INVESTMENT AND FINANCING DECISION MAKING IN THE INDUSTRIAL COMPANY

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Abstract
Currenty, there are a lot of the different managerial tools for the decision making in the industrial company. The main attention of this article is to analyze the investment and financing decision making. The aim is to increase effectiveness and performance of the industrial companies.

Key words: investment decision making, financing decision making, industrial company

INTRODUCTION

The process of arriving at a decision in the company is a complex interaction of factors such as personal psychology, group dynamics, context, access to information and self-interest. These decisions are either programmed or not programmed. Programmed decisions are those in which a policy, a standard operating procedure, a rule or some precedence exists. Creativity and analytical thought is not required. Most decisions, even at executive level, are of this kind. In contrast, nonprogrammed decisions are ill structured and elusive — there is no standard way to answer them. Very few decisions within a company are of the non-programmed variety.

Decisions can be reversible or irreversible. If the money invested can be easily recovered without cost, the decision is reversible. Irreversible decisions consume resources and reduce flexibility.

1 COMPANY DECISION-MAKING

The investment and financing decisions represent the core of what a company does. It raises the funds to invest in projects. It raises capital, which are the financing activities, and it allocates that capital, which are the investment activities. The analysis, planning and evaluation of these opportunities are intimately tied to the company’s strategic objectives.

The investment and financing decisions are at the top of the hierarchy, and contain significant strategic content. Investment decision precedes the financing decision. They are long-term, have significant cost and risk, and set the course for the business for some years to come. Programmed, operational decisions have less strategic content. They are the day-to-day decisions that have impact in the shorter-term, are largely based on past experience, and generally do not clearly or directly impact on the direction of the company.

The functions of the investment and financing activities are usually separated in companies. The functional teams working on investment proposals are usually not those working on financing structure. In other words, they occur in different departments. This separation is also in timing. The first decision is whether it is a good opportunity for the company in the context of all the other opportunities available to the company, and the second decision is how best to access the funds to implement the investment proposal. The separation of these decisions is useful for a number of reasons:

- it clarifies what decision is required;
- it allows opportunities to be evaluated on a common basis;
- it clarifies the roles and responsibilities of different functional units within the organization or company.

The function of the financial and strategic evaluation of business opportunities by engineers and scientists is to maximize value for shareholders. Tactics that may be adopted in the short-term, such as increasing sales, decreasing costs or maintaining market position, are subordinate to the long-term goal of maximizing the value of the company. However, in practice, it is often easier to implement short-term tactics and the results are seen more quickly. Since managers are largely focused on their individual career paths, not necessarily on creating shareholder wealth, programmed decisions with mostly short-term, tactical contact are favoured. Thus, it is often easier to get a decision to replace ageing equipment than to get one to increase production capacity by de-bottlenecking, and easier to get a decision to increase production capacity by de-bottlenecking than to get one to build a new production facility.

In evaluating a decision, a distinction should be made between the decision process, and the outcome of the decision. It was not a good decision because the outcome was good, or vice versa. It was a good decision because it was considered, transparent, inclusive and rational. It was a good decision if the assumptions in both the problem formulation and the solution process were interrogated and found to be valid. It was a good decision if information was collected thoroughly, and was presented in an unfiltered and unbiased fashion.
2 FRAMEWORK FOR DECISION-MAKING

Decision-making can be examined from two different viewpoints: the **normative** view and the **descriptive** view. The normative view suggests what ought to take place, that is, how the ideal decision maker would set about the task. The descriptive view is how it actually happens. A prime criticism of the normative process is that there isn’t time to make a full analysis of the alternatives to arrive at the best option. Besides, people usually aren’t interested in the best option, they will settle for the first option that meets the minimum requirements, a process known as “satisficing,” meaning both to satisfy and to sacrifice.

The focus of our attention is on providing the methods and the means to make successful capital investment decisions. These decisions are not made on the spur of the moment. They usually involve the outlay of significant resources and consequently they more closely represent the normative process. For this reason, the discussion of the decision-making process that follows is based on the normative view.

The decision-making process can be broken down into different steps. One formulation that might be useful is shown in Figure 1. In this formulation, the decision-making process occurs in three stages:

- **Frame**
- **Evaluate**
- **Decide**

The object of the framing stage is to define thoroughly the problem or opportunity, and to specify criteria and objectives for the decision that is required. A technique that can assist in clarifying the decision frame is to ask simple questions, such as the following:

- what is the problem?
- what question are we trying to address?
- what decisions might we have to make?
- what are the uncertainties?
- what is the important background information?
- what questions are we not trying to answer?

Another technique that is useful in framing a decision is to ask stakeholders what the top issues are with regards to the opportunity. These issues and their associated information can be categorized into facts, uncertainties and decisions. In this context, a fact is known information, an uncertainty is a quantity or variable about which the decision maker or the company has no control, and a decision is a choice that the decision maker can control. The category of uncertainties is used in building a model of the possible outcomes. A decision hierarchy of three different groups can be used to segregate the decisions group: the policy decisions are those that have already been made; the strategic decisions are those that are needed to solve the problem; and the tactical decisions are those that will be made later.

2. **Evaluate: the Assessment of Alternatives Based on Criteria**

The second step is the evaluation of alternatives against a set of requirements or criteria. Three things are required to perform this step:

- an alternatives, which have been generated in the decision framing step;
- a set of criteria;
- a method of evaluation.

The set of criteria in general decision-making can be broad. However, in investment decisions, the main criterion is usually that the company should create wealth for its shareholders, that is, the project seeking approval must be economically viable or profitable. The senior management of a company usually specify a measure of profitability that must be used, like the payback period and return on investment. The method of evaluation involves both:

- the methods for the calculation of the decision criteria;
- the method for assessing the most attractive alternative.

A number of tools can assist in the evaluation stage. Influence diagrams are one these. They link the uncertainties and choices that were
delineated in the framing step to the decision criteria. The influence diagrams are used to determine that all the factors that influence the decision have been included in the evaluation, and they are used to build a model of the decision criteria. They create a visual understanding of the interactions between the factors that influence the decision criteria.

Decision trees link the outcomes of events and decisions to the value of the decision criteria. Choices and events create different outcomes and these are represented as different paths on the decision tree. The values of the final outcomes are used to determine the optimal choice or set of choices.

Other useful techniques in the evaluation stage are sensitivity analysis and scenario analysis. Sensitivity analysis is the determination of how much the decision criterion changes in response to variations in input values. The sensitivity of the first uncertainty is the amount of change of the profit to a change in market share, and the sensitivity of the second uncertainty is the amount of change of the profit to a change in production cost.

3. Decide: the Act of Decision-making

The final step is the act of choosing the preferred alternative and implementing the decision. This may take a variety of forms depending on the stage of development of the project and the decision that has been made. For example, there are a number of decision stages in the approval of a capital project, each one of which will require the three decision-making steps discussed.

The project moves through the stages outlined in Figure 2. Finally, the engineering and projects team enter the stage of detailed engineering. Detailed engineering is followed by the implementation phase, which involves procurement, construction and commissioning. Once the project has been implemented, a post audit is usually conducted to assess the effectiveness of the decision-making.

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<tr>
<th>Role</th>
<th>Stage of Project</th>
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<td>Business Development</td>
<td>Opportunity Assessment</td>
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<td>Business Case</td>
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<td>Business Plan</td>
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<td>Final Business Plan</td>
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<td>Engineering Study</td>
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<td>Accept implementation plan</td>
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Figure 2 An overview of the business development, engineering design and approval phases for a project

3 INVESTMENT DECISION MAKING

The decision to make an investment in an operating or financial asset is taken on the basis of a business evaluation. The evaluation has the objective of building a business case for the investment proposal. It requires an overall perspective of the business, of the company’s positioning on strategy, marketing, and production. It requires an understanding of the company’s risks and returns and it must integrate aspects of tax, commercial agreements, and possible liabilities. It requires knowledge of the project, through the construction, commissioning ramp-up and production stages. In addition to analytical skills, business evaluation involves judgement, experience and wisdom.

There are essentially four parts to the evaluation of an investment opportunity. These are the strategic evaluation, the economic evaluation, the technical evaluation and the financial evaluation. Not all of these are relevant to all companies or to all investments.

- The strategic evaluation considers key factors for the success of the project, such as the company’s ability to penetrate the market and the structure of competition in the industry. The markets that most companies operate in are competitive, resulting in a drive for efficiency and effectiveness. The company must be able to understand the dynamics of the industry and harness this knowledge profitably. Strategic evaluation encompasses an overall knowledge of the company’s current and future activities, including the
company’s anticipated projects. The company does not only exist in the context of its market. Beyond its markets, the company exists within a system of law, society and politics. Knowledge of, and an anticipation of the changes in, the external factors, such as public opinion and the regulatory environment, that may impact on the business’s ability to execute its business plan, is essential for the strategy of a business to be successful.

- **The financial evaluation** is the function within the business evaluation that examines all the available information from a financial viewpoint. The merits of the investment are examined on the basis of the investment costs and the cash flows that will be generated from the investment. It includes the synthesis and financial quantification of the company’s knowledge of the key factors for success, and an assessment of the risks to the company.

- **The technical evaluation** is usually a staged process that occurs with the design of the equipment for the operation. Within the various engineering disciplines and industries there are differing names for the stages, but generally they consist of concept, pre-feasibility, feasibility and final design.

- The aim of an **economic evaluation** is to assess the costs and benefits of the project to all stakeholders in the project. This is a much broader view than the financial evaluation mentioned earlier. Another important difference is that in the opinion of the economists performing the analysis, market values and prices may not be a true reflection of the costs and benefits to all the stakeholders. In this case, the economic analysis may include adjustments to account for these anomalies. Once the project has been assessed, a decision needs to be taken on whether to invest in it or not. Prior to discussing the practice of investment decisions for capital projects, it is worth discussing the theory and practice of decision-making in general within a business.

### 4 FINANCIAL DECISION MAKING

There are two major financing issues associated with large capital projects. These are the following:

- how is the project to be financed during construction?
- how is the project to be financing permanently after construction?

The separation into these two phases is important, since during construction there is the additional risk of the project not being completed on time or within budget. The funding during construction depends on the owner’s contractual arrangements with engineering contractors and equipment vendors, that is, it depends on how the project is “procured.” The owner of a project can procure a capital project in a number of ways, each of which carries different risks. There are three main models: owner managed, cost-reimbursable and lump sum turnkey. The way in which the project is procured or delivered influences the financing during construction of the project.

If the project is owner managed, the owner prepares the engineering design package that defines and specifies the project and the equipment required. The owner then procures all of the equipment and constructs the project at the owner’s cost. In other words, the owner finances the construction of the project directly from its own source of funds, that is, the equity and debt of the company. The prime advantage of this method is that it allows the owner to select the engineering company or construction company that is best suited to each stage of the project. The owner is the active manager of the project and maintains control and overall responsibility. The cost-reimbursable contract is only slightly different to an owner-managed project from a financing point of view. In this type of contract, the owner appoints a contractor, who undertakes the engineering design, procures the equipment, and manages the construction until completion, on behalf of the owner. The contractor integrates all the aspects of the project. The owner finances the project directly from its own resources. Although the owner delegates responsibility to the contractor most of the project risk remains with the owner. The owner pays the contractor based on the costs incurred by the contractor and fees charged by the contractor.

The owner may develop a specification and issue tenders to engineering contractors for the delivery of the project at a particular date for a fixed, or “lump sum,” price. These contracts are called lump sum or lump-sum turnkey. The risks of and responsibilities for the construction of the project are transferred to the contractor. The financing of the construction of the project is transferred to the contractor, who maybe required to arrange a construction loan. The engineering contractors would also be required to provide guarantees of performance. On completion, the construction loan terminates and the owner provides permanent finance. On the other hand, the owner may agree to pay the agreed price according to a construction schedule, in which case the owner may request the contractor to provide a performance bond that the contractor would forfeit in the case that the project is not completed.

Permanent financing is the funding of the project after construction. In some cases, there may be no difference between the construction finance and the permanent finance because the owner funds all requirements. Either way, once the project has been constructed, the permanent financing can be
arranged on the basis of the general standing of the owner, that is, from the owner’s own resources, or as “project finance.”

The owner, who is generally a company, can raise finance to fund the capital project from one of two sources: equity, or debt. The company sells shares or stock in the company to investors to raise equity capital. These shares represent part ownership in the company and the investor bears the risk of ownership. On the other hand, the company can raise funding from lenders who are willing to loan money to the company because of the creditworthiness of the company. Such loans that are raised by the company, usually for extended periods, are referred to as debt financing or the debt capital of the company. The lenders may require security or collateral, and the assets of the company are often used as collateral.

An alternative form of permanent financing for a project is to secure the finance against the anticipated cash flows of the project. This means that the lenders are not relying on the company’s past performance in assessing the loan, not do they require the company’s assets as collateral. Instead, the lenders look at the profitability of the project and its ability to repay the debt. In this case, the project is separated legally and financially from the original owner, who is now called a sponsor, and the finance is structured to suit the needs of the project. This form of finance, called project finance, has found application in large infrastructure and industrial projects in both the private and public sectors.

In order to pursue a project or an investment opportunity, the organization needs funds. The sources of the funds, the stewardship of the funds within the organization and the interaction between financing and investment constitute the context that impacts on the evaluation of capital projects, the decisions concerning which projects are pursued and those which are not.

Financing, or the financing decision in a company, is the function of determining the most suitable financing arrangement or structure to fund the company’s opportunities. The financing decisions are mostly concerned with the following three issues:

• how much debt can the company afford to have (called the capital structure);
• how much credit the company can afford to provide to its clients (called the credit policy);
• how much of the company’s profits should be retained by the company (by not paying all the profits to the shareholders) to have sufficient resources for all anticipated needs and future investments (called the dividend policy).

It will be shown that it is advantageous to have as much debt as possible, because the returns to shareholders increase with increasing debt. However, increasing debt also increases the risk for the company. In structuring the finances for the company, the financial manager makes a trade-off between return and risk. Similar trade-offs are involved in considering the other two issues.

From a strategic viewpoint, the financial manager must ensure that the company has sufficient resources to meet its goals. The financial manager must forecast what the resource requirements are, and determine if additional resources are required. If insufficient, the financial manager must raise the additional capital that matches the requirement from either shareholders or debt-holders. The funding requirements for the company are pooled or lumped together; finance is not generally arranged for a particular project. The financial manager determines the total requirements for the company, and determines the best method for meeting these requirements.

CONCLUSION

The main informations of investment and financing decision-making are required form financial statement. Investment decisions concern the acquisition of operating assets or financial assets. Operating assets are items such as machinery, vehicles, property, inventory and buildings. A distinction is usually drawn between fixed assets, such as production equipment, and working capital, which is the net amount of money required for stock, inventory, debtors and creditors. The company may own shares in other companies, or it may loan money to other companies. These investments are in financial assets. In other words, the company may acquire financial assets by investing in other businesses or by investing in financial instruments sold in the financial markets.

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