

## CHAPTER 16

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# Managing Risk in Programs

**P**rojects rarely exist in isolation. They often form part of a wider program of work, and programs and projects in turn can be organized into portfolios. The project management world has recently been extending its interest into management of programs and portfolios. For example, the Project Management Institute (PMI®) produced the first issues of its *Standard for Program Management* and *Standard for Portfolio Management* in 2006, and second editions were produced in late 2008. In the same time frame, the UK Office of Government Commerce (OGC) revised its *Managing Successful Programs* standard to a third edition. Major organizations have started to think about how to manage projects, programs, and portfolios in an integrated way, through a method that is sometimes called P3M, and some have started to implement this approach.

While ATOM is clearly targeted at managing risk in projects, it is important to see how it interfaces with the program level. This chapter explores the specific characteristics of program risk management, drawing on current thinking and practice, and explains how elements of the ATOM approach can be applied to management risk.

## From Projects to Programs

Projects are recognized as an effective means to deliver value to a business, which has led to the establishment of project management as a mature discipline (some would say a profession). Project-based organizations are now seeking ways to organize their delivery of projects in the most effective manner, resulting in the emergence of program management and portfolio management. Both of these disciplines offer frameworks for structuring project work and relating it to the needs of the business. However, neither program management nor portfolio management have yet reached the level of maturity attained by project management. Here we will concentrate on the program level since it is closest to projects and therefore most relevant to ATOM.

There is clear consensus that organizations will reap benefits by managing their projects in a coordinated manner, and that program management offers a framework for doing that. Unfortunately, the precise details of program management are not yet defined in a way that is accepted

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by all. Everyone agrees, however, that programs are risky undertakings, so risk management must be an integral part of how programs are managed. However, since there is no current consensus on the fundamentals of program management, it is not surprising that program risk management is even less well defined. We will start by briefly outlining program management basics, then discuss the elements necessary to ensure effective management of risk at the program level.

### Program Management Basics

At the most fundamental level, the immaturity of program management as a discipline is illustrated by the varying definitions of the word “program(me)” (and even its spelling!), as well as the varying understandings of the purpose of program management. Figure 16-1 presents definitions from leading program management standards and guidelines.

Despite the obvious differences in these definitions, there is wide agreement that programs exist at a higher organizational level than projects, and that their purpose is to deliver strategic benefits. It is also clear that the scope of programs is broader than just the sum of their constituent projects. More significantly, the objectives of a program are not simply the sum of the objectives of the projects within that program, since program objectives relate to the strategic goals of the overall organization. Some people would say that in simple terms, project objectives are tactical and relate to deliverables, while program objectives are strategic and focus on the delivery of benefits.

Much more could be said about the nature of programs and the role of program management. However, the aim of this chapter is to consider specifically how risk can and should be managed in the context of programs. It is axiomatic to say that programs are risky, and that risks need to be managed proactively, but how? Perhaps one option is simply to take the ATOM

| SOURCE                                     | PROGRAM(ME)                                                                                                                                                                                                                                        | PROGRAM(ME) MANAGEMENT                                                                                                                                                                                                                                  |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PMI Standard for Program Management (2008) | A group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually. Programs may include elements of related work outside of the scope of the discrete projects in the program. | The centralized coordinated management of a program to achieve the program's strategic objectives and benefits.                                                                                                                                         |
| OGC Managing Successful Programmes (2011)  | A temporary, flexible organization created to coordinate, direct, and oversee the implementation of a set of related projects and activities in order to deliver outcomes and benefits related to the organization's strategic objectives.         | The action of carrying out the coordinated organization, direction, and implementation of a dossier of projects and transformational activities (i.e., the programme) to achieve outcomes and realize benefits of strategic importance to the business. |
| APM Body of Knowledge (2006)               | A group of related projects, which may include related business-as-usual activities, that together achieve a beneficial change of a strategic nature for an organisation.                                                                          | The coordinated management of related projects, which may include related business-as-usual activities, that together achieve a beneficial change of a strategic nature for an organisation.                                                            |

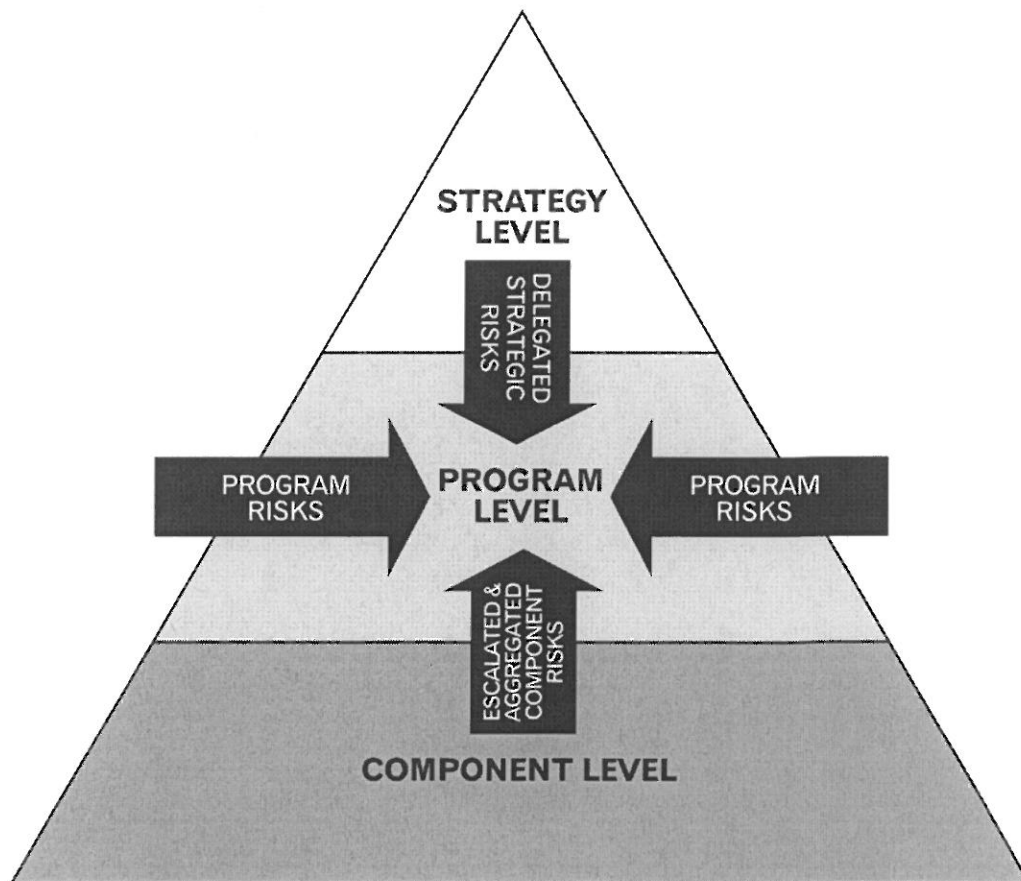
**FIGURE 16-1:** Definitions of Program(me) and Program(me) Management

project risk management approach and apply the same process at a higher level? But just as programs are not just large projects and program management is not the same as project management, so program risk management is different from project risk management. Program risk management has a different aim and scope, and follows a different process, which requires different techniques. These are addressed in the following sections.

## Aim and Scope of Program Risk Management

The aim of program risk management is to manage risks at program level. However, this is not as simple as it sounds. A risk can be defined generically as “an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more <> objectives.” Inserting the word “project” at the point marked <> gives a specific definition of project risk. It is also possible to define other types of risk by inserting other words, including *strategic*, *technical*, *environmental*, or *personal*. Similarly, a program risk can be defined as “an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more program objectives.”

Since programs sit between projects and organizational strategy, there are three potential sources of risk that could affect a program. Risks could arise at program level from three directions, as illustrated in Figure 16-2, namely up from the components of the program, down



**FIGURE 16-2:** Sources of Risks at the Program Level

from organizational strategy level, or sideways from the program level itself. The scope of program risk management must include all three sources of risk.

### Risks Escalated or Aggregated from Below

Program risks are not simply the sum total of project risks. There are four ways in which risk at program level arises from program components.

1. Programs contain projects, and projects are risky, so at least some of the risks that can affect the program will come from within the projects that constitute the program. Of course, not all project risks are relevant at the program level, so escalation criteria are required that will define the thresholds at which a project risk should be passed up to the program level. These criteria need to include project risks with program-level impact as well as project risks requiring program-level responses. As a result, individual project risks that were identified through the ATOM process (or other project risk management approach) and then escalated will appear as program-level risks.
2. It is also necessary to be able to aggregate project risks, where a number of similar and related risks at the project level might combine to create a program-level risk, either by simple summation (ten insignificant project risks may equal one significant program risk) or as a result of synergy (the whole may be greater than the sum of the parts). The risk categorization steps in the ATOM Assessment step facilitate such aggregation by identifying commonalities and possible synergies. A generic program-level risk breakdown structure (RBS) may be used for this purpose.
3. ATOM distinguishes at the project level between individual "risk events" and overall "project risk." *Overall project risk* represents the effect of uncertainty on the project as a whole, which is more than the sum of individual risks on a project. And, of course, project risk (or the risk of the project, as distinct from the risks in the project) can have an impact at the program level and must therefore be considered within the scope of program risk.
4. It is also important to remember that programs can contain non-project components (see Figure 16-1), so risks may also be escalated and aggregated to the program level from these program elements and not just from projects.

### Risks Delegated from Above

Programs exist to deliver benefits, which are aligned with the organizational strategy, and there are strategic risks associated with the overall direction of the organization. While many strategic risks can and should be addressed wholly by the senior leadership of the organization, some will have implications for those programs that are used to deliver the strategy and create the business benefits. Strategic risks that can affect program objectives or that require program-level action will need to be delegated. This requires well-defined delegation criteria and thresholds as well as clear channels of communication to ensure that management of strategic risks delegated to the program level is reported back to senior management. The goal is delegation without abdication.

## Risks Arising at Program Level

In addition to risks escalated from below or delegated from above, programs are affected by specific uncertainties at the program level. These include both threats and opportunities across the full range of risk types, including technical, management, commercial, and external risks. Program-level risks fall into two main categories: those arising from interfaces between program components, and “pure” program risks relating to the execution and management of the program itself.

## Managing Program Risk

It is a common misconception to limit the understanding of program risk management to the need for a structured risk process at the program level. While this is one part of the solution to the challenge of program risk, it is not the first, and perhaps not the most important. In the same way that there are two levels of risk affecting projects, namely overall project risk (“risk”) and individual risk events (“risks”), program risk management should occur in two main ways: implicit (addressing overall “program risk”) and explicit (tackling individual “program risks”).

### Implicit Program Risk Management

Overall “risk” can be managed implicitly at the program level through the inherent structure of the program itself. This occurs at two levels: component selection and program execution.

1. The components of the program should be selected in order to maintain risk exposure at a level that is consistent with organizational risk appetite while offering the required return to the business. Some people recommend a “risk efficiency” approach for project risk management; this is clearly also applicable to program management, particularly in relation to the selection of program components. This element of the management of program risk must be closely linked to the overall strategic risk process of the organization, which will determine the selection criteria for program components. The level of overall project risk exposure for each constituent project within the program will form a key input to this analysis, and quantitative risk analysis techniques may be useful at this point. Overall program risk should be reviewed and monitored on a regular basis throughout the program life cycle as part of the routine management of the program, and the composition of the program should be adjusted as necessary in order to maintain an acceptable level of overall risk exposure within the program.
2. Programs are usually divided into chunks or tranches in order to provide incremental delivery of useful packages of benefits. This division of a program parallels agile or lean project development methodologies and is intended to reduce the overall risk exposure of the program. Risk can be reduced by decoupling the tranches and creating so-called “islands of stability.” This allows the program to be executed in cycles, interspersed with periods of stability when benefits can be examined and quantified and the next chunk can be planned in detail. Programs should be structured with built-in flexibility and resilience in order to allow the content of future tranches to respond to the current level of risk exposure.

## Explicit Program Risk Management

In addition to managing “risk” implicitly at the program level, there is a requirement to explicitly manage “risks” that emerge during the execution of the program. This requires a structured program risk management process analogous to the ATOM project risk management approach, which must iteratively identify risks, assess their significance and importance, develop appropriate responses, implement those responses, and monitor subsequent changes.

Many program management guides and textbooks limit their descriptions of risk management to this type of explicit risk process, and most simply recommend adopting or adapting the methods of project risk management. While the structure of the program risk management process matches that used for projects, it is not possible simply to use the ATOM process unchanged at the program level. There are some important differences, as outlined below.

- **Initiation.** This step launches the risk process for the program and defines the scope of the risk process, within which risks will be identified. Risk thresholds are set against each of the major program objectives, against which risks will be assessed (a benefits breakdown structure may be used for this purpose). Criteria are agreed upon for risk escalation, aggregation, and delegation, as discussed above. Process parameters are defined, including roles and responsibilities and review and reporting requirements. This is initially performed at program launch but should be revisited at key points during the program life cycle, to ensure that the program risk process responds to the changing risk profile associated with the evolving and emergent nature of programs. Initiation decisions should be documented in a Program Risk Management Plan.
- **Identification.** Before the program is launched, the level of overall program risk will have been identified and assessed, using the implicit risk management techniques discussed above. Individual program-level risks should also be identified as part of the explicit program risk management process, both on a regular basis and ad hoc as they arise, taking into account the three routes by which such risks arise (see Figure 16-2). Risks may be escalated or aggregated from lower component levels, or delegated from higher strategic levels, and the program requires clear criteria to determine whether these should be accepted for management at the program level. In addition to these, the usual risk identification techniques, such as brainstorming, checklists, assumptions and constraint analysis, and Delphi groups, can be used to find program-level risks. Risk identification at program level should seek both threats and opportunities, and should consider the full range of potential risk sources defined in the program risk breakdown structure. Risks will be recorded in a program Risk Register.
- **Assessment/Quantitative Risk Analysis.** Identified risks should be assessed and prioritized based on their probability and their impact on program objectives. Risks escalated or aggregated from the component level and those delegated from the strategic level will need to be reassessed against program-level risk thresholds to allow them to be prioritized on a common basis.

Quantitative risk analysis techniques can be used to provide an overall assessment of program risk exposure, combining the effects of all types of risk at the program level and