INTEGRATING STRATEGIC AND PROJECT MANAGEMENT

Getting real value from capital projects

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Fulcrum Management Limited

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EXECUTIVE SUMMARY

Most of the literature on Project Management is concerned with either project definition or implementation. Similarly, the project justification process normally concentrates on ensuring that the project as defined produces adequate returns for the business.

This paper demonstrates how an understanding of how projects fit into corporate strategy and the "politics" of the approval process can be beneficial to engineers. It also shows how a clear understanding of corporate objectives can help to ensure that projects are appropriately funded and presents some approaches, which should help in the negotiation phase.

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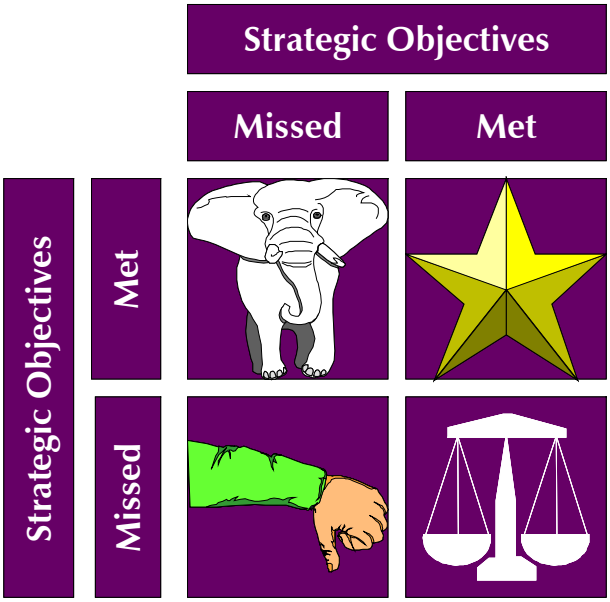
INTRODUCTION

It is easy for those of us who are involved in implementing capital projects to see them as an end in themselves, rather than the means of achieving some corporate objective. From the company perspective, what is important is whether the initiative provides the improvement in capability, which is intended.

Modern strategic management theory is about developing corporate resources and capabilities, which can then be used to meet overall goals. Capital Projects are only one of a range of initiatives which operating companies can use to enhance their capabilities to meet their customers' needs. Others include Mergers and Acquisitions, New Product Development, Market Entry or Development, Staff Development, Cost Management.

Project Success



Those who are in any doubt about the relative importance of achieving strategic rather than project objectives need only consider the diagram opposite.

Projects which fully meet their internal objectives but which fail to deliver the required strategic advantages may well be considered "white elephants". Those that meet their strategic objectives and deliver an element of competitive advantage to the company will become success stories over time, even if none of the original project objectives were met. Projects, which fail to meet either set of objectives, are disasters for all concerned. I'm sure we can all think of examples of each type.

We all wish to be involved with successful projects. To do so we need to understand the corporate objectives that drive projects and the processes that lie behind their approval and selection. Understanding these issues will allow us to be fully involved in the development of projects which stand a good chance of meeting both their project and strategic targets.

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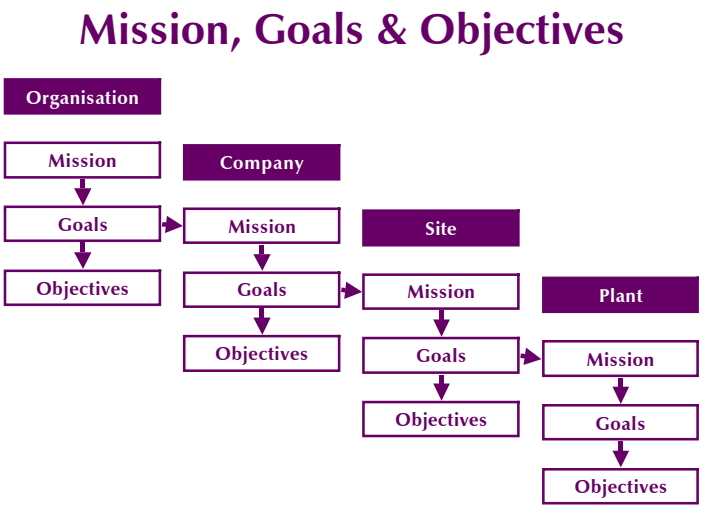
MISSIONS, GOALS AND OBJECTIVES

Many company "Mission Statements" are trite and the popular press largely discredits their use. There is, however, considerable evidence that those companies [and individuals] that are clear about what they are trying to achieve are more likely to succeed than those who don't. If you don't know where you are going, how do you decide how to get there.

Put simply, the first steps in any strategy formation process should be to ask: -

- Where are we now?
- Where do we want to go?
- How will we get there?

One might also ask how will we know when we've made it, but that is another question.



Typically, Missions are defined at high level in organisations and handed down in some way to subsidiary groups. Strategic goals arise out of the overall mission to identify broad targets for medium to long-term actions. Specific detailed objectives then flow from these broad goals. Typically, each level's goals become the next level's mission etc. See the diagram. Please note that in each case, the statement of strategic intent is normally couched in terms of "ends". The means by which these "ends" are achieved are generally at the discretion of the operational group, subject to approval of specific proposals from the group above.

Thus, as objectives are passed down from the top of the organisation, their scope is reduced. There is a corresponding increase in the level of detail. Broad corporate objective to become a leading player in a particular range of chemicals and to maintain or improve profit margins will be translated into a site objective to be able to produce a certain quantity of a specific chemical at a particular quality and cost.

In addition to these formal goals, a number of informal or operative objectives also exist and influence performance etc. See the diagram below. Since these objectives are usually clearer, better understood and apparently more relevant to those concerned there is a significant danger that greater attention will be paid to them than the overall corporate objectives.

Objectives

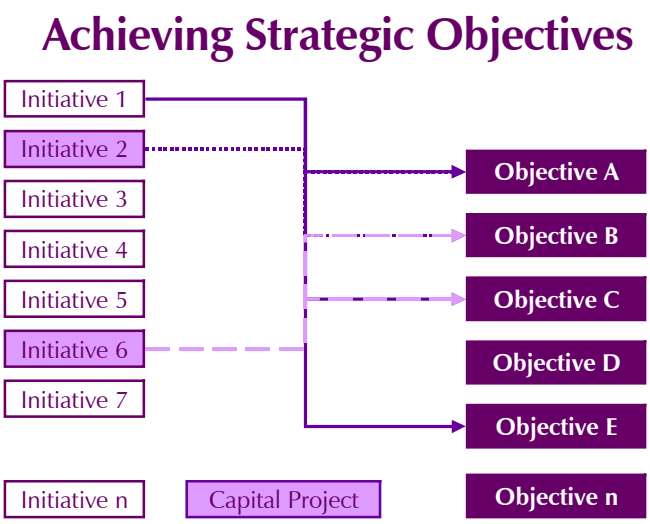
Formal / Official	Informal / Unofficial
Corporate	Site
Company	Plant
Site	Function or Discipline
Plant	Personal

These objectives influence individual and group behaviours, either consciously or unconsciously. Individual assessments of the feasibility of projects for the site on which they work will be unavoidably affected by their natural objective to see the site prosper and grow. Similarly, technical objectives and functional standards are internalised to the extent that the appropriateness of applying them to particular projects is rarely discussed. This is not to suggest that these standards should not be used, but rather to make it clear that the inappropriate application of standards can restrict an organisation's ability to compete successfully. A balance is needed between the simplification of decision making which results from standards with the need for flexibility in seeking corporate success.

The extent to which the existence of the various categories of objectives affects the organisation's ability to achieve its overall mission is highly dependent on the degree to which the informal objectives are overt and aligned with the formal objectives. Well-run organisations will recognise the danger and take steps to minimise the risk. Unrecognised and unmanaged, there is a risk that these informal objectives will subvert the overall corporate objectives, leading to inappropriate and costly projects. We will return to this theme later in the paper.

STRATEGIC INITIATIVES - CLOSING THE GAPS

As was mentioned above, capital projects are one means of closing the gaps between where an organisation is and where it would like to be. Whether the overall intent is to close a gap on rivals in a reactive manner or to move towards a radically different approach to the industry, the means are the same. The difference is in the vision and intent.



The figure opposite shows how the achievement of an individual objective may require several different initiatives – not all of which will be capital projects. Similarly, each initiative may contribute to the achievement of several objectives. This may be intentional, may be a by-product of the process or may arise from a lack of independence between objectives. A desire to reduce operating costs may spur a number of activities, some of which will be mutually beneficial.

This all seems straightforward and logical, so why do capital projects often go so badly wrong? What is it in the definition, approval and implementation phases that makes success so elusive?

COST AND VALUE

> *What is a cynic? A man who knows the price of everything and the value of nothing.*
>
> *Oscar Wilde, Lady Windermere's Fan.*

To help us evaluate the appropriateness of capital projects [and other strategic initiatives for that matter]; it is useful to define two parameters, cost and value.

Cost

This is the total worth of all resources consumed in the process of implementing the project. This should be done on a basis that takes account of the effect of time, discounting future costs in cash terms. It is also important that this should be done on the basis of the net cost to the organisation not on the often arbitrary internal charging basis. The reason for this is that the decision on the suitability of a project is a corporate level question.

Value

This is the total worth to the organisation of achieving the objectives it set for itself. Allowances need to be made for initiatives that only partially meet objectives and credits need to be allowed for contributions to the achievement of other objectives. The value should be assessed and reported on a similar basis to the cost.

DECISION MAKING BASIS

Having defined these terms, a simple framework for honest and fair decision making about projects can be specified. A project should be authorised if and only if it meets the following criteria: -

1. The value of the project exceeds the cost, by an appropriate margin.

2. No alternative initiative exists which can produce a higher value for the same or lower cost.

3. The resources making up the cost are available at the anticipated prices.

The approval mechanisms in operating companies are often arcane and convoluted, but from a strategic viewpoint, the criteria above are all that matter. There remains considerable scope for manipulation of the system by the weightings required to take account of the relative worth of particular objectives.

If it were possible to assess cost and value in absolute terms, decision making would be easy. It would also highlight the folly of misrepresenting costs. This approach would then lead to the wrong initiatives being approved and the organisation as a whole would be worse off. Naturally, we all know that even in the most highly planned organisations, decision making is more of a

political than a mathematical process. Nevertheless, everyone involved in the project approval process will benefit from a greater understanding of the underlying business processes.

Put into plain English, the questions we need to ask ourselves before committing to any expenditure are: -

1. Will we make money by doing this?
2. Is there anything else we could spend the money on which would bring greater rewards?
3. Can we afford to do it?

A related question we often ask ourselves in our personal life but do less frequently in business life is can we afford not to do it? Proper formulation of objectives and hence value should force this question to be answered. We may need to assume an unwritten objective – to stay in business.

PROJECT DEFINITION

As we move from vague notions of how to satisfy objectives towards specific proposals to meet them, we move from the general to the particular, from the abstract to the concrete. Most people and particularly those with scientific and engineering backgrounds feel more confident with tangible objects rather than intangible notions. We tend to think in terms of specific solutions to problems rather than the problem itself.

As a consequence, as the project begins to take shape, we focus increasingly on the detail, the scope and the functionality we require to meet our understanding of what is to be achieved. We are also frequently well aware of what is possible, what is required by regulations and of other problems which can be solved in the process. The net result is that the scope of the project gradually increases, often with only scant regard to the original objective[s].

Unfortunately, we are aided and abetted in this process by our supposed internal clients, production, maintenance and the functional disciplines who can all find excellent reasons for adding bells and whistles to the scope. All of this is done with the best possible of intents and much of it is justifiable in the right framework.

The concepts of value and cost defined above can be used to determine whether particular features ought to be included in a project scope. This is the basis of Value Engineering. To do this effectively, it is also necessary to have a criterion for deciding whether the feature is really required. I propose the following: -

> ***A feature is required if the business objectives can only be satisfied by its inclusion or some other feature which meets this criterion requires its inclusion.***

This means that all other features are discretionary.

Whilst it may be difficult to build such approaches into the definition process, it is essential that the overall business objectives guide the development of the project scope. Failure to keep them fully in view will increase the likelihood failure however well the project is ultimately managed.

THE APPROVAL PROCESS

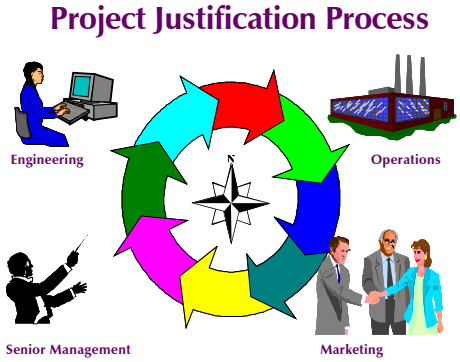
All business processes are political - they involve people. The more different groups of people who are involved, the more political will be the process. Project Approval involves many different groups with different perspectives, needs and desires, so it is a highly political process. Understanding how it works can help you ease the acceptance of projects, ensure that the right projects get approved and retain your sanity.

As noted above, project approval processes involve many groups. To aid understanding, this section assumes that only four distinct groups are involved. In reality, each of these four groups will have factions with differing interests, levels of understanding and [real] objectives, so it is probably as well to consider them as broad constituencies rather than cohesive groups.

In most cases four main groups are involved in the decision making process. The exact make up and terminology varies from company to company but the following definitions are used for consistency. The groups are listed below and illustrated in the associated diagram.

Senior Management

This group is charged with conducting the affairs of the company at the highest level guiding its development and direction to meet its shareholders' and other stake holders' objectives.



Marketing

This group is responsible for identifying appropriate markets and presenting the company's case for selling their goods into these markets.

Operations

This group is charged with manufacturing the company's products in an efficient and effective manner to meet the demands of the market.

Engineering

This group, which may also include associated professions such as architects, is responsible for developing the physical assets required to allow the company's products to be manufactured. They are also likely to be responsible for ensuring the equipment continued satisfactory operation through maintenance activities.

The drivers for new projects may come from any of these four groups but are likely to be different in substance depending on how they arise. They are also likely to differ in their degree of definition at the conceptual stage depending on which of the groups is the sponsor.

SENIOR MANAGEMENT

Projects sponsored by the senior management team are most likely to be very broadly defined and be fairly subjective in nature requiring considerable input from the operations and engineering functions to allow a sensible specification to be developed.

MARKETING

Projects sponsored by the marketing group are likely to revolve around an identification of new or modified products to meet market demands or increase in production capability in response to market growth. They are likely to be defined reasonably pragmatically, at least in terms of their comparison to existing facilities. Again there is likely to be a need for contributions from the operations and engineering groups to define the detailed requirements.

OPERATIONS

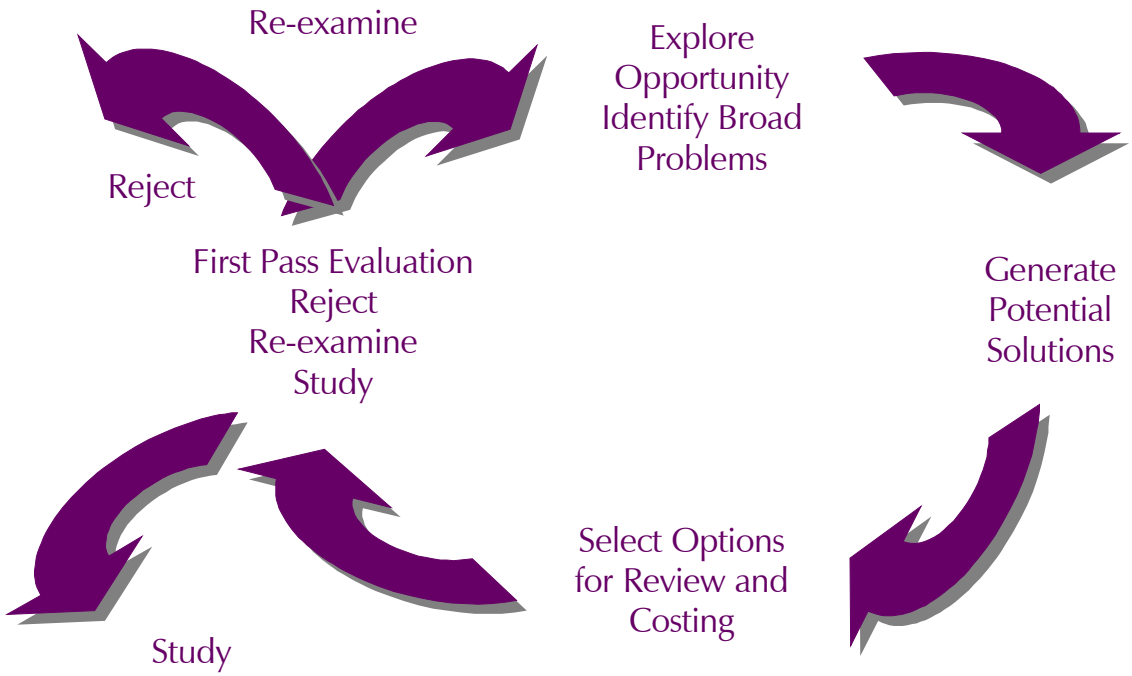
In this area projects are most likely to be identified because of their ability to improve productivity, remove bottlenecks or reduce costs either by improved efficiency or reduced staffing. The projects are likely to be reasonably well defined but may need some support from the engineering group.

ENGINEERING

In this case projects are most likely to evolve either from known problems with existing plant or in response to changing legislation or standards. The requirements are likely to be known in great detail and can probably be specified without a significant input from other parties. There may however be a need to sell the ideas to the operations group in particular, which is likely to involve negotiation on the details.

Whoever sponsors the project is likely that engineering will be heavily involved in formulating the scope of the capital project. Ideally, they should take the lead and ensure that the other groups have their say. There will be a need for discussion and negotiation between each of the four groups identified above. These discussions will focus on clarifying requirements so that the engineering group can make a detailed specification of the overall requirements and subsequently install them.

In most cases there will be a financially based decision making process. This can pose a problem for “stay in business” and entrepreneurial projects. The extent to which individual companies cope with such situations will obviously affect their ability to survive and prosper.



The figure above shows the process in outline. This is similar to the creative problem solving approach and comprises four key stages. Firstly the problem or requirements are explored to identify broad problems for subsequent solution. Based on this analysis a range of potential solutions is generated. Subsequently these are reviewed and the most appropriate solution or solutions selected for detailed review and costing. The project is then evaluated against whatever internal criteria exist and three outcomes are possible.

- Firstly the project may be rejected if it fails to meet the appropriate guidelines and does not have sufficient internal support to overcome this disadvantage.
- Secondly it may be felt that whilst the opportunity or problem still needs to be addressed the proposed solution is inadequate. This will lead to the project being re-examined through the same loop.
- Finally if the project appears beneficial on this first pass evaluation, further study or design work will be sanctioned.

In most cases, the procedure is iterative. Acceptance at one level requires more detailed investigation and review before passing to the next level.

It is worth noting that each of the four groups will have a different view of what the project requires and the relative importance of each dimension. Each group's perception of the project needs are based on their knowledge, experience, prejudices, aspirations, motivations, hence the difference in views. As projects are necessarily complex, there are likely to be significant differences of opinion about what is needed, important and valuable. [A more detailed paper on how this happens is available on request]

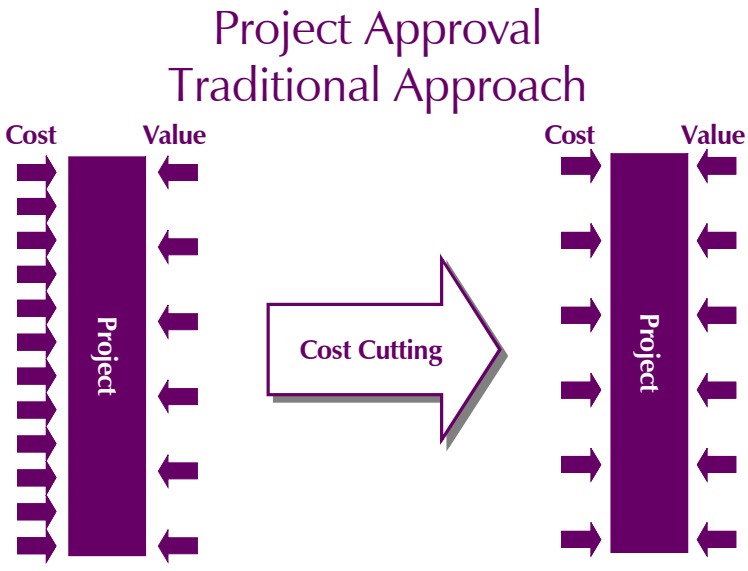
(It is worth noting that outside bodies such as Engineering Contractors receive information filtered by their contact group, this necessarily leads to a degradation of information.)

This illustrates the complexity of negotiations that are required to approach a common view of the project needs, the relative value of various aspects and appropriate cost allocations. In most cases there is insufficient honesty, openness and shared understanding for appropriate compromises to be reached. This means that the sanctioning procedure is necessarily flawed. What is approved is unlikely to match what is required and cost allocations are unlikely to reflect true needs.

It is important to recognise that the problem is not caused by the inability of the various groups to discharge their function effectively. It is mainly due to their inability to communicate effectively because they do not have an adequate grasp of the subject matter or language of their colleague groups. The problems are all to do with the flow of information across the interfaces, not ability within the groups. Thus companies which are functionally excellent but narrow in range are likely to have more difficulties than groups of lesser ability, with broader knowledge. This suggests that cross-functional secondment and the development of the generalist may be more beneficial than specialisation.

The importance of the approval stage is well recognised, particularly by the "engineering" group, however, the thrust is often to develop a clear statement of the project scope together with associated cost and time estimates. Too frequently, the definition at this stage is formed almost exclusively on the engineering group's own view of the project scope [although in more enlightened companies, the operations side are allowed to contribute]. Since this work is seen as being crucial to the success of the project, elaborate front-end studies and detailed costing exercises are frequently commissioned, based on the view that the job should be done once and right.

Under these circumstances, the cost of the scheme put forward frequently outstrips the value that the senior management perceives the project as having. [Or perhaps the figure that the engineering group feels the senior management would be willing to accept]. This normally leads to a frantic "value engineering exercise" which is really a euphemism for cost cutting to allow a "sensible" figure to be put forward for authorisation.



To some extent, this is a realistic approach, but it has two significant problems, firstly, the focus is too frequently on high cost rather than low value items and secondly, the items deleted or downgraded in this approach rarely remain excluded from the scope. Someone will have a motivation to get them back into the scope.

This often leads to a situation where there is a clear difference between what the engineering and operations groups feel is needed and what the senior management and marketing groups are prepared to endorse. This is a recipe for overspent and delayed projects and ultimately, poor business performance. Many projects are approved with a scope, estimated cost and timescale that are not mutually compatible. Project Managers are often aware of this at the outset and as a result focus much of their attention on damage limitation.

A more sensible approach would be to recognise that the approval process is essentially political. The approvers have to be convinced that the scheme meets their objectives and the other participants have to be convinced either that their needs will be met or that they are inappropriate. This requires open and frank dialogue between all parties. It is better to go round the review loop more often with the detail of the definition and costings being improved during each cycle. This allows everyone to gain a thorough understanding of what is important and the relative value of elements of the project scope.

From a business perspective, it is better that a project is rejected if the cost of the required scope outweighs the value of the project – providing everyone understands its true costs and value. Alternatively, the project can be scaled down to a justifiable cost by eliminating those features and standards, which do not add sufficient value to the proposition. If this is done following open dialogue, these decisions will be understood, if not accepted.

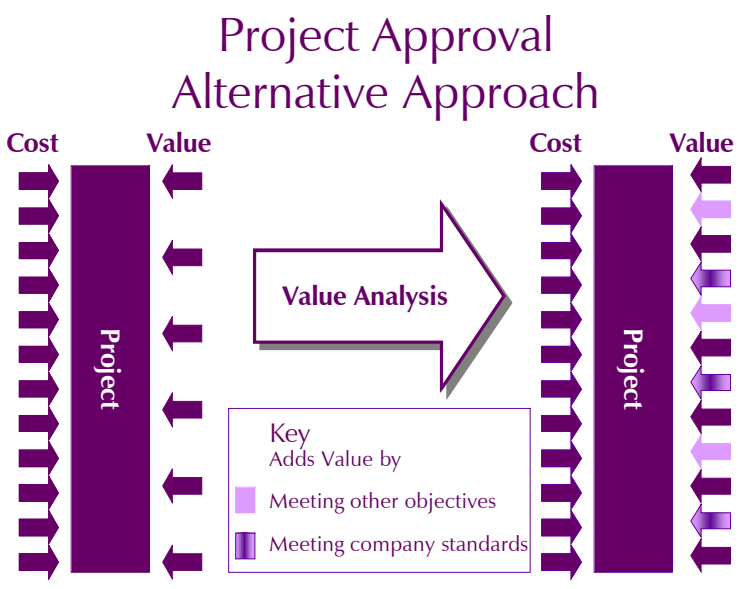
MANAGING THE APPROVAL PROCESS

Except in situations where there is a strong internal champion from one of the other groups, it normally makes sense for the engineering group to take the lead role in orchestrating the approval process. Where there is a champion, the project manager would be well advised to treat him as an ally.

It is important to facilitate open debate from the outset. It is much more important that everyone involved has a clear view of the project objectives, the proposed scope, any anticipated problems and any mismatch between cost and value than for the intended scope to be investigated in a detailed manner. If there are genuine differences between what is thought appropriate by one group and another, then it is better that they are resolved at an early stage, before too much money has been spent, even if this means abandoning the project. In most cases however, open discussion will lead to compromise or alternative solutions that cost less.

This is the time to discuss safety, environmental and related matters to ensure that everyone has a clear view from the beginning of likely costs and benefits. Discussion at an early stage also avoids the risk that inappropriate projects build up a sufficient momentum that they cannot be stopped. One of the purposes of the approval process is to reject unsuitable projects – the mechanism should not be subverted by vested interests.

When projects are put forward for approval, there is often a mismatch between the stated costs of the intended scope and the value that the company assigns to the benefits. This normally leads to a cost cutting exercise where significant elements of scope are removed and less frequently, standards are reduced. This approach often leads to a scope, budget and program that some groups have difficulty in accepting.



An alternative approach is to focus pro-actively on building the perceived value of the project to allow a higher figure to be allocated to the slate of features that form the project scope. There are two basic areas that need to be accounted for.

Firstly, there are elements of the scope, which are not strictly necessary to meet the stated objectives of the project but which are obviously beneficial to the company. This may include plant or other improvements, which can be carried out much more cost effectively as part of the project than as separate tasks. Credit should be taken for achieving these benefits. The only problem with

this is that the priority for these tasks may be much lower than that for the main project leaving them lower in the pecking order. If this is a significant issue, they should be excluded from the project scope even though their subsequent completion will be more costly.

The second area of attack is the cost of meeting those aspects of company standards that are not strictly required to meet the project objectives. The logic behind this is that if company or engineering standards require particular features, levels of specification or approaches that are set across all projects, then this is a decision based on the overall value to the company of following those standards etc. It is therefore unfair to charge projects with the cost of meeting them.

Standardisation reduces flexibility and the basic approach will have been justified at the company level and it is appropriate that the implications are evaluated at the same level. Thus, the application of company standards on plant life cycles, preferred suppliers, standard designs, automation etc should not adversely affect the approval of individual projects. If the standard cannot be justified at the company level it should be relaxed. The more elaborate are the company standards compared to what is necessary, the greater the competitive disadvantage the company will suffer. This is not an argument for lowering standards, simply a call for appropriate standards and a fair allocation of costs. Standards tend to drive up costs unless offsetting advantages can be obtained in other areas.

One additional area that certain types of company should consider in evaluating project is the value of the asset at the end of the project lifecycle. Many plants in the batch industries have short, 3-5 year, life cycles for the chemical they are built to manufacture. The plants however are usually capable of manufacturing related chemicals, often with very minor modifications, at the end of their life cycle. Full credit should be taken for this value, even though it will be discounted because of time. This is another area where the existence of a plant can be viewed as an option to do business in the future. This is particularly relevant to contract and toll manufacturers whose ability to win work may be more a function of having plant available at the right time than their ultimate cost structure.

Some projects, particularly those of a “stay in business” or entrepreneurial nature, will not be amenable to assessment using these techniques. In my view recognition of the business imperative as the justification basis is more appropriate than the attempts that are frequently made to force fit financial benefits on to the project. At least this allows an honest debate of the project’s benefits.

EVALUATION METHODS

The financial methods used by companies to evaluate projects are varied and not always amenable to rigorous scrutiny. Best practice is to use Discounted Cash Flow or Net Present Worth Techniques, although these have been criticised in recent times. More modern approaches some of which value projects on the same basis as financial options have been suggested. The difficulty here is that the calculations are complicated and require assumptions about general economic factors.

It is probably best to stick with the traditional approaches with a fair allocation of cost and value. It is particularly important to be fair in the assessment of cost where the most appropriate basis is the difference in cost to the company between doing a particular activity and not having the capability to do it. This implies that the costing of internal engineering charges should include realistic overhead contributions.

Many companies still rely on simpler, largely discredited approaches such as payback periods. These fail to take full account of the time value of money. They also much less relevant in times of low interest and equity yield since they are equivalent to very high rates of return on investment. A two-year pay back is equivalent to a return of over 30%, which I am sure most companies would be delighted to achieve in today's environment. It is not unusual however to see companies expecting even shorter payback periods on this. Such an approach is sensible to minimise risk, but it also severely curtails the opportunity for growth.

One area where many companies struggle is with the justification of multipurpose plant. Typically, it is difficult to justify the expenditure with out a contract and virtually impossible to win the work without a basic plant. It is clear that the conventional evaluation and approval mechanisms will not work effectively in this case. What is needed is either an entrepreneurial approach or an assessment based on buying an option to compete. I am aware of at least one major company that struggled with this conundrum for many years, worrying that it would not make a return. Once it made the leap of faith to build the plant, it achieved a rate of return that was over twice its project approval hurdle and one of the highest anywhere in the group. Strategy requires courage and conviction as well as planning and foresight.

CONCLUSIONS AND RECOMMENDATIONS

To be fully successful, projects must meet corporate objectives; the achievement of internal project objectives is of less importance. To achieve this, project managers must understand how the capital projects they are charged with implementing fit into the strategy of their [or their client's] organisation.

To stand a chance of achieving corporate objectives, projects must be scoped and approved in ways that ensure that align the project objectives with the company's broad goals. The conflicting requirements of those involved in formulating the project must be reconciled within the framework of meeting the business goals.

The following points should be borne in mind by project managers: -

1. Understand the corporate objectives and in particular those which your project is intended to help achieve.
2. Involve all interested parties in the decision making process as soon as possible, but keep them focused on the corporate objectives – the project is a means to an end.
3. Recognise that everyone has a different understanding of what is needed for any project and have a different perspective on what is important. Value this diversity, if properly managed it will help you and your company succeed.
4. Recognise the effect of informal, discipline and personal objectives, including your own. They distort the project away from its formal goals.
5. To resolve differences of understanding, force compromise and encourage creativity, it is better to table approximate costs and timescales to the groups and iterate several times, rather than completing a single detailed definition and costing study.
6. Bear in mind that standards have disadvantages – be willing to be flexible if circumstances dictate and the project is marginal.
7. Understand the relative cost and benefit of each feature. Eliminate high cost, low value items.
8. Be as willing to build the perception of value as to cut costs.
9. Encourage creative ways of achieving objectives. If you always do what you have always done, you will always get what you have always got.
10. Stand back and look at the project from the company perspective – does it make sense?
11. Think about the project and plant lifecycle, is the evaluation fair?
12. Be willing to criticise the evaluation and justification process if it is appropriate.
13. Talk in appropriate language and level of detail to the strategists and the users.

14. Recognise that some of the projects you evaluate should fail to be approved even when they make sound technical and operational sense. Capital is limited; it needs to be spent wisely.

Aristotle said: -

> *"Anyone can be angry – that is easy. But to be angry with the right person to, to the right degree, at the right time, for the right purpose and in the right way – this is not easy"*
>
> *The Nicomachean Ethics*

We could perhaps paraphrase it as follows: -

> *It is easy to specify a project, but to specify the right project, in the right way, at the right time, for the right price is extremely difficult.*

We need to be aware however, that from a business perspective, it is usually more important to get the right project at the right time rather than to get the project right.