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A dynamic model for Feasibility study of projects (a case study)

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Abstract— nowadays in creditable companies and organization, before start any project and assign resources, Feasibility study report prepared and send for all stakeholders for deiced about start project. Traditional models in this field are static and after starting the project will be shelved. Due to the changing situations of the factors affecting project execution, which often happens before start a project is feasible, after run up the middle or the end of the projects, factors changed and project feasibility will be lacked. In this paper we offer a dynamic model for feasibility study of projects periodically review and updates the FS reports and based on new results stop or continue the projects. The preliminary version of this model implemented in PES and new version prepared based on feedbacks of this case study.

***Keywords*—Project Management, FS report, dynamic model**

Introduction

Resources available in each company are dependent limitations. Therefore, before starting any project, you have two especially important. The first is the strategic vision of the company or organization, whether or not the project is in line with the vision and the fact that the project has technical feasibility - be or not economic? Unfortunately usually we only focus in one of them, and in the long term this topic can cause impact to project and company.

If the project define will in the vision limitation of company but didn't have feasibility , company loss benefits and damage from financial view, and if the project is feasible but not in the vision limitation of company implementation of the project will not have any benefit for the future of company.

Another thing usually before starting the project a comprehensive feasibility study report will be prepared and based on this report result, project stockholder decide about project do or not do . But after start the project and during the run - due to changes in environmental conditions- , the primary justification for the project is lacking, and there is no documented procedure solution to manage this happen.

Company Strategy definition

Strategy, detection key opportunities and concentrate resources in order to achieve the hidden benefits of it. The main themes are strategic opportunities, moves and strategy, it is meaningless without it. What are the opportunities? Not meet the needs of the business environment and market opportunities are formed. Potential profit opportunities are in, however this benefit is greater than the value of the opportunity. The opportunity to discovery and development strategy with organizational capabilities, potential benefit inherent in the opportunity to actualized will and the organization will benefit from it.

Effective strategies to create customer value and competitive advantage for the organization and the corresponding two are always together. Value from the customer's perspective is that of a product or service's total benefits will be minus all costs that he realizes he is this regard. The benefit involved broad aspects such as features, product quality, after-sales service and other tangible and intangible factors and cost is involved direct costs, indirect costs and other non-financial costs. Strategy enables organizations to increase profits and reduce costs, and thereby creating more value for the customer, he leaning himself to the competitor side. Thus the strategy creates customer value and competitive advantage for organizations. Competitive advantage over competitor organizations, including the factors that cause the customer is preferred. Discover opportunities in business strategy through carrying value (to the customer) and response (better than competitors), it creates a competitive advantage for the organization and the main function of the strategy.

How valued opportunity will be shaped? Opportunities are based on the rules governing paradigm. Paradigm is a set of rules that a range of set and show you that succeed in this area, how to behave. Paradigm provides a model for how to solve problems. Business opportunities for the understanding and proper interpretation of the rules governing recognized. And the most important, yet it is difficult to consider and engage of environmental returns. Opportunities continuously environments are created and destroyed, and the understanding and interpretation requires analysis and understanding of the organization and the rules governing it. Organizations in the context of existing programs, the mechanisms for review and environmental assessment and explore opportunities strategically. This is the first step in a strategic move. Acts strategically in the context of the business environment is done and it linked inseparable to the effectiveness of the strategies and conditions of business environment make contact. Successful strategic management of the environment is rich, timely detection and orientation in order to take advantage of their opportunities.

Many methods have been introduced for the strategy. The most famous are as below:

- Design School : in this method strategy will be prepared based on SWOT (Strength point , week point , opportunities , threads)

- Planning School: in this method will be prepared based on a systematic and step by step procedure and view to strategy as a systematic model not as a minding work.
- Positioning School: in this method strategy will be defined In terms of process analysis & structured environment in order to select a suitable place for excellence to the competitors.
- Entrepreneurial School: in this method strategy will be prepared based on INTELLECTUAL study and only view not clear vision of the future.
- Cognitive school: in this method strategy will be prepared based on psychology science and with data process, mapping knowledge structure and etc.
- Learning School: this method developed based on Lindblom strategy, Quinn strategy and Mintzberg strategy theory.
- Cultural School: This method is based on integrity and social desirability.
- Environmental School: According to this method, based on the degrees of freedom for maneuver in the face of environmental changes.

Strategy is fixed or variable? One of the questions that invariably companies (especially companies with medium or low turnover) precedes “the stability of strategy". One of the common understandings about the Strategy is overall plan or long-term plan of the company .

. In this view strategy will be prepared for next 20 years and annual plans prepared based on this strategy. .The strategy should remain constant for the duration of the run, or concurrent with advancement based on internal and external to the company can changed. Both approaches have advantages and disadvantages. The main disadvantage is that permanent stability to the organization's strategy into a book that is used only for filling Director's room decor.

Assuming that within 5 years of the company's strategy has been to double its engineering staff to increase. Two years have passed since this event and due to market conditions, you are forced to change your field from engineering to construction, in case of stability in the strategy you should select one scenario as below:

1) According to the strategy, increasing engineering staff, this matter will be resulting to increased costs for the company, increasing the number of unemployed workers and ... and finally in the long term, which will only accelerate the bankruptcy of the company.
2) Strategies as the decor in the room put CEO and the current projects please proceed to executive recruiting. It also makes the whole strategy of the company to be put the decision cycle.

Variable strategy important disadvantage is top manager of company without strategy is same as a ship without compass and only focused on daily activities.

Did we have any company without strategy? The answer of this question depends on our definition of strategy, if we assumed strategy as a document; we can find many examples of companies that didn’t have this document. But we didn’t have any company without any strategy, the Company shall be determined within the framework of the basic strategy is created. Main problem is not having or didn’t have strategy; most company’s problem is they didn’t know his strategy.

Feasibility study definition

Feasibility reports or technical studies - economic (Feasibility study), one of the first steps in any project is to evaluate the technical condition of the costs and benefits of the project and a clear picture of the scope of the project, stakeholders will have to decide. Position of this report on the project life cycle (according to the PMBoK standard) is usually the first step. For example, in America defense projects after the feasibility report is intended to support and advance planning. Feasibility report consist project formulation, technical specifications and conceptual design, cost and current investments, financing and SWOT of the project and the overall project schedule and.... according to this report on the implementation or non-implementation of the project will be decided.

Static Feasibility study problems

Today’s economy is a dynamic situation and the factors affecting technical studies - economic changes during the project. Please assumed a project with 2 years’ time , this project starts after comprehensive FS report (with 20%IRR) , but in the middle of the project will change some of the assumptions (such as energy prices , political and market conditions , labor rates , and greater access to technology competition), if the company decided to use a static method for FS Studies project will continue until its completion , but the end result was not anticipated at the outset and may even be harmful for project and company.

FS dynamic model

Due to problems of the static model, a model for deciding the project was defined as follows. In this model, the FS report in accordance with normal procedures, the table 1 was table as the project is completed.

In The Indicator column, will be listed factors affecting the approval or rejection of the project same as:

- Benefit
- ROI
- Work Scope
- Volume of investment
- Risk
- Market penetration
- Cash flow
- IRRE
- …

Similarly, select indicators and weights of each of the tasks, the stakeholders of the company. This is done to your beneficiaries or to others (such as the board of directors, etc.) are given. The column is acceptable, it defines the upper and lower limits can be estimated in the indexes if the project is rejected, otherwise the total score is calculated for the project. For example, if earnings of a company to be considered at least 5 %, less than 5 % of all projects in order without closer examination of the spewing. The tables at the beginning of each project and completed the project rating is calculated. If the total score is above the calculated upper limit (70) is deemed to have been approved and the project will begin immediately. If the total score is calculated is less than the lower limit (for example 30) of the project will be rejected. If the score between the upper and lower limits (for example between 70 and 30), decisions to be entrusted to the beneficiaries.

Projects scores calculation is stored in the project database. These scores updates each period (for example once every month in our sample) based on the project status and assumed to stakeholders will be informed of the decision .to follow the project or stop it.

Case Study

To implement this model, Pooya Energy Passargad Company was selected as a Case Study. This company's subsidiaries Pasargad Bank (a private bank in Iran) active in small-scale power generation and desalination projects. Additionally Because the top manager of this company have a good experience in other fields more than 30 years , sometimes offer projects for finance and implementing in other fields of main activity of company. These parameters near the top manager’s belief to project management based of over decision for negotiate with this company director to select them as over model case study. Fortunately he accepts and we start over model in this company planning section.

In the first step after design the model, for saving time planning section selected for prepare indicator tables and after confirmed by Director start to use in company, finalize indicator tables is as below :

After finalize this table, based on internal project define procedure this indicator will be calculated and based on results Project score will be calculated. Define project procedure is as below:

- Project Define: the section director decide about stop the project or prepare preliminary FS report.
- Preliminary FS Report: the report will be prepared by planning section, after prepared this report 3 case will be possible.
    - Confirm report by Managing director: after this case planning section prepared FS Report.
    - Reject the report by Managing Director: the project will be archived.
    - Suspension project by Managing director : every 3 months reminder
- During preparation FS report, Indicators table of project will be prepared and score of project will be calculated. If the score more than 70 project will be approved and if score less than 30 project will be rejected. If score Between 30 to 70 will be sent to the board of directors for decision. Every month this score recalculated.

Feedback of implementation

After finalize this procedure in company, we had some problems in implementation same as:

- Experts and engineers of company believed this procedure was only a bureaucracy procedure and prefer to do his work and project without fill the forms need based on this procedure.

Vice manager and senior managers prefer to reject project without record in this procedure, because maybe in review by Managing director he decide to project do.

This procedure start by managing Director full support, but only can implement in the projects, project manager and other managers of that project believe to this procedure.

Modified Model

This model prepared to meet the needs of top managers of company, but based on the feedbacks had been some modify offer for this model as below:

- Prohibit assign budget to projects not defined based on this procedure.
- Reduce update of indicators table to 6 months
- Reduce update of project scores to 2 weeks
- Increase Director Manager authorities, he can finalize the project have more than 70 score without getting boards acceptance.

Conclusion

The results of implementation this model are as below:

- Unlike the stock management had a long history on online control, online check FS projects have recently been proposed and we couldn't find implemented sample of this procedure in our research.
- To implement this Model additionally culturing we need to use mandatory tools (for example: Assign budget only to project define with this model) too.
- This model should implemented for all projects of organization, because except only one project show an escape way to other project for didn't use this procedure.

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