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Project close-out

13.1 Introduction

The last stage of the life-cycle is finalization and close-out. During the closing stages of a project, the team must maintain their vigilance, to ensure that all the work is completed, and that it is completed in a timely and efficient manner. It is very easy for the good effort of execution and control to be lost, as some team members look forward to the next project, and others become demob happy or demob unhappy. Furthermore, during this stage, the team's focus must switch back to the purpose of the project. During execution and control, the team concentrate on doing the work within time, cost and specification. Now they must remember why they are undertaking the project; they are not doing the work for its own sake, but to achieve business benefit. It is very easy to complete the work within the constraints, and think that is a successful project, while failing to use the facility delivered to obtain the expected benefits which justified the money spent on it. There are a very small number of projects, mainly in information management (IM) where the facility is not utilized at all, and no benefit obtained. However, there are many where it is utilized to less than its full capacity, and the project team often do not see it as their responsibility to ensure that it is. They are more interested in their next project. At this time, the project team must also remember that it may be the closing stage of the project, but it is also the start of the operational life of the facility. Therefore, adequate mechanisms must be put in place to support the facility throughout its life.

As the project comes to an end, the team disbands. If the project is completed efficiently, the team may be run down over some time. As this happens, it is important to ensure that it is done in a caring way. Team members may have made significant contributions, or even sacrifices, to the success of the project. If this is not recognized, at best the project will end on an anticlimax, and at worst it will leave lasting resentment which will roll over into the next project. You must ensure that the team members are

given due reward for their contribution, and that the end of the project is marked appropriately.

Finally, there is data to be recorded or lessons learnt for the operation of the facility, or for the design, planning, estimating and management of future projects. Because the team's attention may be focused on completing the task and looking forward to the next project, this often remains undone. Completing records of the last project is a distraction from the next. It also costs money, and it is money spent after the facility has been commissioned. Therefore it provides no immediate benefit, and it is money which can be easily saved, especially if the project is overspent. However, it is precisely when a project is overspent that it is important to find out why that happened, so that the information can be used for the planning and estimating of future projects.

In this chapter, I describe how to bring the project to a timely and efficient completion. I then explain how to hand the facility over to the users, while ensuring that it is fully commissioned to obtain the benefits and that a proper support mechanism is put in place as it moves into its operational phase. I describe how to disband the project team in a caring way, and identify the key data to be recorded at the end of the project, how it is obtained and the purpose for which it is used. This is the second most critical stage of a project. Nobody remembers effective start-up, but everyone remembers ineffective close-out; the consequences are to be seen for a long time.

13.2 Finishing the work

As the project draws to a close, the team must ensure all work is completed in a timely and efficient manner. The following can aid this process:

- producing checklists of outstanding work to ensure all loose ends are tied up
- planning and controlling at lower levels of work breakdown to provide tighter control
- holding more frequent control meetings to ensure that problems are identified and solved sufficiently early
- planning the run-down of the project team as the work runs down to ensure that people are released for other work
- creating a task force with special responsibility for completing outstanding work
- closing contracts with suppliers and subcontractors to ensure that no unnecessary costs are booked
- supporting the project manager by a deputy with finishing skills.

As you approach the end of the project you begin to look at what tasks need to be done to complete outstanding work. Instead of waiting for a fortnight to find out what work has been achieved, you create daily lists of work to be done to complete the facility, hand it over to the client and commission it. This leads naturally to planning at a lower level of workbreakdown, and holding more frequent control meetings. At the end of a project, the risk of delay becomes greater, and so it becomes appropriate to review progress more frequently: weekly, daily or even twice daily. I said in Chapter 5 that whatever the frequency of control, that should be the average duration of activities, and hence you plan against shorter tasks. The checklists are just more detailed plans.

As the project nears its end, you will require fewer resources. This is what gives the S-curve its classic shape. However, to ensure the most efficient completion, you must plan the release of resources in advance. You do not want them turning up one day, and sitting around until you realize they are not needed, because that is inefficient for both the project and the organization as a whole. You must tell people one or two weeks in advance that they will not be required on a certain date. You must also tell the resource providers, so that they can make full use of their people when they are released.

As the teams run down, it becomes essential to combine the members into task forces, to retain natural *hunting* packs. These teams may be of about 6 to 15 people depending on the task at hand. Frame describes task forces created at the end of a project as *surgical teams*.¹ The reasons for this are twofold. People work best in teams of a certain size, and as the number of people reduce, the number of managers must be reduced, with teams merged. It is also natural to give the task forces checklists to complete, rather than spreading the work over disparate groups. Closing contracts with suppliers and subcontractors is another way of planning the run down of the project team (see Example 13.1).

The skills required to finish a project can be different to those required to start it up and run it. Therefore it may be appropriate to change managers in the final stage. However, if this change is to be seamless, the new manager must be a former deputy, who has been involved for some time. This approach was successfully adopted on the construction of the Sainsbury Wing of the National Gallery.

A delegate on a course told me he had been rung up by the accounts department two years after a project had been finished to be told it was overspent. He was asked what was he doing about it. He asked how this could be because the project had finished two years previously, it was underspent then, and no further work had been done. The accounts department said people were still charging their time. The

project manager said that there was nothing he could do to stop people charging time, and asked the accounts department why didn't they close the account numbers. They said it was against company policy, and it was his duty to make people stop charging their time! It wouldn't happen to Dilbert.

Example 13.1 Closing account numbers and contracts

13.3 Transferring the product

Key issues in transferring the facility to the users include:

PLANNING FOR THE TRANSITION

There must be a clear understanding of how responsibility for the facility is to transfer from the project manager to the operations manager. This will happen during the commissioning process, which, as we saw above, should be planned at a lower level of work breakdown than its fabrication.

ENSURING THAT THE USERS ACCEPT THE PRODUCT

I spoke in Chapter 6 about involving users in the decision-taking processes. That will win their acceptance of the specification of the facility. At the end of the project the users must be given the opportunity to agree that the facility meets that specification. On a strict contractual relationship, the owner should sign completion certificates to accept the product. When I worked in ICI, the operating works signed completion certificates, even when the plant was built by internal resources.

TRAINING THE USERS IN THE OPERATION OF THE FACILITY

The users will usually not be experts in the operation of the facility. They will therefore require training in its use. This should be planned as part of the project. Indeed, it is probably too late if it is not addressed until close-out. However, it is in this transition stage that much of the training takes place. Training will be in the use of the facility, but may also include simple maintenance procedures. Training can be a significant proportion of the cost of a project. When converting a typewriter factory to robotic manufacture, IBM spent 25 per cent of the budget on training.

ENSURING A DEFINITE CUT-OVER

The planned transition and signed completion certificates should result in a definite cut-over, at which responsibility is transferred, and final payments made (Example 13.2). It is also important from a safety point of view that there is clear ownership at the facility

I conducted an audit in a company which had taken 18 months to complete a contract, but they had not obtained sign-off three years later. The client was always finding fault, and had effectively had three years' free maintenance. At this point, the contractor switched the equipment off, and very quickly agreed a final snagging list and obtained sign-off.

Example 13.2 Signing-off completion certificates

RECORDING THE AS-BUILT DESIGN

To ensure ongoing efficient operation of the project's product, it is important that the as-built design is recorded. This requires the incorporation of all design changes into the final configuration of the product. This is part of the process of configuration management (Chapter 7). This is effectively now a legal requirement, under the CDM regulations. If an accident were to occur because the users were operating a design other than the one built, it would be viewed very seriously by the authorities.

ENSURING CONTINUING SERVICE OR MAINTENANCE OF THE FACILITY

The users may be able to undertake simple service or maintenance, and operating manuals may help them. However, it is usually ineffective, if not impossible, for them to become experts in the technology of the facility, and so it is necessary to ensure appropriate mechanisms are in place to provide back-up. This requires channels of communication between owner and contractor throughout the life of the facility. These channels should be defined as part of the hand-over. In the engineering industry, many contractors make little or no profit from construction of the facility, but large profits from its service. The construction contract is almost a loss leader to win the service contract.

13.4 Obtaining the benefits

Many project managers view their job as finishing when the facility is handed over to the users. However, obtaining the benefit from the project is the final step in the control process, undertaken at the top of the project hierarchy, the integrative level (Figure 1.10). Whether this final step is the responsibility of the project manager or project champion will depend on the circumstances, but it should be agreed as part of the project strategy at the start. It will probably be the champion who will be held accountable if the owner does not receive adequate return on their investment, and so the onus rests on the champion to ensure it happens. There are four steps in any control process (Figure 7.2):

PLAN RESULTS

From the start there must be a clear definition of the project's purpose and the benefits expected from the operation of the facility. This is a clear statement of the criteria by which the project will be judged to be successful, stated as part of the project strategy.

MONITOR ACHIEVEMENT

Following commissioning, the expected benefits must be audited. If the facility is an IS system, you must check whether it is delivering the expected returns. For example, if it is a manufacturing planning system, you must check to see whether the inventory is falling, the work in progress is falling, and the lead times are being reduced, as predicted. Often, after the system is commissioned, no noticeable change is achieved. If the facility is a new product, you must check to see whether the predicted levels of sales are being achieved. If it is a management training programme, you must check to see if there is any noticeable improvement in management performance. (The last of these is the most difficult to check.)

CALCULATE VARIANCES

Determine the cause of any difference between the expected benefits and those obtained. This requires measuring the revenue stream and profitability of the project. The cause may be that the users are not using the product to its full capacity, either deliberately or inadvertently.

TAKE ACTION

Hopefully a small amount of fine tuning of the design of the facility, or a small amount of additional training of users is all that is required to achieve the actual benefit. Projects involve considerable risk, because they are novel and unique, and so it is quite likely that the design carried some small imperfections which can be very easily corrected. Sometimes, improvement will require another project. (That was why the problem-solving cycle (Figure 1.6) was drawn as a circle.)

13.5 Disbanding the team^a

Over the last three sections, I concentrated on work-related and strategic issues of close-out. However, the team members may face the end with mixed feelings. The cycle of team formation and maintenance (Figure 11.1) showed the team going into mourning at the end of the project, and performance dropping. It can rise as the team look forward to new opportunities, or drop if they face unemployment. This can impact badly on

them and the project. It is the task of both line and project managers to manage this emotional response, so that staff are retained and reintroduced into the normal work environment. When considering the motivation of project staff, it must be remembered they belong permanently to the organization and only temporarily to the project. This means that while the project may not need the staff once their contribution has finished, the organization for which they work may value the team members even more because of new skills they learned and may want them for future projects. Retaining project team members is vital, and so the process of disbanding the project team must be managed in a caring way. Key elements in this process include:

PLANNING THE RUN-DOWN OF RESOURCES IN ADVANCE

This, as explained above, is important to achieve an efficient end to the project. It is also important for the motivation of the project team. People feel more motivated to complete their work if they know they are to be transferred immediately to new work. That is only possible if their release has been planned, so that their line managers have been able to plan their future work.

RETURNING RESOURCES PROMPTLY TO THEIR LINE MANAGERS

The organization gets the optimum use of its resources if they are returned promptly to normal duties after completion of the project. Line managers of people seconded to the project are more likely to treat future requests for resources favourably if those people are used efficiently, which means releasing them at the earliest possible opportunity.

END-OF-PROJECT PARTY

The use of 'festivals' is an important motivator on projects. They should be used to mark important project milestones, especially the end of the project. The difficulty is choosing the timing of a party, so that the maximum number of people can come before being dispersed to new jobs, but when they actually have something to celebrate.

DEBRIEFING MEETING

A project close-out meeting can be as important as a launch meeting, as part of the life cycle of the project team. It marks the end of the period of working together, and allows people to show their grief, or frustration, or pleasure at having been a member of the project (Example 13.3).

I worked on the overhaul of ammonia plants in the early 1980s. We held a debriefing meeting after each overhaul. They served a useful purpose of allowing us to let off steam in advance of the next overhaul. For the four weeks of each overhaul, we used to suspend our feelings, to allow work to progress. We would talk to each other bluntly about what work we wanted done, what it would take, and how we felt about having been let down. It was necessary to make progress in the intensity of the overhaul. In the process, feathers got ruffled, but we had to bite our lips and get on with it. At the debriefing meeting, it all came out; we said all the things we had bottled up for four weeks. It was all laid bare, forgiven, and we were ready to start afresh on the next overhaul.

Example 13.2 Releasing frustration at debriefing meetings

REWARDING ACHIEVEMENT

The team members are likely to react favourably to future requests to work for the project manager if their contribution to the project is suitably rewarded and praised. End-of-project festivals are part of that. However, it is equally important that a person's achievement is recognized by those who matter, especially the manager who is to write the individual's annual appraisal, so that the person's contribution to the business can be recognized. An important part of this process is winning the appraising manager's commitment to the project, so that he or she views a contribution to the project as an important achievement during the year.

DISCIPLINING UNDER ACHIEVEMENT

It is also important to discipline poor performance on a project so that good performers do not feel that their effort was in vain and that the poor performers know how to improve in the future. For this latter reason, the disciplining process should be treated positively, guiding people how to perform better in the future. Of course, it might be possible to take corrective action during the project, so the earlier this is done the better.

COUNSELLING ALL STAFF

The fifth stage of team development is mourning, as the project fades into history and the team with it. This is not very good for the ego or self-esteem of the team members who find that overnight they may be reduced to 'has-beens' unless they go immediately to another project or line job. For those who are not so lucky, a counselling session can be of tremendous value. While this may incorporate some of the activities mentioned above, it often encompasses much more. For example:

- it offers a chance for the individual to review career objectives
- it offers scope for skills consolidation in the form of theoretical training to supplement the practical experience
- it shows caring by the organization, which is perhaps the key factor in the whole exercise.

Recalling the case in Example 6.1, perhaps the individuals should have been given counselling well before the end of the two-year period, into planning their re-entry into the line organization. The individuals could then have taken responsibility for their own career development, and perhaps have found opportunities for themselves within the organization where their new skills would have been of great value.

13.6 Post-completion reviews

The control process at the top level of the project hierarchy (Section 12.8) might seem to be the point to stop. However, there is a level in the corporate hierarchy above this (Figures 1.10 and 2.4). We also need to control at this level. The data gathered at this level include:

- as-built design (final configuration)
- a comparison of final costs and benefits for feeding back to the estimating process, and to the selection of future projects
- a record of the technical achievement on the project for feeding back to the design and selection of future projects
- a review of the successes and failures of the project and the lessons learned, for feeding back to the management of future projects.

There are several ways of reviewing the success and failures of projects, but two include debriefing meetings and post-completion audits.

DEBRIEFING MEETINGS

I have already described the role of these in disbanding the project team. It is worth while on most projects to hold a meeting of all people who attended the project launch workshop to review the assumptions made. This meeting may last from two hours to a day depending on the size of the project. On particularly large projects they may amalgamate up from a low level, reversing the cascade of project launch workshops.

POST-COMPLETION AUDITS

On large projects it may also be worth while to conduct a post-completion audit. This is a formal review of the project against a checklist. An audit is often conducted by external consultants. It is also common only to audit

projects which have gone radically wrong. However, better lessons are often learned from successes, so it can be useful to audit projects which have gone well. I describe the holding of audits more fully in Chapter 16.

13.7 Summary

1. The key requirements for effective project close-out are
 - finishing the work
 - transferring the product to the users
 - obtaining the benefits
 - disbanding the team
 - reviewing progress.
2. The work must be finished in a timely, efficient manner. The following can aid this:
 - checklists of outstanding work
 - planning and controlling at lower levels of work breakdown
 - more frequent control meetings
 - planned run-down of the project team
 - use of task forces
 - changing the project manager
 - closing contracts with suppliers.
3. Effective transfer of the product to the users is facilitated by:
 - planning the transition
 - ensuring user acceptance
 - training the users
 - obtaining definite cut-over
 - recording the as-built design
 - ensuring maintenance of the facility.
4. The facility must be commissioned to obtain the required benefit, and this can be controlled by:
 - setting a measure
 - monitoring performance against the measure
 - calculating variances
 - taking action to overcome variances.
5. The project team must be disbanded in an efficient manner, and yet in a way that takes care of their motivational needs. This can be achieved by:
 - planning the run-down
 - returning resources promptly to line managers
 - holding an end-of-project party
 - holding a debriefing meeting
 - rewarding achievement
 - disciplining under achievement

- counselling staff.
- 6. Post-completion reviews must be held to:
 - record the as-built design
 - compare achievement to plan
 - record technical data
 - learn successes and failures for the future.

Reference

1. Frame, J.D., *Managing Projects in Organizations*, Jossey Bass, 1986.

Note

- a. Section 13.5 incorporates material from the first edition based on a contribution originally made by Dr Mahen Tampoe, associate of Henley Management College.