



Evaluating Your Legacy Administrative Systems: How to Conduct a Study to Determine Options

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Many higher education colleges and universities continue to use aging and outdated administrative systems to manage their institutions. Invariably these systems are based on outdated technology. They typically have poor tools for data extraction and reporting, are cumbersome to change or update, and are not integrated or web-based. In short, these systems are not keeping up with today's stakeholder needs. Further, the difficulty in integrating these systems with portals and Web 2.0 offerings means that they are most likely not meeting the expectations of today's *iPhone*, *Facebook*, and *YouTube* student generation.



Purpose

The purpose of this article is to outline steps to carry out a systematic examination of the strengths and weaknesses of your existing administrative systems. The process helps you outline the pluses and minuses of the possible options going forward.

Here are the five steps that we recommend in such a process:

1. Prepare the institution for the evaluation
2. Document user experiences with the existing system(s)
3. Gather user requirements
4. Collect information on options going forward
5. Determine the best course of action for your institution

Step 1: Prepare the Institution

A principal requirement is support and alignment at the highest levels of the institution to move forward with a study of this sort. Most institutions find some differences of opinions when it comes to whether or not to replace or modernize current systems. To be successful, top leadership should be in consensus that an evaluation of current systems must take place. Ideally, this project will be seen as a stepping stone to

enabling one or more of the strategic goals of the institution, which will help the majority of stakeholders understand the need for this project.

If the institution is going to carry out the assessment itself, then the governance for the project should include an executive sponsor and an assessment team consisting of a sample of administrative staff, technical staff, faculty, and executives who use the systems regularly and who are aware of the strengths and weaknesses of the legacy application(s). The leader of the assessment team should not only be a good project manager, but also someone who is respected across the institution. The sponsor of the team should be a Vice President or Executive Vice President of the institution.

The most important component of preparing the institution for this type of assessment is to articulate clearly the goals and objectives of the assessment. Table 1 shows an example of goals that an assessment team might develop for a legacy assessment project.

EXAMPLES OF ASSESSMENT GOALS
<ol style="list-style-type: none">1. Review and assess the functionality by office/function/module that is currently available in the legacy system(s) and related applications.2. Identify and rank order the system capabilities that Subject Matter Experts (SMEs) rate as “critical,” but are not now available to them in the current systems.3. Make a rough comparison of the functional and technical capabilities of the current system to other commercial off-the-shelf applications.4. Review and assess the information technology (IT) infrastructure, IT staffing levels, IT skill sets, and IT experience levels. Identify what would be needed if the institution were to consider the acquisition of other commercially available solutions in the higher education market.5. Deliver a high-level assessment of the current maintenance fees compared to other available systems in the marketplace, and provide a review of existing service level agreement(s) with the current application provider(s).6. Develop a list of critical issues that the institution must consider if it were to decide to replace the current administrative systems.7. Summarize the strengths and weaknesses of the current system(s), and identify possible options going forward in a final written report.

TABLE 1

Step 2: Document User Experiences with the Existing System(s)

The second step of the process is to document the experiences of users with the legacy application(s). Systematically canvas the views of power users and casual users of the administrative systems. This information can be collected using one or more vehicles, including personal interviews, focus group sessions, and online surveys that would reach a broader group of stakeholders.

In assessing user experience, we recommend that you gather opinions using the following questions:

1. What are the strengths of the existing system(s)?
2. What are the weaknesses of the existing system(s)?
3. What are the opportunities you see if the institution decided to modernize or replace the existing system(s)?
4. What are your concerns if the institution decides to remain with the current systems?

As an example, Table 2 shows the top five weaknesses cited by users of a legacy application at a higher education institution we surveyed. The weaknesses are arranged in the table according to the frequency with which the weaknesses were cited by users. The last column of the table provides sample interview responses.

MOST CITED WEAKNESSES OF THE CURRENT SYSTEM		
Rank	Weakness	Sample Comments
1	Outdated technology	System is antiquated; no means for establishing anything close to modern data architecture; dwindling availability of replacement components
2	Does not meet our needs	Not sufficiently flexible to meet business needs for the last 10-15 years; does not accomplish what we need for our users; doesn't have the functionality we need
3	Poor data extraction and reporting	Data extraction is all or nothing; reporting tool is cumbersome and not intuitive; difficult at best and does not facilitate timely decision making
4	Difficult to integrate with external applications	Application user interface is archaic, not intuitive and cumbersome; not up to industry standards in terms of interfaces; cost of integration is high
5	Cumbersome to change or update	Lack of ease to upgrade or modify processes; takes significant effort for even minor modifications; resources with required skills are dwindling

Table 2

The weaknesses cited in this example are typical responses we have observed when evaluating legacy applications. Other weaknesses cited by legacy users include the inability to adopt industry best standards for processes, cultural entrenchment with the current system, having to do unnecessary work, a concern with losing the key people who know the system, and the lament that current system(s) are not user friendly.

The results from Step 2 illustrate quantitatively the strengths and weaknesses of the legacy system as seen by users. Furthermore, other findings from this step provide the assessment team with a prioritized list of user concerns (should the decision be made to stay with the current systems) and a list of prioritized opportunities (should the decision be made to replace or modify the existing systems).

Step 3: Gather User Requirements

The purpose of this step is to identify the specific needs of users and determine if those needs are being met with the current system(s). These user needs are called “requirements.” Requirements can be gathered in a number of ways. Following is one approach for gathering requirements:

1. Convene a series of focus group sessions for each type of stakeholder (e.g., administrative staff, technical staff, faculty, students).
2. At each session facilitate the groups in generating a list of their specific needs (requirements).
3. Combine the results from all sessions and organize the requirements into categories (e.g., student requirements, financial aid, HR-Payroll, advancement, student accounts, etc.)
4. Send the total list of requirements to users who are experts in using the current system and are experts in the business process needs of their areas. Have these users rate each requirement on the following two factors:
 - a. How critical the requirement is (e.g., Critical, Important, Nice to Have, Not Needed)
 - b. Whether or not the requirement is handled by the current applications (Yes, No)

Among other analyses, this information will help the institution document the capabilities of the existing system, as well as the capabilities users need that are not now being met by the legacy system(s).

A More Efficient Method: Software applications exist that can more easily and efficiently document system requirements when compared to conducting focus group sessions and interviews. In particular, we have used a web-based tool that permits users to access requirements and rate them when it is convenient for them. This tool includes an exhaustive catalog of software requirements, each of which is stated at a common level of specificity¹. This approach speeds up the requirements gathering, and dramatically improves the specificity and quality of the results.

¹ The toolset in this regard is the *DecisionDirector* product by Advantiv Solutions.

Step 4: Collect Information on Options Going Forward

At this point, the assessment team should have a clear indication of the strengths and weaknesses of the legacy system(s), including a list of user needs that are met by the legacy application and a set of user needs that are not being met. The team must now decide on three broad courses of action: (1) remain on the existing system(s), (2) modernize or upgrade the existing system(s), or (3) replace the legacy system(s).

1. Remain on the legacy system

With our clients, the *status quo* option to remain with an aging application is driven primarily by cost and budget realities of the moment. Most institutions see the need for improving systems from a strategic standpoint, but the priority to replace or upgrade is not as urgent as other institutional initiatives underway.

2. Modernize or upgrade the existing system

By modernization, we mean the continuous improvement of the legacy system through programming, typically done by internal IT staff. We have observed that some institutions with large IT budgets and staffs have continued to improve their systems over time through extensive customizations and interfaces to third party applications. This option would simply continue this approach, but may do so in an accelerated manner.

3. Replace the legacy system

A good number of institutions elect to replace their legacy systems entirely. The five primary variations of replacement strategies include the following:

1. Replace the legacy system with a commercially available product (proprietary system option)²
2. Replace the legacy system with a community source product (open source option)³
3. Build a new system from scratch (software development option)
4. Replace one or more applications with software deployment over the Internet (the Software-as-a-Service (SaaS) option)⁴
5. Replace the legacy system with a hybrid of options listed above

Possible Assessment Factors

To compare options, the assessment team must first agree on a common set of assessment factors. Then the assessment team will collect information on each of the assessment factors for each of the proposed options. Table 3 displays examples of possible assessment factors to compare competing options under consideration.

² This includes both integrated application solutions and “best of breed” solutions

³ If the institution elects to replace an entire suite of administrative applications, this option will have to be implemented in stages since not all of these systems are available in open source code at this time. Solutions involving open source will be part of a hybrid approach.

⁴ Also called “cloud computing.”

EXAMPLES OF POSSIBLE ASSESSMENT FACTORS

1. Positives or advantages of the option (pros)
2. Drawbacks or disadvantages of the option (cons)
3. Estimated acquisition costs
4. Estimated implementation costs
5. Maintenance and other recurring costs
6. Total cost of ownership
7. IT staff level required to implement and maintain
8. IT skill sets required to implement and maintain
9. Length of time to implement the option
10. Estimated lifespan for the option
11. Estimated ROI and estimated years to break even
12. Multidimensional risk assessment of the option

TABLE 3

Step 4 is primarily a data collection effort. Your investigation of various options could also involve receiving visits from vendors, observing product demonstrations, collecting information on project costs and ongoing costs of the various options, and visiting campuses that have installed various software applications under consideration.

A Comparison of Options

Once information is collected on the assessment factors for each of the options, institutions will be able to make holistic comparisons of options by displaying the information in a single table. Table 4 shows a comparative analysis of four alternatives that were being considered by an institution. In order to present the data in a succinct way, only high-level information for each of these options is shown.

Table 4: A High Level Comparison of Four Options Going Forward

	Retain Current Applications	Strategic Agreement for Modernization	Limited Scope ERP w/Hosting	Full Scope ERP w/ Hosting
Option Description	Retain the current system and improve training and the existing Service Level Agreement.	Strategic partnership with a software development company to modernize the applications.	Install a fully integrated ERP solution using rapid implementation and core functionality only.	Install a fully integrated ERP solution with full functionality.
Rationale	Low cost, low effort solution which provides some minimum improvements in efficiencies.	Relatively low cost solution with improvements in efficiencies and effectiveness.	Lower initial cost than full-scope ERP implementation yet provides similar benefits.	A modern, full-scope ERP that seeks to maximize business benefit, ROI, and capability in a single initial implementation.
Benefits	<ul style="list-style-type: none"> • Lowest cost solution • Minimal changes for users • Improved contract terms and service delivery • Some small increases in efficiencies due to training 	<ul style="list-style-type: none"> • Relatively low cost • Gradual changes for end-users • Long-term improvements in areas prioritized by the institution 	<ul style="list-style-type: none"> • Accelerated transformation of technology and platform to modern standards • Significantly improves the student experience and administrative capabilities 	<ul style="list-style-type: none"> • Accelerated transformation of technology and platform to modern standards • Full realization of optimal benefit from the ERP implementation
Drawbacks	<ul style="list-style-type: none"> • No modern platform or technologies • No improvement in data extraction and reporting • No increased efficiencies 	<ul style="list-style-type: none"> • Software development firm may not agree • Likely 3 years before tangible results • Does not approach capabilities of Custom Off the Shelf (COTS) systems 	<ul style="list-style-type: none"> • Significant investment • Significant change for users • Does not include all features of a fully scoped ERP 	<ul style="list-style-type: none"> • Greatest investment of the four options • Greatest change for the institution’s end users, IT, and administration
Life Span	5 to 10 Years	10 to 15 years	15 to 25 years	15 – 25 years
Time to Solution	3 to 6 months	Ongoing	12 months	9 – 15 months, concurrent 18 – 24 months, phased
Strategic Alignment	Poor	Low to medium	High	High
Cost	\$300K - \$500K	\$450K – 700K year 1 \$150 - \$250K years 2+	\$3M - \$5M non-recurring \$700K - \$900K recurring	\$6M - \$10M non-recurring \$700K - \$900K non-recurring

Step 5: Determine the Best Course of Action

Having collected information on each of the possible options going forward, your institution must now decide on the best course of action. The goal of the assessment team is to reach consensus and then make a recommendation on the option that best fits the needs (and financial resources) of the institution.

Your team can go about this process in a number of ways. Some groups reach consensus through open discussions and sometimes compromise. Other groups prefer a more structured decision-making process such as the Nominal Group Technique or perhaps a weighted factor decision-making process. The assessment team should decide ahead of time the kind of decision process they want to use and then implement that process. Someone on the team should then write up the recommendation, have the team review the report, and then present the results to the sponsor and the executive team for action.

Two Final Considerations

Two additional issues may arise when institutions embark on an assessment of their legacy systems.

Resistance to Change: Institutions often underestimate the amount of resistance to change when replacing a system that people have used and become comfortable with through years of use. Even bad software has its champions when used long enough. Often, people have created workarounds and they have accepted them as the way of doing business. Also, knowledge is a source of power and authority, and for those who know the old systems better than anyone else, the thought that their source of power is being taken away can be frightening. Some can even envision that they may lose their jobs. Others will fear that they will not be able to learn and use the new systems.

For some, the resistance will be open and 'in your face!' For others, the resistance will be passive, but just as strongly felt. Those conducting the interviews and facilitating the data gathering efforts must be good listeners and allow stakeholders to vent and speak their minds. Better yet, consider implementing an organization change management plan at the start of the project so that fears can be minimized. Just remember the Mark Twain quote, "I don't mind progress, it's the change I don't like."

Outsourcing the Assessment: As you can see, an analysis of this sort involves tremendous effort. Significant amounts of time are involved and the assessment team must spend a good deal of extra effort working on the project. Since many institutional personnel may not have the background or the time to carry out some aspects of this legacy assessment process, an outside consultant or consulting firm can either provide guidance and advice along the way or actually manage and carry out the entire project.

In selecting a consulting partner, be sure the consulting firm is unbiased and has not been a potential vendor for one or more of the resulting recommended options. The consulting partner should be vendor-neutral and should not benefit from the selection of any particular solution.

In summary, if your systems are no longer meeting the needs of your institution, consider your options using our structured, five-step process to evaluate your legacy system(s). Along the way, don't forget to factor in resistance to change and outsourcing options to help aid in any path your institution decides to travel down.