Level-0 Diagram of Decobike Miami

User

- Non-Member Credit Card Receipt
- Membership Data
- Verification of Credit Card Data

Membership Data

1.0 Verify Membership

Docking Stations

- Membership Failure
- Membership Confirmation
- Membership Card Data
- Membership Card Data

Membership Confirmation Failure

Map of Docking Stations

2.0 Accept Payments

- Notification of Credit Card Failure
- Accept Payments

Map of Docking Stations

3.0 Check Bike Out

- Request for Number of Bikes at a Specific Location
- Membership Card Data
- ID of Bikes Checked In

5.0 Billing

- Time of Bike Check Out
- Time of Bike Check In

Credit Card Companies

4.0 Check Bike In

- Notification of Credit Card Failure
- Non-Member Credit Card Receipt
- Non-Member Credit Card Data

Credit Card Companies

Bike Inventory

Rental Times
1.0 Generate Neighborhood-Specific Information & Map

- Query for neighborhood-specific crime and RPP locations
- Map of parking, crime, and RPP locations near area of interest

2.0 Update Park It DC Database

- Updated parking, crime, and RPP locations
- Updated existing data
- New records

3.0 Create XML File

- Map of parking, crime, and RPP locations in chosen neighborhood

User

Area of interest in DC

Park It DC Database

Google Maps API

Crime & Service Information Feed
September 16, 2014

To: Ron Swanson
Director, Parks and Recreation, Pawnee, IN

From: Ruth Winecoff

Subject: Benefits of Adopting LAMP, An Open Source Software Platform

As requested, I have assessed the benefits of implementing the open source software platform consisting of operating system Linux, web server Apache, relational database management system MySQL, and programming language PHP. Based on the advantages listed below, I advise that the Pawnee Parks and Recreation Department adopt this solution stack.

• **Interoperability.** The four components of the LAMP platform have coevolved over time; they function well together as a system. Friction between system software, application software, databases and web services will therefore be minimized. Additionally, because of the high rate of adoption of the LAMP platform by organizations and programmers, the Parks and Recreation Department will also be able to work with many other departments and application software packages.

• **Freedom from vendor dependence.** The use of proprietary software inflicts time and cost disadvantages by forcing the Parks and Recreation Department to rely on software providers for support services. Proprietary software must be updated regularly for bug fixes and to keep the software up-to-date to the technical support being furnished by the software company. These updates are costly because of the time and labor necessary to implement them, the downtime while the system is updated, and the loss of productivity as users adapt to the changes.

• **Ability to customize to organizational needs.** Open source software, particularly the LAMP platform, is being continuously revised and enhanced by many users worldwide. The Parks and Recreation Department can make use of the many innovations in LAMP programming to customize the system to our needs and to update according to organizational change.

• **Freedom from licensing fees.** While adopting the LAMP solution stack does have bear migration and implementation costs, the elimination of the cost of periodically renewed licenses is an advantage of the open source software package.

I recommend the adoption of the LAMP package, for increased flexibility, customizability, and interoperability and decreased costs.
Part 4:

2. Describe the key activities performed by IS professionals in each step of the SDLC.
   • Definition Phase: Feasibility Analysis: The IS professional will work with the sponsoring manager and/or business managers to define the scope and boundaries of the system. They are primarily responsible for determining the system’s technical feasibility based on existing and emerging technologies and the conditions under which the system will operate. The IS analyst also works with the business manager to determine economic feasibility by producing a cost/benefit analysis of the system. The IS analyst determines the development costs.
   • Definition Phase: Requirements Definition: The IS analyst develops a systems requirement document, using various systems analysis processes to define the requirements of the system in clear enough detail to give to the people who will build the system. They may help the user community reach a consensus when business managers have different ideas about application requirements.
   • Construction Page: System Design: Using the requirements document from the previous step, IS specialists design the physical system – its hardware and systems software, databases, and application software. They develop a design document to be given to programmers and technical staff.
   • Construction Phase: System Building: The IS specialist produces computer programs and develops or enhances the databases and files to be used by the system. The IS specialist is also involved in purchasing new hardware and support software.
   • Construction Phase: System Testing: IS specialists test each module of code, then the subsystems composed of the modules, then the entire system is integration tested.
   • Implementation Phase: Installation: The IS specialist installs the hardware and software for the system.
   • Implementation Phase: Operations: IS responsibility is turned over to computer operations and tech support personnel.
   • Implementation Phase: Maintenance: The IS specialist corrects errors or bugs that slipped through previous processes, adapts the system to changes in operating conditions or to enhance its capabilities.

5. Describe a distinct advantage of each of the four strategies for implementing a new system, as shown in Figure 10.4
   • The parallel strategy involves using both systems until the new one is working sufficiently well. The advantage is that if there are problems with the new one, the organization till has the old system in use, so there’s no interruption in work.
   • The pilot strategy involves implementing the new system in only one part of the organization. The advantage is that organizations are able to solve many
implementation problems as possible before extending the system to the whole organization.

- The phasing strategy, which implements the new system in stages, allows the organization, especially if it is a large, complex one, to start receiving the benefits of the new system more quickly than if using another strategy.
- The cutover strategy has organizations completely dropping the old system when it implements the new one; the advantage is that it can be very difficult to operate both systems at once, and this minimizes that time frame.

7. Why is an accurate and complete requirements definition especially critical when using the SDLC “waterfall” approach?

Requirements definitions that are not accurately defined or defined in sufficient detail can result in large cost overruns and an unsatisfactory system. Errors identified in steps that follow the requirements steps are significantly more costly to correct than if they’re identified at the outset, and the later the stage the more costly. This is because the output of each step is an input to the next.

13. Why does the use of contractors increase the complexity of an IT project?

Contractors require time to become familiar with the organization’s processes, hardware, software, and goals – knowledge that in-house IS specialists are already able to apply in the design project. Another dimension of complexity involves integrating members of the contracted team with in-house specialists, business managers, and users. Time and resources may be spent establishing working relationships between the groups.

3. There have been many failures in the development of application systems using the traditional SDLC. Discuss some characteristics of the methodology that could contribute to the high failure rate under certain situations.

Situations in which it is difficult or impossible to predict very detailed requirements of a system threaten the applicability of the SDLC process. Developing a system that will involve new technologies, the capabilities of which are not fully understood, is one example. Another would be a situation in which the needs of the business change between requirements specifications and actual installation. SDLC also suffers from the length of time it requires for completion – in a business environment that experiences frequent changes in operating conditions such as personnel turnover and new competition, the time frame of the SDLC process may lead to a failed result. Finally, SDLC-developed systems may fail due to a lack of strong business sponsorship – necessary condition given the time and cost of the process - without which adequate time and resources will not be devoted.