Unit 1

Getting Started

项目启动

I Feasibility reports

II Communicating by e-mail

I Feasibility reports

Reading

A An overview

Feasibility Study

A feasibility study is an analysis of a problem to determine if it can be solved effectively given the budgetary, operational, technical and schedule constraints in place. The results of the feasibility study determine which, if any, of a number of feasible solutions will be developed in the design phase. The aim of the feasibility study is to identify the best solution under the circumstances by identifying the effects of this solution on the organization.

Within the system development cycle, the feasibility study is undertaken after the problem has been defined and analyzed, but before undertaking detailed design of a solution. Defining the problem has quantified the needs, the objectives and the boundaries of the problem. This, to a significant extent, identifies the constraints.

The systems analyst usually undertakes the feasibility study. Sometimes, CTO or project manager may play the role of system analyst.

Based on analysis of the problem, presented in the Requirements Definition Report or User Requirements Document, the report writer uses his or her understanding of software design and development to describe and evaluate a feasible solution to the problem. Commonly a number of feasible solutions are described and evaluated. These are presented to management as alternatives or options in a Feasibility Report to allow management to select the best solution. There are three types of feasibility report:

The first type studies a situation (for example, a problem or opportunity) and a plan for doing something about it and then determines whether that plan is "feasible"—which means determining whether it is technologically possible and practical (in terms of current technology, economics, social needs, and so on). This type of feasibility report answers the question "Should we implement Plan X?" by stating "yes" "no", but more often "maybe". Not only does it give a recommendation, it also provides the data and the reasoning behind that recommendation.

The second type starts from a stated need, a selection of choices, or both and then recommends one, some, or none. For example, a company might be looking into grammar-checking software and want a recommendation on which product is the best. As the report writer on this project, you could study the market for this type of application and recommend one particular product, a couple of products (differing perhaps in their strengths and their weaknesses), or none (maybe none of them is any good). This type answers the question "Which option should we choose?" (or in some cases "Which are the best options?") by recommending Product B, or maybe both Products B and C, or none of the products.

The third type provides an opinion or judgment rather than a yes-no-maybe answer or a recommendation. It provides a studied opinion on the value or worth of something. This type of feasibility report compares a thing to a set of requirements (or criteria) and determines how well it meets those requirements. (And of course there may be a recommendation—continue the project, abandon it, change it, or other possibilities.)

B Reading a feasibility report

Read the following feasibility report. For the first time, please only scan the whole document. Keep these questions in mind and try to answer them after scaning. Time limit: 10 minutes.

- What is the major task of this proposed report?
- How many optional plans are mentioned here?
- Which option is finally recommended?

Feasibility Report, Planet Tracking Software GCC Corporation

Table of Contents

Glossary

feasibility *n.* 可行性

tracking *n.* 跟踪；探测

scope *n.* 范围

constraint *n.* 限制，制约

legal *adj.* 法律上的

5.2.2 Technical Feasibility

5.2.3 Schedule Feasibility

5.2.4 Financial Feasibility

5.2.5 Legal Feasibility

5.3 Solution 3

5.3.1 Operation Feasibility

5.3.2 Technical Feasibility

5.3.3 Schedule Feasibility

5.3.4 Financial Feasibility

5.3.4.1 Costs

5.3.4.1.1 Tangible Costs

5.3.4.1.1.1 Hardware Costs

5.3.4.1.1.2 Software Costs

5.3.4.1.1.3 System Design and Analysis Costs

5.3.4.1.1.4 Administrative Costs

5.3.4.1.1.5 Time Costs

5.3.4.1.1.6 Training Costs

5.3.4.1.2 Intangible Costs

5.3.4.2 Benefits

5.3.4.3 Cost-Benefit Analysis

5.3.5 Legal Feasibility

6. Conclusion

Appendices

Glossary

tangible *adj.* 有形的

administrative *adj.* 管理的

intangible *adj.* 无形的

1. Document Overview

1.1 Introduction

This document is a report on the feasibility study conducted on the proposed solutions for the Planet Tracking Software. This software will interface with the Planet Tracking Unit—a device that is being built by the Atmospheric Physics Lab of Cosmos Engineering. The feasibility study was conducted between June 15th, 20xx and June 21st, 20xx by Group 101, GCC Corporation.

This feasibility study starts with a study of the current environment, the problems within the current environment and a summary of the proposed environment. The functionality expected from the Planet Tracking Software is summarized in the next section. The detailed high-level requirements document for the Planet Tracking Software can be obtained at *www.cosmoseng.com*. The general constraints on the development process are summarized in the section that follows.

Section 5 examines all the proposed solutions. For each of the proposed solutions, five kinds of feasibility study are conducted—operational, technical, schedule, financial and legal.

An operational feasibility study examines how the software will change the roles of the stakeholders and the users and whether the new workflow and organizational structure will be accepted by the users and stakeholders.

Glossary

propose *v.* 提议

interface *v.* 连接

atmospheric *adj.* 大气的

conduct *v.* 进行

functionality *n.* 功能性

stakeholder *n.* 股东

workflow *n.* 工作流程

A technical feasibility study checks to see if the proposed solution is feasible given the skills of our group and the environment the software is expected to be deployed in the Planet Tracking Software.

A schedule feasibility study checks if the proposed solution can be developed in a manner that will ensure that all deadlines set by Cosmos Engineering and other clients are met.

A financial feasibility study examines the costs and benefits of developing the software in the manner of the proposed solution.

A legal feasibility study determines whether any infringement, violation, or liability that could result from development of the system.

This study then concludes with the proposed solution that is determined to be the most feasible alternative given the constraints.

1.2 Scope

This document covers the feasibility of the Planet Tracking Software. It does not cover the feasibility of the device the software is being built for—the Planet Tracking Unit. Throughout the document, it is assumed that the Planet Tracking Unit is feasible and the specifications of the unit provided to us by our client, Cosmos Engineering, is complete and accurate.

(2. Omitted)

Glossary

deploy *v.* 配置，使用

manner *n.* 方法，方式

deadline *n.* 最终期限

alternative *n.* 选择，选项

specification *n.* 技术说明

accurate *adj.* 准确的，精确的

omit *v.* 省掉，略去

3. Planet Tracking Software Requirements

The following is a summary of the features that will be required for the Planet Tracking Software to ensure the environment proposed in the previous section is achieved.

- The software should be able to control the motors such that the mirrors and the unit can be aligned in all desired configurations. The alignment achieved should allow light from the desired source to enter the aperture of the spectrometer.
- The software should provide a GUI interface that allows the user to select the type of measurement that is desired from the unit. There are 5 modes the software should be able to operate in to accommodate the different types of measurements that are taken at Cosmos Engineering.

(the 5 modes are omitted)

4. Constraints

4.1 Technical Constraints

The technical constraints are a result of the environment at the Atmospheric Physics Lab, the skills of the members of the GCC group and the deadlines that have to be met for this project.

The first technical constraint that is considered for coming up with the possible solutions is that

Glossary

align *v.* 排列；调准

aperture *n.* 孔，洞；光圈

spectrometer *n.* 光谱仪

GUI 图形用户界面

accommodate *v.* 适应，调节

the system has to work on the Windows operating system. The other technical constraint is a result of the skills of our group. Most of the members of our group are familiar with Java and C++. Therefore, these are the languages that are considered as candidates for the development of the software.

(4.2 and 4.3 are omitted)

5. Possible Solutions

Our group examines 3 possible ways of building the Planet Tracking Software given the technical, financial and schedule constraints outlined in the previous section. For each of the proposed solutions, a detailed feasibility study is conducted to determine which of them would be the most feasible alternative.

5.1 Solution 1

The first solution examined is to build the Planet Tracking Software entirely in Java. This solution means that we will have to write the code for generating the co-ordinates of a celestial object given an instance of time.

The advantage of this solution is that all 5 members of the group are well-versed in the programming language chosen. The software built using this solution would work on all platforms supported by the Sun JVM.

The biggest disadvantage of using this solution is that the celestial objects supported will be

Glossary

candidate *n.* 候选人；候补物

entirely *adv.* 完全地

generate *v.* 生成

well-versed *adj.* 非常精通的

JVM = Java Virtual Machine 虚拟机

solar *adj.* 太阳的

restricted to just the required ones—the 9 planets of the solar system, the Sun and the Earth's moon. The following is the feasibility study for this alternative.

5.1.1 Operation Feasibility

The user of the Planet Tracking Software will be the person currently employed by the Atmospheric Physics Lab, Cosmos Engineering for taking the measurements. The advent of the Planet Tracking Unit together with the implementation of the Planet Tracking Software will significantly change the role of the user. As outlined in the Section 2.1 and Section 2.2, a large amount of the user's time is spent in aligning the mirror of the spectrometer. Since the alignment of the mirrors and the unit will be automatically done by the Planet Tracking Software, this activity of the user will be eliminated. Once the software is implemented, the user will be expected to spend most of his/her time in the analysis of the readings given by the spectrometer.

5.1.2 Technical Feasibility

All five of the members of our group are familiar with Java. Hence this solution does not translate into a learning curve for any of the members. There are two modules of the Planet Tracking Software that have been identified as critical sections of the code that would be required for the software. The first critical section is where the code will communicate with the motors using the Prairie Digital Model 40 over the serial port. Java code that performed a

Glossary

advent *n.* 到来，出现

implementation *n.* 执行

eliminate *v.* 排除，消除

learning curve 学习曲线

serial port 串行端口