

Program and Project Management: Understanding the Differences

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Introduction

It is quite common for the terms “program management” and “project management” to be used interchangeably. Unfortunately, this serves to reinforce the misunderstanding of the distinctions between the two disciplines, and to overshadow the importance of program management in the achievement of business objectives. Volumes have been written about project management in the past two decades, but little has been written about program management besides an occasional vague reference to program management as the “management of multiple projects” (or worse yet, writings that confuse program management with portfolio management). Viewing program management from a project management mindset in order to make it fit the project paradigm is a fundamental flaw in thinking, but one that is pervasive across many industries.

In the paper "Program Management: Linking Business Strategy to Product and IT Development"¹, we discussed program management as a proven discipline which effectively links multiple project outputs to strategic business objectives. In this article we will dive deeper on this subject by describing the distinction between the strategic nature of program management and the tactical nature of project management, demonstrating what it really means to "manage multiple projects", and how program and project management are utilized in conjunction to deliver high impact products in the high technology industry.

Program and Project Management

Program management and project management are related but distinctly different disciplines. It is important for everyone within the organization to understand the distinction between the two in order to link project output to business strategy and to integrate the efforts of multiple project teams to achieve a common set of business goals.

We feel the three most important distinctions between program and project management are the following:

1. Program management is strategic in nature, while project management is tactical in nature. Within our companies, Intel Corporation and Tektronix, Inc., program management focuses on achievement of the intended strategic business results through the coordination of multiple projects. Project management in contrast focuses on the tactics of planning and execution of the work output. With this, program managers must augment their project management and technical skills with core business, strategic and leadership skills.
2. Program management is entirely cross-functional, while project management focuses on a single function, or limited cross-functional alignment at best. It is typical for the program manager to manage *across* the various functions of an organization such as engineering, marketing, finance, validation and customer support. Project managers typically manage a team *within* one of the functions on the program.

3. Program management integrates the individual elements of the projects in order to achieve a common objective. Later in this article we will demonstrate how the work effort and deliverables from multiple project teams such as hardware development, software development, mechanical development and manufacturing are integrated to develop and launch a new personal computer product.

Additional distinctions between program and project management are shown in Table 1.

Program Management	Project Management
Business and technical in nature	Technical in nature
Aligned to strategic objectives of business	Aligned to the strategy and goals of the program
Assures the work effort remains feasible from a business standpoint	Assures the work effort generates desired deliverables on time, within budget and at required performance levels
Focus on the interdependencies between the projects and feasibility of the deliverables	Focus on the deliverables, milestones, and tasks for a single project
Risk spread across the projects and concerned with probability of business and technical success	Risk contained within a single project and concerned with probability of technical success
Ensures consistent use of common processes across the projects	Focus on effective execution of processes on a project
Broad range of project management, business, and leadership skills required	In-depth project management and technical skills required

Table 1: Program Management vs. Project Management

Delivering the "Whole Product"

To explore further, let's consider the concept of the "whole product". The program management function is responsible for the delivery of the whole product to the customer and for achievement of the intended business results, such as product quality, increased revenue and market share. The project management function is responsible for the delivery of a single element of the whole product, and for ensuring the delivered element integrates with all other elements. For example, Figure 1 shows five primary elements involved in the development of a personal computer product. Other functions such as system architecture, product marketing, quality, customer support and finance are not shown for the sake of simplicity.

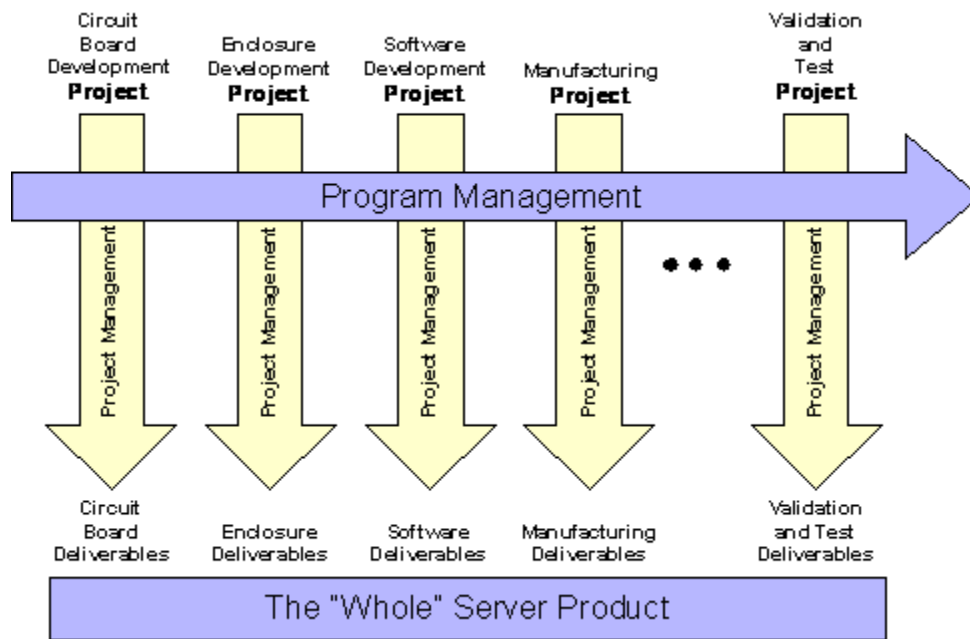


Figure 1: Personal Computer Development Program

The program manager is responsible for the delivery of the whole product to the market. In this case, the whole product would be the personal computer consisting of the integration of the various circuit boards, the enclosure, the software stack, and the test, validation and manufacturing of the product. In addition to delivery of the product, the program manager is responsible for the achievement of the business objectives for which the product development effort was initiated. Examples would include timely market introduction of the server, gross margin targets and key customer design wins.

The project managers are responsible for the delivery of a single element of the product to the program team. For example, the software project manager is responsible for the development and integration of the software stack embedded in the personal computer, the circuit board project manager is responsible for the development and integration of the various circuit boards, (motherboard, memory board and power distribution board), the enclosure project manager delivers the computer chassis including the power and cooling elements, and the manufacturing project manager is responsible for the factory build of the computer.

Figure 1 illustrates how the program manager manages *across* the various projects, whereas the project manager manages *within* a single function or domain.

Managing Multiple Projects

As stated previously, program management is commonly referred to as the management of multiple projects however, this broad definition can mean many things. We define program management as *the coordinated management of interdependent projects over a finite period of time to achieve a set of business goals*. The key words in this definition are *coordinated*, *interdependent* and *business goals*.

Coordinated management of multiple projects means that the activities for each project are synchronized through the framework of a common lifecycle executed at the program level. If an organization is using a phase-gate lifecycle model for example, all projects within the program pass through the phases and gates simultaneously. Program management ensures the effective coordination and synchronization of the multiple projects through the lifecycle.

As the term implies, interdependent projects are those that have a mutual dependence on the output of other projects in order to achieve success. Said another way, the successful completion of deliverables from one project is needed for the successful completion of other projects. Program management ensures the dependencies between the multiple projects are managed in a concerted manner. Using the previous computer development example, the circuit board development project team cannot achieve the motherboard power-on milestone without the successful completion of the BIOS (Basic Input-Output System) software and the firmware deliverables from the software project team - both of which are required to initiate the motherboard power-on sequence. The software project manager focuses on delivery of the software functionality as scheduled, while the program manager ensures the schedules for the circuit board and software teams remain in synch and that both teams agree on what is to be delivered and when.

Managing multiple interdependent projects also requires the integration of the project planning and execution activities at the program level. Figure 2 illustrates how plans for multiple projects are created from the program definition and WBS (Work Breakdown Structure), and then integrated into an interdependent, cohesive program plan

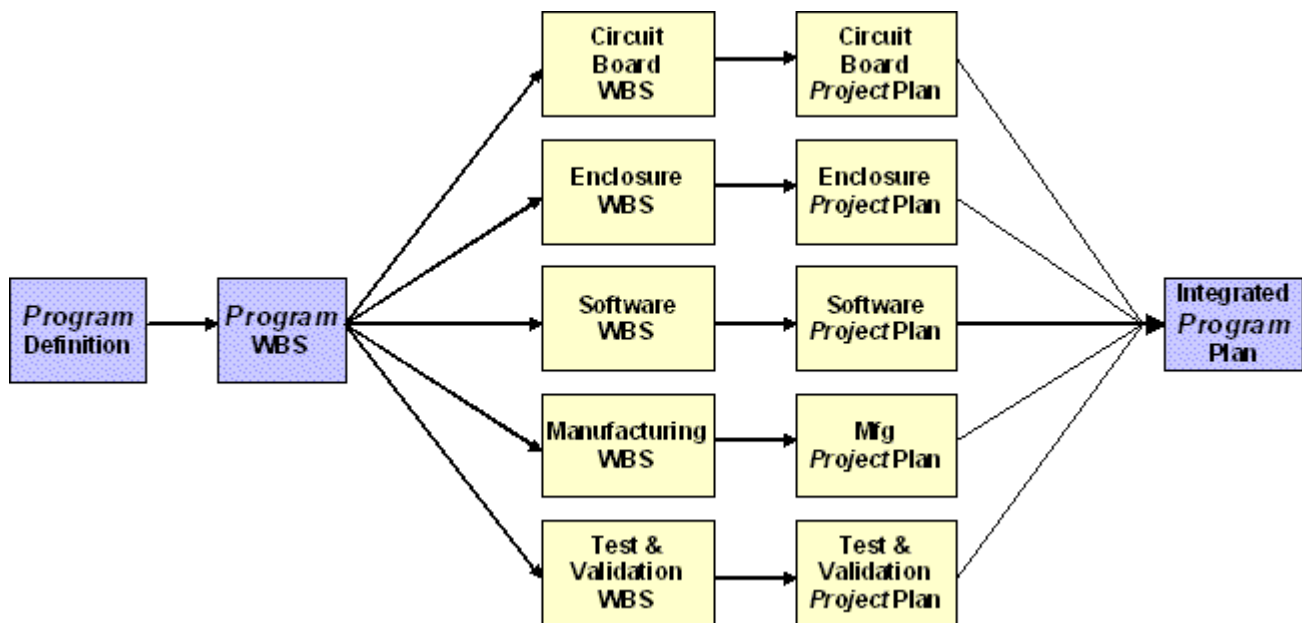


Figure 2: Integrating Project Plans into a Program Plan

Once the program definition and requirements are established for the "whole product", the program level WBS (Work Breakdown Structure) can be created. A WBS for each project is then created from the program WBS to define the work required from each project in order to achieve the deliverables. A plan is then created for each project to develop and deliver each respective element of the product to the program team. The project plans are then integrated into a program plan, within which the interdependencies and intermediate deliverables between the project teams are defined and negotiated.

During the implementation of the program, the project managers ensure execution of their respective project plan, while the program manager ensures the implementation of all projects is occurring in concert and that the interdependencies and inter-project deliverables are occurring as defined in the program plan.

Accomplishment of the stated business goals is the ultimate responsibility of the program manager. In product development, a key goal of the program is to deliver the whole product to the market. Delivery of the right product at the right time is critical; however it is really only the mechanism to realize the true business goals such as capturing additional market share, increasing profit through sales and gross margin, and strengthening brand value through quality, features and customer support. Program management is the business process that not only develops and delivers the product but also ensures the project teams are focused on activities that contribute to achievement of the business goals. For example, the program manager ensures that the design wins and sales projections from the marketing team remain above minimum levels and that the engineering and manufacturing teams keep the product and manufacturing costs at target levels or below in order to achieve the gross margin necessary to hit the profit goals.

The Program Hierarchy

Figure 3 illustrates the hierarchy that is established on a product development program, as well as the primary areas of responsibility between the program management and project management disciplines. The program manager leads the product development effort and is responsible for defining the program strategy to achieve the intended business objectives. The program manager also owns the program level WBS and program plan, as well as the creation and accomplishment of the program success criteria. The project managers lead the personnel on their respective functional project team. These may be large teams depending upon the size and complexity of the product development effort. Each project manager reports to the program manager and serves as a member of the program leadership team, commonly referred to as the program core team. The project managers are responsible for the development and execution of their project plan and for delivery of their element of the whole product. As members of the program core team, the project managers also assist the program manager in the development and execution of the integrated program plan.

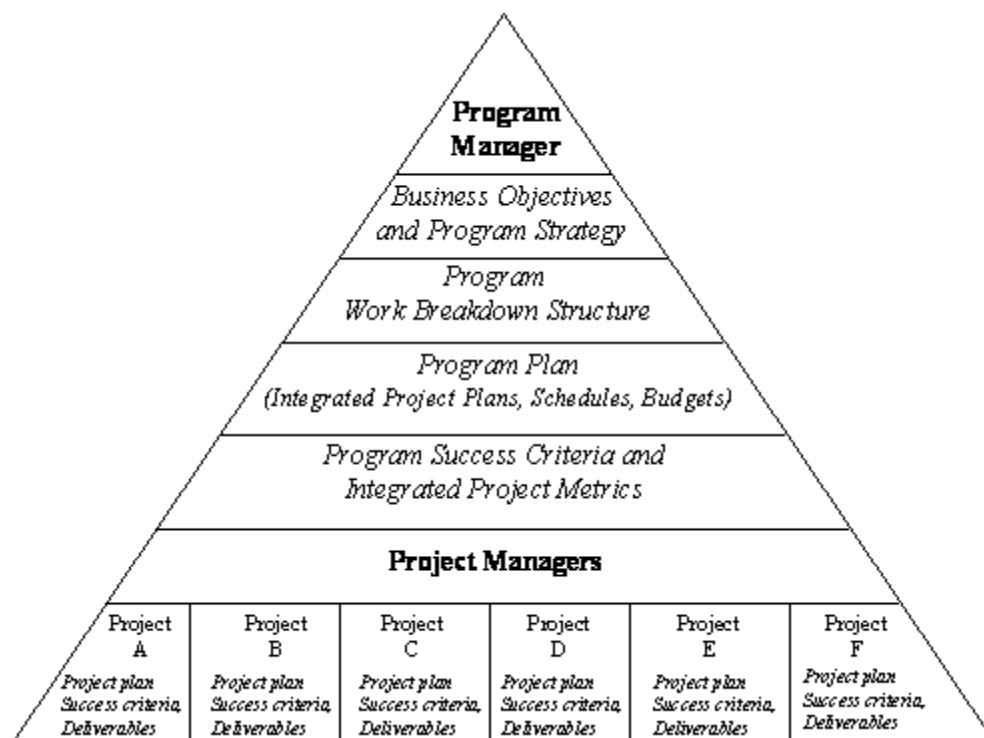


Figure 3: Program Hierarchy

Conclusion

This article addresses our view that even though the terms program management and project management are often used interchangeably, they are related but distinctly different disciplines. The primary differences being: program management is strategic in nature while project management is tactical in nature, program management is entirely cross-functional while project management focuses on a single function, and program management integrates the individual elements of the projects to achieve a common objective, such as the delivery of the "whole product" to the marketplace. Program management is a key business process utilized by Intel and Tektronix to manage complex product development efforts that consist of multiple interdependent projects. Employing both program and project management is a powerful approach to developing products that enable the achievement of intended business objectives.

References

¹ [PM World Today](#), Volume V Issue 7, September-October 2003