Project management techniques in developing countries

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Techniques de gestion de projet dans les pays en développement

Projektmanagement in Entwicklungsländern

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SUMMARY

American companies face difficulties in applying project management techniques in developing countries. A survey was conducted among some American firms who have done or are still doing work in developing countries. This paper covers the results of this survey. It also discusses the difficulties facing project managers in implementing successful projects and suggests approaches to help overcome these difficulties.

RÉSUMÉ

Certaines entreprises américaines rencontrent des difficultés lorsqu'elles appliquent les principes de gestion de projets dans les pays en développement. Une enquête auprès des entreprises américaines ayant été ou étant encore actives dans des pays en développement a été réalisée; les résultats en sont présentés dans cet article. Les difficultés rencontrées par le chef de projet et les mesures prises par lui sont exposées.

ZUSAMMENFASSUNG

Amerikanische Firmen sehen sich Schwierigkeiten gegenübergestellt, wenn sie Projektmanagement in Entwicklungsländern anwenden wollen. Eine Umfrage bei amerikanischen Unternehmungen, die in Entwicklungsländern tätig waren oder sind, wurde durchgeführt. Die Ergebnisse werden in diesem Artikel vorgestellt. Weiter werden die Schwierigkeiten dargestellt, denen sich der Projektleiter gegenübersieht, wenn er Projekte erfolgreich realisieren will, und Vorschläge, wie diese Schwierigkeiten überwunden werden können.

1. INTRODUCTION

The difficulties of applying project management techniques in developing countries are numerous and fundamental. The most serious of all being the political, cultural, and social structures of some of these countries. When these are augmented with the attitudes of government and management, these difficulties seem very hard to surmount. Nevertheless, the benefits derived from applying project management techniques in developing countries supercede such problems.

Doing business in developing countries has not been easy, and only a handful of American companies have reached the profits which they expected. One of the principal reasons for the failures has been unfamiliarity with the host-environment, local customs, laws, conditions, and the inability to communicate with the client and deal with him effectively.

As the world becomes smaller through the use of mass communication and dwindling resources, our need for international cooperation has grown. It is through this growing sense of cooperation and awareness of the profits that can be made in developing countries that many American firms find themselves engaged in projects with developing countries. The per cent rate of return on U.S. direct investment in developing countries by American business is 25.2% as compared to 11.9% in developed countries (1).

Developing countries, particularly those which have recently acquired a lot of capital, have been turning to developed countries to help them in building their much needed infrastructure, as well as the requirements of their industries which is necessary for the improvement of standard of living. Private firms and government agencies within the United States have been involved quite extensively in meeting these needs of technology and managerial expertise.

The purpose of this paper is to enumerate some of the basic difficulties in using modern project management techniques in developing countries with the intention that it might aid the users in solving them through their identification. In addition, suggestions will be given on how one might approach solving them.

2. BACKGROUND INFORMATION

In gathering data for this paper, a list of questions was drawn up to be answered by managers with project management experience in developing countries. The questionnaire is in Appendix 1. We selected those American firms which were believed to have had the most experience in using project management in developing countries: the petroleum and construction industries. Eight candidates were selected from the oil industries and 42 from the construction firms, for a total of 50. Twelve companies responded: two oil and ten construction firms. This yielded a response of 24%. The construction firms were selected on the basis of the size of their foreign contracts (2). There were 125 firms out of the top 400 construction firms involved in foreign contracts; of that approximately 100 were involved in some work in developing countries.

The questionnaire was then distributed to the various managers. The response rate and comments were quite good for such a survey. A summary profile of the respondents is given in Appendix 1.

The remainder of the data was gathered by interviews with a few managers, and, supplemented by our experience in developing countries as well as literature search.

3. SURVEY RESULTS

Because of the controversy in trying to define what developing countries are, this paper will rely upon the reader's general knowledge of the world to provide his own definition. The conventional means of using the income per capita is outmoded. It should be pointed out that such countries have their own unique society, and culture; all of which need to be taken into consideration when working with them. It is felt however, that there are common elements among these developing countries. It is upon this assumption that the following analysis is based.

3.1 Current Practices of Applying Project Management in Developing Countries

Before we can really begin to grasp what difficulties are being encountered by American firms in applying project management techniques in developing countries, we need to start by reviewing some of their current practices in their applications. The following points have been summarized from the questionnaire.

1. The firms responding have an average of 20 years experience in developing countries with the range being 3 to 35 years. The countries involved include most developing countries, though admittedly a recent increase has been seen in all OPEC countries.

2. 83% of the respondents indicated that at least 50% of their overseas projects are in developing countries with some stating it as high as 95%. This is not too unreasonable when considering how dependent developing countries are on foreign technology and expertise. The foreign market for construction firms is particularly excellent in developing countries compared to Western countries. This trend is most likely to continue in light of development programs of the United Nations, the World Bank and the OPEC Fund.

3. The average value of a typical project was difficult to estimate because most respondents stated a range. The total range was from $ 100,000 to $ 1 billion. The average range was $ 15 million to $ 100 million per project. One can see that the profit motive can be quite high for this type of work.

4. Ten out of twelve of the respondents felt that it took 25% to 50% more time and cost 40% to 300% more than a similar project would in the United States. It is interesting to note the narrower range on the time than on the cost. Time is a crucial element for developing countries, so one often sees cost overruns on such projects while time is monitored closely.

5. When asked what per cent of their projects was brought in over budget and/or behind schedule when compared to the initial budget and schedule, the estimates were 32% and 50% respectively. This could be used as a general measure of the success for failure of the firms use of project management techniques.

6. All but one respondent use quantitative techniques like CPM for project planning and controlling. Those using such techniques are using CPM, Gantt charts and graphs in planning and controlling a project. Only two indicated that they use PERT. Conversations with some of the managers showed that CPM was used more for planning and long-term controlling than for the immediate planning and controlling of events.

7. Of those that use project management techniques, 50% used computers on the job-site as aids in processing data. Those that did not, indicated that often computers in either the United States headquarters or in Europe were used.

8. One third of the respondents coordinated their overseas projects in the United States. Many indicated that it depends upon the type of project under consideration.

9. The vast majority - 75% - of the companies do not have project managers who are nationals of the host country. Those that do, indicated that approximately 10% are host country nationals. These firms also have 17 and 35 years experience in developing countries. This may be a result of their maturity in working with developing countries.

10. Half of the firms do give some sort of environmental (cultural, social, political, etc.) training to their American personnel before being sent on an overseas assignment. They felt that it helped in making their personnel more effective. Of those that do not provide training indicated that they believed it to be too costly.

11. When asked to rank the order of highest frequency the type of project that they are usually involved in, the response was first private, then government construction, and third, research. It is difficult to really separate private and government construction because most developing countries exercise control over all projects through government planning offices.

12. Two thirds of the respondents do recruit host country nationals with American background. This is often a difficult task since such individuals are normally employed by the country's government in jobs which have a lot of prestige but not necessarily a corresponding high compensation. The above review of current practices can be helpful in identifying problem areas. However, practices are a result of beliefs as well as other influences. Some of the beliefs that managers hold concerning the use of project management techniques in developing countries are discussed.

3.2 Current Beliefs

Webster defines belief as "conviction that certain things are true". Beliefs influence the way a person behaves and it can influence the way one uses certain techniques. By identifying some of these beliefs regarding project management we can begin to relate these to the practices, and thus to the difficulties of applying these techniques in developing countries.

1. The respondents believed that the following are difficulties in implementing modern project management techniques in developing countries.
   a. Coordination of information in the United States
   b. Inadequate information for planning activities
   c. Client's lack of understanding the importance of the techniques
   d. Unavailability of computers
   e. Lack of understanding of the project by host country control agencies
   f. The remoteness of job-site which creates slow turn-around of reports necessary for controlling in large projects
   g. Poor understanding of the techniques by field supervisors
   h. Poor up-dating of completed events
   i. Local government, labor and management abilities were believed to be the greatest reasons for project cost overruns and/or schedule delays. These are all factors which can affect the implementation of the project.

These were not ranked in any certain order. Almost all the difficulties mentioned above involved the people's perception of the techniques and their usefulness. Next was the quality and timeliness of the information needed to plan and monitor the project and its progress.

2. Project managers believed the decision-making on a foreign project to be very centralized compared to the United States. Centralization of decision-making meant that fewer people were making the decision. This is caused by the lack of qualified personnel and thus increases the span of control. It can also decrease the effectiveness of the manager on a project.

3. Almost all of the respondents closed the survey by indicating that they believe a simpler approach should be used in planning, scheduling and controlling a project than is often used in the United States, such as CPM or PERT. They recommended the use of bar and Gantt charts and graphs with little detail. One manager commented that the complicated network diagrams are mostly for the corporate rather than the project manager.

These beliefs of the managers show the complexity of defining all the difficulties in the application of project management techniques in developing countries. Obviously, a project manager in a developing country has many more factors to deal with as compared with a similar project in the United States, thus making it even more difficult to control the project implementation.

3.3 General Overview

Most companies using project management in developing countries believe that there is a definite benefit in its use. This benefit usually is forcing those involved in the project under consideration to think about all the activities that need to be coordinated.

Project managers are usually Americans with previous overseas experience. They often do not have subordinates or field personnel who really understand the techniques. This lack of understanding on the personnel's part as well as that of the client's makes it difficult for the manager to update progress reports needed for project control. To complicate the situation further, the project manager has to deal with more factors in a developing country than in the United States. Those include the lack of unskilled labor, governmental relationships - both United States and foreign - as well as the environmental conditions - physical, cultural, and political. All of these come together to influence the way project management is applied in developing countries by American firms. To date the record does not appear to be very good.

4. DIFFICULTIES IN APPLYING PROJECT MANAGEMENT IN DEVELOPING COUNTRIES

The main difficulties in applying project management techniques in developing countries by American firms are identified below. These difficulties are problems which American management must begin to, and are capable of, solving. As in most business environments, it is that firm whose management recognizes the limiting factors of the environment and works to overcome them that normally finds itself succeeding in its field.

4.1 Centralization of Decision-Making

In the United States, there exists a good system of communication and education, as well as a common background socially and politically. These factors make it

easier for American firms to decentralize the decision-making on a project; consequently, there are more people on a project that are capable of making decisions. This enables managers to spend more time on making decisions--decisions, hopefully, which will be better because of that time.

In developing countries, most American firms centralize the decision-making by placing very few people in control; consequently, less time is available for them to make decisions. This centralization is caused by two main factors. First, is the lack of trained American personnel willing to work overseas, let alone in a developing country. Second, most American managers believe that the host country nationals will not or are incapable of making decisions compatible with that of the firm's goals. These factors combine to force the management of a project to rely heavily on a very select few within each level of management to make decisions. This coincides with the final recommendations the respondents made on the questionnaire. When asked how project management could be implemented more successfully, they almost unanimously said to keep it simple.

4.2 Lack of Short Term Control

Project management techniques, especially computerized techniques, have been primarily used in the overall or long-term control of a project in a developing country rather than the short-term control. This can be explained by understanding the following points. Control implies the comparing of planned activities with actual performance. This comparison allows us to adjust our plans accordingly and proceed to the next stage of implementation, then compare again. This continues until the project is completed and all goals and objectives are met.

4.3 Inability of Managers to Assimilate Large Amounts of Data

This point is very closely related to the previous discussion of control and the centralization of decision-making. In trying to apply project management techniques such as CPM in a developing country, we force the managers to deal with more factors than their capabilities allow. Man is able to gather and process information up to a point. When his limit is reached, any additional data may be useless to the manager. In the United States, the computer is used to help process large amounts of information, and in some cases simplify it. Computers are not always available in developing countries. In cases where they are, it still takes a great deal of time to collect the required data from all the appropriate sources. In the meantime, the manager must make decisions in which he will compare his past plans with actual performance. In order for him to do that, he must collect the data and process it for his consideration, but it must be within the limit of his ability. This partly explains why managers rely on Gantt charts and graphs to help in the shorter term control of a project. This does not ignore the visual aid of the graph and charts, but supports the idea of man's limited ability of processing information. The wider the span of control, the greater must be the simplification, because larger amounts of information are flowing to the decision-maker. This simplification can often cause a loss of important factors, and, needless to say, it can affect over-all efficiency and effectiveness of the manager of the project.

4.4 Other Difficulties

To say that these above points are the only difficulties in applying project management in developing countires would be rather presumptuous. There are, of course, many others. A list of difficulties which seem to be consistent throughout the literature and with observation, follows: (3)

1. Variety and frequency of changes (politically and economically)

2. Lack of supporting policy measures
3. Inadequacies in coordination and follow-up actions
4. Deficiencies in public administration
5. Shortages and failures of contractors
6. Lack of sufficient and accurate information
7. Lack of cooperation
8. Lack of trained personnel

These really do not need any further explanation. Many of them are external to the firm and often are difficult to solve or influence.

5. RECOMMENDATIONS

The following recommendations are intended to provide the general direction which firms must take in order to improve their use of project management in developing countries:

A. Improve the Understanding of Project Management Techniques
B. Decentralize the Decision-Making
C. Improve Short Term Control
D. Increase the Ability of Managers to Assimilate Large Amounts of Data

The above recommendations have been previously discussed. Special emphasis should be placed on the following recommendation:

E. Deal More Effectively with the External Environment of a Project in a Developing Country

Few American companies have really succeeded in dealing with the external environment of a project in a developing country. Those that have, found it necessary to obtain a good understanding of the country's social, cultural, political and economic background. Therefore, it is suggested that firms give environmental training to their American personnel before being sent on an overseas assignment. Half of the companies surveyed indicated that they provide such training. Those managers given this training felt that it made them more effective managers.

Companies should be very careful in dealing with these external factors. They should never interfere with the country's environment. Yet, firms should be aware of the country's goals and how they relate to whatever project is involved. They can help facilitate communication and cooperation between the various government agencies and the American companies.

In general, American firms working in developing countries need to develop a greater sensitivity to the country's individuality. This can only help in implementing project management more effectively and efficiently.

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APPENDIX 1
QUESTIONNAIRE

Dear Interviewee:

This questionnaire is an attempt to gather information about the difficulties American firms have in applying modern project management techniques in developing countries. Hopefully this will give us a better insight into solving some of the problems. The information given will not be identified to any one person, nor is it intended to represent any particular company or sector of business.

Your prompt return of this questionnaire is requested, after which a copy of the report will be sent to you.

Your time on this questionnaire is greatly appreciated.

Sincerely,

PROFILE OF INTERVIEWEE

1. Age_____ 2. Title_____

3. Years with company_____

4. Years exposed to projects in developing countries_____

5. Function of job while in developing country_____

_____

6. Type of company_____

ALL QUESTIONS REFER TO PROJECTS IN DEVELOPING COUNTRIES

1. How many years experience does your firm have in projects in developing countries?

2. What per cent of your overseas work is done in developing countries?
25%_____ 50%_____ 75%_____ other_____

3. a. Do the projects involve quantitative techniques for project planning and control? Yes_____ No_____
b. What kind? CMP_____ PERT_____ PERT/COST_____
LESS_____ SCANS_____ PACT_____ graphs_____
other (specify)_____
c. Are computerized techniques used at the job sites?
Yes_____ No_____
1) If no, why not?_____

_____

2) a) If yes, are they used more in planning stage or in the control?

_____

b) Do you feel they are used successfully in controlling a project in a developing country? Yes_____ No_____

4. Is the project coordinated at the U.S. headquarters or in host country?
host_____ U.S._____

5. What type of project is usually involved: Rank in order of highest frequency. _____government construction _____private construction
_____computer selection and installation _____research
_____other (specify)_____

6. What is the typical value of the projects?_____

7. What is the average length of completion time for a project in a developing country? 1 year_____ 1-2 years_____ 2-3 years_____ 5 years____

8. If you were to compare projects in developing countries to the same type here in the U.S., how would you compare their cost and duration. Fill in the blanks and underline the appropriate word in parenthesis. In general, a project in a developing country would cost ____% (more, less) than in the U.S. and take _____% (more, less) time in duration.

9. Putting contract manipulation aside, when compared to the initial budget and schedule, what per cent of your projects are brought in under budget?_____ over budget?_____ behind schedule?_____ ahead of schedule?_____

10. What do you believe were the main reasons for any cost overruns and/or behind schedule projects? Rank according to importance.

_____foreign exchange problems	_____natural elements (heat, rain, etc.)	
_____cash flow problems		
_____local management abilities	other	
_____local labor	_____	_____
_____local government	_____	_____
_____lack of natural resources	_____	_____
_____foreign relationship	_____	_____

11. a. What do you believe are the most important elements in the planning stage of the project?_____
b. In the implementation or control stage?_____
_____

12. a. Are any of the project's managers in the country host country nationals? Yes_____ No_____
b. If yes, what per cent?_____

13. Is environmental (cultural, social, political, etc.) training given to American personnel before being sent on an overseas project in a developing country? Yes_____ No_____

14. Do you recruit host country nationals with American background (either educational or work experience) for the projects' management? Yes_____ No_____

15. To what degree of centralization is the decision-making process on a project in a developing country versus one in the U.S.?
High_____ Low_____ Same_____ No opinion_____

16. What do you believe are the difficulties in implementing modern management planning and control techniques such as PERT or CPM?

17. What planning and control techniques do you believe are most effective in cutting through the cultural, political and social differences in developing countries, if any?

18. In completing this survey, it would help make it more comprehensive if you would state your recommendations on how such techniques as PERT/CPM could be more effectively implemented in developing countries.

SUMMARY OF INTERVIEWEES' PROFILE

Title	Function	Age	Yrs. with Comp.	Yrs. Experience in Developing Country
Contract Engineer	Assistant project manager	40	13	12
Cost/Scheduling Engr	Controlling cost & scheduling	47	9	3
Mgr Planning & Scheduling Branch	Monitoring construction progress, plan/coordinate start-up activities	61	38	9
Vice President	Sales & executive project manager	42	1½	5
Architectural Coord.	Construction management	34	2	2
Senior Engineer	Project engineer	33	3	5
Mgr-Schedule Control	Development of plans & schedules & time control of projects	50	11	11
Mgr, Bus Development	Cost estimating, material procurement, progress reporting	30	5	7
Chief Estimator	Project manager	33	10	3
Contract Engineer	Project engineer	40	13	12
Vice President	Set-up joint ventures, coordination, estimations	55	22	3