Experiment Instruction

Software Engineering Economics, Experiment III
Economical Evaluation of Software Project

I. Experimental Purpose

This experiment is a comprehensive experimental project with 1 hour in-class and 7 hours out-of-class. The requirement comes from the teaching requirements of the course "Software Engineering Management and Economics" and your course project.

In this experiment, students should design and complete an economical evaluation report based on the elements & requirements of students' course project. Including but not limited setting up the business goal of course project, collecting basic information about the market, economic & social environment, technical and economic limitations of the course project by online and offline. Designing and analyzing business model and economical model, including software pricing strategy, the estimation of size & cost of course project, fund raising and economical evaluation model of the course project. Calculating the economic benefits of the course project, based on the national standards (GB) and economical parameters of the discipline. At last, validating the result of your analysis.

After completing this experiment, you should be able to achieve the following goals:

1) Master the modeling methods of software project evaluation.
2) Understand the pricing strategy of software product.
3) Master the ability to record experiments, organize experimental data and understand the mapping relationship of parameters in the financial tables.
4) Master the design process of economical evaluation model and evaluate the economic benefits of software projects.

2. Experimental Principles

Economical analysis is to analyze and predict the financial benefits and costs of the software project under the current national fiscal and taxation system and market price system, calculate financial/economical analysis indicators, examine the profitability or benefits of the software projects, judge the feasibility of the software projects.

In order to finish the above tasks, it is necessary to collect/investigate the basic data required for design, calculation and evaluation of your course project from the social & economic environment, including (but not limited to) total cost and investment, interests in the horizon of software lifecycle, working capital and total investment of the project, capital usage plan and fund raising plan, income tax and surcharge and other data. At the same time, set up the criteria for evaluating the software project.

This experimental report is recommended to use a standard form template. Please

refer to the economic calculation table template in the PPT documentation.

3. Experimental Steps

3.1 Collect, organize and extract basic data required for economical evaluation from your course project and social & economic environment.

3.2 Prepare auxiliary financial analysis statements. Including: investment estimation table, working capital estimation table, operating income table, value-added tax and additional estimation table, fixed asset depreciation table, intangible asset amortization table, total cost and expense estimation table, etc.

3.3 Pre-financing analysis. Without considering debt financing, make a project profitability analysis. The basic steps are as follows:

1) Prepare a project investment cash flow statement and calculate indicators such as the internal rate of return, net present value and dynamic investment payback period of the project investment.

2) Judgment: If the above calculation results show that the project benefits meet the requirements, consider the financing plan and conduct the fourth step of post-financing analysis. If the above calculation results do not meet the requirements, the original plan can be further improved by modifying the design. If it is not necessary, a suggestion to abandon the project.

3.4 Write your experiment report.

4. Content of experiment report and Deadline Time

Students must submit a hand-written experiment report (PDF format) on Canvas.
This experiment report must include the following essential contents:

- Experimental purpose and principles.
- Experimental results, especially demonstrate the feasibility of your course project, including but not limited benefits of your project.
- Your learning experiences in this Experiment.

The time scale to finish this experiment report is Seven days.
The deadline for submitting the experiment report is before 23:59 on June 15. Each student should upload the experiment report on Canvas. Students who submit late will be penalized points.

5. Thinking

This experiment uses cash data such as cost and income to calculate indicators such as economical profitability of your software projects (products) and make evaluations based on them.

If a software project (product) has no cash income, what method should be used to evaluate the benefits of this project?

6. Reading and Understanding

National Development and Reform Commission, Ministry of Construction.

Economic Evaluation Methods and Parameters for Construction Projects (Third Edition) [M]. Beijing: China Planning Press, 2006: 13-19.

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