The LMS Acquisition at Georgia Southern University

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ABSTRACT

This paper describes the information technology system acquisition life cycle and examines an enterprise class information technology system acquisition, specifically Georgia Southern University's acquisition of a new learning management system. There are many activities that need to be addressed during the IT system acquisition life cycle to determine the appropriate IT system for an organization, such as planning, information search, evaluation of prospective systems, and vendor negotiations.

INTRODUCTION

System acquisition is an important part of any organization's business strategy. An information technology (IT) system acquisition may be tailored to an individual or used as an enterprise-wide solution. Whether it is a purchase of a new desktop computer for a student or an enterprise resource planning system for a multi-national company, an acquisition process is followed.

This case study explores the acquisition of a learning management system for the University System of Georgia (USG) and more specifically for Georgia Southern University (GSU). Learning management systems have been adopted within higher education as a way to

enhance traditional on-campus courses with online content, and to market online distance education and hybrid courses. The USG task force was looking to replace the current learning management systems used by the majority of USG institutes with one common learning management system. As GSU is part of the 35 institutions that make up the University System of Georgia, GSU's Information Technology Advisory Council was allowed access to the information and resources utilized by the USG's Learning Management System Transition Task Force to determine which LMS would work for the University System of Georgia.

A large IT system can cost upwards of $100 million and an incorrectly chosen IT system can cost an organization billions of dollars, however there is an absence of research that explores the acquisition process of an IT system. This paper will add to the body of knowledge about the IT system acquisition process and help IT managers and researchers to understand the complexities of an IT system acquisition and how to carry out a future IT system acquisition process.

BACKGROUND INFORMATION

IT System Acquisition

An information technology system (IT system) is comprised of hardware, software, a network, databases, and components. The hardware would include a computer, the different inputs and outputs, cables, and wires. The software could include the operating system, and any application on the computer. Components of an IT system may be acquired separately; however there may be a cost savings and improved performance if the pieces are bundled together. Acquiring individual components may not make up a system, but a bunch of components of a system.

Traditionally, IT managers often have to decide the important question of “To buy or to build” a new IT system project. However, in recent years, a new form of acquisition, leasing, has come on the scene and is growing rapidly. IT managers now need to decide whether to buy, build, or lease an IT acquisition. As represented in Figure 1, IT managers have a variety of choices with how to acquire an IT system or the components within.

Many organizations will purchase commercial-off-the-shelf software and customize it. Organizations may choose to customize the software in-house or through the use of outside software contractors. Customized commercial-off-the shelf software, like a content management system, can be customized with additional modules (or plug-ins) that allows a specific organization to increase functionality that was not available with the core system. Additionally, individuals can customize their software by changing the default font or margins in a software product such as Microsoft Word to fit their precise needs.

Custom software is one of the most expensive options a company can choose. This is due to the amount of source lines of code for the custom software. Custom software may have 100,000 source lines of code or more that need to be written to achieve the specific requirements for the software (Adams, et al. 2004).

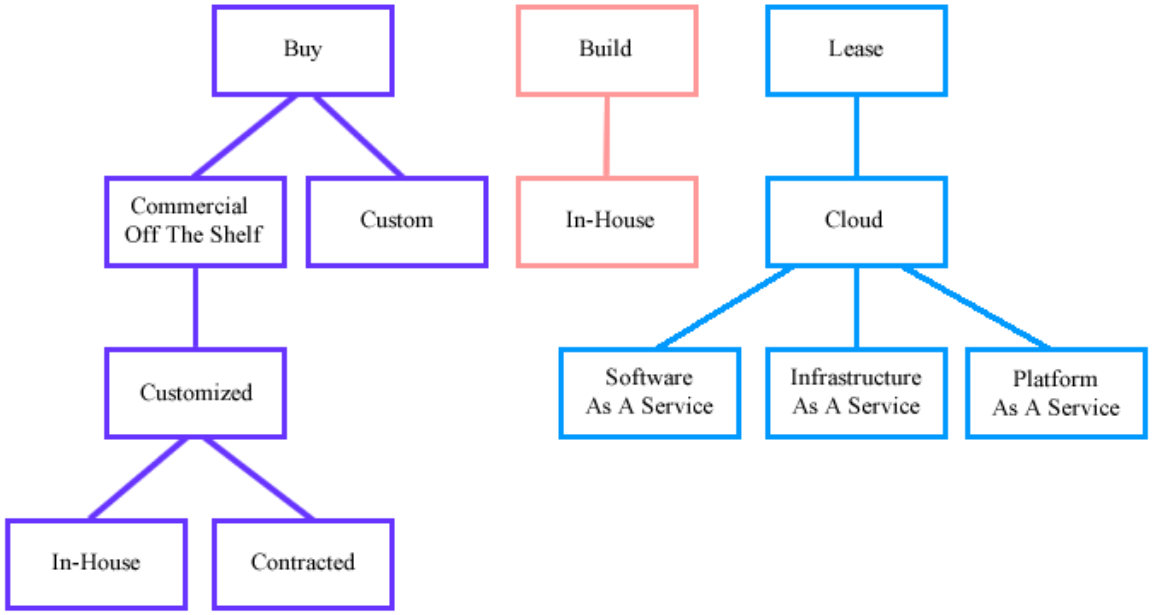
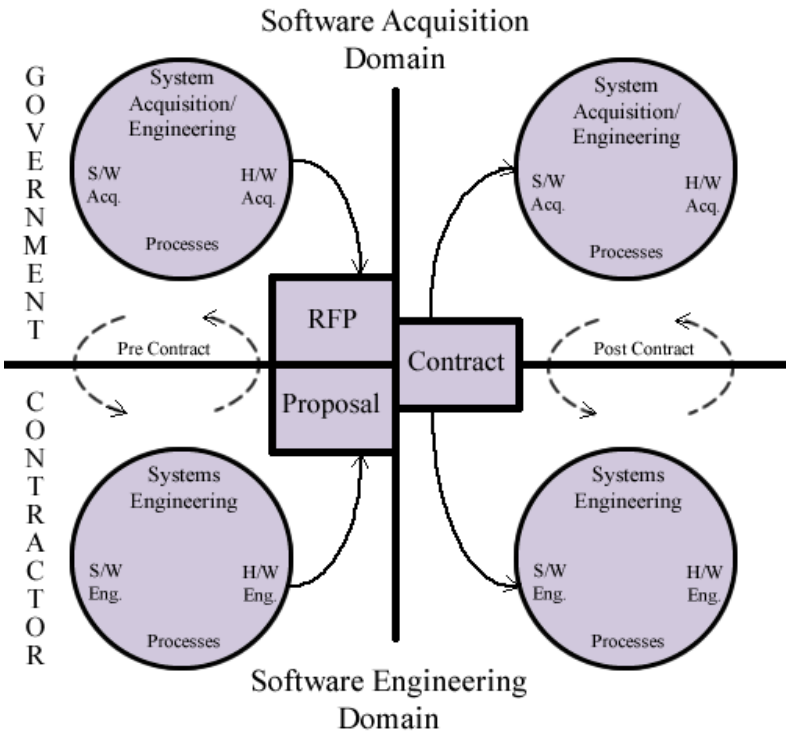


Figure 1: IT Acquisition Options

As software always exists within an IT system, all practices related to software acquisition must be consistent and integrated with the IT system acquisition practices (Adams, et al. 2004). Software is rarely purchased by itself. A new software acquisition usually requires an upgrade to be made to the IT system as well.

The United States government defines software acquisition as the set of processes that are



used to acquire the software portion of a software-intensive system. The acquisition process covers the entire life cycle of the project, including all the related methods, tools, techniques, and procedures used to acquire the project to the end-of-life (Adams, et al. 2004). The United States government follows the process for software acquisition as illustrated in Figure 2.

Figure 2: Software Acquisition Domain

Acquisition Life Cycle

The system development methodology is a standard process followed in an organization to conduct all the steps necessary to analyze, design, implement, and maintain IT systems (Hoffer, George and Valacich 2005). The systems development life cycle (SDLC) model, shown in Figure 3, is a traditional methodology that is used to develop, maintain, and replace IT systems. This life cycle allows for the repetition of phases to improve the quality of the new IT system.

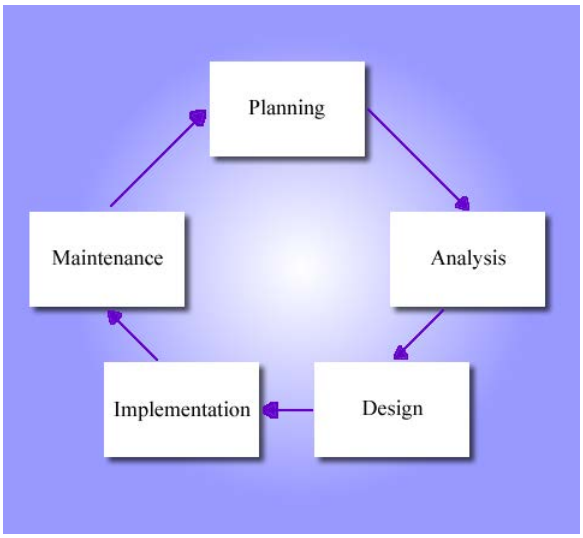


Figure 3: Systems Development Life Cycle

The planning phase is used to determine, at a managerial level, what the IT system will be expected to do and what the organizational need or reason for the new IT system is. The analysis phase starts to determine specific requirements that the IT system will need to do or have. The design phase takes the requirements from the analysis phase to create software or the components that make up the IT system. The implementation phase includes the finalization all the software or components of the IT system and integration of the IT system within the organization. The maintenance phase monitors, reports, and improves the IT system until the end-of-life for that particular IT system.

A traditional SDLC model deals with the building of a new IT system. When an organization has little to no information technology knowledge, building a new IT system is not feasible. These organizations will most likely need to acquire the entire IT system or portions thereof. The IT system acquisition life cycle model (SALC) is slightly different from a traditional SDLC due to the different focus.

The IT system acquisition life cycle model, shown in Figure 4, includes two high level phases: system selection and acquisition, and system implementation and integration (Reichgelt and Barjis n.d.). These two phases also include many activities to be completed before being able to advance to the next phase. For the system selection and acquisition phase, the following activities need to be fulfilled: planning; information search; selection; evaluation; negotiation; and choice. The system implementation and integration includes the following activities: assemble the implementation team; identify specific implementation and integration issues; determine how to address the issues; put the new system into practice; and cut over from the old system to the new system.

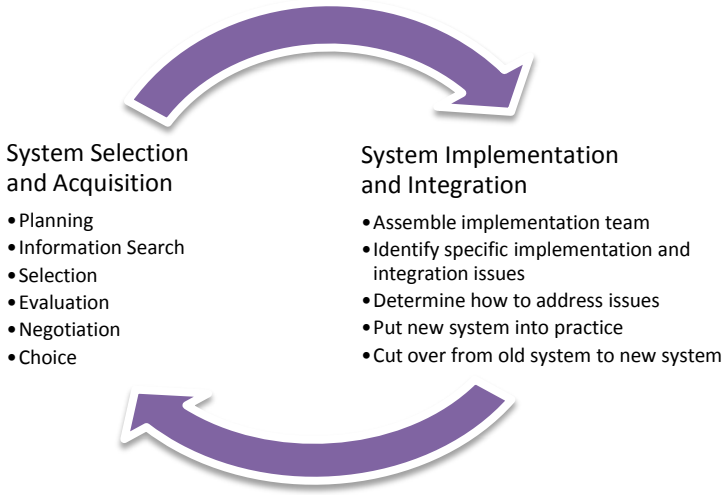


Figure 4: System Acquisition Life Cycle

Planning

The first activity in the acquisition phase is planning. The planning activity can set the scene for remaining activities, so organizations need to utilize this activity wisely. An incorrectly used planning activity could lead to wasted time or an incorrect acquisition.

The planning activity often includes the following six objectives:

- form the acquisition team
- decide the acquisition strategy
- complete a requirements analysis and definition for the project
- determine the criteria used for selection and evaluation
- consider other acquisition related issues that may factor into the choice of IT system
- execute a market place analysis

Selecting an acquisition team is the first objective of the planning activity due to the complexity of IT systems and components a single individual would not have all the information needed to make a decision. Members of an acquisition team come from all parts of the organization including the end user groups, IT staff, and finance and purchasing staff. As an acquisition may affect many departments in an organization, end users representatives are included to explain existing business processes and how likely users are to accept a change in the process. The IT staff is involved to make sure the new acquisition will integrate with the existing IT system. Finance and purchasing staff are often found on acquisition teams due impact on the finances of an organization and legalities of an eventual contract.

After creating an acquisition team, the team should discuss the strategy for the acquisition. These discussions would include decisions on how communications with potential

vendors should be handled, if questions brought up by a vendor should be shared with other vendors, and how subjective judgments are handled.

The third objective is to complete the goals and requirements analysis of the IT acquisition project. Goals are a high-level want that a new system should be able to attain, whereas requirements are the new system needs to do to obtain a goal. Determining requirements is considered hard as there may be a lack of communication between IT specialists and end users, a difficulty in specifying exactly what an end user wants, or a requirements analysis that was rushed.

Information Search

The information search is done throughout the acquisition project. The granularity of the information search differs depending on the activity of the acquisition project.

The information search tends to follow a three step process. Step one, find relevant information. Step two, screen the information. Step three, determine whether to keep or discard the information (Reichgelt and Barjis n.d.).

If an acquisition team does not feel the team members have the required expertise about a system, external consultants may be brought in. However with external consultants come added costs and issues. Identifying appropriate consultants and how the consultants will be used are just two issues acquisition teams would have determined in the planning activity.

Vendor conferences and demonstrations may also be used by acquisition teams to gather information. Vendor conferences are held by the organization to give invited vendors a high-level overview of the solution that they would like to acquire. Vendors who do not attend or send low-level representatives may be removed from the selection list. Vendor conferences can bring vendors together to facilitate cooperation, but can also lead to collusion as vendors learn who

their competition is. Vendor demonstrations can give the acquisition team much valuable information depending on how it is set up. Vendor-driven demonstrations allow the vendor to present their product in the best light and highlight the top features, which may not be important to the organization. On the other hand, scenario-driven demonstrations have the vendors perform specific tasks requested by the organization. Developing the scenarios may be a time-consuming and expensive task, so acquisition teams may use a mix of vendor- and scenario-driven demonstrations. Keeping audio or video copies of the presentations will allow the acquisition team to go back over the presentation to clear up any misconceptions or discrepancies different members of the team may have.

Selection and Evaluation

During the planning phase, generalized selection and evaluation criteria should be defined. Having the criteria defined prior to looking at vendors will help to make sure there is not a bias towards a specific vendor.

Using the selection criteria will often narrow the amount of vendors found in a market search. An organization will use the selection criteria to make sure it does not spend the time and money to evaluate an IT system that does not meet all the requirements determined.

During the evaluation period, the acquisition team will be looking into the financial and strategic direction of the vendor, the functionality of IT system, the degree to which the IT system meets technical requirements, and the cost of the IT system. The acquisition team may look at the fiscal health, strategic direction, and response time of vendors being evaluated. The acquisition team will be looking at how well the IT system meets the needs of the organization and if the IT system meets the requirements. The IT system will also be evaluated on how it will mesh with the current IT infrastructure and skill level of IT staff. Not only is the actual cost of

the new IT system evaluated, but the cost of optional hardware or personnel, end-user training, data conversion, and disruption of business operations and opportunity costs. The evaluation phase will narrow the prospective IT system vendors farther than the selection phase.

Choice and Negotiation

After the evaluation phase, the acquisition team needs to make a choice on what IT system the organization will be acquiring. Depending on the organization and the acquisition team, the final step in the acquisition process is to submit a report on choice of IT system and the reasoning behind why that IT system was chosen. Negotiations may be handled by a different team.

Once a team has selected an IT system to purchase they will have to negotiate a pricing model. This pricing model will include, initial cost of the software (lump sum or per user), maintenance fees, the amount of copies that can be made, and whether or not the buying organization can be a reference site for the vendor for a reduced price (Reichgelt and Barjis n.d.).

Learning Management System

A learning management system (LMS) may go by many names, the most common being course management system (CMS). CMS companies have changed to LMS in order to eliminate confusion due to content management systems. A learning management system is a framework used to handle all aspects in a learning process; from delivery and management of content to course registration and administration.

Learning management systems are used to support online, hybrid courses (courses that mix a few face-to-face meetings, but spend the majority of the course online), and traditional courses. Instructors have utilized course management systems to place course materials online, track student performance, store student submissions, and facilitate communication between

students and instructors. A learning management system “provides an instructor with a set of tools and a framework that allows the relatively easy creation of online course content and the subsequent teaching and management of that course including various interactions with students taking the course” (EDUCAUSE Evolving Technologies Committee 2003). Learning management systems provide instructors a way to continue teaching and students to continue learning and interacting while not being confined to a physical classroom.

METHODOLOGY

Research was done on the topic of Information Technology (IT) systems acquisitions to improve the examiner’s understanding of the topic. The examiner had previously taken a course about system acquisition, implementation, and integration during her undergraduate education and was the graduate assistant for the course for two years.

After having researched how different IT systems were acquired, the examiner’s advisor contacted key informants on IT system acquisitions to ask if they would participant in case study about IT system acquisitions. These key informants were the project leaders on their specific IT system acquisition.

The key informants were interviewed with an open and close-ended questionnaire in a session that lasted approximately one hour. Additional resources were given at the interviews relating to the choice of IT system. The IT system acquisition project discussed in this paper utilized the resources of an on-going higher-level acquisition process for the same type IT system, so access to the higher-level project documents was granted.

A New Learning Management System

University System of Georgia

The University System of Georgia created a Board of Regents in 1931 in order to have a unified governing and management authority over public higher education. The University System comprises of four research universities, two regional universities, thirteen comprehensive universities, fourteen state colleges, two two-year colleges, and the Public Library System with three-hundred eighty-nine facilities.

In the fall of 2010, the University System of Georgia (USG) was notified about the end-of-life for the current learning management system (Blackboard Learning System Vista 8) being used by the majority of colleges and universities. The operational support of Vista 8 would conclude in January 2013 and many issues between Vista 8 and Blackboard's newest product, Learn 9.1, existed. A few of these issues included the lack of multi-institutional functionality, integration with the Student Information System, learning context hierarchy, and lack of a clear migration path.

On August 18, 2010, the Executive Vice Chancellor and Chief Academic Officer for the University System of Georgia charged the Director of the Center for the Enhancement of Teaching and Learning at Georgia Institute of Technology to chair a task force to determine a new learning management system. The charge instructed the Director to create a task force that would work together to determine an appropriate learning management system for the 35 institutes that make up the University System of Georgia, although not all institutes are required to use the new system.

The task force was comprised of a total of 20 representatives. These representatives were from each of the major stakeholder groups, such as faculty, students, information technology and

other end-users and agencies. Representatives from the state's Department of Education and the Technical College System along with members of the central office and Information Technology Services (ITS) participated on the task force, however did not vote on the recommendation and the final decision was made by Academic Affairs.

The task force's charge stated the guiding principles that the task force would use to determine which learning management system (LMS) would be recommended. The guiding principles were the following:

- Recommend a product that meets 21st century needs of students and faculty supporting the improvement of retention and graduation rates.
- Recommend a product that will be used for multiple purposes (e.g. academic instruction/research/training/continuing education/economic development).
- Recommend a student focused minimum LMS suite to maintain affordability and increase efficiency.
- The task force will partner with IT to recommend an enterprise solution with an architecture that provides optimal performance/stability and supports increased enrollments of 100,000 additional students by 2020.
- The work of the task force will be an open and transparent process to include all stakeholders.

The timeframe of this recommendation process was eight months, from the charge in August 2010 to the final recommendation report in April 2011. The task force met every two weeks via online audio/video conferences (except during holiday periods) and had two face-to-face meetings.

At the first meeting, September 2, 2010, the task force discussed the goals that a new generation LMS must satisfy and created a list. This list, known as the Guiding Criteria, stated that the platform must:

- be well-established and stable operationally;
- be able to be integrated with a student information system;
- be committed to being fully compliant with accessibility laws and recommendations;
- and meet basic functionality requirements of the current system.

These conditions and others were used to whittle over seventy-seven LMS candidates down to approximately eight platforms.

An initial list of features were created and separated into the following three categories: non-negotiable (the things a LMS must satisfy), extremely important (the features that many users need), and nice-to-have (the functionalities that would make life easier). A few features from this list are in Table 1.

Table 1: Summary of the USG LMS Task Force Initial Features/Functionality List

Category	Feature/Functionality
Non-negotiable	• Security • Scalability • 508 Compliance • Integration with enterprise systems
Extremely Important	• Mobile device compatibility • Less reliant on Java • Real-time integration with Banner • Integrate with campus systems for single sign-on login to other systems
Nice-To-Have	• Flexible graphical interface • Video is easier to use & upload • Ability to import and integrate a calendar • Allow group collaboration between different sections of the same course

A reference check of two additional conditions (community/vendor responsiveness and successful large scale implementation history) limited the eight LMS candidates to five semi-finalists. The five semi-finalists were a mix of commercial and open-source platforms. Blackboard Learn 9, Desire2Learn, and Pearson Learning Studio were the commercial options with Moodle and Sakai being the open-source learning management systems. Due to a miscommunication, Pearson Learning Studio did not have the ability of being hosted internally by the USG which was a technical requirement set forth by the ITS. As this was learned later in the process, Pearson Learning Studio was kept as a candidate under consideration.

Each finalist was asked to answer a few questions related to their functionality and future road map. Questions for the open-source finalists, Moodle and Sakai, were directed at appropriately selected Moodle and Sakai community members. Each finalist was invited to host a webinar to demonstrate the platform, go over answers from the posed questions, and answer additional follow-up questions. Commercial affiliates of Moodle and Sakai hosted the webinar and carried out the demonstration and included community members in the question and answer portions. In addition, ITS supplied each finalist with specific questions related to technical requirements.

A final report with a recommendation of a next generation learning management system was submitted to the University System of Georgia on April 30, 2011 by the task force chair. A primary recommendation and a secondary choice that takes into account budgetary constraints that a university may be facing were given. Each institute within the University System of Georgia was allowed to opt out of the recommended choice.

Georgia Southern University

Georgia Southern University (GSU) is a Doctoral-Research Institution and classified as a regional university by the University System of Georgia (USG). The USG defines regional universities as meeting specific core characteristics, but may differ in purpose, history, traditions, and settings. Georgia Southern University works to improve the level of service and capabilities that are required of a Doctoral Research Institute while meeting the student-centered approach that is central to the university.

With the focus on students, over two-thirds of the faculty members utilize the current learning management system that is provided by the University System of Georgia, GeorgiaVIEW. Ninety-eight percent of Georgia Southern University students access the learning management system for at least one course in order to check grades, submit assignments, or have discussions with other class members.

GeorgiaVIEW is the rebranded name for the learning management system, which is used by the majority of institutes throughout the University System of Georgia. Each institution is given the choice of having GeorgiaVIEW hosted as a “shared service” centrally by the USG ITS department or individually by each institution. The Georgia Southern University utilized the shared services option for GeorgiaVIEW; sharing hardware, network, and support services with many other USG institutions. This caused a “lowest common denominator” effect which left many requests for enhancements to the system to go unfulfilled by USG ITS department. The “lowest common denominator” effect was caused by having only the basics features of the LMS available among a group of universities.

With the University System of Georgia looking to leverage economies of scale with a new centrally hosted learning management system, and the end of life looming for

GeorgiaVIEW, Georgia Southern University needed to determine if the recommendation from the USG would work or if a different learning management system would need to be acquired. “Economies of scales” is a term that means an organization that purchases in large quantities may receive a cost advantage that may not be available to organizations that only need one product, service, or system.

The Vice President of IT at Georgia Southern University tasked the twenty member Information Technology Advisory Council (ITAC) with determining “what is best for Georgia Southern” regarding a new LMS and hosting solution at the October 1, 2010 meeting. There were GSU representatives who were on the USG LMS task force that were able to continue providing support and information for the USG LMS task force while participating on the ITAC at GSU. The USG LMS continued to share access to the LMS information from the different institutes and included GSU to have on campus LMS vendor demonstrations.

The Vice President of IT at Georgia Southern University also created a white paper to discuss what the ITAC should be looking forward to the requirements that are wanted and needed with a new learning management system at Georgia Southern University. The ITAC needed to keep in mind the University’s vision of a twenty-first century doctoral research university and the requirements relating to Title IV regulations, such as requests for scripts to be run against the LMS database to provide valuable metrics and the automation of attendance verification.

The January 28, 2011 ITAC meeting was able to narrow the viable learning management systems down to two platforms, Blackboard Learn 9 and Desire2Learn, while the USG LMS task force released the list of the top five semi-finalists. The ITAC continued to learn about these two platforms to determine which is “best for Georgia Southern University” while monitoring the on-

going USG processes. Blackboard Learn 9, Desire2Learn, and Moodle representatives held demonstrations on the GSU campus for consideration with the USG LMS transition task force.

From March 24 to April 15, 2011, the five USG semi-finalist platforms were evaluated in individual sandbox environments. ITAC utilized the sandbox environments to supplement their understanding of the platforms. ITAC also kept the campus stakeholders informed about the sandbox environments and received feedback on what was liked or disliked about each platform the stakeholders checked out.

The Recommendation

The University System of Georgia Learning Management System task force announced Desire2Learn as the official recommended learning management system to be used on April 30, 2011. The Board of Regents accepted the recommendation of Desire2Learn on August 10, 2011 to replace the current system that is no longer being supported by Blackboard effective January 2013. The Vice Chancellor and Chief Information Officer of Information Technology Services met with other USG CIOs to discuss the general parameters associated with contracting and implementing Desire2Learn. A tentative implementation schedule was created to have all institutions off the current system by July 2013.

Georgia Southern University followed the official recommendation of Desire2Learn to replace GeorgiaVIEW, but will follow a different implementation process that focuses on local resources and Desire2Learn expert services. This change in implementation process allows GSU to avoid the risks associated with having over thirty institutions transitioning to Desire2Learn in a short time period. GSU faculty will begin to be migrated to Desire2Learn in phases over three semesters, having all faculty members using Desire2Learn by January 2013.

DISCUSSION

The case relates to the Georgia Southern University's acquisition of a new learning management system (LMS). Georgia Southern University (GSU) is part of the coalition that makes up the University System of Georgia (USG). USG was going through the process to acquire a new centralized learning management system to be used by the institutions that make up the USG, but the institutions were not required to use the chosen learning management system. This allowed GSU to utilize USG's resources to choose the new system specific to GSU.

This case study follows the IT system acquisition process. Table 3 displays how the case study acquisition relates to the IT system acquisition life cycle. The project had a business reason that needed to be resolved. For the Georgia Southern University, a new learning management system needed to be acquired to replace the no-longer supported version.

During the planning phase, the project formed an acquisition team, and executed a market place analysis. The Georgia Southern University had two members on the USG's learning management system transition task force and was able to use those resources to help the twenty members of the Information Technology Advisory Council (ITAC) to revise the requirements and carry out a market place analysis for a learning management system specific to GSU.

The information search was repeated throughout the LMS acquisition project. The ITAC used on-campus vendor demonstrations and sandbox environments to learn about each LMS finalist. After a user had explored a LMS sandbox, the user was asked to respond to a survey to determine the likes and dislikes of the LMS. The survey responses from the LMS acquisition were used to evaluate the potential systems. This allowed for greater feedback from different user groups about the potential systems and increased buy-in from some end-user groups as they felt their voice was heard.

SALC	GSU LMS
Planning	
Form Acquisition Team	20 member team
Decide Acquisition Strategy	Yes
Complete Requirements Analysis and Definition	Yes
Determine Criteria for Selection and Evaluation	Yes
Consider Related Acquisition Issues	Yes
Do a Market Place Analysis	77 vendors evoked
Information Search	
Response to a Request for Proposal	No
Vendor Conference	No
Vendor Demonstration	Yes
External Consultants	No
Survey Responses	Yes
Selection	Yes, narrowed vendors to 2 semi-finalists
Evaluation	
Viability of Vendor	Yes
Functionality of Product	Yes
Extent of Technical Requirements	Yes
Cost of Product	Yes
Choice	Desire2Learn Learning Management System
Negotiation	Yes

Table 2: SALC activities followed by the case study

CONCLUSION

The acquisition process for an IT system is not a trivial pursuit. There are many activities addressed during the acquisition phase of the IT system acquisition life cycle to determine the appropriate IT system for an organization. The planning activity is one of the most important as it determines how the rest of the acquisition phase goes and defines the project at a managerial level. The information search is an iterative process in order to gather the information to determine if a potential vendor or IT system is relevant. This information is used for the selection and evaluation activities which continue to narrow the field of prospective IT systems. After all the IT systems have been evaluated, the acquisition team will make a choice as to which prospective IT system meets the majority of the organization's requirements. The negotiation activity includes all the legal and business contract agreements, spending a large portion of time on the pricing model.

This case followed the IT system acquisition life cycle without formal knowledge of the system acquisition life cycle. A business reason determined the need for a new IT system, and the planning began. A task force was created for the acquisition project. Requirements for the IT system were created and used during the selection and evaluation phases. Information was gathered throughout the acquisition project along with feedback from end-user groups.

The LMS has currently begun the implementation process at Georgia Southern. It has undergone a rebranding and a few pilot courses have been taught over the Summer 2012 term using a beta version. There have been mixed results from the students on how well they like the new LMS. File names are being renamed when downloaded to be graded which causes problems with files that link to each other, especially with HTML courses. However, the Fall 2012 term will be using a different version of Desire2Learn.

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