Advanced Journal of Environmental Sciences
Volume.15, Number 10; October-2024;
ISSN: 2837-3928 | Impact Factor: 8.16
https://zapjournals.com/Journals/index.php/ajes
Published By: Zendo Academic Publishing

FEASIBILITY STUDY: A SOLUTION TO PROJECT VIABILITY

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Article Info

Keywords: Feasibility studies, Solution, Viability, Projects

DOI
10.5281/zenodo.13909148

Abstract

This paper explores the significance of feasibility studies in ensuring the viability and sustainability of projects, particularly in the construction industry. It highlights that uncertainties are an inherent part of projects, but proper feasibility studies can mitigate risks and enhance project outcomes. The study emphasizes that project sustainability is closely linked to a thorough feasibility analysis, involving various stakeholders like clients, contractors, suppliers, and regulatory bodies. The paper defines a feasibility study as a critical tool for determining whether a project is technically, legally, and economically viable. It also discusses different types of feasibility studies marketing, technical, legal, environmental, and financial and outlines the components required for a comprehensive analysis. Furthermore, the work stresses the importance of involving professionals such as architects, engineers, and consultants in the feasibility study process to ensure the incorporation of sustainable practices and materials. The study concludes that a well-executed feasibility study is essential for the success of a project, particularly in developing countries like Nigeria, where construction activities are rapidly expanding. It argues that such studies should not only focus on financial aspects but also consider environmental and social impacts to achieve long-term sustainability.

Introduction

Uncertainty is a constant that every project of any size and type face every day. Getting the right project in door, encouraging the initiator to spend, and ultimately generating a profit are basic objectives that can at times seems difficult to achieve. Changing, adapting and incorporating new projects and ideas are ways to remove some of the uncertainties. But without proper feasibility, forethought and planning, those steps themselves can be highly uncertain. Project owners have a key role influencing sustainability performance for constructing projects. Problems contributing to poor project sustainability in project life cycle have close relation with owners and lack of project feasibility study. If owners consider and require construction project works from a perspective of

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sustainable development, the real driving force use to gain and achieve better sustainability is the project feasibility study. In the traditional practice, project clients focus on the analysis on project economic performance in project inception and design stage thereby leaving the most important thing behind which is the feasibility study. To improve project sustainability, project clients should work closely with other parties including government offices, planning professionals, architects, and engineers. Their advice should be incorporated in conducting project feasibility study.

In the traditional practice, contractors and supplier shave no or very little involvement in the project feasibility study stage. However, it is considered valuable to consult with contractors and supplier for advice on improving project buildability and gaining better methods, materials and plants on the project sustainability. Feasibility study can provide information and suggestions about the environmental details of construction activities and various materials and plants, such as waste generation, air and noise pollution, safe uncertainties, energy consumptions, water pollution. The incorporation of this information in the project feasibility study will contribute to improve the assessment of the effectiveness and efficiency on the project sustainability. Feasibility study is the first and most important thing before undertaking project design and construction. The effectiveness of the feasibility study will affect directly the success of a project. Project client or the consultant will work out the project feasibility study traditionally by considering financial issues, such as return of investment, demand and supply in the market, risk analysis on the market conditions. It has been appreciated that the project feasibility study is one of the most easily misunderstood aspects in developing a project. It is nevertheless, the most important stage, as mistakes at this stage can permanently handicap project's performance, even fatally. A proper and effective feasibility study is therefore more than just a set of financial projections, which can become a market-driven strategic plan and a road map for all subsequent decisions.

However, promoting the sustainability in any business sector has become increasingly important and at the operational level within businesses. In line with this development, there is a growing concern that social and economic issues have been outweighing environmental issues in the current practice of conducting project feasibility study.

MEANING AND DEFINITION OF FEASIBILITY STUDY

As the name implies, feasibility study is an analysis of the viability of an idea. It ensures that a project is technically and legally feasible and economically justifiable. Feasibility study describes an action or event that is likely, probably or possible to happen or achieve. A feasibility study is the total of the action you take and the question you ask to determine whether an idea, thought or plan is likely to succeed. A feasibility study is an effective study that guides you on whether you should move forward with your idea, refine it, or scrap it altogether and go back to your drawing board.

Feasibility studies are focused and specific. They start with a single question, asking whether the idea, event or action is a viable solution and forced you to focus solely on that question to the exclusion of everything else, drilling down to explore possible outcome. A feasibility study is not the same as a business plan. A feasibility study is an investigation tool that might cause you to discount an idea, where as a business plan is call to action. You can, in fact, use a feasibility study as a predecessor to creating a business plan. Feasibility studies are important because they force you to consider the big picture first and then think in a top-down fashion. In this way, one or two general starter questions lead to a host of additional, more detailed questions that become increasingly narrower in focus as you get closer to reaching an ultimate answer.

For example, asking whether anyone will buy your new-and improved product and whether it will generate a profit increase additional questions that will force one to consider customer's need and possible competition, and to identify risk that may face. You must also describe your product and its benefits, define your target market,

and calculate cost along with break-even and profit points. Feasibility studies offer you the chance to "get it right" before committing time, money and resources to an idea that may not work in the way you originally planned, causing you to invest even more to correct flaws, remove limitations, and then simply try again. Feasibility studies may also open your eyes to new possibilities, opportunities and solutions you might never have otherwise considered. There are no rights or wrong answer to the question you ask, but an answer you don't necessary want or aspect can create new profit potentials.

DETAILED PARTS OF FEASIBILITY STUDY

Marketing feasibility study
Technical feasibility study
Legal and environmental study
Financial feasibility study
Financial and economic feasibility study
National feasibility study.

COMPONENTS PARTS OF FEASIBILITY STUDY.

The pre-feasibility study: A detailed review of available alternatives must take place at the pre-feasibility study. The feasibility study should deep analysis for the following parts:

1. Executive summary about the project and project background.
2. Business environment analysis and entry timing
3. Market analysis and marketing concept
4. Material inputs
5. Location, site and environment
6. Engineering
7. Technology and equipment
8. Human resources
9. Implementation planning and budgeting
10. Financial analysis and investment appraisal
11. National feasibility study
12. Legal study
13. Conclusion and recommendation

SOME BENEFITS OF PROJECT FEASIBILITY STUDIES

Conducting a project feasibility study is always beneficial to the project and gives a clear picture of your idea. Below are the benefits of project feasibility study:

- It gives focus to the project alternatives outline.
- Narrow the business alternatives.
- Identify the reasons to do the project.
- Enhance the success rate by considering multiple factors
- Help in the decision making of the project.
- Provide a detailed documented status to the business.
- Feasibility study is a must because, every project is not doable
  Not every project should be done so it helps to know project worth doing.
- Feasibility study help project to makes use of effective resources of company.

In its simplest terms, the two criteria to judge feasibility are cost required and values to be attained. A well-designed study should provide a historical background of the business or project, a description of the product or services, accounting statements, detail of the operations and management, marketing research and policies, financial data, legal requirements and tax obligations. Generally, such studies precede technical development and project implementation.

A feasibility study evaluates the projects potentials for success; therefore, perceived objectives are an important factor in the credibility of the study for potential investors and leading institution. All these and more are the important of project feasibility study.

Apart from the above-mentioned benefits, there are some other constraints required to analyze like:

1 Internal project constraints: Technical, Technology, Budget, Resources.

2. Internal corporate constraints: Financial, Marketing, Export.

3. External constraints: Logistics, Environment, Laws and Regulations.

FIVE DIFFERENCE AREAS OF PROJECT FEASIBILITY.

1. **Technical Feasibility Assessment**. This is focused on the present technical resources available in the organization. It studies if the technical resources including the technical team are capable of converting the ideas into working system. It also evaluates the hardware and the software requirement of the proposed system.

2. **Economic Feasibility Study.** This study enables organizations to access the viability, cost and benefits of project before financial resources are allocated. They also provide independent project assessment and enhance project credibility. It also helps to determine the positive economic benefits to the organization that the proposed system will provide. It includes quantification and identification of all the benefits expected. This assessment typically involves a cost and benefits analysis of the project.

3. **Legal Feasibility.** Legally feasibility of the project determines whether the proposed system conflicts with legal requirements like any dada protection act or any social media law.

4. **Operational Feasibility Study**. Under this which we conduct a study to analyze and determine whether your business need can be fulfilled by using a proposed solution. It also measures how well a proposed system solves the problems and takes advantage of the opportunities identified during the scope definition and how it satisfies the requirements identified in the requirement analysis phase of system development. To ensure success, desired operational outcomes of project must be impacted during design development. These include such design parameters such as reliability, maintainability, affordability and others.

5. **Scheduling Feasibility Study.** This is the most important in terms of project success. A project will fail if not completed on time. In scheduling feasibility, we estimate how much time the system will take to complete and with or technical skill we need to estimate the period to complete the project using some methods.

ELEMENTS OF A GOOD FEASIBILITY STUDY

There are basically six parts to any effective feasibility study:

1. The Project Scope. This is used to define the business problems and or opportunity to be addressed. The old adage, “the problem well started is half solved,” is very apropos. The scope should be definitive and to the point; rambling narrative serves no purpose and can actually confuse project participants. It is also necessary to define the parts of the business affected either directly or indirectly, including project participants and end-user area affected by the project. The project sponsor should be identified, particularly if he/she is footing the bill. I have seen too many projects in the corporate world started without a well define project scope. Consequently, projects have wandered in and out of their boundaries causing them to produce either far too much or far too little than what is truly needed.

2. The Current Analysis. This is used to define and understand the current method of implementation, such as a system or product etc. from this analysis; it is not uncommon to discover that actually nothing wrong with the current system or product other than some misunderstandings regarding it or perhaps it needs some simple modifications as opposed to a major overhaul. Also, the strength and weaknesses of the current approach are identified [pros and cons]. In addition, there may be very well elements of the current system or product that may be used in its successor thus saving time and money later on. Without such analysis, this may never be discovered. Analysts are cautioned to avoid the temptation to stop and correct any problems encountered in the current system at this time. Simply document your findings instead, otherwise you will spend more time unnecessarily in this stage [aka "analysis paralysis"].

3. Requirement. Under this, requirements are defined depends on the object of the project's attention. For example, how requirement is specified for a product are substantially different than requirements for an edifice, a bridge, or an information system. Each exhibit totally different properties and, as such, are define differently. How you define requirement for software is also substantially different than how you define them for systems.

4. The Approach. This represents the recommended solution or course of action to satisfy the requirements. Here, various alternatives are considered along with an explanation as to why the preferred solution was selected. In terms of design related projects, it is here where whole rough design [e.g., "rendering"] are developed in order to determine viability. It is also at this point where the use of existing structure and commercial alternatives are considered [e.g. "build versus buy" decision]. The overriding considerations though are:

Does the recommended approach satisfy the requirements?

Is it also a practical and viable solution? A thorough analysis here is needed in order to perform the next step.

5. Evaluation. Evaluation examines the cost effectiveness of the approach selected. This begins with an analysis of the estimated total cost of the project. In addition to recommended solutions, other alternatives are estimated in order to offer an economic comparison. For development project, an estimate of labor and outgo pocket expresses an assembled along with a project schedule showing the project path and start-end-dates. After the total cost of the project has been calculated, a cost and evaluation summary are prepared with which includes such things as a cost/benefits analysis return on investment.

6. Review. All of the preceding elements are then assembled into a feasibility study and a formal review is conducted with all parties involved. The review serves two purposes:

To substantiate the thoroughness and accuracy of the feasibility study

To make a project decision, either approve or reject it, or ask that it will be revised before making a final decision. If approved, it is very important that all parties sign the document which expresses the acceptance and commitment to it, it may be a seemingly small gesture, but signature carry a lot of weight later on as the project progresses. If the feasibility study is rejected, the reasons for its rejection should be explained and attached to the documents.

STAGES IN A PROJECT FEASIBILITY STUDY

Pushing a project idea to the operational stage is time-consuming and complex, which presents most ideas from attaining this stage. Those that reaches the operational stage usually fails within the initial six months. A feasibility study would help you forestall such an event by helping you determine whether the merit of investing in the idea would outweigh the risks. While conducting you should implement several stages namely:

Idea Generation. The feasibility study begins with the formulation of the project idea, which can be obtain through market research, family, friends, suggestion boxes or brainstorming. At this phase, you can downsize the number of ideas and attain the most realistic one. Depending on your project culture you can discard the extra

ones or preserve them for future references when you need to. You have to conceptualize and visualize your final product, a process that entails analyzing the project's target, size, quality, color and weight.

Seeking Information. One needs to gather information about his/her project's quality, and the value to the community as well as at what necessary and important will it add. The search for information should also involve collection of data on the project location, social condition, the socio-economic values, the norms, belief and aspiration of the community, and the regulation. Conducting a project survey is an effective way of gathering information where you harness information from a sample of the target, via methods, such as questionnaires, observation or interviews, records, publication and library research are other sources of information for a project feasibility study.

Technical Stage. Thanks for the technical phase; you can determine whether it is technically viable to produce your services or to embark on a project. This is a crucial stage in gaining valuable intelligence on various issues of project, such as identifying functionality, health, safety, and legal matters. According to Donncha Hughes, a business smart-up expert, the successful execution of a technical feasibility stage demand that it should be undertaken where this exercise is entrusted to an external source, strict monitoring is necessary.

Filing the Report. After ascertaining the viability of the project idea, file the project report to the appropriate authorities, such as the board of directors of the CEO. Generate findings from the study, compile the report and consult with project professionals who can help analyze it and approve or disapprove it. Your report needs to contain clear recommendations regarding the operational strategies for your project idea. Ensure that the report is data driven and provides a plan for the successful execution of the project idea.

REASONS FOR CONDUCTING PROJECT FEASIBILITY STUDIES

Feasibility study analyzes the potential obstacles and benefits of upcoming project. The study may be voluntary or required as a prerequisite for government approval or fundraising. Conducting a feasibility study before beginning a major endeavor also give you and your staff a concrete plan to fellow once the project begins. You can perform a feasibility study that covers the entire project or break it down into more specific tasks. If you have time and money, splint large projects into several parts, and conduct feasibility study for each. This ensures that all vital details for the whole projects are given a thorough analysis. Some of the reasons for conducting project feasibility study are as follows:

1. Environmental Concerns.

A feasibility study may be required by a government agency as part of the building permit or rezoning application. This is especially important in an area with endangered species or lakes, rivers and other water ways that are vulnerable to pollution. This project feasibility study discusses the appropriate disposal procedures if your business or projects generate waste, including costs and fees, list any mitigating action the company plans to take to offset the damage it causes.

2. Legal Risks.

If you manufacture high-risk as an industry, a legal feasibility study can help you articulate future problems. The study may lead you to the conclusion that the project is too much of a liability and should not be produced. Local manufacturing regulation or labor laws can also impact your business or project. You may consult an attorney with specialized knowledge of your location of industry when preparing this type of feasibility study.

3. Relocation.

Feasibility studies are also helpful when planning to relocate your projector company. You may concentrate a completely different culture if you are relocating to a foreign country. There may be significant regional differences between states. For instance, moving from southeast region to northern region could create a culture

shock for your workforce. Thoroughly discuss the historical feasibility and projected cost of the move. Do not forget to include human resources cost for employees needed to execute the move.

4. Fundraising.

A feasibility study can improve the success of fundraising efforts for non-profit organizations. The study shows potential donors you are prepared and invested in your cause. All of the organization's financial goals will be laid out in the document, so your fundraising team will have a clear goal in mind during their campaign.

5. Projects Expansion.

Consider the economic consequences of add new facilities, employees or distribution channels. Discuss all technical aspects of the projects, such as the procurement of office furniture and information technology systems. Upcoming mergers or acquisition of other projects are also good reason to request for a feasibility study.

FEASIBILITY STUDY REQUIREMENTS

For a feasibility study to give accurate insights, it must address certain requirements. Some of the requirements are:

Financial Requirements.

A feasibility study assesses a prospective project or business's projected cash flow, income and its financial projections. It projects your enterprise's loss or profit using the estimated cost and revenues as a basic. Financial requirements of a study should also focus on the break-even point. The feasibility study addresses the subject of the availability of supply and raw materials, and accesses the startup and operating cost of obtaining these supplies. Financial elements include exploring possible sources of startup funds, as well as prospective lenders and terms of borrowing funds for the financing of the project or business.

Technical Feasibility Requirements.

Technical requirement of the study focus on your facility needs, suitability of the project's or business's site, raw materials and the effectiveness of your production technologies or effectiveness functioning and the operation of the project. Effectiveness of project or business functioning, operation and production technologies entails assessing various technological providers and identifying any limitation of their technologies. A technical feasibility study explores the project provider assess to transportation, raw materials, identifies any environmental concerns, and addresses labor and production inputs, such as water and electricity.

Managerial Requirements.

The management feasibility aspects evaluate the adequacy and continuity of the current and prospective business or project management. The study addresses managerial questions, such as whether the current organizational structure is right for the enterprises and the qualifications required to run the project or business operation. It also identifies crucial staff positions that need filing and includes the required experience for those in the upper management. The study may identify suitable candidates for vacant positions as well as the cost involve in hiring them.

RECOMMENDATIONS

To improve the existing practice of construction implementation towards contributing to sustainable development, all the three dimensions, including economic, social and environmental issues, need to be fully concerned in conducting project feasibility studies. In particular, the project feasibility study should allow more focus on the methods for improving project quality, safety performance and environmentally friendly practice for the future practice of the

Industry. This highlights the urgent need for shifting the traditional approach of project feasibility study to a new approach for embracing the principles of sustainable development. The following highlights necessary actions required for different levels of project participants to ensure sustainable construction practice be implemented:

Government

Government has an important role to play in promoting sustainability of construction project at the stage of project feasibility study. The government should guide with policies, laws and regulations, and balance the interests among economic, social and environmental stakeholders through awards and punishment. This role should be practiced through various ways including laws and regulations, industrial specifications, administrative examination and approval, tax fine and other means.

Clients

Project owners have a key role influencing sustainability performance for construction projects. Problems contributing to poor project sustainability in project life cycle have close relation with owners. If owners consider and require construction project works from a perspective of sustainable development, the real driving force can be gained to achieve better sustainability. Project clients focus on the analysis on project economic performance in project inception and design stages. To improve project sustainability, clients should work closely with other parties, including governmental offices, planning professionals, architects and engineers. Their advice should be incorporated in conducting project feasibility.

Architects and engineering consultants

Design documents have great influences on the sustainable performance of construction projects. Designers and engineering consultants should be consulted in the feasibility stage for professional advice on various alternatives and their influences to the project sustainability. Designers and engineering consultants should be equipped with the knowledge of sustainable construction principles, and they should have the know-how of practicing these principles in their professional activities, such as the choice of sustainable design plans, choice of environmentally friendly materials, energy efficient designs for services, and sustainable structure design to enable safer and healthier living and working environment.

Contractors and suppliers

In the traditional practice, contractors and suppliers have no or very little involvement in project feasibility study stage. However, it is considered valuable to consult with contractors and suppliers for advice on improving project build ability and gaining better understanding on the influence of alternative construction methods, materials and plants on the project sustainability. As contractors and suppliers are knowledgeable of construction process and characteristics of various building materials and plants, their roles in contributing to better project sustainability are significant. They can provide information and suggestions about the environmental effects of construction activities and various materials and plant, such as waste generation, air and noise pollution, safe uncertainties, energy consumption, water pollution.

The incorporation of this information in the project feasibility study will contribute to improve the assessment effectiveness on the project sustainability.

CONCLUSION

Project feasibility study is an important aspect in project development. Constructing project, in particular infrastructures have major influence on the attainment of sustainable development and must be achieve through proper conduct of project feasibility study. Project feasibility study is a pressing issue that must be addressed, particularly in developing countries like Nigeria where a huge amount of construction work is currently perform and remain to happen in future. Therefore, in order to ensure good project development, project sustainability, effective and efficient project development, project feasibility study is very necessary, compulsory and highly recommended.

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