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Unit 1 Assignment
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Unit 1 Assignment
**Part 1: IT Project Theory**

**SDLC**

 When installing any IT-based system, there should be a strategic approach taken in the design and implementation of that system. A system could refer to a full-fledged enterprise system, such as an ERP or MIS, a new software application, or even a software or hardware service. Without an official business strategy, there is a good chance that the system will take longer to implement and be riddled with problems all along the way. To reduce problems associated with the setup of a new system, it is common (and best practice) that an IT specialist will use a standardized, proven methodology. One of these methodologies is known as SDLC. SDLC, or systems development life cycle, is a phased approach to system design, which includes three main levels or phases that can be further broken down into eight individual steps (Brown, Dehays, Hoffer, Martin, & Perkins, 2012).
 The primary phases of the SDLC are (1) Definition, (2) Construction, and (3) Implementation. In the Definition phase, there are two steps (1) feasibility analysis and requirements definition (Brown, et al., 2012). In the *feasibility step*, the person leading the systems project will determine the economic, operational, and technical requirements of the system. Of course this person will not work alone; they will meet with a sponsoring manager, the technical people that will be involved with the project, and any other personnel that may have input on the system’s feasibility. The feasibility analysis step is essential to designing and building a new system, in that, this is the step where project leaders and business managers will work together to commit to project resources. The second step in the Definition phase is the *requirements definition*. In the requirements definition step, an official document is drawn up, known as the system requirements document. In the systems requirement document, there will be detailed descriptions of the new system’s input and output, a refined budget sheet, and an updated plan that will be used for project development.
 In the second phase of the SDLC methodology, the Construction phase, there are three separate steps (1) systems design, (2) system building, and (1) system testing (Brown, et al., 2012). The *systems design* step is just how it sounds; this is where IT specialists design the system, or create a plan for implementing a form of hardware or software. The next step is *system building*. System building is where the code is developed, the hardware is acquired, or the software is built. Once the system building step is complete, the system will need to be tested. In *system testing*, the new system is tested in segments, and then in full. The point of this step is for all those involved in the project to sign-off on a “working” system, and for relative documentation to be created.
 In the third phase of the SDLC methodology, the Implementation phase, there are three steps (1) installation, (2) operations, and (3) maintenance (Brown, et al., 2012). The *installation* step is where IT specialists and supporting personnel will begin updating older systems, create databases, prepare the environment for the system, and train employees how to use the new system (if applicable). The second step is *operations*. In operations, the “system” is close to production; development, test versions, and production versions will be turned over to the proper teams and employees. Documentation will be reviewed, and any updates will be added to this final documentation. If everything is satisfactory, the new system will be deemed acceptable, and closing procedures will be taken to make the new system is fully operational, and considered “in production.” The third and final step in the Implementation phase—as well as in the SDLC methodology—is *maintenance*. In the maintenance step, when the system needs updates, patches, and upgrades, these tasks must be scheduled, and the changes made accordingly. Likewise, this is the step where improvements can be applied, and user interfaces and user experience can be updated. The maintenance step is an important step in the SDLC methodology, and should be included in the overall business strategy.
**Project Management Life Cycle**
 Of course, as an even better systems management strategy, SDLC may be paired with other best practice management techniques. These techniques could encompass the project life cycle. Understanding the project life cycle will enhance the processes used in the SDLC methodology by adding even more structure to the system design and implementation. The project life cycle is a collection of phases which include initiation, planning, implementation (commonly referred to as execution and control), and closing phases (Watt, 2014). In the *Implementation* phase, a business case is prepared which includes details such as business need, proposed solutions, and any solutions are reviewed and investigated for viability. The next project life cycle phase is the *Planning* phase. The Planning phase is where ideas begin to be developed, and the appropriate resources, personnel, and scope are identified. Additionally, tasks and timelines will be discussed, and scheduled will be created. The third phase in the project management life cycle is the *Implementation* phase. In the Implementation phase, everything comes together; meetings are held, the pieces of the system start to be completed, reporting is done (this includes status reports), and team members work together in testing and implementing the system (pre-production and into production). In the final phase, the *Closing* phase, the responsibility of the system is transferred to the customer, documentation is handed over, and lessons learned are discussed.
(Watt, 2014)
**Synthesis**
 A best practice approach to implementing a new system is to use SDLC and the project management life cycle. A successful adaption of SDLC and the project life cycle is to first understand how they align. If the phases of each methodology was divided up and matched respectively (using a simple, condensed chart), both approaches could be added to a single strategy. This can be seen in Figure 1.
**■ Figure 1 SDLC and Project Life Cycles**
It is evident, that planning, business requirements, and system design are all closely related. Likewise, execution and control, development, UaT, and implementation can be considered essential to creating the system and then testing a new system.
**Real World Example**
 As a real world example of how SDLC and the project management life cycles, a brief scenario has been prepared for review. In this example, a company is rolling out a new enterprise email system. The company is currently using Google’s Gmail, and requires something a little more robust that does not have restrictions in storage and transmission capabilities. An IT specialist is assigned the project by the CIO, and begins the *Initiation and Approval* steps, and starts *Planning* the project. These first steps include holding a few meetings and drafting a project charter. A project charter is an official document that lists details such as project goal, the personnel involved in the project, the stakeholders of the project, and any requirements and constraints that will be essential to the overall project (Rouse, 2012). Additionally, the project charter will discuss milestones and deliverables. Furthermore, business requirements will be considered, such as how many clients need to be upgraded, the cost associated with the project, as well as the scope of the project. These steps are connected to the SDLC *Business Requirements and System Design* phases, and the *Initiation* and *Planning* phases of the project management life cycle.
 Referencing the chart in Figure 1, the new email system is to be developed and modular testing is to be performed. The system is installed, sample users are created, and the system is tested in a non-production environment. Once the email system is setup, UaT is completed, and the system is implemented. These steps are part of the *Development and Unit Testing*, *UaT*, and *Implementation* phases in SDLC, and *Execution and Control* phase in the project management life cycle. The email system is nearly complete, documentation is updated (where applicable), and the administration of the new email system is turned over to the appropriate IT personnel. These steps are linked to the *Maintenance* phase of SDLC and the *Closing* phase of the project management life cycle. Note, by this point, the email system is live, the documentation has been completed, personnel have been trained, and the technical administration of the email system has been turned over; lessons learned may be discussed at this time.

**Part 2: IT Project Proposal**

**Expected Role**
 The expected role will be that of an IT Specialist. As the IT Specialist, a project plan will be created, milestones will be achieved, budgets will be adhered to, and total governance of the project will fall under the specialist. The expected audience will be the stakeholders. The stakeholders will include the CIO, CFO, the Change Management Team, the Senior Developer, and the Manager and Team Leader from the IT department.

**Purpose** The purpose of this project will be to add encryption software to every client, in a ten thousand computer workstation environment; thus protecting the data on hard drives.

**Overview**
 Company X has had explosive growth over the past ten years. During this time, client workstation security was not really considered. However, due to recent security breaches across the nation, Company X would like to add encryption to each user’s company-issued computer. Because many of the employees travel, they have laptops. These laptops store company and customer information, and consequently, are at risk for being stolen or lost. To protect the data on the hard drives, it has been recommended by the IT Specialist that Microsoft’s Bitlocker be installed. Bitlocker is a full disk encryption that is offered by Microsoft. By using the already built-in features on computer workstations, Bitlocker can be enabled and the hard drives encrypted.
**Deliverables & Milestones**

 Although the Bitlocker features are built into Microsoft operating systems, it will be necessary to address the enabling of Bitlocker in three separate, distinct phases. In step one, all scripts (which will be used to implement Bitlocker) must be developed, unit testing must be performed, and all scripts must pass user acceptance testing. Step two is to prep the computer by enabling the TPM chip. A TPM, or Trusted Platform Module, is a special chip on the motherboard that stores security information related to Bitlocker. The TPM feature is off by default, and must be enabled. On some computers, it can be enabled using automation software or scripting; on other computers it will be a manual process. Step three of enabling Bitlocker will be performing TPM management. In the TPM management stage, it will be verified that the TPM chip is indeed enabled, and if enabled, Bitlocker keys will be added to the TPM chip, and security information will be imported into Microsoft Active Directory. The project deliverables will be providing reports each step of the way (which monitor the project’s progress), and ultimately to acquire the Bitlocker recovery keys; the milestones are the three stages of the Bitlocker project: (1) Enable TPM, (2) perform TPM Management, and (3) encrypt the hard drive. Other possible deliverables could include PowerPoint presentations, formal business plans, and a project layout.
**Budget**
 The project budget is set at $30,000. For cost, appropriate personnel will need to be allocated as resources, as well as paying for new computers that may be used to replace non-working TPM chips. Additionally, there will be software development and training costs.

**Project Benefits**
 The main benefits of having a project-based strategy is that a it increases the chances of the project being successful, increases quality of outputs to meet expectation, offers a consistency to project flow, and tightly manages project timelines, resources, and budgets (Northern Ireland Business, n.d). The benefits of implementing Bitlocker include protecting computer data, completely stopping offline types of attacks, prevents unauthorized changes to hard drives, and facilitates more efficient hard drive disposal (BenefitOf, n.d.).
**Return on Investment**
 The ROI has a few variables. One, standalone encryption software applications cost anywhere from $100-$200, so I will say $150 per workstation---that is $150 \* 10,000 workstations = $1,500,000) (Suneja, 2006). Next, there is a cost associated with maintaining a Microsoft-based reporting solution. If MDOP and MBAM are purchased from Microsoft, the TCO is about $10 per workstation. The ROI will only continue to grow as the company expands. I have included two ROI calculations. One is factoring in just the ROI of using Bitlocker over an independent software solution, and two is using Bitlocker and the insurance fund; note, the ROI was calculated over a year’s time. These calculations can be seen in Figure 2 and Figure 3.

**■ Figure 2 ROI Using Bitlocker**
**■ Figure 3 ROI Bitlocker and Insurance**

**Conclusion**

 In a brief summary, SDLC and the project management life cycle can be used to provide structure and organization to any new project. SDLC is a phased approach to system design which has three main phases (1) Definition, (2) Construction, and (3) Implementation. The project life cycle also uses three primary phases or stages to organize system design (1) Planning, (2) Implementation, and (3) Closing. The importance of using a methodology cannot be understated nor undervalued; the advantages are many, which all lead to the successful implementation of a new system. Thus, learning how to use SDLC and the project management life cycle will be critical to keeping a project timeline on track, understanding the scope of the project, maintaining the project’s budget, and opening up the lines of communication with all the appropriate personnel, including the project’s stakeholders.

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