday user group web forums allowed them to exchange information with other institutions on campus implementation challenges.

Hire a Project Management Leader to Manage Implementation Processes on Campus

The nuances of implementation plans and processes differ among institutions, but most models include a primary implementation leader who oversees the entire implementation. Three of five profiled IT divisions employ project leaders who oversee cloud-based ERP implementation and change management. Teams that selected a leader from inside the institution explain that the leaders' knowledge of institutional policies, culture, and organizational structure facilitated the system transition.

Although prior cloud-based ERP implementation experience is helpful, contacts recommend that project leaders possess technical and general management skills adaptable to cloud-based ERP change management. The Workday project leader at **Institution A** began her role as an IT project manager. **Institution E** administrators hired a full-time implementation leader from within the institution to oversee Oracle implementation. Contacts attribute the project leader's effectiveness to her prior business administration, IT, and provost office experience.

Proficiencies of an In-House ERP Implementation Project Management Leader

External Consultants Should Work Closely With an Internal Staff Member to Ensure Self-Sufficiency after Project Completion

Some institutions hire external consultants to lead cloud-based ERP change management. Contacts who support external leadership believe that consultants bring new perspectives and are more specialized in change management and the specifics of the cloud-based ERP system. **Institution E** hired Huron Consulting to assist with change management in addition to an internal project lead. Regardless of the choice of external or internal project leadership, contacts at **Institution B** emphasize the need to ensure that new ERP system knowledge remains within the institution after the project lead completes implementation.

Campus Communication

Enlist Senior Executives to Voice Support

Cloud-based ERP implementations require campus members to adopt new business processes, so institutional leaders must ensure that campus members understand the reasons to invest in an expensive and time-consuming process. **Institution E** administrators report that executive sponsorship and unified messaging from the executive team minimizes campus pushback and employee dissatisfaction with additional time and effort to learn the new system. The following executives lead Institution E's ongoing Oracle Cloud ERP implementation initiative:

- Provost
- Chief Financial Officer
- Vice Chancellor for IT
- Vice Chancellor for Administration

Host Public Events and Post News Updates to Communicate Early and Often with Campus Stakeholders

In addition to communication from institution leaders, all contacts note that frequent communication from project leaders increases campus buy-in. Effective communication improves training sessions because users better understand the purpose of attending. During implementation processes, IT staff and project leaders communicate with system users through task force meetings, training sessions, webpages devoted to ERP implementation updates, and campus-wide presentations.

Administrators estimate that 200 to 300 campus members attend each town hall.

Profiled institutions' administrators host public information sessions both in-person and online to answer questions and address concerns about the new cloud-based ERP. **Institution E** administrators host town halls open to the entire campus once per quarter. Administrators advertise the event through website marketing and target the functional business areas of the school. The institution's four executive project sponsors update attendees on implementation progress.

Communication Strategies to Provide Project Updates

Twice monthly web seminars to address Frequently Asked Questions

Blog with project updates

Large presentations in auditorium

Focus group meetings to solicit feedback from campus users

Emails with contact information for ERP helpdesk support and links to user guides

ERP Training

Provide Early and Ongoing User Training

IT staff deliver training sessions to users from departments that interact with the ERP system on a regular basis (e.g., payroll, benefits, accounts payable, and recruiting). Training topics include data entry, reporting, user interface navigation, and analytics. Contacts at the **Institution D** note that Workday Financials presumes that users understand accounting terminology and that some staff may require additional training.

Contacts at **Institution C** note that on-demand web trainings provide scalable access, although users prefer the personal touch of the in-person trainings.

Strategies to Train Cloud-Based ERP Users at Profiled Institutions

Vendor Help Guides

Information technology division administrators at **Institution A** supplemented Workday's generic user guides with materials personalized for College users.

Online Web Trainings

Profiled institutions post training documents and videos on the information technology website that students and employees can access on-demand.

Instructor-Led Training

IT training leaders at profiled institutions demonstrate the new cloud-based ERP. **Institution C's** in-house Workday product experts attend the trainings to provide additional subject expertise.

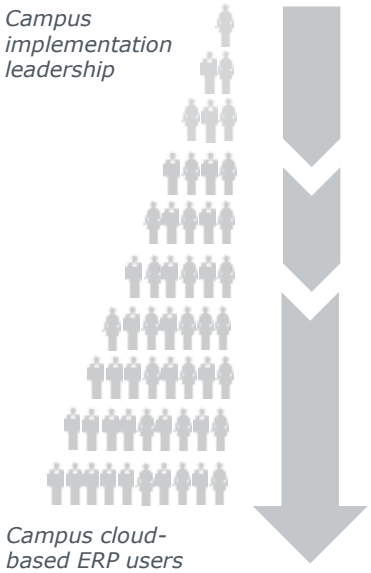
Lab Hours

Institution C training staff host open lab hours for in-person tutorials.

Create a Change Management Ambassador Team to Train and Inform Campus Users

Administrators recognize that training staff cannot reach all users through one set of presentations. To scale training outreach, **Institution B's** human resource information systems division employed a "Train-the-Trainer" model. The division designated a lead user within each College's HR staff. The divisions' training team led sessions to inform lead users about the system and to demonstrate Workday processes, which the lead users then taught their HR divisions. Similarly, **Institution E** created a change management ambassador program to disseminate project updates from executive sponsors and to train campus users.

Change Management Ambassadors at *Institution E*



Executive Sponsors

Select Change Champions

Meet monthly with Change Champions to communicate project updates

Change Champions

Select ~100 Change Agents

Communicate updates from executive sponsors to Change Agents

Change Agents

Watch twice-monthly webinars to learn system operations

Communicate operational and project knowledge to campus users

4) Outcomes

Cost

ERP Systems Cost More than Homegrown Systems, but Costs Align with Institutions' Estimates

Cloud-based ERP systems cost more to implement and maintain than the homegrown systems that three of five institutions used prior to the ERP system. Cloud-based ERPs require staff dedicated to system maintenance and upkeep, security, updates, report writing, and data management. However, contacts report that their budget estimates align with actual implementation cost. Administrators at the **Institution D** expect future transitions to cloud-based systems will be less costly because of their initial investment.

10x

Institution D hired nine full-time employees to manage Workday, an increase from the single staff member who maintained the legacy system.

ERP Satisfaction

User Learning Curve is Most Difficult Part of Cloud-Based Implementation, but Contacts are Satisfied with Interface and Updates

Overall, Workday administrators and ERP system users at contact institutions are satisfied with Workday and the implementation process. Institution E's Oracle Cloud implementation is still in progress. Contacts who use Workday note the user learning curve as the most challenging part of implementation, but expect users' comfort with the new ERP to increase with time. Contacts note that their institutions are in a better position to access to data and generate reports due to users' direct access to data.

Workday provides users with automatic program and service updates. Contacts report that Workday proactively updates forms as needed to address federal regulations (e.g., updated I-9 forms). Contacts at **Institution B** also note that Workday's interface allows form customization. For example, institution administrators easily removed the application question about past felony convictions in response to its state's Ban the Box law.

Consider the Value of Visual Analytics Display, Report Capabilities, and Printed Analytics

Two of four institutions that use Workday noted dissatisfaction with its visual analytics and printed report displays. Administrators at **Institution B** use Tableau, a data visualization tool, to run analyses more sophisticated than Workday can provide. Contacts at the **Institution D** noted that staff frequently print out report copies and are unsatisfied with the printed visual report display.

5) Research Methodology

Project Challenge

Leadership at a member institution approached the Forum with the following questions:

- Why did administrators select their current cloud-based ERP system (i.e., Workday or Oracle Cloud)?
- When (i.e., year and month) did the institution begin and end migration to its current cloud-based system?
- What type of ERP or information system did institutions use prior to Workday or Oracle Cloud?
- Did institutions have a formal Data Governance plan in place prior to cloud-based ERP implementation?
- How did institutions store historical data that could not transfer to the new cloud-based ERP?
- Are administrators satisfied with that solution to store historical data? Why or why not?
- What primary challenges do administrators face during cloud-based ERP implementation?
- What strategies did institutions use to address these challenges during cloud-based ERP implementation?
- How did administrators allocate IT staff workload to continue business operations during the implementation process?
- What aspects of implementation went particularly well?
- How does the cost of the implementation compare to the expected cost?
- How do ongoing system costs compare to that of the prior ERP or information system?
- Do institutions consider the new cloud-based ERP satisfactory? Why or why not?
- Do institutions consider the cloud-based ERP's business analytics tools and user interface satisfactory? Why or why not?

Project Sources

The Forum consulted the following sources for this report:

- EAB's internal and online research libraries (eab.com)
- National Center for Education Statistics (NCES) (http://nces.ed.gov/)

Research Parameters

The Forum interviewed IT division leaders and information system directors at the following institutions:

A Guide to Institutions Profiled in this Brief

Institution	Location	Approximate Institutional Enrollment (Undergraduate/Total)	Classification
Institution A	Pacific West	1,500 / 2,000	Special focus four-year (arts, music and design schools)
Institution B	Northeast	14,500 / 22,000	Doctoral universities (highest research activity)
Institution C	South	11,000 / 17,000	Doctoral universities (highest research activity)
Institution D	Northeast	6,000 / 11,000	Doctoral universities (highest research activity)
Institution E	South	7,000 / 12,500	Doctoral universities (highest research activity)