# apmKNOWLEDGE

Introduction to
**Project Control**

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# Introduction

The *APM Body of Knowledge, 5th edition*[1] defines a project as:

> "A unique, transient endeavour undertaken to achieve a desired outcome."

The *APM Body of Knowledge, 5th edition* defines project management as:

> "The process by which projects are defined, planned, monitored, controlled and delivered so that agreed benefits are realised."

The project management 'process' is a combination of numerous individual processes, many of which relate to the subsidiary discipline of project control. Much of what a project manager does is directly or indirectly related to project control, but the *APM Body of Knowledge, 5th edition* does not explicitly define project control and it is rather difficult to arrive at a concise definition. One possible definition of project control is:

> "The application of processes to measure project performance against the project plan, to enable variances to be identified and corrected, so that project objectives are achieved."

This covers the 'monitored' and 'controlled' elements of project management as defined by the *APM Body of Knowledge, 5th edition* and essentially means "making sure projects are done right". However, there is more to it than that. This publication proposes that an equally important part of control is "doing the right projects", both individually and in programmes and portfolios. This ensures that the projects which are undertaken by an organisation:

- deliver the right products, thereby;
- contributing to the required new capabilities, and hence;
- providing the desired benefits to the organisation.

A wider definition of project control is therefore:

> "The application of project, programme and portfolio management processes within a framework of project management governance to enable an organisation to do the right projects and to do them right."

To achieve this, project control operates across a spectrum from the tactical to the strategic, involving much of the overall discipline of project management

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[1] Association for Project Management (2006) *APM Body of Knowledge, 5th edition*, APM Knowledge, ISBN: 978-1-903494-13-4

and involving most of the individual project management disciplines represented by the APM Specific Interest Groups (SIGs).

Since so much of project management is involved in project control, the *APM Body of Knowledge, 5th edition* naturally includes many control-related topics. This publication draws heavily on these topics, developing them and integrating them in an attempt to deliver a comprehensive introduction to the discipline of project control.

Some of the topics are already explored in detail in other APM publications and many of these are therefore referenced. It is not the aim of this publication to reproduce the content of these other publications in any depth, but to say enough to provide an integrated view of control. The definitions used and principles addressed here are broadly consistent with the *APM Body of Knowledge, 5th edition* and with the other APM publications, though some tailoring has been necessary to highlight control principles.

APM's Planning SIG (Annex D) has a particular interest in project control as a natural extension of project planning, which it addresses in the APM publication *Introduction to Project Planning*.[2] The APM Planning SIG believes that effective planning and control are both essential for successful project management. It believes that truly effective control is only possible when effective planning has been undertaken. The ability to control is a consequence of good planning and makes planning an investment rather than just a cost. But the ability to control is also a consequence of the other project management disciplines working properly and so it is probably correct to state that, apart from a few unique elements, project control is a virtual discipline drawing on the others.

Virtual discipline or not, the purpose of this publication is to raise awareness of project control, highlighting its dependence on planning and its relationship with the other project management disciplines. It should be of interest to those new to project management, and hopefully also to the project management community in general and in particular to planning and control practitioners.

This publication addresses five key questions:

1. What is project control?
2. Why control?
3. When to control?
4. Who controls?
5. How to control?

It also defines the characteristics of good project control. It does not include detailed treatment of control tools and techniques, several of which are

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[2] Association for Project Management (2008) *Introduction to Project Planning*, APM Knowledge, ISBN: 978-1-903494-28-8

addressed in detail in the other APM publications. The APM Planning SIG anticipates building on its introductions to planning and control by developing in-depth guides, which will contain detailed treatment of tools and techniques used in both planning and control, where not already addressed by APM.

# 2
# What is project control?

## 2.1 PRINCIPLES

Even the simplest human endeavours require control. Consider, for example, a cycle trip. A cycle trip, however simple, is a unique, transient endeavour; even if you've done similar trips many times before, one of a host of factors may have changed – the weather, the road conditions, the traffic, etc. This time, the weather forecast is for torrential rain, but even so, a loved one needs you to make the trip faster than ever before to bring back some chocolates before a particularly good film starts on TV at 8 o'clock. The core work of this 'project' is pedalling the bike, but a bike is unstable; just riding it requires constant attention to both balance and steering, but you also have to avoid obstacles and navigate. Projects are like cycle trips. They'll take you to your objectives, but only if you stay in control, and it's necessary to stay in control in order to avoid a nasty crash.

  Project managers must ensure they control their unique, transient and unstable projects in order to achieve their objectives. Most of what a project manager does during the life of a project has a 'control' element to it: leading the project team, running meetings, managing stakeholders, etc. A lot of these activities rely on leadership skills such as effective communication, influencing, negotiation and conflict resolution (such skills are generally described as 'soft', but they certainly aren't *easy*.) The project manager also needs to employ 'hard', quantitative control processes and it is these that are the main focus of this publication. These processes address all three project dimensions – quality, time and cost, and therefore include all of the following:

- Controlling the scope of the project – controlling change.
- Ensuring that the project's products/deliverables fulfil their requirements – controlling quality.
- Ensuring that activities happen on time – scheduling.
- Ensuring that work is performed within budget – cost control.
- Managing risks.
- Managing problems and identifying issues (and obtaining external help to resolve them).
- Making sure that the project leads to benefits for the organisation.

The control processes involve the collection and analysis of data, the identification of trends and variances, forecasting and the reporting of progress. It is also essential that the information gathered is acted on – without effective responses to actual and potential problems, the project is merely monitored,

not controlled. Control is certainly *not* just about control tools or software, although these are generally necessary to carry out some of the control processes. Neither should control be facilitated only by specialist project control personnel: it must be owned and driven by the project manager with involvement of the project team, the project's sponsor, other stakeholders in the organisation and possibly external stakeholders too.

## 2.2 THE SPECTRUM OF CONTROL

Bicycles are unstable and require continuous real-time control through balance and steering. But making a successful bike trip also requires the bike to be guided around obstacles and to the destination, without getting lost. You control a cycle trip with a combination of reactive and predictive processes. The processes require feedback via balance, sight and sound; some are routine and have become instinctive through experience (like balance); others require conscious attention (like navigation). There is a spectrum of control processes in operation, within which are processes that can be characterised as *inner loop* or *outer loop*.

The inner loop control processes are high-frequency feedback processes operating in real time, and include:

* balance – to stay on the bike;
* vision – to aid balance and to avoid other traffic and obstacles;
* hearing – to sense other traffic;
* kinaesthesia (muscle sense) – to control movement.

The inner loop processes tell you that you're going the right way and pedalling fast enough to be home with the chocolates before the film starts. They also warn of risks (i.e. large lorry overtaking) and problems (i.e. it's started to rain, I've had a puncture and just fallen off).

The outer loop control processes are lower frequency, and may not operate in real time; in the bike trip example, they're mostly associated with decision making and some of them operate before the journey begins, for example:

* choice of destination;
* choice of route;
* choice of transport;
* choice of equipment;
* whether or not to continue.

The inner loop processes are generally applicable to *all* bike trips. They help a particular trip stick to its plan and flag up problems in achieving the plan (e.g. punctures). The outer loop controls are more trip-specific, ensuring that the plan for the trip is optimum, in the light of experience of numerous other bike trips, and if necessary revising the plan in response to trends and events in the journey.

| More reactive | | More proactive |
|---|---|---|
| Higher frequency | | Lower frequency |
| More informal | | More formal |
| Internal to the project | | External to the project |
| Project | Portfolio/programme | Business |
| More tactical | | More strategic |
| Doing the project right | | Doing the right project |
| 'Control' processes | | 'Management' processes |
| 'Inner loop' processes | | 'Outer loop' processes |
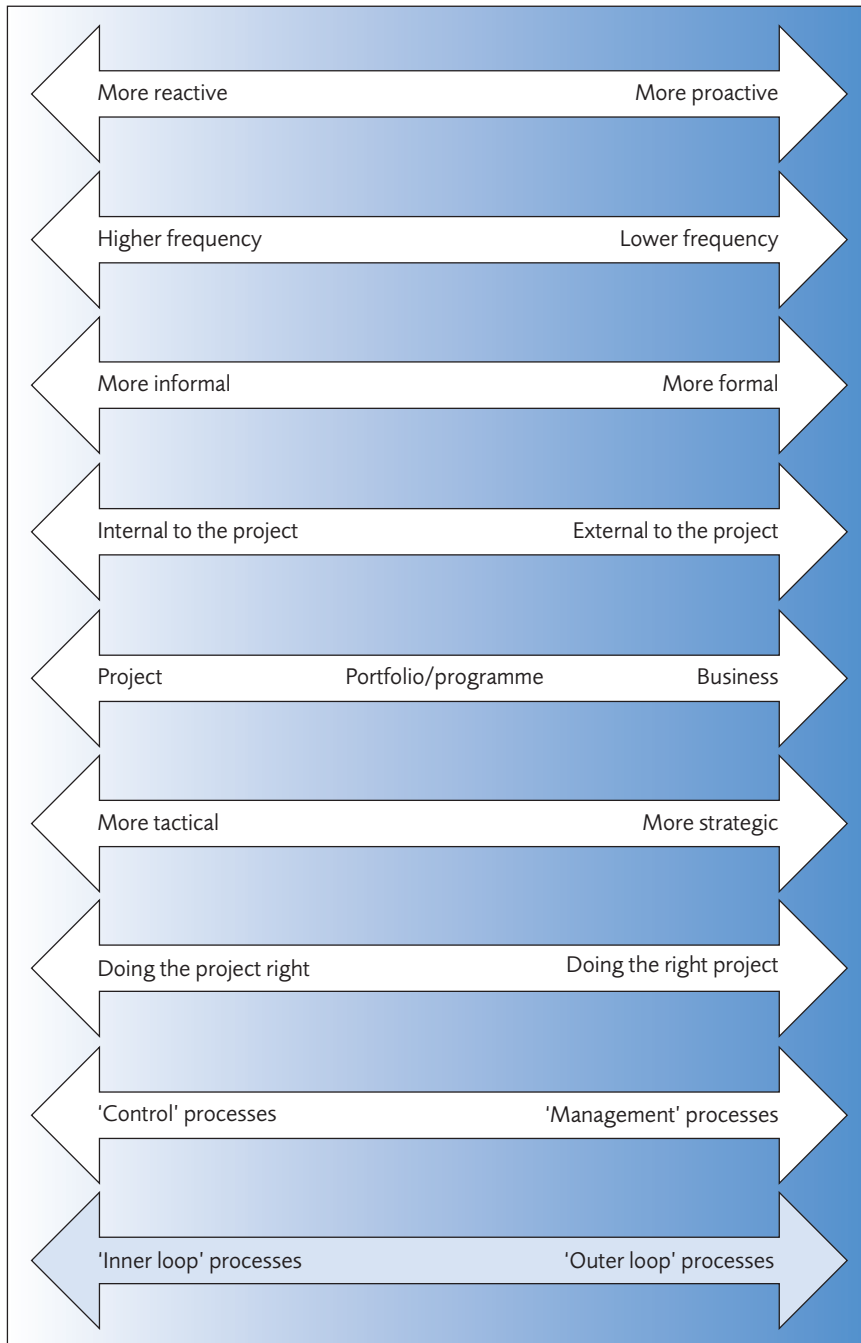
**Figure 1: The spectrum of control**

# 4
# When to control?

## 4.1 THE PROJECT LIFE CYCLE

A project is a transient endeavour with a start and a finish, and between these events it goes through several distinct phases which constitute the project life cycle. The focus of project management in general and of project control in particular changes from phase to phase, so an understanding of the life cycle is vital. Some organisations fail to distinguish the phases or skimp some of them, to the detriment of effective project management. Not all projects make it all the way through the life cycle; some projects should not be implemented at all because their business cases are inadequate and others may have to be terminated because of changing circumstances or poor performance.

Each project is unique but there is much commonality between the life cycles of projects. It is possible to define and apply a generic life cycle to an organisation's projects. Life cycle management ensures adherence to the organisation's life cycle model and brings rigour and discipline to the organisation's projects.

The project life cycle model in the *APM Body of Knowledge, 5th edition* consists of the following phases: concept; definition; implementation; handover and closeout. The *APM Body of Knowledge, 5th edition* regards handover and closeout as a single phase and notes that some projects are extended to include operation and termination phases. *Termination covers the disposal of project products/deliverables at the end of their useful life.* Logically, closeout should be the last phase of the project, whatever phases precede it, so here closeout is shown as a phase in its own right, separate from handover (Figure 6A).

This publication uses a modified life cycle model consisting of concept, definition, mobilisation, implementation and closeout phases, and features a pre-project initiation phase (Figure 6B). The initiation and mobilisation phases are introduced because of their importance to project control, having distinct control needs different from the other phases. Mobilisation *could* be regarded as the first stage of the implementation phase, but insofar as closeout is regarded as a separate phase, it seems appropriate to regard mobilisation as one too. In this alternative life cycle model, product realisation, handover, operation and disposal are considered to be stages of the implementation phase. Disposal deals with decommissioning and removing products from operational use: disposal (stage) is used in place of termination

(phase) because here 'termination' is taken to mean stopping a project before its normal finish. After initiation, a project starts at the beginning of the concept phase and normally finishes at the end of the closeout phase, after full implementation. A *terminated* project is stopped early, omitting some of the phases or stages, but nevertheless should be properly closed out. Such a project should contain important lessons for the organisation.

Figure 6A: *APM Body of Knowledge*, *5th edition* project life cycle (including phases of the extended life cycle)

| Concept | Definition | Implementation | Handover | Operation | Termination | Closeout |
|---------|-----------|----------------|----------|-----------|-------------|----------|

Figure 6B: Project life cycle – alternative model

| Initiation | Concept | Definition | Mobilisation | Implementation Product realisation + handover (+ operation) (+ disposal) | Closeout |
|------------|---------|-----------|--------------|---------------------------------------------------------------------------|----------|

Project started

Pre-project

Project finished

| Identification | Pursuit | Bid | Execute contract |
|----------------|---------|-----|------------------|

Figure 6C: Contract life cycle

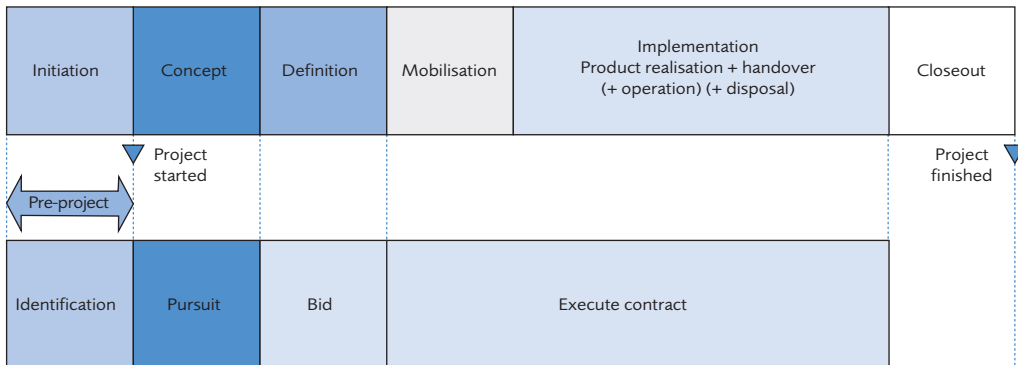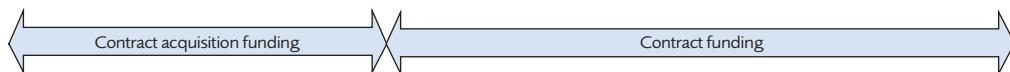| Contract acquisition funding | Contract funding |
|------------------------------|------------------|

**Figure 6: Project life cycle models**

Where an organisation is undertaking projects for clients, and probably having to obtain contracts for those projects by competitive tendering, the project life cycle runs in parallel with a contract life cycle. In the contract life cycle an opportunity is first identified, then pursued and bid for; if the bid is successful a contract is then executed (Figure 6C). Organisations must generally spend internal contract acquisition funds ('marketing' and 'bidding' funds) on identification, pursuits and bids. If a contract is obtained at the end of a successful bid, the beginning of project mobilisation generally marks the transition from the use of internal funds to the use of external funds provided under the contract. After deductions for business costs (such as future marketing and bidding) and profit, the contract funding provides the project budget, which covers the costs of the project's mobilisation, implementation and closeout phases.

## 4.2 CONTROL ACTIVITIES IN EACH PHASE

The outer loop control processes wrap around all projects and operate for as long as an organisation is undertaking projects. The inner loop control processes reside within individual projects but apply selectively in different phases of the project life cycle. Project control is fully applied during the implementation phase, which is usually the longest and most costly phase of a project. The initiation phase is pre-project, so there's no inner loop control; the outer loop life cycle management and portfolio/programme management processes control the initiation phase. Inner loop control is necessary during the other life cycle phases, in full during implementation and with appropriately reduced application during the other phases (Figure 7).
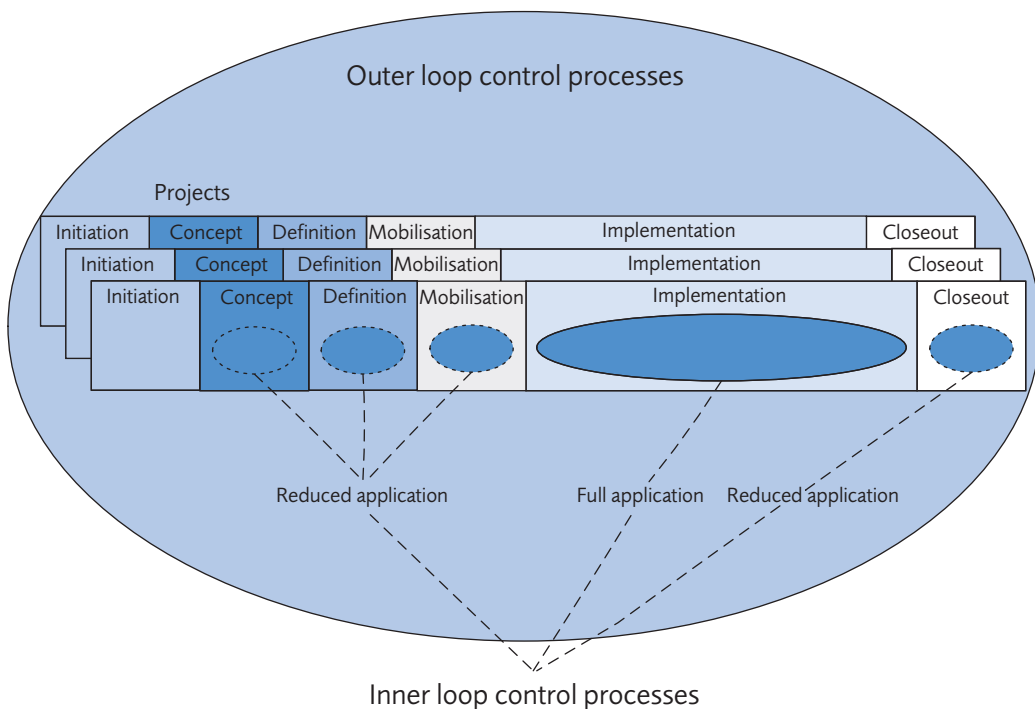


**Figure 7: Application of control processes**

### 4.2.1 Initiation phase

Initiation is a generally short pre-project phase which enables the organisation to confirm the need for a project. The need may arise either:

- within the organisation: as a result of a need for change, perhaps as part of a programme; or
- externally: through the identification of a potential business opportunity.

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