# **Chapter Three**

3.0 Analysis of the system   
 3.1 Legal, Social, Ethical and Professional issues

Every system requires detailed design and functional guide which stakeholders (Clients, Software Designers, Users, Community, and Government (and its agencies)) can relate with during or after the system has been designed, developed, tested and implemented. According to (Andrew, 2002), the purpose of documentation is to communicate, and this report is targeted at providing all the necessary information which will ease communication among the stakeholders of the system. This report contains the needed information to maintain and reduces risks in the design of the system.

This section identified the major stakeholders and the issues that might affect them during using the proposed system. This section also explained social, legal ethical or professional issues that were considered if the developed software product (TTSS) was to be incorporated into the Institution. To enable both Timetable Officer and Students use the software product, they need to be fully employed or registered member of the Institution which will require their personal data and these data should be protected. The major issue will be to create an enabling environment that will protect and secure staff and student data as this will be in line with the Data Protect Act law.

Lack of protecting and securing staff and student data by Akanu Ibiam Federal Polytechnic, Unwana (where the software product will be deployed) will attract legal sanction. Also, in a situation where staff or student data are to be used for another purpose, it is expected that permission should be obtained from the concerned staff or student.

Socially, staff and student should have the equal right regarding the services provided by the Institution because discriminating against a staff or student will attract legal punishment.

Ethically, the software product will foster discipline among staff and students of the Institution by way of adhering to generated timetable in carrying out academic activities.

Professionally, the system will enhance the professionalism of the Timetable Officer as well as improving the level of productivity in the Institution.

## 3.2 Case Study

In the department of Computer Science, Akanu Ibiam Federal Polytechnic Unwana, Nigeria, timetable scheduling has been a huge challenge for the timetable officer who manages the academic timetable records. The timetable officer schedules timetable every semester in a new academic session by manually filling the general timetable sheet provided by the space and timetable committee. Often, the timetable of the previous year and corresponding semester will be used as a tentative timetable before the final timetable for the new semester is released. This process of scheduling academic timetable lacks standard and maintainability. This was one of the reasons for producing lecture-clash-oriented timetable.

The motivation behind this research was to address the following areas when the system will be deployed:

1. Reduce delay in academic timetable scheduling
2. Provide standard in timetable scheduling in the department
3. Produce clash-free timetable
4. Maintain consistent record on scheduled timetable

Planning and managing projects are the roadmap for executing a successful project. In every project, there is always time required for the completion of the project. Gantt chart is a useful project management tool which helps in determining the critical path needed for a project to be accomplished. It exposes the tasks to be carried out, duration of each task as well as preceding tasks to each task (Wilson, 2003). See figure 1.

The proposed system shall be revolving around three prominent actors which are the Timetable Officer (Admin), Student, and Management of the Institution.

### 3.2.1 Timetable Officer (Admin)

This is one of the major actors who will be the Admin of the system and his duty will be ensuring that the academic timetable is planned and generated on time. He has all the privileges such as Adding course, Department, Lecturer and Room. He will have the right to modify these records based granted permission.

### 3.2.2 Student

This is one of the major actors whose responsibility is to view the generated timetable by the Timetable Officer. He also uses the system to make complain about his observation on the generated timetable.

### 3.2.3 Management of the Institution

These are group of people that makes decision based on the generated timetable from the system.

## 3.4 Risk Analysis of the Project

Risks are those factors that will militate against the success of the proposed system and these will be categorized. The anticipated risks in this project revolve on the hardware, system requirements, scheduling of the project, personnel and technology. The likely risks associated with the proposed system include

1. Incomplete/ Inconsistent Systems Requirements: this risk will come from the systems requirement information gathering where requirements are not clearly stated or ambiguous.
2. Hardware: There might be a risk of having the project being delayed because of acquiring low quality hardware components such as Computers and Server. These may be delay in the delivery of these hardware components.
3. Outdated Operating System: there might be a risk of running the proposed system on an outdated or virus-infested operating system. There might also be a risk of operating systems versions.
4. Unavailability of Server: there might be a risk of having the server unavailable which might delay the system deployment process.
5. Unavailability of Internet: there might be a risk of Internet disruption which might cause the system to go offline thereby halting the entire process of the system.
6. Insensitive Database: there might be a risk of having the database responding slowly to requests.
7. Unavailability of Personnel: there might be a risk of lack of personnel (Timetable Officer).
8. Project delivery time: there might be a risk of having the project not delivered on time as agreed.

## 3.5 Identified Risks and Management Plan

The ability to identify risks in a project creates a platform for planning or making provisions that will take care of the risks when they occur. See table 1 and 2 for the identified risks and management plan.

Table 1: Identified Risks, Probability and Effects

|  |  |  |  |
| --- | --- | --- | --- |
| **S/No** | **Identified Risks** | **Probability** | **Effects** |
| 1 | Inconsistent System Requirements | Moderate | Serious |
| 2 | Hardware Quality and Delivery Delay | Moderate | Serious |
| 3 | Outdated Operating System | Low | Tolerable |
| 4 | Unavailability of Server | Low | Serious |
| 5 | Unavailability of Internet | Low | Serious |
| 6 | Insensitive Database | Low | Serious |
| 7 | Unavailability of Personnel | Moderate | Serious |
| 8 | Delayed Project Delivery Time | High | Serious |

Table 2: Risk Management Plan

|  |  |
| --- | --- |
| **Risk Number** | **Management Plan** |
| 1 | Having consistent communication with the client to get all the necessary systems requirement before commencing design and development of the system |
| 2 | Make requisition of all the necessary hardware components early enough to have them delivered and installed on time |
| 3 | Updating operating systems regularly as well as installing antivirus on all the computer systems |
| 4 | Having all the loads on the server balanced to avert server unavailability |
| 5 | Providing an alternative source of Internet in case of unavailability of Internet |
| 6 | Distributing the load on the database evenly to avoid slowing down the database response |
| 7 | Making provision for adhoc staff if need be or outsourcing experienced personnel from other branches |
| 8 | Making provision to hire system development experts |