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PLANNING SYSTEMS
FOR STRATEGIC DEVELOPMENT

Peter Lorange

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MASSACHUSETTS
INSTITUTE OF TECHNOLOGY
50 MEMORIAL DRIVE
CAMBRIDGE, MASSACHUSETTS 02139
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* Assistant Professor of Management Science, Sloan School of Management, Massachusetts Institute of Technology.

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Introduction

While ample attention typically is brought to capital investment decisions in long-range planning and strategic management, less attention is often given to the role of strategic development expenditures as vehicles for strategy implementation. While undoubtedly most executives acknowledge the key importance of strategic development expenditures for corporate success, it often seems to be the case that the planning of strategic development projects is unduly separated from the thrust of the long-range planning process. Thus, these substantial expenditures may not contribute as much as they should to the strategic direction setting of the firm.

In this article we shall discuss a system for managing strategic development expenditures. While much progress has been made in understanding how to manage development expenditures qua projects, less emphasis has been put on the role of such systems as part of the overall set of management systems. By taking the viewpoint that a planning system for strategic projects is part of a broader set of management systems, we shall explore its integration with the long-range strategic planning system as well as, less obviously, with the formal organization structure, the corporate strategy, the control system and the incentive system.

Vancil defines strategic development expenditures as project expenditures that are not recovered in the current year through
higher sales or lower costs, but that are expected to pay off in a "predetermined" number of future years\(^1\). He identifies four broad categories of such expenditures:

- **R & D expenses**, in order to come up with ideas and developments to be the basis for new products in the future.

- **Marketing expenses**, such as the launching of a new product, getting established in a new market or advertising.

- **Manufacturing overhead**, for instance for getting the production process for a new product going or for reducing costs of a currently used manufacturing process.

- **General administrative overhead**, such as intentional overstaffing.

We shall not specifically focus on how to plan for any particular class of developmental expenditures, but instead denote them all as **strategic projects**. For most strategic projects more than one of Vancil's expenditure categories will be incurred. For instance, before finally launching a new product several years of R&D efforts may have taken place, manufacturing overhead may have been incurred by developing a feasible production process in the pilot plant, and extensive marketing expenses may have been incurred through marketing research, test marketing and a full scale new product introduction campaign. For any strategic project there can exist several types of expenditures in varying amounts. The process of planning for or making decisions relevant to a strategic project

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is in principle the same for all such projects, irrespective of the dominance of its content (e.g., R&D dominated, marketing dominated).

In their framework for management control, Scott Morton and Lorange distinguish between decisions leading to the determination of the budget and decisions about tracking the implementation of the budget. We shall follow the same dichotomy for strategic projects, namely first discussing procedures for selecting strategic projects as part of planning and budgeting, for then to discuss the follow-up procedures for strategic project implementation. We shall also discuss certain relevant aspects of the nature of strategic development projects, in order to come up with a planning scheme reflecting the problem. Finally, we shall discuss several organizational implications for the implementation of the scheme.

Linkage to Planning

Today's large corporations typically have adopted some form of hierarchial structure, given their complexity and size, and its consequential need for decentralized decision-making. The divisional structure is the most common manifestation of this. There will be various general types of planning tasks taking place in a typical diversified firm, and the distribution of these planning tasks, we

shall claim, will have a significant impact on the strategic project planning process.

How can we ensure that strategic projects undertaken will be consistent with the overall strategy of the firm? How can we control that the actual direction taken by the firm does not become a function of more or less random outcomes from the strategic project development process? We shall suggest two measures to facilitate congruence between desired and actual impact from strategic projects of the company's direction.

A. Identification of a Project's Fit as Part of a Business Strategy

The first measure suggests relating the strategic project selection closely to the long-range planning process. Given that a division will be primarily responsible for its own long-term success within the business area in which it has been chartered to operate, a major responsibility for strategic project development should be expected to rest on each division. Through a division's own research, development and market analysis it will be expected to be able to provide the new products necessary to maintain or expand its position within the business. Strategic project developments thus may be the most important tool for divisional management to implement its strategy. It follows that the strategic project selection thus should be closely integrated with the business
plans of the divisions, i.e., that strategic project "programming" should take place as part of division's planning. 4

Given that it will primarily be a division's objectives and strategies that should set the guidance for the strategic project selection, it becomes particularly important that the business objectives and strategies are stated in operational enough terms to provide meaningful direction. A useful method to operationalize business strategy is to have it specified in terms of a two-dimensional classification of the major product segments as to market share and market growth. 5 There will consequently be four possible product typologies, with distinctively different prospects for profitability, capacity for funds generation or requirements to funds consumption.

This type of analysis will thus identify where within a division's strategic product mix to launch strategic projects and of what general kind. This is particularly important because it will help provide a sense of direction to the strategic project development process, specifically what types of end-products that will be most desirable to be the output of the process.

An important extension is that the above strategic direction-

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setting may provide the basis for more meaningful calculations of the expected return on investment of a project. In order to calculate an expected ROI there must be some assurance of the market potential of the new project. This assessment is easier to do when being able to position the project in a strategic context. It may, for instance, become apparent that the growth rate of the perspective product is likely to be so low that it cannot realistically be expected to generate enough sales to yield a satisfactory ROI. Or, it might be that the battle to create market share can be anticipated to be so hard that the investment required cannot be expected to yield enough return. It will be easier to perform a more accurate economic analysis for a prospective new project if its strategic positioning has been made explicit.

B. Programming Across Functions, Budgeting for Each Function

Let us now turn to our second suggestion for maintaining strategic direction of the strategic program process. "Each functional department must understand the implications of a set of programs for its own activities, and the department manager must accept the tasks assigned him and the resources to be made available to him." Although each function thus needs plans there is a danger that separate planning for each function might jeopardize the overall project selection program point of view. Thus, Vancil has suggested

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6 Vancil and Lorange, op. cit.
an integrated planning and budgeting approach to the programming function.\(^7\) One starts out making the plans for the projects across organizational units; then to be followed by budgets for each organizational unit across project segments. Thus, step one is programming, to ensure the strategic direction; step two is budgeting, to ensure that each department's resources are adequate to carry out its share of the program activities.

In instances when budgets will have to be trimmed down for some reason, this is commonly done by cutting each department budget by some fraction, often the same flat percentage rate "across the board". This might, however, jeopardize the direction of the strategic program effort, because of the resulting more or less random disturbance effect on the progress of projects. Resource rationing decisions like this should therefore be taken by reassessing the importance of the programs for then to adjust each functional budget accordingly.

**Characteristics of the Strategic Project Management Task**

Any new strategic project follows a pattern of stages which describes its life-cycle. For instance, a new drug product may go from basic research, through laboratory experimental research, through clinical research, through product development, through test marketing, through full scale marketing, through "harvesting"

\(^7\) Vancil, op. cit.
(i.e., funds will no longer be invested in order to maintain market share) until the product is finally withdrawn from the market. The evolution of a strategic project through a series of discrete stages has several consequences, namely, the requirement of specialized skills within a functional area, the necessity to balance "workloads" between functional areas, the need for a mechanism to transfer a project from one functional area to another, and the addressing of an appropriate task definition for each functional area.

A. **Specialized Skills**

To take a product through each stage requires specialized skills. For instance, during the basic research stage there is a need for scientists trained in basic disciplines. At the pilot plant experimentation stage there is a need for other scientists with different training as well as special purpose laboratory equipment, etc. At the test marketing stage there is a need for marketing researchers, and at the full scale marketing stage a fullblown sales force with supporting marketing services organization. Thus, the company must make fixed investments in specialized human skills and equipment. The skills and equipment needed are typically very different from one stage to another. Consequently, at least in the short run, these skill factors will be transferable only to a limited extent from one function to another. Also in the short run it will be difficult to have such skills transferred to and/or from outside resources. Hence, it becomes necessary for the company
to make fixed investments in human skills and equipment for each of the specialized functions. If the skills to carry out one function are weak or lacking this will not only jeopardize the entire project development at that stage but also weaken the entire project development process.

B. Balancing the Workloads of the Functions

Given that the investments in human skills and equipment are largely fixed, that thus each specialized function's capacity cannot be easily increased or decreased, at least not in the short run, and that the skills and equipment can only to a small extent be transferred for use between functions, it follows that each specialized function will have relatively fixed capacity. If the workload requirements to one function become larger than its capacity then delays in one or more strategic projects will be the result. If, on the other hand, a function's workload requirements become less than its capacity then some capacity will be under-utilized. The fixed costs of maintaining that function's capacity of course will be the same.

We consequently are faced with a balancing problem for the choice of the portfolio of strategic projects. For each of the specialized functions it becomes essential to have just enough projects at that stage to effectively and efficiently utilize capacity.\(^8\) For instance, one will have to make sure that not an

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unproportionately high number of basic research projects are undertaken, because this in turn may lead to a high likelihood of bottlenecks at later stages. The opposite might, of course, just as well happen, namely that too few basic research projects are undertaken to yield high enough likelihood of full utilization of say the sales force at a future point in time. It is, of course, not enough only to coordinate this overall mix of the project portfolio in terms of the number of projects solely, but also in terms of the uncertainty of the projects, to be discussed in the following section.

C. Transfer of Projects from One Stage to Another

Given the capacity considerations of the specialized functions, as discussed in the previous two paragraphs, it becomes particularly important to develop a procedure for deciding when a strategic project should be transferred from one stage to another. Two major factors of consideration should be brought to bear on this decision. First, what ultimately matters for the company is that a strategic project in fact will ultimately succeed to the extent that it will actually generate new sales (or the cost savings). Thus, when moving a project from say the research function to the development function the criterion for deciding on the project's transfer is not only whether or not the research on the project has resulted in satisfactory progress to merit such a move. Rather, the proper criterion should be whether the project is judged to have a reasonable probability of being successful in the market-place, given a reasonable investment in
the project over a reasonable period of time. Consequently, the criterion for moving a project should contain both inputs relating to the likelihood of a satisfactory completion of a given function as well as inputs relating to the likelihood of the project being able to successfully pass the other stages. However, the overriding consideration should be the likelihood of final success of a strategic project. As a consequence, inputs from the given function that the project has just been passing through as well as from all remaining functions that a project will have to pass should be brought to bear on any decision to move a project ahead. For instance, it does not make much sense to move a project from the development stage to the pilot plant testing stage if the people of the test marketing stage are already virtually certain that the ultimate product cannot be successfully marketed. They may know that other products are already on the market or that the market potential will be very small, which is a consideration that the R&D people may not have ascertained.

Given that the uncertainty of a project is determined as a function of the likelihood of success of it passing all stages, it is important that the degree of uncertainty be consistently balanced from one stage to another when considering the portfolio of projects handled by each function at a time. This does, of course, not imply that the probability of success for a project should be the same at each stage. As the project proceeds from stage to
stage the probability of success will be expected to increase. It is logical that a project would appear more risky during the research stage than during the test marketing stage. It may be that the probability of success for a project at the research stage on the average is only 10%, at the development stage it may be 20% on the average, and at the test marketing stage it may on the average be 50%. These proportionate differences in uncertainties should then be approximately maintained. For any strategic project development organization there will thus be a set of decreasing uncertainties to be proportionately maintained over time in order to ensure consistent uncertainty considerations.

The existence of capacity imbalance between the functions may however at times modify this. For instance, when a function has surplus capacity it may be admissible to take on additional and more risky projects. Thus, the decision to transfer a project from one function to the next may have to be modified in cases where the capacity balancing of the workloads of each function merits this.

The nature of the strategic project development task can be summarized as in Exhibit 1. There will be two major sets of considerations; to decide on the progress of each strategic project, based on its own merit—as exemplified by Question 1 in the exhibit—and balancing the capacity of the segments of one's project organization—as exemplified by Question 2 in the exhibit. The latter set of considerations thus leads to a modi-
**Question 1:** Should this project be moved to next function?

**Question 2:** Is there bottle-neck or slack capacity within any function?

Exhibit 1. The dual nature of strategic project development

ification of the former set of considerations, until the two dimensions are in balance.

**How Do We Define the Functions?**

In order to operationalize the dual strategic project phenomenon as it has just been outlined, it seems important to be able to identify what might be a reasonable division of the project development task into discrete functions. It seems as if this categorization might be quite different from company to company, depending on the nature of its business. However, a few general considerations might be suggested.
First, the functions should be split up in such a way that economies of specialization can be achieved as much as possible. It seems important that these functional groupings correspond to the actual functions on the organization chart. These should be reasonably self-contained, there should be as unambiguous criteria for performance measurement as possible for each function, and there should be incentives for performance fulfillment.

A word of caution should however be raised about the way this specialization will be carried out. It has been demonstrated by many that integration among the participants of the strategic project development is important. Organizations with more of this integration tend to be more successful with their new projects. Thus, the challenge will be to define the functions in such a way that specialization can take place within an integrated overall organization.

Organizational Involvement

We have already identified the relationship between a division's business strategy and strategic projects as vehicles for implementation

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of divisional strategy. In this section, we shall discuss in more detail what the major responsibilities of the divisions in managing the planning of strategic projects will then be. Later we shall discuss the organizational responsibilities of the corporate level and of the functional departments.

A. Divisional Involvement

First, it should be the responsibility of the division management to create its own project organization with investment in human skills and equipment to carry out the various stages of project development. Typically this will be done through entrusting these tasks to various functional groups, such as the R&D department, the marketing department, etc. Given the nature of these types of investments, being predominantly fixed, at least in the short run, it also becomes important to ensure relatively equal capacity between the various functions. An audit of the capacity of the strategic project organization of a division might reveal a profile roughly as indicated in Exhibit 2. (Capacity is used in a broad sense to indicate the volume of project development that the function is capable of handling, assuming a minimum level of professional quality.) The aim of the division management should be to work for a long-term development of its strategic project organization which eliminates capacity differentials, i.e., attempts to flatten the profile curve so that it becomes horizontal.
Secondly, division management will be responsible for operationalizing the process of moving a strategic project from the domain of one function to another. We have discussed what might be a proper criterion for deciding on whether or not to move a project. The task of deciding on moving a project from one stage to another may be entrusted to a team of managers which will oversee the progress of the project.\(^\text{10}\) This project steering team should be composed of members from all functions that the project is at or has not yet reached. The dominant contingent of members should however come from the function that presently is responsible for the project. When the decision is to be taken to move a project from, say, the

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basic research stage to the clinical testing stage the project steering team is composed of persons not only from basic research but also from clinical testing, as well as from production development, market research and marketing. All the remaining functions will thus have a say as to the likelihood of them being able to take the project successfully past their particular function. As a project makes progress, the composition of the steering committee may shift. Within a given function, the team members from this function will be dominating. When a project has passed a function the team members from this function will no longer normally take part, given that their presence will no longer be necessary for assessing the probability of success of the project.

Finally, the division should be responsible for implementing policies for carrying out the balancing of the project portfolio so that slacks or bottlenecks can be avoided in the utilization of the project organization. The task of balancing the division's portfolio of projects might be undertaken by a committee chaired by the division vice president with the head of each functional area involved in the staging of projects as members. This may be called the division portfolio committee. Whenever a new project comes up the question of "fit" with the rest of the project portfolio should be raised. Special focus should be put on periodic evaluations of the "starting-point" and the "end-point" of the project development process, namely, do we have enough, too many or too few basic projects to fulfill the need for new projects by marketing (and
not too few to utilize the marketing organization fully or too many to be handled by the marketing organization).

Two types of coordinating committees will thus be chartered with the implementation of a division's strategic project decisions. For each project a steering committee will thus monitor the progress of the project, i.e., answer Question 1 of Exhibit 1. For the balancing of the projects the project portfolio committee will monitor the overall picture, i.e., answer Question 2 of Exhibit 1. While there will only be one project portfolio committee in a division there will normally be a number of project steering committees. There will of course be a practical limit to the number of project steering committees that will be operational. Given that one would avoid having managers participating in committee meetings all the time a strategic project may be judged to be over a certain size or importance to merit its own steering committee. Lesser projects may be grouped together to be handled by one steering committee. On the other hand, the project steering committee must maintain an intimate understanding of each project. Thus, there are limits to how many projects that one steering committee can effectively handle. To determine a reasonable workload for each committee one might want to distinguish between three types of projects: entirely new areas of business, full-blown extensions of present lines of business, and minor improvements of present lines of business. The first type of project will, of course, require the most attention; the last project type the least.

B. Corporate Involvement

What now about project development at the corporate level? Should project development have no role at corporate level, given the division's
involvement? We shall claim that there are at least two factors which suggest an important involvement in strategic project development by the corporate level complementing the divisional involvement. These are the need for strategic project evaluations that may be outside the traditional business areas or that may involve more than one division and the attempt to avoid duplications of efforts and investments in similar research skills by several divisions. We shall discuss each of these in turn.

i. Strategic Projects Outside the Traditional Business Areas

There may now and then come up new projects that look promising but do not fit any of the existing businesses. A central strategic project team with, say, competence within R&D and market research might be assigned to such projects, in order to ensure that the projects get a chance and do not get "drowned" between the ordinary projects of a division if it had been entrusted to one of these. Also, such a central group may have more freedom and less inhibition to scan the environment to come up with strategic projects within entirely new business areas for growth and opportunities. Further, there may be situations where a strategic project of one division will lead into the business domain of another division. For instance, a project undertaken by a pharmaceutical corporation's division for anaesthetics intending to come up with a better local anaesthetic may turn out to be of use for treatment against arhythmic heart conditions. But this lays within the domain of the division for heart disease medications. In this instance, there will be a need for the corporate level to "disentangle" the two divisions.

Finally, when acquisitions or diversitudes are to be undertaken a corporate strategic project competence may assist top management in evaluating the potential of the proposed new business, or, when it comes
to divesting a strategic project, to give less biased advice than the strategic project management of the division in question. In total, a corporate strategic project competence seems necessary to undertake tasks complementary to the divisions strategic project tasks, as well as for managing potential conflicts of interest between two divisions or between a division and the corporate level.

ii. Duplication of Strategic Project Capabilities

Let us now turn to the question of potential duplication of efforts by the divisions in the sense that they may build up similar strategic project competences, i.e., invest in largely the same types of people and equipment. Given the role of strategic projects as part of each division's effort to succeed in their businesses, we have thus far stressed the need for each division to develop its own project organization. Thus, within the company as a whole there will typically be several, say, basic research groups, market research groups, and so on. One might ask whether it would be possible to combine these groups, at least to some extent. This might lead to a number of advantages. Notably, it would probably be possible to incur some benefits from economies of scales, and, thus, get the task done with less fixed investment in people and equipment. Also, the professional quality of a centralized group of people might increase, given that the division's specialist groups may be so small that it will be difficult to maintain a high professional level. Thus, centralization is an option to ensure the critical mass of people. The extent to which it is possible to obtain benefits of these sorts depends a lot on how close the divisions' businesses are to each other, in terms of basic technology and/or markets. In some instances it may be possible to group together project activities of some if not all divisions.
A major problem with joint divisional project development capabilities is the divorce of one of the key determinants of a division's success from its direct control. Thus, there might be a danger of loss of quality in the project development offered to a division. Particularly, the outlook for the final end use may become less focused when project development is divorced from local business know-how, most critically at the marketing end. We are faced with the classical problem of costs vs. benefits of centralization vs. decentralization due to the trading off between size advantages in economies of scales and advantages due to improved quality of decision-making when drawing on local know-how.

iii. The Corporate Strategic Project Committee

The above dilemma may be approached by means of making use of so-called organizational matric structures. For instance, although each division has its own basic research group which is part of the division's strategic project organization and thus reports to the division management, the basic research groups of all the divisions may also report to a corporate basic research office. This office will attempt to undertake coordination when possible so that economies of scales can be achieved. All the basic researchers within the company can be brought together in this way, without detracting from the division specialization point of view. Integration between the divisions' specialized functional project organization elements may be particularly useful for information and know-how exchange.

Exhibit 3 summarizes the overall strategic organizational integrating efforts proposed.

Motivational Considerations

At the outset let us notice that a decentralized corporate structure usually implies that the economic performance of each of the decentralized units is being measured, and that normally also incentive compensation is based on performance. We have noticed that the long-term success of the businesses of a company largely depends on the divisions' strategic project organizations ability to come up with sufficient outputs. Also, we have noticed the uncertain nature of strategic project developments. All projects will be uncertain, but the more uncertain projects will typically have the higher potential rewards associated with them.
For the company as a whole the overall riskiness in its entire portfolio of strategic projects is a combination of some very risky projects, some conservative ones and some in the middle. The overall riskiness of the corporation's project portfolio will not increase significantly with the undertaking of a very risky but potentially promising new project, given some size of the portfolio, because the risk will "average out" over the entire portfolio. For a division the ability to undertake another promising but risky project without significantly altering the risk characteristics of its strategic project portfolio is a function of the portfolio size too. However, a division's strategic project portfolio will naturally be smaller than the corporate portfolio. Consequently, a division will have fewer projects between which to "average out" a new risky project. Given this, a division manager can be expected to be less inclined to take on risky but potentially very promising projects. When each division manages its strategic project portfolio, with an implicit degree of riskiness attached to the project portfolios, then the corporate project portfolio, with its implicit risk characteristics, is found by adding together the division portfolios. One might assume that this corporate strategic portfolio is having more conservative risk characteristics than if the corporate portfolio had been

12 Several research studies have documented a tendency towards risk aversion in research project selection in large firms, see Hamberg, David, "Invention in the Industrial Laboratory", Journal of Political Economy, April, 1963.
chosen directly by top management. Thus, by delegating the responsibility for choosing the divisional portfolios the company as a whole may move in a more conservative direction.\textsuperscript{13}

We shall offer two suggestions for at least partially overcoming this problem. First, the corporate project board may play a role and attempt to assess the overall corporate risk-taking and, if necessary, "upgrade" some of the divisional project portfolios to become more risk-prone. Whenever such "interventions" take place special care should however be taken to adjust for potential damage to the division's performance. The burden of forced added risk-taking by the division should at least to some extent be carried by corporate funds to these projects.

Secondly, the incentive compensation system for individuals within the strategic project development area should recognize that the task is less programmed then for most other tasks within the firm. Long-term track-records should be developed for the people involved in order to get some feel for performance. There should be an audit procedure for project failure to identify what portions of the work on the project that had been up to satisfaction and what portion that went wrong. Other procedures of the same nature might also be developed.\textsuperscript{14}

\textsuperscript{13} In the above, we have of course assumed that the attitudes towards risk taking in fact will be determined as a consequence of project portfolio size differences. We might of course nevertheless encounter, say, a very conservative corporate management which may be more cautious than the young, aggressive division managers. A general conservative attitude may more than counterbalance the risk-taking advantages due to project portfolio size. We shall however not discuss this situation here.

Conclusion

Although the future success of many companies depends highly on their ability to undertake strategic projects to have carried out intended strategies, many expenditures on strategic projects are being spent in vain. The intended "booster" from the strategic projects all too often do not materialize. This article has suggested an approach for improving the performance resulting from the strategic project expenditures. The approach is built on three interrelated considerations.

First, the planning for strategic expenditure projects should be integrated with the business strategy of each division. In this context it is important that the divisions' strategies are stated operationally enough to provide guidance for strategic project selection. The concept of clarifying the division's product as to market share (high-low) as well as growth (high-low) should be useful for this. Also, it seems important that a division's programs are given primary attention during the planning stage for them to be followed by each function's budgets.

Second, the strategic project management task should be seen as having a number of specific characteristics that need to be explicitly considered in order to facilitate effective strategic project management. One issue is the staging of a project from one function to the other. Another issue is the balancing of project load for each function. A third issue is the overall balancing of projects to the capacity of the project organization.

Third, there are several organizational tasks that need to be handled in order to implement the strategic planning project approach. Several committee types for this will probably have to be established, namely project steering committees, project portfolio committees and a corporate project committee.
While each company of course will face different problems in managing their strategic project planning we feel that the issues raised are of a general nature and should be addressed in each case. Only when these issues are understood can one expect a truly effective strategic project planning.