

Session 10 Cases

- Minimizing Construction Claims under the Project Management Concept
- The Legal Standards for 'Prudent' Project Management

SYNOPSIS

This case presents some of the techniques used by a project owner to successfully complete a \$42 million construction project within budget, on time, and without claims. This project involved construction of a major educational facility in St. John's, Newfoundland. Specifically, the case discussed the use of an independent, third-party consultant to perform some of the traditional project manager's functions in an attempt to reduce some of the project risk. The case also describes some "risky" project management practices being used in the construction industry, and presents some of the problems unique to the island.

LEARNING OBJECTIVES - "MINIMIZING CONSTRUCTION CLAIMS UNDER THE PROJECT MANAGEMENT CONCEPT"

In discussing this case, the following points should be addressed::

- the importance of considering all project risks, especially those that are unique to the particular project
- how using poor project management practices may also lead to risk
- how adding a third, independent party to a contractor-owner relationship can be used to reduce project risk
- how to reduce risks through the effective design and testing of a project monitoring and control system.

Discussion Points (3)

- Discuss - faulty PM or “risky” practices?
- If the Project Manager is correctly performing his/her job, is a third-party really needed?
- Is the introduction of a third-party consultant a way to reduce risk or merely a way to pass that risk on to another party?.

Minimizing Construction Claims under the Project Management Concept

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SYNOPSIS

This case presents some of the techniques used by a project owner to successfully complete a \$42 million construction project within budget, on time, and without claims. This particular project involved the construction of a major educational facility in St. John's, Newfoundland. Specifically, the case discusses the use of an independent, third-party consultant to perform some of the traditional project manager's functions in an attempt to reduce some of the project risk. The case also describes some "risky" project management practices being used in the construction industry. Finally, the case presents some of the problems and concerns that, for the most part, are unique to the island of Newfoundland.

LEARNING OBJECTIVES

This case provides the students with an overview of some of the risks and concerns associated with a construction project. In particular, the student will be exposed to some unusual problems and risks that are unique to the particular construction project described in the case. As a result, the student will indirectly see the need to consider the project's environment and all of the potential risks. The following points should be addressed when discussing the case:

- the importance of considering all project risks, especially those that are unique to the particular project
- how using poor project management practices may also lead to risk
- how adding a third, independent party to a contractor-owner relationship can be used to reduce project risk.
- how to reduce risks through the effective design and testing of a project monitoring and control system.

DISCUSSION QUESTIONS AND POSSIBLE ANSWERS

1. What are some of the key management skills needed to run a project or enterprise? Support your answers with information from the *PMBOK Guide*.
 - a. Section 2.4, Key General Management Skills, of the *PMBOK Guide* lists the following as key management skills: leading, communicating,

negotiating, problem solving, and influencing the organization. All of these skills are necessary for a leader to effectively manage his project. Extended definitions of each of these skills are provided in the *PMBOK Guide*.

2. What problems were encountered under the project management concept in this case?

a. In the past, the Department of Public Works and Services had chosen to use the project management method on the larger, more complex construction projects. Later, however, its use of this approach resulted in lengthy delays, high cost overruns, and a large number of claims. The student should also point out that, although these problems were encountered while using project management techniques, they may actually have occurred from how the techniques were applied rather than from the project management system itself.

refer back to Session No. 5 - FAST TRACK

3. Describe the "risky" practice that was leading to some of these problems, including some of the overriding factors that negated any projected benefits.

a. The primary cause of these project problems appears to be the practice of "fast-tracking," in which the work packages are rushed to the field, with the design being completed after construction has begun. Although the concept of "fast-tracking" may initially appear to provide substantial benefits with only a minimum amount of risk, the case identified the following risks associated with "fast-tracking":

- The planned benefits to be gained were usually lost due to schedule delays.
- The additional financial benefits offered were also lost due to the cost of claims and litigation.

Discuss

The contractors were intentionally submitting low bids and unrealistic schedules because of incomplete specifications. In essence, the contractors planned to regain their money by overpricing any extra work required on the subsequent change orders.

Obviously, any errors made in the early design/engineering would have far-reaching effects on the overall project.

By rushing these work packages out to the field, it would be difficult to develop a firm schedule or cost estimate. Since the schedule and cost of these work packages would be in a state of constant revision, it would be virtually impossible to have a reliable project management system. Finally, a study concluded that the risks associated with the practice of "fast-tracking were far too great and unpredictable."

4. Describe the modified project management approach used to reduce some of these risks.

a. First, the company decided to use the "phased-construction" approach as opposed to the more risky "fast-tracking" approach. In the "phased-construction" approach, the design of a work package is nearly complete when construction begins. In addition, the traditional project management approach was modified with the introduction of an independent auditing/quantity surveying consultant. This consultant would be responsible for the preparation of detailed contractor-type construction estimates, master scheduling, and for monitoring of project costs and schedule progress.

5. What risks was the Department of Public Works and Services trying to reduce by adding another consultant to the project management team?

a. Based on their experience, project/construction managers tend to over or underestimate the proposed budget and/or schedule for a project. By introducing a third, independent party these tendencies might be effectively minimized. This independent party can perform the same tasks traditionally carried out by the project/construction manager, such as scheduling, estimating, and monitoring, without any conflict of interest. Recent court decisions have made it more beneficial to have projects monitored by an unbiased party who has no financial interest and can respond quickly. In short, the court holds the project owner responsible for paying a contractor's claim that resulted from neglect or delay on the owner's part. The use of a third, independent party is also a preventive type of measure that is less costly than any lengthy court battle. Finally, this neutral third party can also serve as a mediator to resolve disputes and potential claims between the owner and contractors.

Discuss
Independent
Engineer
in Project
Financially

6. What were some of the contributions made by the auditing/quantity surveying consultant? How did these contributions minimize project risk?

a. Based on a preliminary analysis, and considering the risk of a possible construction strike, the consultant concluded that the project could be completed about ten months earlier than planned. It was the owner who had advised the project manager to overestimate the schedule so as to eliminate the risk of not completing the project on time. In short, the project manager was much too cautious on his "no risk" schedule projections. As a result, a revised schedule was later agreed upon by all the involved parties. In order to minimize the confusion and potential for claims, the consultant warned against incorporating vague dates in the tender documents in lieu of an approved project schedule. Rather than trying to base a cost estimate on incomplete drawings and conflicting documents, the consultant decided to work hard to complete the documentation upon which these estimates were based. As a result of these efforts, the consultant effectively reduced the risk of erroneous cost estimates. While preparing the construction cost estimate, drawings were being continuously revised and corresponding adjustments were being incorporated into the cost estimate. The consultant's estimating team also realized the need to rely on one of its members who was familiar with the area of Newfoundland.

Discuss
Force Majeure
Clause
protects in this
area!

Note:
* one
of
the
reasons
for
cost
overruns

7. What actions can be taken by project managers to minimize some of the associated risks before starting to monitor a project?

- a. *PMBOK Guide*, Section 11, Project Risk Management, suggests four steps in managing risk: risk identification, quantification, response development and response control, which gives some insight into how to handle this kind of situation. These processes are defined as follows:
- Risk Identification—determining which risks are likely to affect the project and documenting the characteristics of each.
 - Risk Quantification—evaluating risk and risk iterations to assess the range of possible project outcomes.
 - Risk Response Development—defining enhancement steps for opportunities and responses of threats.

- Risk Response Control—responding to changes in risk over the course of the project.
- b. Certainly, not all risks can be anticipated, but an effective risk management process can help to alleviate the effects of many unplanned events.
- c. The students might first review the actions taken in this particular case. Once these have been reviewed, however, the instructor should encourage the students to apply these ideas to other project management cases. First, the consultant decided to conduct a performance test to determine if the project monitoring system would accurately reflect the project's progress and expenditures against the projected budget and schedule. The cost reporting system was simultaneously tested to verify that it would provide early warning discovery of any potential claim situations. An earned value, which depended on the stage of completion, was assigned to each work package so that the system was designed to measure the financial and physical completion of the project at any given time. A secondary budget curve was also prepared that looked into account contingencies by allocating them to each contract work package within the time frame they were most likely to occur. Since a majority of construction claims come from the electrical, mechanical, and architectural areas, special budget curves were established in these areas so that their associated work packages could be monitored more closely.

ADDITIONAL DISCUSSION POINTS:

The instructor may be interested in pursuing the issue of whether or not the problems cited in the case are the result of a faulty project management concept or the "risky" practices being used in construction projects. Taking it a step further, the instructor may wish to discuss the following question: If the project manager is correctly performing her job, is a third party consultant really needed? Finally, the entire case appears to boil down to the following question that could be discussed: Is the introduction of a third-party consultant truly a way to reduce risk or merely a way to pass that risk on to another party?

DISCUSS!

↑
"does this" "
"really"
happen →

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INTRODUCTION

Fast-track projects, in recent years, have developed the dubious reputation of being incubators for claims. Although the project management concept is not necessarily synonymous with fast-tracking, nevertheless the two notions are so frequently associated that the project management method of construction has acquired the same stigma.

The classical justification of the project management concept in construction and its usual application is when the type, size, or complexity of the project demands early participation of various relatively unrelated disciplines. The early formation of the complete project team can offer potential savings, not the least of which derive from construction expertise with all its ramifications, such as knowledge of constructibility, efficient procurement, and contractor-type estimating of construction costs. This expertise will assist in the correction of user-client's unreasonably high expectations, or design decisions, which might have yielded costs beyond the authorized funds available or late delivery/occupancy of the project.

Such a project team can be likened to a newly founded company whose sole objective is to go out of business as rapidly and as economically as possible, while still reaching a given goal of accomplishment—project completion within budget and on schedule. Often, the team has neither the time nor the inclination to spend much effort on the optimization of administrative procedures. Traditionally, the members of the team are relative strangers and know very little about the modus operandi of each other. Unfortunately, these apparently unimportant or simply insufficiently developed administrative features often create missing links in the chain of command and give rise to contradictory instructions, all of which ultimately produce delays and/or interfere with the orderly progress of construction. In other words, they will invite claims.

An analysis of recent projects reveals that the above scenario is more often the rule than the exception; therefore, the search for preventive measures is not only justified but outright essential. Genuine claims have simply become far too frequent and of such magnitude, particularly under the project/construction management concept, that they cannot be brushed aside anymore as an unnecessary nuisance originating from money-hungry contractors, a view so often displayed by owners and/or their representatives. However, there are also other owners who have undergone a metamorphosis

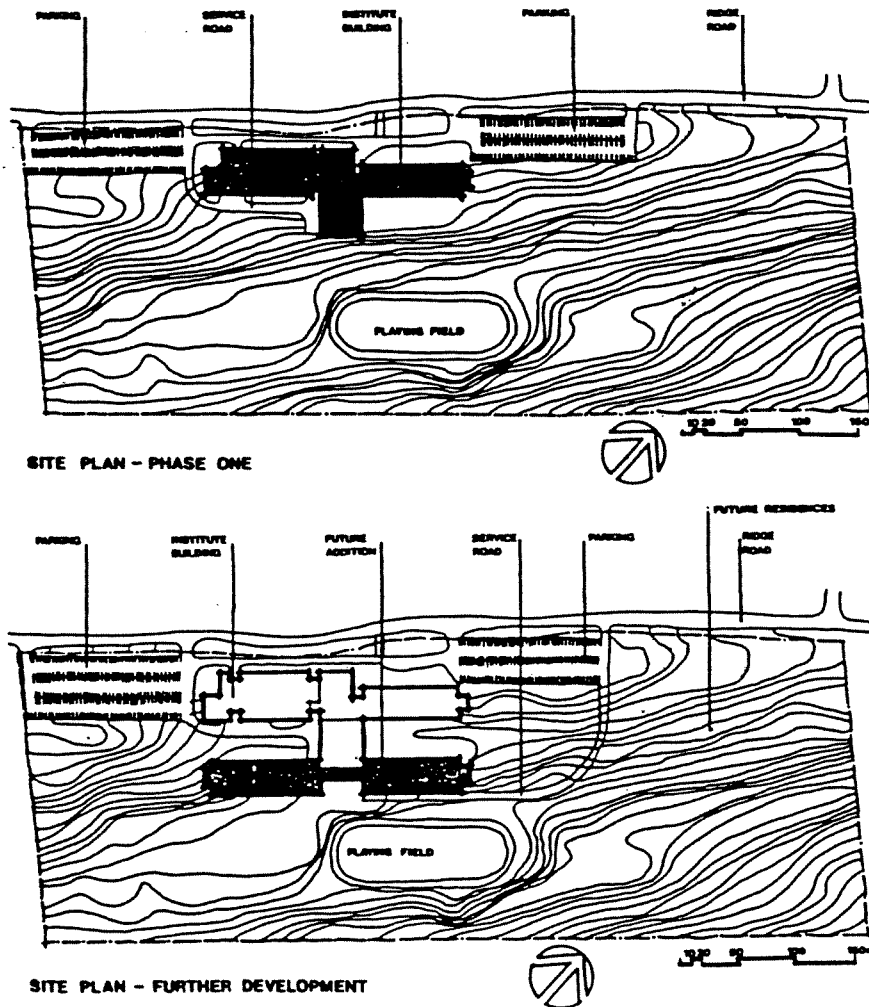


FIGURE 1 THE MASTER PLAN

of thinking with regard to claims and attacked the problem at its roots, namely, day one of the project.

This paper will examine how a prudent owner was able to successfully complete a \$42 million project within budget and on time, without claims, and last but not least, with content contractors.

THE PROJECT

The project discussed is a major education facility located in St. John's, Newfoundland, called "Institute of Fisheries and Marine Technology." The institute was previously housed in inadequate, old university buildings and other scattered locations which no longer satisfied its needs. The institute offers instruction in the design, construction, operation maintenance, and navigation of vessels of all kinds, to those who may be involved in fishing at the Grand Banks of Newfoundland, or in the exploitation of the vast oil resources off the Northeastern coast of Canada. In addition to the three-year, full-time program, the college offers short courses in such areas as fishing techniques and equipment maintenance. Graduates of the college are found on all oceans and enjoy an international reputation.

PROGRAM	NO. OF STUDENTS	SECTION SIZE	NO. OF SECTIONS	SUBJECT	SUBJECT NUMBER	HOURS/WEEK	SECTION HOURS
Food Technology I	30	30	1	Biology	121	3	3
Food Technology III	16	30	1	Processing Biology Food Engineering	321 321	2 4	2 4
Food Technology I	30	30	1	Processing Technology	121	3	3
New Courses	54	30	2	Biology	-	3	6
Total Section Hours							18
<u>Area Requirements</u>			m ²				
30-station instructional area			78				
Storage and preparation room			<u>27</u>				
Total Area			105				

FIGURE 2 ROLE STUDY REQUIREMENTS BIOLOGY LABS AND SHOPS

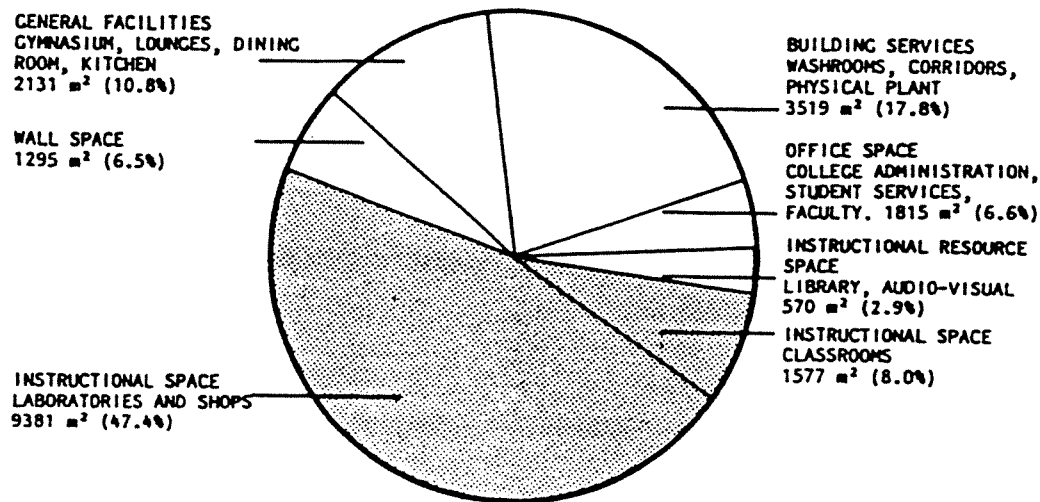


FIGURE 3 SUMMARY OF BUILDING SPACE CATEGORIES

During the early planning phase, the Department of Public Works and Services of the Government of Newfoundland and Labrador (owner) commissioned a role study which included educational specifications, a design brief, and preliminary studies, while negotiations between federal and provincial governments were progressing with the objective of arriving at a mutually satisfactory cost-sharing agreement. The preliminary studies were completed by the time the agreements were signed.

The Master Plan

A site (comprising 17 hectares/142 acres; see Figure 1) had been designated by the provincial government for the new Institute which overlooks the city of St. John's. The master plan reflected the need for flexibility; that is, the new building must be able to accept additions with minimal disruption to the institute's activities. This was achieved by providing for additional wings coming off a central spine parallel to the existing wings.

During the first phase, the existing student dormitories will be used. However, if residences are required in the future, they can be located on institute

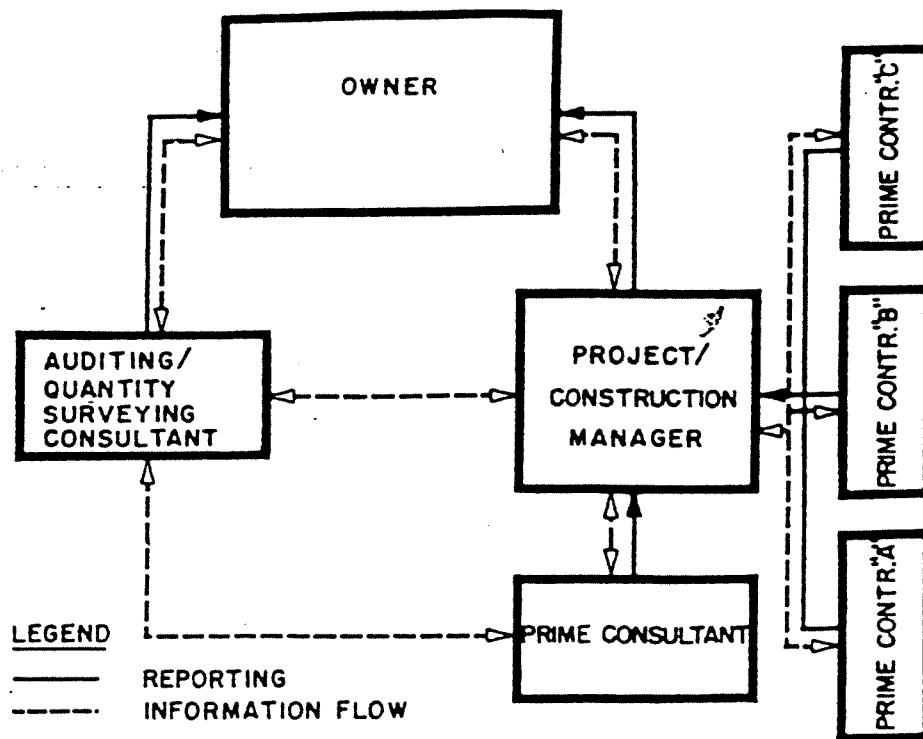


FIGURE 4 ORGANIGRAMME

property east of the main building and parking lot. These structures can connect into existing site service facilities such as parking. The role study included detailed space requirements for a projected student enrollment of 987 (FTE) students based on the curriculum of the programs.

The method used involved a tabulation of section hours for each kind of instructional space needed. The instructional spaces were adjusted until there were enough section hours to ensure a good utilization of space and efficient scheduling. To determine the necessary number of classrooms, thirty-four hours of instruction per week per classroom was decided upon, representing 75 percent utilization factor, based on a maximum of forty-five hours of use per week.

To estimate capital costs for construction of the new building, a preliminary building design was prepared based on the agreed-upon requirements outlined in the role study, which recommended specifics with regards to wind, snow, and other climatic conditions; internal circulation; location of rooms; and site services.

The Project Environment

Newfoundland is an island separated from the mainland and, therefore, its communications must be via water or air. Winters are cold, and there may well be frost on the ground as late as May. With a population of only 550,000, many of the construction ingredients must, of necessity, be purchased offshore and transported long distances, which may add to the project duration if not carefully planned. Also, some of the more sophisticated tradesmen may still have to be flown in from the mainland, even though local resources would always be given priority. While some local firms have started to specialize in project/construction management, most of their previous experience has been limited to either design or general contracting, mainly on the