16

Project health checks and audits

16.1 Introduction

I introduced audits in Section 7.3 as a way of controlling the management processes, and checking that they are of sufficient quality to deliver a successful outcome. In this chapter I describe the use of audits and health checks. Audits can be informal, conducted by the project team on themselves, or they can be more formal conducted by people external to the project team, either experts from within the organization or external consultants. The former I call *health checks*, the latter *audits*.

Audits have been used throughout history as a way of ensuring that operations are being conducted in a correct way. There are records of audits conducted in Egypt during the time of the Pharaohs, 4000 years ago. We are most familiar with financial audits, and these are usually conducted in a policing sense, to ensure that businesses are being conducted:

- in the best interests of the shareholders (or creditors)
- in a way which will ensure achievement of the objectives
- in accordance with the law, and without fraudulent activity.

Financial audits must be conducted by independent qualified accountants. Organizations may also conduct detailed reviews of their non-financial activities, or the activities of suppliers or subcontractors, for very similar reasons. These 'audits' may be conducted by internal staff or external consultants, with the objective of ensuring:

- there are no mistakes in the design of the activities
- the work done will deliver the organization's objectives
- activities are undertaken in an efficient way learning from past successes and failures.

Purpose of project audits

Audits are conducted on projects for all these reasons, and they may be conducted at several points throughout a project.

CHECK THAT THE DESIGN IS CORRECT

One of the primary contributing factors to the success of a project is to ensure it is correctly established and designed in the first place (Sections 4.5, 5.3 and Chapter 11). This means that:

– the purpose of the project has been correctly identified
– the objectives set will deliver that purpose
– the facility chosen will achieve those objectives
– the facility is designed in accordance with the inherent assumptions
– the design information used, including any research data, is valid.

An audit conducted at key milestones, especially at the end of proposal and initiation or design and appraisal, can confirm that the project, as designed so far, meets all of these requirements.

ENSURE THE QUALITY OF THE MANAGEMENT PROCESSES

A second major contributor to success is the use of qualified management processes. A project which is well designed, but badly managed, can fail to achieve its purpose. A project which is well designed and well managed is more likely to be successful. An audit can be conducted at any time during a project to determine whether it is being managed in accordance with best practice, and that usually means in accordance with defined procedures, perhaps as set out in a manual. Such an audit is most effective when conducted about one-third of the way into a stage, as the pattern of management has been set by that time, but work is not so far advanced that mistakes cannot be recovered.

LEARN FROM PAST SUCCESS

If a project has gone particularly well, perhaps better than recent projects, then a review can help to identify what was done properly. That can be recorded as a basis for future projects. These reviews are usually best conducted at the end of a project, although it can then be difficult to gain people's commitment as they are keen to move on, as discussed in Section 13.5. However, it is usually easier to get people to review their successes than their failures.

AVOID PAST MISTAKES

Likewise, if a project has gone particularly badly, then it is usually very instructive, perhaps even mandatory, to determine what mistakes were

made, so that they can be avoided in the future. However, people can be very defensive in these circumstances (unsurprisingly). My own experience is that there is usually a string of excuses about why this project was unique, and the mistakes would not normally occur, even if the project is one of a series of failures.

Types of project audit
In order to achieve these objectives, three types of project audit are conducted.

PROJECT EVALUATION AUDIT

A project evaluation audit is an independent check of the feasibility or design studies. It is an enforced review of the investment appraisal as it currently stands, and the assumptions on which it is based. It is conducted by independent auditors, often called *red teams*, to see whether they reach the same conclusion as the original design team. The need for this type of audit was described in Section 7.3. The audit covers similar ground as the original feasibility or design study (Chapter 11). The auditors check the validity of the data used in the original studies, and the conclusions drawn from it (Section 11.4). Often the original design team will be over-optimistic, because they have a certain subjective commitment to the project. It is important that the auditors are truly independent, and that they do not share the same commitment to the project, or they may merely repeat the mistakes.

INTERNAL AUDIT

An internal audit, or health check, is a quality control check of the management processes, conducted either by independent auditors, or by the project team, to ensure best practice is being followed, and hence that the project as defined will be delivered to quality, cost and time. (Usually only the design or execution stages will be audited.) When conducted by external consultants, it will be conducted about one-third into the stage. The project team may also make random spot checks on themselves, to ensure that they are maintaining best practice. Such as internal audit, conducted by the project team, we call here a *'health check'*. An audit will cover everything from progress of the work itself, to the procurement and marshalling of materials and resources. The auditors will check:

- the validity of the data being gathered
- how it is being used to generate management reports
- how those reports are being used to take timely and effective action, to ensure that the project meets its quality, cost and time targets.

POST-COMPLETION AUDIT

The successes and failures of a project are reviewed in a post-completion audit. The scope of a post-completion audit may be very similar to an internal audit, but now the auditors are checking past practice with the knowledge, in hindsight, of how the project actually turned out. A post-completion audit may be conducted:

– as an informal review by the project manager and their team
– at a formal debriefing meeting
– 'down the pub'
– as a detailed review by external (independent) consultants.

In this chapter I describe how to conduct audits and health checks. First I describe two health checks, the *projectivity diagnostic* and the *success/ failure diagnostic*. The first checks that the working environment supports project-based working, and the second checks that the project has been established to deliver success in accordance with the principles and strategic approach of Chapter 4. I then describe how to conduct a formal internal or post-completion audit.

16.2 The projectivity diagnostic

In this and the next section, I introduce two diagnostic techniques that the project team can use on themselves to check that the working environment supports project-based management, and to undertake a quality check on the management processes they are using to manage their project. I want to stress that both of these diagnostics are primarily qualitative. The idea is to identify areas of weakness, but also, and more importantly, to identify differences of opinion within the project team in its widest sense. That is:

– differences of opinion between the various groupings and factions in the project team, including sponsors, users, designers and managers
– differences of opinion between the members of these various groupings.

The diagnostic questionnaires ask people to rank their views about various issues on a scale of 1 to 6. We then use simple arithmetic calculations, spreads, variances, means and differences, to highlight where differences of opinion lie, and where weaknesses in the approach to the project or project working within the organization lie. However, these calculations are designed to focus attention, not calculate some answer, like the number 42, which will determine whether or not your project will be successful. Having undertaken the diagnostic exercise, you will want to spend as much time working on determining why differences of opinion exist and then to

eliminate them, as you will spend trying to reduce the impact of areas of weakness.

The first is the *projectivity diagnostic* (Table 16.1). This can be conducted at any time to assess the health of project working in the organization, or in the start-up stages of an individual project to induct people into project-based ways of working. I introduced the concept of projectivity in Section 3.5 (Figure 3.4), to represent an organization's ability to achieve its development objectives through project work. Organizations with low projectivity are unable to deliver projects effectively, and therefore consistently fail to achieve their development objectives. The projectivity diagnostic is designed to help you identify how well projects are established, planned, organized, executed and controlled in your organization. More importantly, the projectivity diagnostic checks whether there is a common agreement on these questions by all the people involved in work on your project, on both sides of the projects/operations divide. This diagnostic is designed to help you:

– understand the culture and climate of project work in your organization
– focus on problem areas that need to be dealt with
– identify where improvements can be made to project working in your organization.

There are no right or wrong answers to the questions. For some of you it will be a worry if the responses are not what you expect. For instance, if the majority of people say they cannot clearly see the link between organizational strategy and projects, or if they think there are no established, clear principles and guidelines for project work, then that will be a cause for concern. However, this diagnostic is primarily designed to help you identify areas of agreement and disagreement in your project team (and we mean the project team in its widest sense).

Using the questionnaire
There are 106 questions, grouped into five main problem areas. These are areas identified by Grude[1] as those where projects consistently fail (Section 4.3):

– foundation and infrastructure for project work
– planning and estimating
– organizing and cooperating
– controlling and leading
– executing and obtaining results.

However, when you give people the questionnaire to complete, you may not want to leave the questions grouped, but rather give them a sequential list,

in order not to influence their thinking. The questionnaire asks people to rate each question on a scale of 1 to 6, where 1 = false and 6 = true. However, the questions are designed so that sometimes 1 indicates poor performance, and sometimes 6. This is so that people do not get into a routine of ticking every answer 4 to 5, but actually have to think about what the question is asking them. We recommend that you give the questionnaire to a wide variety of people within the organization:

– senior managers representing sponsors, champions and customers
– peer groups representing professional colleagues, resource providers, users and other stakeholders
– project workers, representing designers and implementers
– project managers.

Analysing the results
The results can be analysed in several ways, as follows:

WITHIN GROUPS
When analysing the results within groups, you will want to see whether the group:

– agrees on the organization's performance in all areas
– thinks that the organization's performance falls short in any areas.

These can be broken down, as follows:

1. *Agreement*: In looking to see whether the group agrees on the answers to questions, you will be looking to the spread of answers. I have allowed space for you to record two measures of spread:
   – The spread, S; the difference between the highest and lowest score for the group against that answer
   – The variance, V; calculated as $V = \sum (x - X)^2/N$,
   – where: x is the individual score
          N is the number of people in the group
          X is the mean score for that question, $X = \sum x/N$.
   Recording the answers in a spreadsheet, such as Excel or Lotus 123, will enable you to calculate the mean, spread and variance of the scores easily. I suggest you do not include the X, S and V columns on the questionnaires that you give to the people completing them; they are there to help you analyse the responses. Where there is a high spread, 3 or greater, at least some members of the team disagree about the response to that question. Where there is also a high variance, 2 or greater, there is fundamental disagreement among team members about the answer to the question. (A high spread but low variance indicates that

only one or two members of the team disagree with the majority opinion.) The reason for any disagreement is worth exploring, question by question, and can be made part of the team-building process. I have kept the mathematics simple, because we are interested in qualitative comparisons, not quantitative results or statistics. This is a qualitative exercise; the numbers are just a way of helping to focus attention. You do not need to worry about such things as confidence limits, because they are not relevant here.

2. *Performance*: You can analyse the results to see where they indicate poor performance. We have indicated the polarity, P, of each question, to show which end of the scale in your view indicates good performance (1 or 6). (Again we suggest you do not include this column on the questionnaires you give to the project team for completion.) You can compare the average answer to each question, X, to this polarity and calculate the difference, D, to determine where the team think the organization falls short in performance. A difference of 2 or 3 will indicate below average performance, and 4 to 5 poor performance. The reason why the team think the performance is below average or poor will be more interesting than the fact that they do, and exploring the reason can again be part of the team-building process.

3. *Problem areas*: By calculating the average of the differences, D, for all questions within each of the five problem areas, you can determine which problem areas the group considers are weaknesses of project management within the organization. Because you expect some questions to indicate acceptable performance, an average difference of 2 or 3 will indicate poor performance, and an average difference of 4 or 5 will indicate very poor performance.

BETWEEN GROUPS

You can repeat the comparisons between groups. Primarily, you will inspect the mean answers, X, question by question to see whether one of the groups differs from the other groups. Differences are quite likely between managers, team members, users and so on. Exploring the reasons for differences is more important than the existence of the differences. Similarly, you can inspect the overall results on the problems areas as more of a threat than do the other groups. (Obviously, if all of the groups view one of the questions or one of the problem areas as a threat, then that will be addressed in the comparisons within groups. Here we are only looking for differences between groups.)

Table 16.1 Projectivity diagnostic

No.	Statement	Score	X	S	V	P	D
Problem area 1: Foundation and infrastructure for project work
1.1	It is easy to see the relationship between our project and overall business plans	1 2 3 4 5 6				6	
1.2	We have established sufficiently clear principles and guidelines for project work	1 2 3 4 5 6				6	
1.3	Our principles and guidelines for project work are understood by all involved parties	1 2 3 4 5 6				6	
1.4	Our principles and guidelines for project work are accepted by all involved parties	1 2 3 4 5 6				6	
1.5	In our projects, the client/user roles and responsibilities are defined before start-up	1 2 3 4 5 6				6	
1.6	In our projects, the project team's roles and responsibilities are defined before start-up	1 2 3 4 5 6				6	
1.7	In our projects, the clients/users keep to agreed prioritizations (tasks/time/resources)	1 2 3 4 5 6				6	
1.8	Our project management is not very good at keeping to agreed prioritizations	1 2 3 4 5 6				6	
1.9	In our projects, line managers contribute loyally to decision processes according to their responsibility	1 2 3 4 5 6				6	
1.10	In our projects, line management keep to agreed time limits for decisions	1 2 3 4 5 6				6	
1.11	In our projects, line management quite often reverse decision that have been taken	1 2 3 4 5 6				1	
1.12	In our projects actual resources are committed as part of our planning process without line management being made aware	1 2 3 4 5 6				6	
1.13	Management makes sure that agreed resources for project work are made available at the right time	1 2 3 4 5 6				6	
1.14	Available resources for project work are taken into consideration in our business plans	1 2 3 4 5 6				6	
1.15	Our management plan so that development personnel do not get tied up in maintenance	1 2 3 4 5 6				6	
1.16	Our management plan so personnel are relieved of operational tasks when given project tasks	1 2 3 4 5 6				6	
1. 17	We have sufficient/adequate tools and methods for planning projects	1 2 3 4 5 6				6	
1.18	We have sufficient/adequate tools and methods for organizing projects	1 2 3 4 5 6				6	
1.19	We have sufficient/adequate tools and methods for reporting and controlling progress	1 2 3 4 5 6				6	

Table 16.1   (*continued*)

No.	Statement	Score	X	S	V	P	D
Problem area 1: Foundation and infrastructure for project work							
1.20	We have sufficient/adequate tools and methods for reporting and controlling quality	1 2 3 4 5 6				6	
1.21	We have sufficient/adequate tools and methods for reporting and controlling time	1 2 3 4 5 6				6	
1.22	We have sufficient/adequate tools and methods for reporting and controlling cost	1 2 3 4 5 6				6	
1.23	We have clear policies/procedures for prioritizing between projects	1 2 3 4 5 6				6	
1.24	We have clear policies/procedures for handling prioritization problems between operational tasks and project tasks	1 2 3 4 5 6				6	
1.25	It happens quite often in our projects that the project team and the clients/users do not have a common understanding of the deliverables	1 2 3 4 5 6				1	
1.26	In our projects, everybody has the necessary knowledge of the procedures/methods/tools we use for project management	1 2 3 4 5 6				6	
1.27	I have the necessary skills to plan and organize projects	1 2 3 4 5 6				6	
1.28	I have the necessary skills to monitor and control projects	1 2 3 4 5 6				6	
1.29	I have the necessary skills to handle people's relationships and resolve conflicts	1 2 3 4 5 6				6	
1.30	Our project procedures/methods/tools are bureaucratic and tedious	1 2 3 4 5 6				1	
1.31	Our project procedures/methods/tools help us obtain commitment from all parties involved	1 2 3 4 5 6				6	
1.32	Our project procedures/methods/tools ensure goal direction and effective use of resources	1 2 3 4 5 6				6	
	Sum						
	Average						

Table 16.1 Projectivity diagnostic (*continued*)

No.	Statement	Score	X	S	V	P	D
	Problem area 2: Planning and estimating						
2.1	Our overall project plans are understandable and give a good overview/description to all relevant parties, not just the specialists	1 2 3 4 5 6				6	
2.2	We make project plans that are too generic	1 2 3 4 5 6				1	
2.3	We make project plans that are much too detailed and activity oriented	1 2 3 4 5 6				1	
2.4	Our plans are tailor-made for the task and focus on what is unique/important for progress	1 2 3 4 5 6				6	
2.5	Our project plans have imbedded quality control	1 2 3 4 5 6				6	
2.6	We have layered planning, where we focus on results and activities separately	1 2 3 4 5 6				6	
2.7	Our plans focus too much on completion date, too little on intermediate results/dates	1 2 3 4 5 6				1	
2.8	We often change our plans during the project	1 2 3 4 5 6				1	
2.9	Our plans always make it easy to control the achievement of intermediate and end results	1 2 3 4 5 6				6	
2.10	Our project plans ensure that we do things in the right sequence, so that we do not have to do things over again	1 2 3 4 5 6				6	
2.11	Our project plans secure effective utilization of resources	1 2 3 4 5 6				6	
2.12	In our project plans, we build quality assurance of the process as well as results	1 2 3 4 5 6				6	
2.13	We have a planning process that stimulates creativity and finding new solutions	1 2 3 4 5 6				6	
2.14	Our planning processes invite involved parties to participate and stimulate communication	1 2 3 4 5 6				6	
2.15	All involved parties are 100 per cent committed to our plans once they are agreed	1 2 3 4 5 6				6	
2.16	We have formalized estimating procedures to ensure maximum quality and commitment	1 2 3 4 5 6				6	
2.17	Our project plans always have a realistic completion date	1 2 3 4 5 6				6	
2.18	Our recourse and cost estimates are unrealistic	1 2 3 4 5 6				1	
2.19	It sometimes happens we change our time and cost estimates because we don't 'like' them	1 2 3 4 5 6				1	
2.20	We often set time and cost estimates too low for 'selling' reasons	1 2 3 4 5 6				1	
2.21	In our projects, goals for individual's work are not precise	1 2 3 4 5 6				1	

Table 16.1   (*continued*)

No.	Statement	Score	X	S	V	P	D
Problem area 2: Planning and estimating
2. 22	In project planning, we often over-estimate our own and other people's competence and skills	1 2 3 4 5 6				1	
2.23	In project planning, we often over-estimate our own and other people's available time and capacity	1 2 3 4 5 6				1	
2.24	With us, everybody can participate in estimating and planning their own work	1 2 3 4 5 6				6	
2.25	With us, everybody feels a personal responsibility for their own estimates	1 2 3 4 5 6				6	
2.26	In estimating we often do not account for non-productive time (illness, interruptions, etc.)	1 2 3 4 5 6				6	
2.27	In project planning, we often 'forget' activities	1 2 3 4 5 6				1	
	Sum						
	Average						

Table 16.1   Projectivity diagnostic (*continued*)

No.	Statement	Score	X	S	V	P	D
	Problem area 3: Organizing and cooperating						
3.1	In our projects, the right people are always involved in the right activities	1 2 3 4 5 6				6	
3.2	Key people are often not available for the project at the time when planned	1 2 3 4 5 6				1	
3.3	People on the project are often not motivated	1 2 3 4 5 6				1	
3.4	We lack communication procedures/channels within our projects (all involved parties)	1 2 3 4 5 6				1	
3.5	We lack communication procedures and channel between projects	1 2 3 4 5 6				1	
3.6	In our projects, we have agreed and formalized the flow of information before start-up	1 2 3 4 5 6				6	
3.7	We organize our projects so that we secure effective consulting and hearing processes	1 2 3 4 5 6				6	
3.8	We organize our projects so that we secure effective decision-making processes	1 2 3 4 5 6				6	
3.9	Our way of organizing projects ensures maximum flexibility of human resources	1 2 3 4 5 6				6	
3.10	Nobody complains about lack of information in our projects	1 2 3 4 5 6				6	
3.11	In our projects, everybody knows and accepts their own role and responsibility	1 2 3 4 5 6				6	
3.12	Nobody knows what other people are doing on the project	1 2 3 4 5 6				1	
3.13	We very seldom have conflicts within the team that are the result of bad cooperation	1 2 3 4 5 6				6	
3.14	We seldom have conflicts with clients/users that are the result of bad cooperation	1 2 3 4 5 6				6	
3.15	Our projects are ineffective because too many people/functions are involved	1 2 3 4 5 6				1	
3.16	In our projects, responsibility for tasks and decisions is always connected directly to individuals, so there is no doubt	1 2 3 4 5 6				6	
3.17	We are organized to use the shortest possible route of communication between two persons	1 2 3 4 5 6				6	
3.18	In our projects, the project organization is more a formality than for real cooperation	1 2 3 4 5 6				1	
3.19	We are organized for resolving conflicts when they arise	1 2 3 4 5 6				1	
	Sum						
	Average						

Table 16.1   Projectivity diagnostic (*continued*)

No.	Statement	Score	X	S	V	P	D
	Problem area 4: Controlling and leading						
4.1	In our projects, reporting has no purpose because it is never used for anything	1 2 3 4 5 6				1	
4.2	Reporting is used to watch team members	1 2 3 4 5 6				1	
4.3	Reporting is used in our projects to badger team members	1 2 3 4 5 6				1	
4.4	Reporting in our projects is used to discuss constructively necessary corrective action	1 2 3 4 5 6				6	
4.5	Our project plans are not arranged so that we can report against them for monitoring	1 2 3 4 5 6				1	
4.6	In our company, the project managers do not have the necessary authority	1 2 3 4 5 6				1	
4.7	Project managers are too concerned with details of the technical content of the project	1 2 3 4 5 6				1	
4.8	The project managers are too pedantic	1 2 3 4 5 6				1	
4.9	Project managers will always try to cover up the problems to show a successful façade	1 2 3 4 5 6				1	
4.10	The project managers spend too little time managing the project	1 2 3 4 5 6				1	
4.11	The project managers cannot lead planning processes that result in realistic plans	1 2 3 4 5 6				1	
4.12	The project managers are unable to follow up methodically	1 2 3 4 5 6				1	
4.13	Project managers are unable to inspire others	1 2 3 4 5 6				1	
4.14	In our projects, we have periodical meetings with fixed monitoring procedures that always result in concrete decisions on progress	1 2 3 4 5 6				6	
4.15	By monitoring our plans we are always able to see the need for corrective measures in time	1 2 3 4 5 6				6	
4.16	When we are not able to take corrective action it is always the client/users' fault	1 2 3 4 5 6				1	
	Sum						
	Average						

Table 16.1 Projectivity diagnostic (*continued*)

No.	Statement	Score	X	S	V	P	D
Problem area 5: Project execution and delivering results						
5.1	Due to our way of working and use of methods we are good at getting people we are not familiar with working together	1 2 3 4 5 6				1	
5.2	In our projects, we use complicated methods too often	1 2 3 4 5 6				1	
5.3	In our organization, everybody has their own way of doing things	1 2 3 4 5 6				1	
5.4	Our projects are often subject to uncontrolled changes of scope, objectives and goals	1 2 3 4 5 6				1	
5.5	Our projects lack formal start-ups	1 2 3 4 5 6				1	
5.6	Our projects lack formal close-outs	1 2 3 4 5 6				1	
5 7	Lack of documentation is a frequent problem	1 2 3 4 5 6				1	
5.8	Insufficient quality control is a problem	1 2 3 4 5 6				1	
5.9	We often deliver an inferior quality result	1 2 3 4 5 6				1	
5.10	Our clients/users often report that they are pleased with the way we conduct our work	1 2 3 4 5 6				6	
5.11	We often deliver a superior quality result	1 2 3 4 5 6				6	
5.12	Our clients/users often report that they are pleased with the results we deliver	1 2 3 4 5 6				6	
	Sum						
	Average						

16.3 The success/failure diagnostic

The second health check is based on the research by Wateridge,[2] into the success or failure of projects, described in Section 4.2. The health check is contained in Table 16.2. There are 85 questions in all, in five parts. The purpose of the five parts is as follows:

– Part 1 helps you identify appropriate success criteria for your project
– Part 2 helps you identify what success factors you should focus on to achieve those criteria
– Part 3 checks you are using appropriate tools and techniques for the management of your project
– Part 4 checks that you have an appropriate range of skills in the project team
– Part 5 helps you identify how well the project is being executed and managed.

The main emphasis again is on checking the consistency of view of all the members of the project team and stakeholders. Indeed, there are no right and wrong answers to part 1. However, once you have identified the agreed success criteria, Table 16.3 helps you identify what success factors ought to be used to deliver those criteria, so that you can check consistency of answers between parts 1 and 2. The diagnostic can be given to a similar range of people as the projectivity diagnostic, and the answers analysed in a similar way.

Table 16.2   Success/failure diagnostic

No.	Statement	Score	X	S	V	P	D
	Part 1: Success criteria						
1.1	The success criteria for the project are defined	1 2 3 4 5 6				6	
1.2	The success criteria for the project are agreed	1 2 3 4 5 6				6	
1.3	I believe the success criteria are appropriate	1 2 3 4 5 6				6	
1.4	The project should achieve quality constraints	1 2 3 4 5 6				6	
1.5	The project should be a commercial success	1 2 3 4 5 6				6	
1.6	The users should be happy	1 2 3 4 5 6				6	
1.7	The sponsors should be happy	1 2 3 4 5 6				6	
1.8	The project team should be happy	1 2 3 4 5 6				6	
1.9	The project meets its stated objectives	1 2 3 4 5 6				6	
1.10	The system should achieve its purpose	1 2 3 4 5 6				6	
1.11	The project should be delivered on time	1 2 3 4 5 6				6	
1.12	The project should be delivered within budget	1 2 3 4 5 6				6	
1.13	The project should contribute to the organization's overall business strategy	1 2 3 4 5 6				6	
1.14	There is a clear relationship between the project and business plans and strategies	1 2 3 4 5 6				6	
1.15	The project team do not appreciate the important success criteria	1 2 3 4 5 6				1	
1.16	I am confident the project will be a success	1 2 3 4 5 6				6	
1.17	The project goals are clear to me	1 2 3 4 5 6				6	
1.18	The goals have been explained to the team	1 2 3 4 5 6				6	
1.19	I can explain the benefits of the project	1 2 3 4 5 6				6	
1.20	The project has unrealistic completion date	1 2 3 4 5 6				1	
	Sum						
	Average						

Table 16.2   Success/failure diagnostic (*continued*)

No.	Statement	Score	X	S	V	P	D
		Part 2: Success factors					
2.1	The estimates for the project are realistic	1 2 3 4 5 6				6	
2.2	Project estimates are generally over-optimistic	1 2 3 4 5 6				1	
2.3	Estimates were developed in consultation with the person allocated to the task	1 2 3 4 5 6				6	
2.4	The project has been planned strategically	1 2 3 4 5 6				6	
2.5	The project plans are understandable to all	1 2 3 4 5 6				6	
2.6	The project plans are often changed	1 2 3 4 5 6				1	
2.7	Our plans focus too much on the completion date and not on intermediate results/dates	1 2 3 4 5 6				1	
2.8	The project plan effectively utilizes resources	1 2 3 4 5 6				6	
2.9	I am happy with the plans and estimates	1 2 3 4 5 6				6	
2.10	The project participants are motivated well to achieve the project objectives	1 2 3 4 5 6				6	
2.11	Responsibilities are not well delegated	1 2 3 4 5 6				1	
2.12	The clients/users know their roles and responsibilities	1 2 3 4 5 6				6	
2.13	I am happy with the leadership shown by senior management	1 2 3 4 5 6				6	
2.14	I am happy with the leadership shown by project management	1 2 3 4 5 6				6	
2.15	Communication and consultation channels have been effectively set up	1 2 3 4 5 6				6	
2.16	There is poor communication between the project participants	1 2 3 4 5 6				1	
2.17	The users are involved effectively	1 2 3 4 5 6				6	
2.18	Communication channels are poor	1 2 3 4 5 6				1	
2.19	The project managers do not fully report project status to sponsors/users' project teams	1 2 3 4 5 6				1	
2.20	Corrective measures are always taken in time when the project encounters problems	1 2 3 4 5 6				6	
2.21	All roles and responsibilities are well defined	1 2 3 4 5 6				6	
2.22	All parties are fully committed to the plan	1 2 3 4 5 6				6	
2.23	Resources are available at the right time	1 2 3 4 5 6				6	
2.24	Procedures for handling priorities are adequate	1 2 3 4 5 6				6	
2.25	Quality assurance is not a major aspect of the projects	1 2 3 4 5 6				1	
	Sum						
	Average						

Table 16.2   Success/failure diagnostic (*continued*)

No.	Statement	Score	X	S	V	P	D
	Part 3: Tools, techniques and methodologies						
3.1	The tools, techniques and methods available for planning the project are adequate	1 2 3 4 5 6				6	
3.2	The tools, techniques and methods available for controlling the project are adequate	1 2 3 4 5 6				6	
3.3	The tools, techniques and methods available for organizing the project are adequate	1 2 3 4 5 6				6	
3.4	I agree that the tools, techniques and methods used are appropriate	1 2 3 4 5 6				6	
3.5	The development tools and methods are sufficient for the project	1 2 3 4 5 6				6	
3.6	The management tools and methods are sufficient for the project	1 2 3 4 5 6				6	
3.7	The development tools and methods are poorly applied on the project	1 2 3 4 5 6				1	
3.8	The management tools and methods are poorly applied on the project	1 2 3 4 5 6				1.	
3.9	The chosen methodologies stifle creativity during the project	1 2 3 4 5 6				1	
3.10	There are established methods which are to be used	1 2 3 4 5 6				6	
3.11	These established methods are being used on this project	1 2 3 4 5 6				6	
3.12	I believe these methods are appropriate for the project	1 2 3 4 5 6				6	
3.13	There are computer-based tools available for this project	1 2 3 4 5 6				6	
3.14	Computer-based tools are being used effectively	1 2 3 4 5 6				6	
3.15	The project uses methods for assessing and managing risks	1 2 3 4 5 6				6	
	Sum						
	Average						

Table 16.2   Success/failure diagnostic (*continued*)

No.	Statement	Score	X	S	V	P	D
Part 4: Skills							
4.1	There are the necessary skills available to plan the project	1 2 3 4 5 6				6	
4.2	There are the necessary skills available to organize the project	1 2 3 4 5 6				6	
4.3	There are the necessary skills available to control the project	1 2 3 4 5 6				6	
4.4	There are the necessary skills available to develop the system	1 2 3 4 5 6				6	
4.5	Project management are unable to handle fully the human relations aspects	1 2 3 4 5 6				1	
4.6	Conflicts are resolved easily and satisfactorily	1 2 3 4 5 6				6	
4.7	The project plan over-estimates the skills and competences of the team	1 2 3 4 5 6				1	
4.8	Project management is astute in dealing with the politics of the project	1 2 3 4 5 6				6	
4.9	Project management is unable to inspire others	1 2 3 4 5 6				1	
4.10	Project management is good at getting the project team working together	1 2 3 4 5 6				6	
	Sum						
	Average						

Table 16.2 Success/failure diagnostic (*continued*)

Part 5: Execution						
No.	*Statement*	*Score*	*X*	*S*	*V*	*P*	*D*
5.1	A life-cycle approach is being applied	1 2 3 4 5 6				6	
5.2	I agree with the life cycle used	1 2 3 4 5 6				6	
5.3	An effective start-up meeting was held for this project	1 2 3 4 5 6				6	
5.4	The right people are allocated to the project	1 2 3 4 5 6				6	
5.5	Project team members are carrying out appropriate activities	1 2 3 4 5 6				6	
5.6	Resources for the project are selected well	1 2 3 4 5 6				6	
5.7	There are no problem areas during the project	1 2 3 4 5 6				6	
5.8	I do not foresee any problem areas on the project	1 2 3 4 5 6				6	
5.9	The management of the project is excellent	1 2 3 4 5 6				6	
5.10	The project team has appropriate members at appropriate times	1 2 3 4 5 6				6	
5.11	The project risks were assessed at the outset of the project	1 2 3 4 5 6				6	
5.12	I believe that the assessments of risks are appropriate	1 2 3 4 5 6				6	
5.13	The project risks are not being managed well	1 2 3 4 5 6				1	
5.14	The deliverables are fully identified	1 2 3 4 5 6				6	
5.15	The deliverables are quality assured constantly	1 2 3 4 5 6				6	
	Sum						
	Average						

Table 16.3 Success factors delivering success criteria

Factors	Criteria								
	Commercial success	Meets user requirement	Meets budget	Happy users	Achieves purpose	Meets time scales	Happy sponsor	Meets quality	Happy team
Leadership	P			S			S		P
Motivation	P			S					P
Planning	P	S	P	S	S	P	S	S	S
Development method		S	P					P	
Monitoring	P		P			P			S
Management method									P
Delegation				S					P
Communication		P		P			P		
Clear objectives	S	P			P			S	
User involvement	S	P		P	P		P	P	
Management support	P		P			P	P		

Notes: P = primary success factor; S = secondary success factor

16.4 Conducting audits

A formal internal or post-completion audit will be conducted by people external to the project team. They may be experts from the organization or external consultants. An organization may arrange for itself to be checked. An internal audit will be conducted if the project is high risk. A post-completion audit may be undertaken if the project was a disaster. Alternatively, a client organization may arrange for an internal audit to be conducted on a contractor to ensure that they have implemented management approaches which meet the client's requirements. Although the client can sue for poor performance under the contract, sometimes that is a pyrrhic victory, because the contractor is already bankrupt.

There is a seven-step process to conducting an internal or post-completion audit:

1. Conduct interviews.
2. Analyse data.
3. Sample management reports.
4. Compare against a standard of best practice.
5. Repeat steps 1 to 4 as necessary.
6. Identify strengths and weaknesses of the management approach used.
7. Define opportunities for improvement.

CONDUCT INTERVIEWS

How you conduct interviews is a matter of style. You should always have some agenda of topics you wish to cover. Some people prefer to use a questionnaire, either a written one or a list of questions to be asked in a face-to-face interview. They work through the questions in methodical order. My own preference is for face-to-face interviews. I have a list of broad topics I wish to cover, which I explain to the interviewees at the start, but I then allow them to have free rein. Before closing the interview I ensure that all topics have been covered. I find that I learn more this way. Like Agatha Christie's detective, Hercule Poirot, I find that nobody can spin a consistent web of deceit, so if you let them talk, they must eventually tell you the truth. However, if you ask a set of closed questions, it is very easy for them to be economical with the truth. The topics covered should address the standards of good practice which you are using as your basis, as described below.

ANALYSE DATA

You should check the data being used on the project, to determine its validity. The data gathered must be relevant, give a true representation

of progress, and be processed in such a way that errors are not introduced. For data which is handled manually, there can be errors of transcription. These are usually unwitting, but they can be deliberate. It is the norm to find that when data is entered manually into several computer systems it does not tally. I once spoke to a project manager in a firm of engineering contractors who said it was common for project accounts and company accounts to differ by up to 5 per cent, which he thought acceptable. To avoid errors of transcription, electronic means of data entry are used now, including bar coding. Furthermore, data may be entered into a single computer system, and distributed to all those where it is needed.

SAMPLE MANAGEMENT REPORTS

Reports used by managers to monitor progress are checked, to ensure that they are relevant and truly representative of progress, and that they enable the manager to spot divergences from the plan easily, so that they can take quick, effective action. The reports may be used by the project manager, work-package managers, or senior managers including the sponsor, champion or steering committee.

COMPARE AGAINST A STANDARD OF BEST PRACTICE

The information gathered about how the project is being managed is compared to a model or standard of best practice. Clearly, while you are conducting the early steps, you bear your model in mind. However, I find it is better to gather the information freely, because you then actually find out what is going on. If you merely ask whether the standard is being followed, it is very easy to miss the gaps, and it is very easy for people to mislead you. The standard of best practice may be a procedures manual used by the organization (Section 15.2), or a diagnostic procedure prepared by a firm of consultants. The standard will be hierarchical, presenting a series of important issues and questions at each stage throughout the life cycle of a project, or against each element of work in a standard work breakdown. This enables the auditor to focus on those areas which are important to the project at hand, rather than wading through a list of irrelevant questions. Figure 16.1 shows a seven-stage life cycle used for auditing contract management[3] (from the contractor's viewpoint), and gives key issues and the important parameters at each stage. Each stage of this life cycle is supported by a series of questions against each parameter. Figure 16.2 shows a work breakdown for auditing project management (from the owners viewpoint), and Example 16.1 gives a further breakdown under planning and budgeting. (This follows the contents of the Project Definition Report presented in Chapter 11.)
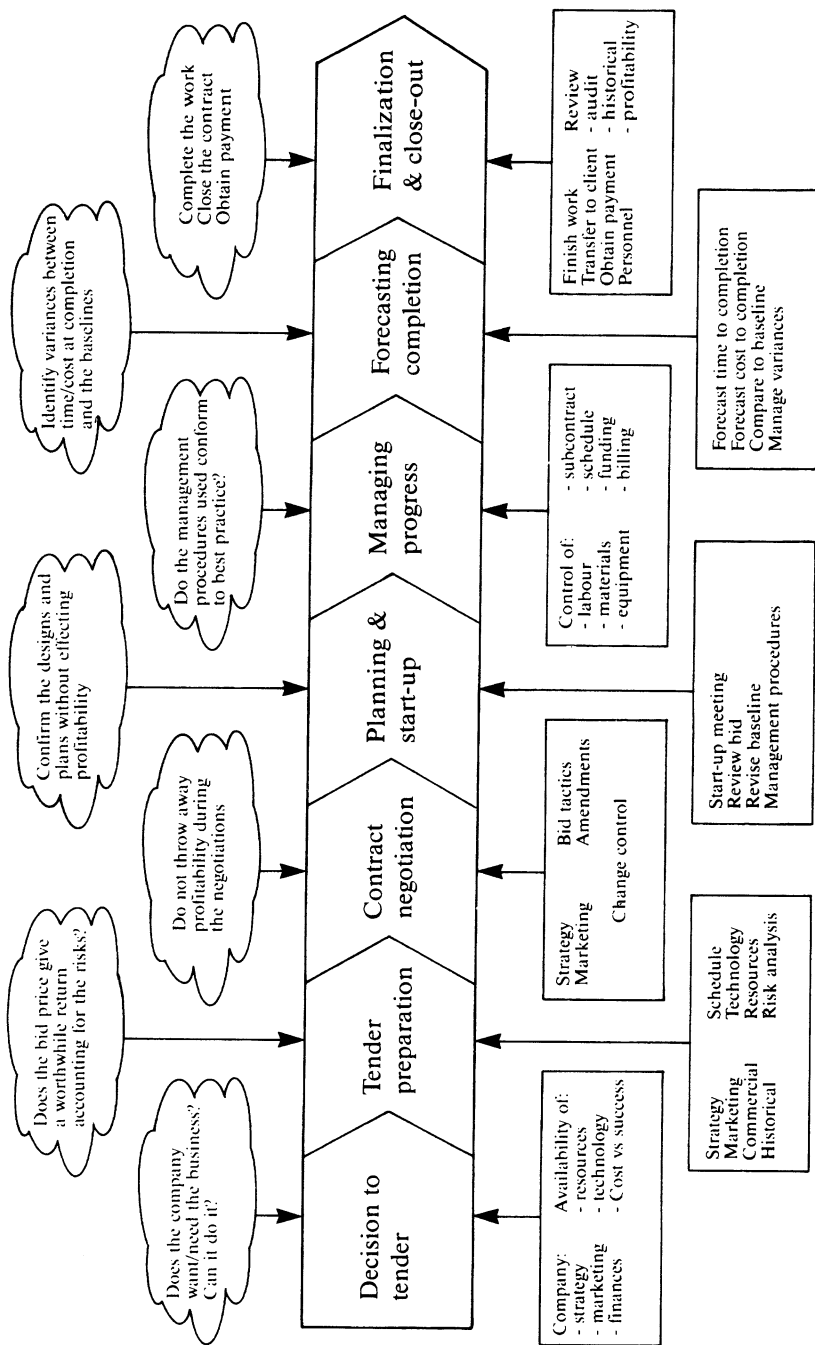
Figure 16.1 Life cycle followed in an audit procedure for contract management

Decision to tender	Tender preparation	Contract negotiation	Planning & start-up	Managing progress	Forecasting completion	Finalization & close-out

Does the company want/need the business? Can it do it?

Does the bid price give a worthwhile return accounting for the risks?

Do not throw away profitability during the negotiations

Confirm the designs and plans without effecting profitability

Do the management procedures used conform to best practice?

Identify variances between time/cost at completion and the baselines

Complete the work
Close the contract
Obtain payment

Company:
- strategy
- marketing
- finances

Availability of:
- resources
- technology
- Cost vs success

Strategy
Marketing
Commercial
Historical

Schedule
Technology
Resources
Risk analysis

Strategy   Bid tactics
Marketing   Amendments

Change control

Start-up meeting
Review bid
Revise baseline
Management procedures

Control of:
- labour
- materials
- equipment

- subcontract
- schedule
- funding
- billing

Forecast time to completion
Forecast cost to completion
Compare to baseline
Manage variances

Finish work   Review
Transfer to client - audit
Obtain payment   - historical
Personnel   - profitability

```
                          ┌─────────────┐
                          │   Project   │
                          └──────┬──────┘
         ┌───────────────────────┼───────────────────────┐
  ┌──────┴──────┐         ┌──────┴──────┐         ┌───────┴───────┐
  │ Development │         │  Execution  │         │ Commissioning │
  │ phase       │         │  phase      │         │ phase         │
  └──────┬──────┘         └──────┬──────┘         └───────┬───────┘
         │                       │                        │
  ├─ Planning and budgeting   ├─ Site administration   ├─ Work completion
  ├─ PMIS selection           ├─ Implementation        ├─ User acceptance
  ├─ Procurement              ├─ Control               ├─ Personnel
  └─ Contract administration  └─ Internal audit        └─ Records and audits
```

Figure 16.2   Work breakdown used in an audit procedure for project management

REPEAT STEPS 1 TO 4 AS NECESSARY
The comparison may raise further questions about the data, or the management processes used. Alternatively, you may realize that there are things which were not adequately covered during the initial interviews. You may need to return to one or more of steps 1 to 4, until you are satisfied everything has been adequately covered. My style is to conduct a preliminary set of interviews with senior managers to try to establish their views of the problems. As a result of that initial set of interviews, and my experience of similar organizations, I draw up a more detailed audit plan covering selected topics from the audit procedure. I then work through steps 1 to 4 according to that plan. After that first full time through, I typically have 80 per cent of the information I require. One or two more selected interviews may then give me all the information I can reasonably expect to get.

IDENTIFY STRENGTHS AND WEAKNESSES OF THE MANAGEMENT APPROACH
Through comparison of the information gathered with the audit procedure, you can identify strengths and weaknesses of the management approach used on projects in the organization, either on the project being audited or in general. I always believe it is important to identify both strengths and weaknesses, for two reasons:

1. You learn as much by reinforcing strengths as you do by eliminating weaknesses
2. People are more receptive to bad news if you start by giving them good

news. Even when reviewing an utter disaster it can make people feel that not everything they did was wrong

DEFINE OPPORTUNITIES FOR IMPROVEMENT

From the strengths and weaknesses you can identify areas where improvements can be made. Clearly you should aim to eliminate weaknesses. However, the application of the good points may be patchy, and so you can look to widen their scope, or you can find ways of improving their efficiency, and thereby make their application stronger still. Identified opportunities can be implemented via improvement projects (Section 15.6).

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TRIMAGI COMMUNICATIONS
INFORMATION SYSTEMS DEPARTMENT
Project Management Audit Procedures

</div>

A10   PLANNING AND BUDGETING

A100	Introduction
A101	Undertake feasibility study
A102	Evaluate options
A103	Develop statement of purpose, scope and objectives
A104	Establish key performance criteria
A105	Choose organizational structure
A106	Define design/engineering tasks
A107	Define execution management tasks
A108	Develop milestone plan
A109	Develop responsibility chart
A110	Establish quality assurance procedures
A111	Develop project schedule
A112	Develop project budgets
A113	Obtain project financing
A114	Identify major risks
A115	Select project management system
A116	Establish project administration
A117	Staff Project Support Office
A118	Identify licensing/regulatory requirements

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Example 16.1 Activities under the work package: *Planning and budgeting*

16.5 Summary

1. Project audits will be conducted to:
   – check the design

– ensure appropriate management processes are being used
– learn from previous successes and failures.
2. There are three types of audit:
   – project evaluation audits to check the validity of the design
   – internal audits to check that a project underway is sound
   – post-completion audits, usually to find why a project went wrong.
3. Informal internal audits conducted by the project team on themselves are called *health checks*.
4. There are two types of health check suggested:
   – the projectivity diagnostic, to check the working environment supports project-based management
   – the success/failure diagnostic, to ensure that the project has been established according to the principles of Chapter 4.
5. There are seven steps in conducting an internal or post-completion audit:
   – conduct interviews
   – analyse data
   – sample management reports
   – compare against standard of best practice
   – repeat steps 1 to 4 as necessary
   – identify strengths and weaknesses
   – define opportunities for improvement.

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