

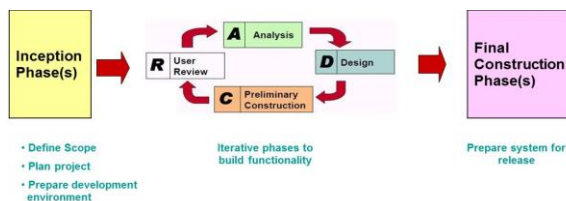
# Planning IT Projects

## Introduction

The Webster II definition of a plan: “A detailed scheme, program or method worked out beforehand for the accomplishment of an object.” The key word here is “detail.” A multifaceted, detail-oriented project plan is critical to a successful solution to an IT problem.

Successful planning includes continuous communication, documentation, and multiple iterations to arrive at a final system solution that meets the goals you and your client set in your project charter.

**Figure 1. System Development Life Cycle (SDLC)**



## Description

**Project Inception.** The goals of the earliest Inception phases of your project are to determine the project scope, schedule, and resources. (Remember the triple constraint triangle: Scope/Schedule/Resources.)

Continuous communication with your client will enable you to understand your project requirements (scope) by collaborating with them to complete the analysis of system requirements: Stakeholder Roles and Responsibilities, Root Cause Analysis, Process Modeling, Functional and Nonfunctional Requirements, Risk Management, Organizational Impact Analysis, and Evaluation of System Alternatives. It also includes identifying hardware and software environments for the production system, creating a development environment for the Construction Iterations, and planning for the transition from any existing system to the new system.

Your plan is your documented schedule, accepted by your team and clients. Determining

the schedule includes completing a Milestone Summary, Gantt Chart, and Network Diagrams that cover all of the early tasks, as well as, remaining tasks needed to successfully complete the project to the Go-Live point.

Is a development sandbox ready for the developers to begin software construction? Is the information architecture already set or does it need to be created or updated? Preliminary tasks like these will depend on each project’s situation.

Once the scope/schedule/resources have been planned, it is time to build the functionality.

**Construction Iterations.** The middle activities for a project are iterative processes of Analysis, Design, Preliminary Construction and User Reviews. Each iteration focuses on one area of functionality. With a team of developers, working on multiple modules, iterations will be simultaneous and must be coordinated to ensure that the project’s overall goals are met.

**Analysis** tasks focus on the requirement details for each functional area, such as what web pages and reports are needed and what information is entered and displayed. During these iterative loops, IT specialists work with key users to learn what support materials are needed; for example, is training relevant for in-house support or will on-line help be adequate? **Design** tasks focus on the “how” to deliver the required functionality for each area. **Preliminary Construction** is the build-step for software *and* support materials, as well as, unit testing for specific functions.

Once the functionality meets the user’s expectations, work proceeds to the final activities that focus on preparing the system to Go-Live.

**Final Construction.** These end-of-project activities consist of final steps to ready your system for use in a production environment. The amount of schedule time to allocate to this phase will depend on the circumstances for your project. Is this Release 6 for an established product? Or is this the first public posting of a new web site for a start-up company? No matter



what the situation, there will be integrated testing and final user acceptance testing. The time and resources needed for these activities will depend on whether you have involved users in testing during your construction iterations or whether you have a large potential group of public users and need to set up focus group testing at this time. How much training does your staff need? How professional do the training materials need to be for a successful launch? These are a small sample of the sort of decisions you will make as an IT professional working with clients.

We will cover a range of Final Construction activities later in the semester. For now our focus is on the early activities of system development. Our educational goal is for you to think ahead to what needs to happen for a successful system release in different situations.

## Purpose

A plan is the basis for monitoring, coordinating, and reviewing team work and thus essential to managing projects. Another reason for plans is deadline behavior: knowing due dates influences the time and focus for team members.

Detailed plans, as we emphasized in our introduction, are important for success. But presenting details is not the best way to work with clients and user-managers. We'll cover three planning techniques, each with their own audience and goals. They are:

- Milestone Summary.
- Network Diagram.
- Gantt Chart

## Creating a Milestone Summary

After completing a Root Cause Analysis, you will understand your clients' project goals and have a sense of what the major functions will be. An early step in planning is to create a Functional Requirements Summary with priorities set with your client. The major functions on this list provide a way to breakdown your project into phases. For example, a past MIS 374 team working with clients for Future Business Leaders of America (FBLA) determined four priority modules that they could complete. They presented these initial phases to their client with rough time estimates:

1. Inception Phase.
2. Advisor Side Module.
3. Event Reporting Module.
4. Advisor Management Module.
5. Student Module.
6. Final Construction.

The initial list above became part of the team's Major Milestone Summary that is shown in Figure 2—what the team printed in the final form for their Project Charter.

Separating your project into manageable assignments for your team is an important early task. To create the Milestone Summary for your charter, you can use MS Project or other planning software to create an initial Network Diagram and then a Gantt Chart. Your detail work on the Gantt Chart will provide the details you need for the Duration, Starting Date, and Target Completion columns in your Milestone Summary. (Six steps on the [Major Milestone Summary Template](#) take you from your initial list of phases through your work with your client and MS Project to complete a version for your Project Charter.)

Figure 2. Major Milestone Summary for Future Business Leaders of America (FBLA)

| <u>Phases and Milestones</u>       | <u>Duration</u> | <u>Starting Date</u> | <u>Target Completion</u> |
|------------------------------------|-----------------|----------------------|--------------------------|
| Phase 1: Inception                 | 33 Days         | 9/16/2009            | 10/27/2009               |
| Phase 2: Advisor Side Module       | 23Days          | 10/28/2009           | 11/25/2009               |
| Phase 3: Event Reporting Module    | 19 Days         | 10/28/2009           | 11/19/2009               |
| Phase 4: Advisor Management Module | 25 Days         | 10/28/2009           | 11/27/2009               |
| Phase 5: Student Module            | 25 Days         | 10/28/2009           | 11/27/2009               |
| Phase 6: Final Construction        | 10 Days         | 11/30/2009           | 12/10/2009               |

## Creating a Network Diagram

A network diagram is a visual representation of planning activities. In MIS 374 we require a summary level Network Diagram that shows what phases are precedents for later phases and what phases are completed simultaneously. Figure 3 is the Network Diagram for FBLA's project plan.

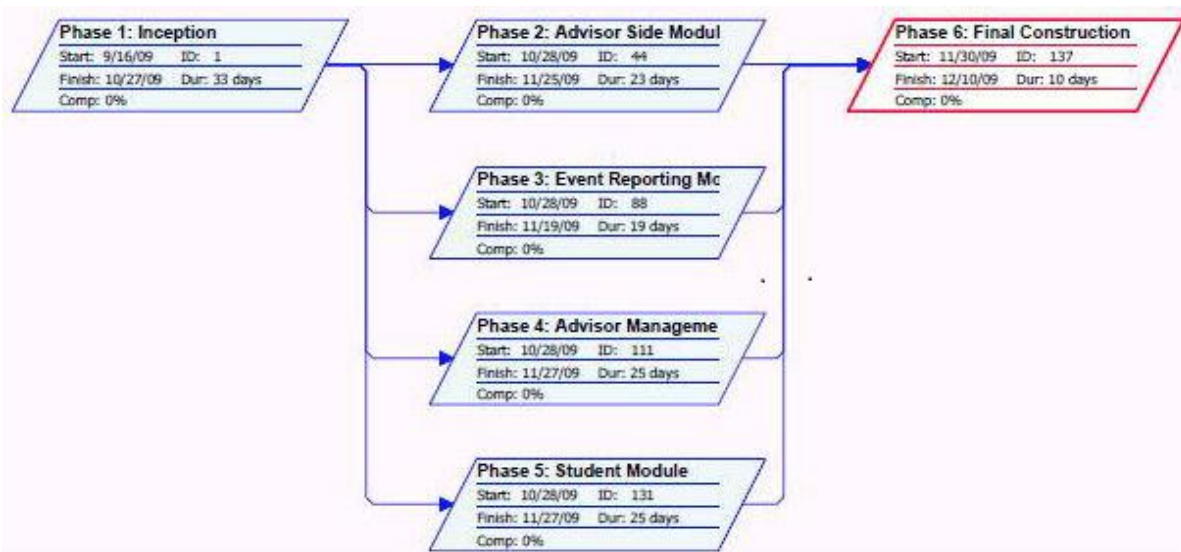
## Creating a Gantt Chart

Once you have a preliminary sense of what the major functions are, create a Gantt Chart with the details for each project phase. MS Project and other planning software tools provide a fill-in-the-blank model much like a spread sheet for these plans. Estimate the time required for each activity and designate what activities must precede each activity. Planning software will add your detailed time estimates for each project

phase. Feed these into your Major Milestone Summary for a discussion with your clients as early as possible. Provide a copy of the Network Diagram like the one in Figure 3 for a discussion about how your team is organized to complete the project. Do your detailed time estimates add up to fit within your project time limits? Or do you need to discuss a revision in scope or resources, perhaps choosing tools that will speed up your progress?

The Gantt Chart view of MS Project is your detailed level of project tasks for monitoring your team's progress. The updated Major Milestone Summary and Network Diagram are for your clients' and managers' review. Many past MIS 374 clients love seeing the detail on your Gantt Chart, so plan to provide a copy for your clients, as well as, your team as soon as your scope and schedule are set. This should be no later than your Project Charter meeting, six weeks into your MIS 374 Client Project.

Figure 3. Network Diagram for Future Business Leaders of America (FBLA)



## Benefits

Breaking a project into smaller goals is a systems approach to problem solving. Once you have your initial list of phases you and your clients will have a better idea of the challenges you face to meet your overall project goals. Divide work further into tasks and check whether you can meet the project goals with the time and

resources you have. (Remember to think creatively about resources from a user viewpoint, as well as, a developer viewpoint.)

Clear delivery deadlines will help you monitor your progress and learn early if you need to work with your client to reset expectations. And monitoring is only possible if you've shared your planning overview (Major Milestone Summary and Network Diagram) with your clients.

Clear functional deliveries allow you to manage your product—a key to successful planning. Being able to state that you have “created all five web pages for the Advisor Side Module and have the functionality built into two of the pages” is a clear progress statement. “I’ve put in two weeks on this” is managing time and not helpful for knowing where your progress is relative to system completion.

## Tips for Completeness

- Be sure to include activities for your User Community on your Gantt Chart. Expect your clients to provide test data, sample reports, and other materials and be clear about deadlines in your planning documents, as well as, in meeting agendas and meeting minutes.
- Involve the right people in each phase. For example, talking to tech support in the Inception Phase will be critical to learning production environment requirements. Talking to Subject Matter Experts (SMEs) will be critical to complete requirements.

## FAQs

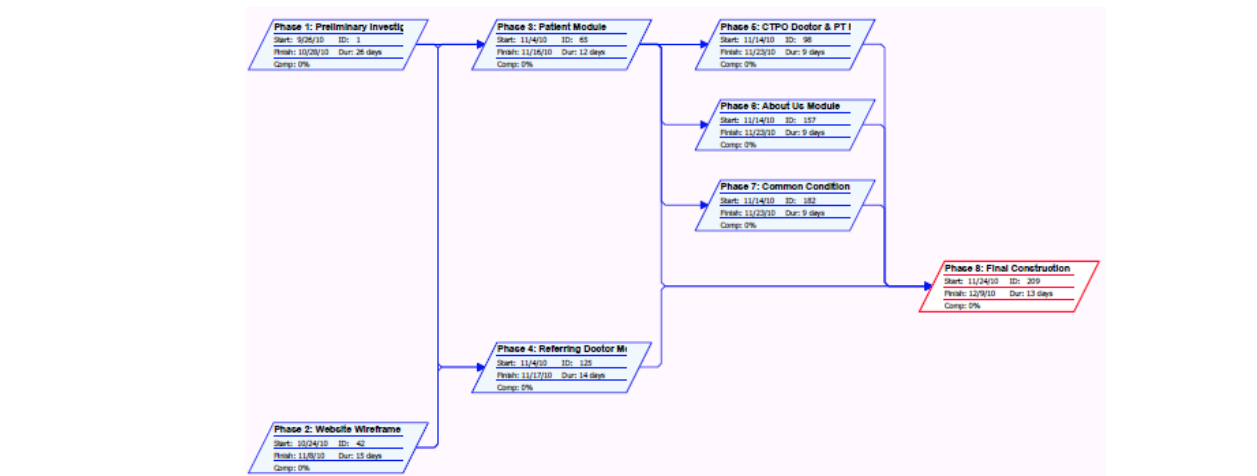
**Q1:** What if our Phases aren’t as clean as the ones in the 3M example on Class Day 5 and in the FBLA examples above?

**Answer:** Actual project work is often messier than those two examples. Use footnotes to explain complications with Phases starting at different times, as illustrated in the Network Diagram in Figure 5 for the Central Texas Pediatric Orthopedics (CTPO) project. This team split their project Inception into two phases. Phase 2 (Website Wireframe) began before Phase 1 (Preliminary Investigation) ended. Both Phase 1 and 2 were precedents for Phases 3 and 4, the creation of two high priority modules for Patients and Referring Doctors. After those modules were complete, the team focused on building three more modules before their wrap up Phase 8: Final Construction

Figure 4. Major Milestone Summary for Central Texas Pediatric Orthopedics (CTPO)

| <u>Phases and Milestones</u>       | <u>Duration</u> | <u>Starting Date</u> | <u>Target Completion</u> |
|------------------------------------|-----------------|----------------------|--------------------------|
| Phase 1: Preliminary Investigation | 26 Days         | 9/26/2010            | 10/28/2010               |
| Phase 2: Website Wireframe *       | 15 Days         | 10/24/2010           | 11/8/2010                |
| Phase 3: Patient Module            | 12 Days         | 11/4/2010            | 11/16/2010               |
| Phase 4: Referring Doctor Module   | 14 Days         | 11/4/2010            | 11/17/2010               |
| Phase 5: CTPO Doctor & PT Module   | 9 Days          | 11/14/2010           | 11/23/2010               |
| Phase 6: About Us Module           | 9 Days          | 11/14/2010           | 11/23/2010               |
| Phase 7: Common Conditions Module  | 9 Days          | 11/14/2010           | 11/23/2010               |
| Phase 8: Final Construction        | 13 Days         | 11/24/2010           | 12/9/2010                |

Figure 5. Network Diagram for Central Texas Pediatric Orthopedics (CTPO)





**Q2:** How can we know detailed activities so far in the future?

**Answer:**

You can't, especially as a novice. We are asking you to make educated guesses for your Group Project 2 plans. Combine the very limited case information with all your experience from MIS projects in past classes and internships. Also, look at examples posted for MIS 374. For your Client Project you will also need to guesstimate, but you will have five weeks to refine your planning documents from your first client meeting until your Project Charter is due. Professionally you will also need to guess. Your experience of estimating time for your Client Project and noticing the activities you misestimated—or even forgot—will make you a much better planner in the future.

Some professionals argue that you should plan as little as possible so that effort is focused on building functionality. This can work in a

professional environment with experienced developers who have extensive knowledge of the domain area (e.g. ecommerce, banking, or supply chain), where the information architecture is in place and staging environments for testing are established. And the client trusts the team to deliver.

Little or no planning does not work in situations like those you will face in MIS 374: you will not know your clients or their business before the project begins and will not be co-located with users, as you might have been on an internship. The MIS 374 situation provides experience that will be beneficial for you as you enter the professional workforce. There, you will work with a variety of vendors and resources, users, and other developers who will most likely be located in different cities and countries thereby making attention to detail and thorough planning a must.

## High Quality Delivery Tips

### Milestone Summary:

- Phases and dates must exactly match to Network Diagram and Gantt Chart.
- Project timeline must be reasonable.
- Follow format given in template.

### Network Diagram:

- One page maximum.
- Make sure page prints legibly.
- Include clear start and finish dates.
- Phase names and dates must match the Gantt Chart exactly.
- Collapsed phases only- do not show tasks.
- No "floater" phases; arrows must be shown.
- Should clearly show simultaneous phases.

### Gantt Chart:

- Create using MS Project.
- Follow an iterative approach.
  - Early releases must be sensible- release most important functions first.
- Phases are based on system functionality, not one of the ADCR steps.
- Meaningful phase names based on user functionality.
- Details are meaningful - not generic.
- Some phases are simultaneous.
- Some tasks done by individuals should be simultaneous.
- Include the minimum number of detailed phases (do not count headings).
- Include ADCR loops within each phase.
- Begin with Inception phase and end with Final Release phase that includes testing and training.



- Not too many “team” tasks.
- Assign team members to areas of expertise.
- Include phase headings and subheadings within phases.
- Have an appropriate and reasonable timeframe for completion.
  - Tasks should be given a reasonable amount of time to complete.
- Specify start date.
- Include management/client staff where appropriate.
- Include Testing for each functional phase.
- Include Training.
- Start with Inception phase.

## Templates and Examples on [Resources Page](#)

### Milestone Summary:

- Milestone Summary Template
- Major Milestones & Network Diagram - FBLA
- Major Milestones & Network Diagram - CTPO
- Major Milestone Summary - JudyPaul.com

### Network Diagram:

- Network Diagram template
- Major Milestones & Network Diagram - FBLA
- Major Milestones & Network Diagram - CTPO
- House of Tutors -- Network Diagram View (MS Project)

### Gantt Chart:

- Gantt Chart Tips (includes trouble shootings to avoid common problems)
- How to Print Gantt Charts on One Large Page
- Gantt Chart .mpp - CTPO
- House of Tutors -- Gantt Chart View (MS Project)
- Gantt Chart-ASTA.xlsx