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Summary of chapter 7

Everything we do from getting out of bed in the morning to returning there at night carries risk. Come to think of it, even lying in bed can be risky. It is not surprising that projects, which metaphorically (and sometimes literally) break new ground, attract many risks. Project risks can be predictable or completely unforeseeable. They might be caused by the physical elements or they could be political, economic, commercial, technical or operational in origin. Freak events have been known to disrupt projects, such as the unexpected discovery of important archaeological remains or the decision by a few members of a rare protected species to establish their family home on what should have been the site of a new project. The potential effects of risks range from trivial inconvenience to project disaster. Project risk management (and much of mainstream project management) is concerned with attempting to identify all the foreseeable risks, assessing the chance and severity of those risks, and then deciding what might be done to reduce their possible impact on the project or avoid them altogether.

What is Risk?

a situation involving exposure to danger.

Or

Risks are unforeseen (and often unforeseeable) events that can result in a change of project plans or even total project failure.

Risks can occur at any stage in a project. Some are associated with particular tasks and others originate from outside the project and can manifest themselves without warning. Generally speaking, a risk event that occurs late in a project can be more costly in terms of time and money than a similar event nearer the start of the project. That is because as time passes there will be a greater value of work in progress and higher sunk costs at risk of loss or damage. Some projects, because they are small or

similar to projects that the contractor has undertaken in the past, might not need special attention to risk management other than considering some of the insurance issues discussed later in this chapter. However, for any project that breaks new ground or is complex and large, a risk management strategy must be developed, first to identify as many potential risks as possible and then to decide how to deal with them. For very large projects it might be necessary to appoint a risk manager, who can devote all or most of his or her time to ensuring that a comprehensive risk strategy is put in place and then reviewed from time to time throughout the project to ensure that it remains valid. If a project support office exists that is a logical place for the risk management function to reside. Project risk management is a complex subject. Even the classification of risks is not straightforward and can be approached in different ways. There are several techniques for assessing and dealing with project risks, some of which are shared with other management disciplines (particularly with quality management and reliability engineering). This chapter will outline a few of the methods commonly used.

Identifying the possible Risks

It is almost certain that some tasks will not be completed in line with their duration estimates and budgets. Some might exceed their estimates, whilst others could be finished early and cost less than expected. Statistical tools such as Monte Carlo analysis can be used to attempt an assessment of the probability of the project finishing by its target completion date or of the intended return on investment being realized. However, those measures deal with uncertainty rather than with risk. Risk events can occur in any kind of project and they can range from the 'accident waiting to happen' variety to the most unexpected and bizarre. In a lifetime spent with projects I have known risk events ranging in scale from a tragic underground mining disaster to an exploding hearing aid. They can even occur late in the project life history, after the project is finished and handed over. Checklists, which grow in size and value as companies gain more project experience, are a good starting point for listing the foreseeable risks. Studying the history of similar projects can also highlight

possible problems and help the project manager to learn from the mistakes and experiences of others. Brainstorming is an effective technique for considering many aspects of risks. A brainstorming meeting of key staff is a particularly productive method for identifying all the possible risks along with many of the improbable ones. Much depends on how the brainstorming session is conducted. The leader or chairperson should encourage an atmosphere of 'anything goes', so that participants feel free to propose even the most bizarre risks without fear of ridicule. All suggestions, without exception, should be recorded for subsequent assessment and analysis.

Risk Appraisals and Analysis

Once identified and listed, risks can be ranked according to the probability of their occurrence and the severity of the impact if they should occur. This process will eliminate the most improbable risks arising from brainstorming, but it should bring to the fore those risk events that are most likely to happen or which would have the greatest impact on the project. For this analysis it is necessary to consider the possible causes and effects of every risk. Risk analysis can be qualitative or quantitative. Qualitative risk analysis involves considering each risk in a purely descriptive way, to imagine various characteristics of the risk and the effect that it might have on the project. Qualitative risk analysis goes at least one stage further than qualitative analysis by attempting to quantify the outcome of a risk event or to attach a numerical score to the risk according to its perceived claim for preventive or mitigating action.

Methods of dealing with Risk

1. Avoid the risk
2. Take precautions to prevent or mitigate risk impact
3. Accept the risk
4. Share the risk
5. Limit the risk
6. Transfer the risk

Insurance

The financial impact of many risks can be offset by insuring against them. The client pays the insurance company a premium for this service, and the insurer might itself choose to spread the risk by sharing it with one or more other insurance companies.

A Summary on chapter 9 (Project Organization structure)

It should be obvious that, if all the project objectives are to be achieved, the people, communications, jobs and resources must be properly organized. But the form which that organization should take might not be so obvious. Every company has its own ideas about how to organize itself and its work. It is highly probable that if three companies doing similar work could be compared, three different organization structures would be found. Further, all three companies might be equally successful (or equally unsuccessful), implying that it is not always possible to say with any degree of confidence that there is one best organization solution.

EFFECTIVE ORGANIZATION AND COMMUNICATIONS

An effective organization will have clear lines of authority and every member of the project will know what he or she is expected to do to make the project a success. This is part of the management communication framework needed to motivate all the staff employed. A well-motivated group can be a joy to work with. A badly informed group, with vague responsibilities and ambiguous levels of status and authority, is likely to be poorly motivated, slow to achieve results, costly to run and extremely frustrating to work with. The complement of good management communications is the provision of adequate feedback paths through and across the organization. These facilitate cooperation and coordination. They allow progress to be monitored and difficulties to be reported back to executive management. They should also give all participants access to the relevant experts for advice or instruction on technical and commercial

difficulties.

ORGANIZATION CHARTS

It is not possible to discuss organizational structures in any depth of detail without the aid of charts (or 'organigrams' as they are often unfortunately known). No organigram can adequately depict all the nuances and politics of a particular organization, but we all need to understand, as far as possible, the meanings of the charts that we encounter during our working lives.

Shortcomings of organigrams

The principles listed above might seem logical and unambiguous. However, in practice organizations can be far more complex. For example, in all except the most outdated, authoritarian, militaristic style of company there will always be informal lines of communication and feedback up, down, sideways and diagonally across the organization. That's no problem and is usually to be encouraged. Organizations thrive on fast and effective communications, whether electronic or face to face. The only difficulty is that organigrams cannot possibly show every communication channel, and they are certainly incapable of defining every subtle influence that one person might be able to exert over another. Whenever an organization changes, or when a new project is opened, it is wise and customary to produce a new organization chart and distribute it. But that simple process, however innocently intended, can provoke strong and unexpected reactions. There will be employees who feel aggrieved when they find that their names are not included on the chart, which they perceive as a personal insult. Those people will believe that they have been overlooked and that their roles are not appreciated as being sufficiently important. The issue of a new organization chart can also give rise to feelings of envy or injustice when individuals feel that their particular box should have been placed higher up in the hierarchical pecking order. At least one company has attempted to solve this problem by issuing circular charts, but that is not a complete solution because those nearest the outer rim of the circle might feel that they should be nearer the centre. However,

organigrams with all their deficiencies and potential for causing individual discontent are the best, indeed the only, practicable way of depicting an organizational structure. They are, in themselves, a form of communication.

EMERGENCE OF PROJECT MANAGEMENT IN A DEVELOPING COMPANY

The subject of project management organization can be introduced conveniently by considering the historical development of a small company. The organization invented for this example happens to be a manufacturing company, but many of the principles and arguments apply equally to all kinds of other projects.

Case study: Street Components Ltd

The company Street Components Ltd had its origins, many years ago, as a manufacturer of street lamps and other associated items of 'street furniture'. Later, the company's expertise and activities were developed to include components for automatic traffic signals (traffic lights). In more recent times, the company's expertise and range of products have been extended to many other aspects of traffic control equipment and systems, which it sells to local government authorities, developers and other large companies.

Work management in a conventional manufacturing organization

A clearer picture of some of the problems encountered in project handling can be seen by studying the management organization structure of a manufacturing company. A small engineering company like Street Components Ltd might have been organized in its earlier days. Organizations of this type are known as 'line and function', because they are set up to manage work within departmental (functional) boundaries or specialist disciplines. Thus the chief engineer is responsible for design and development but very little else. The works manager concentrates on the production aspects of the business. Managers concentrate on those reporting directly to them in the line and they generally have no direct responsibilities outside their own functions. Of course, no company could ever exist on such a rigid basis and there must be some

cooperation and interaction, between different managers. Nevertheless, any cross-functional relationships that do exist are regarded as secondary to the main line structure. They are not defined, no special provision is made for them and they are not brought under any form of control. Such communication weaknesses are potentially damaging to any company, but they become particularly serious when a firm undertakes a multidisciplinary project. One might ask whether general managers should not play a significant part in coordinating all the various project functions. To some extent they might, of course, but they cannot be expected to deal efficiently or effectively with the level of detail involved in the day-to-day running of projects. The company's general management should be left free to make higher level decisions about the business, implement policies decided by the board of directors and carry out administration at high level. Even if the general manager or other senior executive is held to be ultimately responsible for the success of projects, they must be able to delegate the tasks of planning, coordination and day-to-day management. But delegate to whom? In the organization structure depicted in Figure 9.2 there is no obvious person who can logically be charged with the direct responsibility for following any complex project through all its stages. The positions of line responsibility are clearly shown for each function, but the coordination between them, necessary for effective project control, is missing