

Where the Rubber Meets the Product Development Road

Institutionalizing Project Management in IBM's Development Community

A major product announcement is delayed for six months because the key contributors fail to communicate regarding their respective development roles. The newest release of an operating system fails to meet the requirements of its intended application software. Development of a new product segment is completed on schedule, but the manufacturing and production processes are not ready. Expense estimates for final testing of a new system double because extra people must be assigned to compensate for schedule delays. Each of these situations has a common denominator—lack of or failure of project management.

Effective project management—the skills, knowledge, and ability to execute projects on time, within budget, and according to stated requirements reliably and repeatedly—is a fundamental requirement for any successful business. Traditionally, in product development organizations, project management has been seen (if at all) simply as the functions of scheduling, tracking, and controlling. Today, IBM is creating a new paradigm, where project management encompasses cross-functional team building and management, risk management, resource allocation, milestone planning, change management, expense estimating and tracking, and team communication and reporting. These reengineering changes are institutionalizing project management as a critical element of IBM's development processes. With this implementation of focused, disciplined project management, IBM expects to achieve its goals in the five areas that are key to the

corporation's success: (1) increased customer value; (2) a continued tradition of winning products; (3) reduced time to market; (4) enhanced productivity and efficiency; and (5) improved process predictability.

The IPD Process

In 1994, IBM began a corporatewide effort to reengineer its product development processes. The result—the Integrated Product Development (IPD) process—is shown in Figure 1. IPD provides the framework for managing all development efforts, hardware and software. It is a team-based process model, which provides a consistent, high-level approach that is being applied in all IBM development organizations. Project management provides a consistent set of practices for IPD implementation and allows flexibility and tailored application of specific concepts, tools, and processes within each division. Trained, educated project managers bring the IPD model to life and make it work.

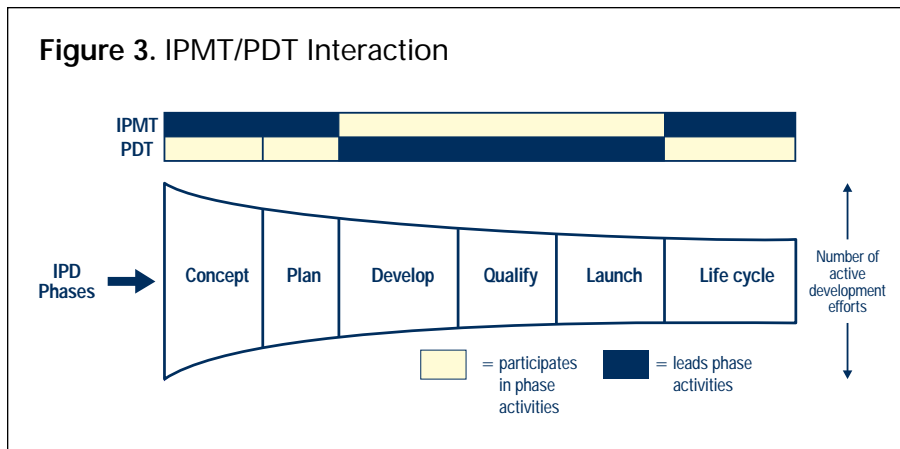
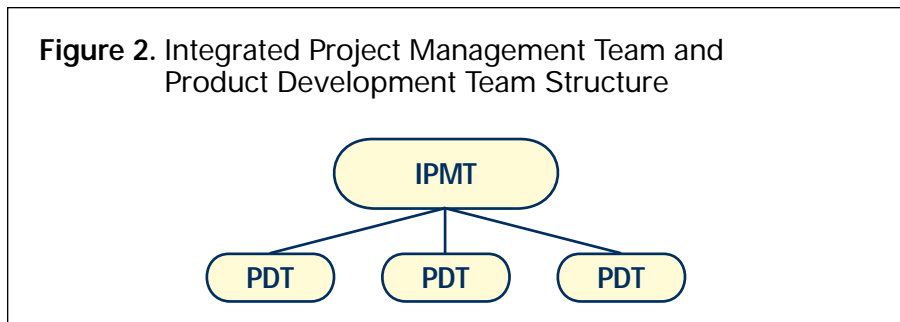
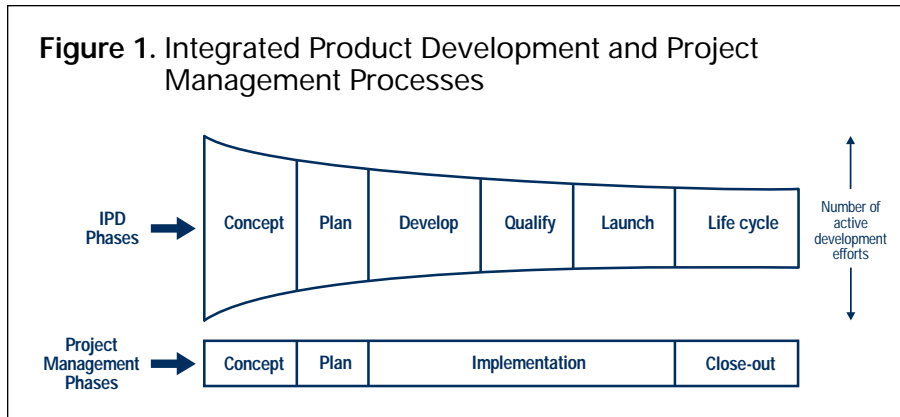
Figure 1 shows the alignment between the IPD phases and the phases of the traditional project life cycle. While IPD is a broader process encompassing all technical development activities, its project management component focuses on the planning, monitoring, and control efforts that ensure the development effort meets its objectives.

Formally linking project management and the product development process is a marked change for IBM, where project management historically had a much less formal, and much more individualized relationship to product development. Thorough IPD documentation

Reengineering a major corporation's product development process requires substantial cultural and procedural change. IBM shows how it is addressing that challenge.

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■ INSTITUTIONALIZING PROJECT MANAGEMENT AT IBM



communicates the new process to all IBM divisions. That documentation includes an overview of project management activities and refers to additional, detailed guidance that is separately published. IBM has specific procedures and practices for all key project management functions, and has directly linked those functions into the IPD process. Those functions are:

- Project planning and organization
- Team formation, facilitation, and management
- Intra- and extra-team communication
- Risk management
- Contract and subcontract management

- Change control
- Cost and schedule tracking and monitoring
- Exception management
- Business planning and financial management.

A key difference in the new approach is the requirement that all IPD divisions use a common process for managing product development efforts. IPD guidance allows flexibility in local implementation, but requires general adherence to a key set of requirements.

IPD includes a Decision Checkpoint Process that identifies various “gates” at

which IBM makes a decision to approve, redirect, or cancel the effort. A new management behavior associated with IPD is the deliberate “culling out” of marginal or undifferentiated products early in the cycle. Figure 1 shows this “funnel effect.” Project managers must therefore expect that their projects sometimes will not be completed and, more importantly, IBM has had to ensure that terminating a project at a checkpoint is not regarded as some sort of failure.

The IPD Team Structure

Implementing IPD requires critical changes in IBM’s culture. IBM has changed its approach to management—moving from a pyramidal structure to linked, cross-functional teams (see Figure 2). The overall development process is owned by Integrated Product Management Teams (IPMTs), executive management teams that are accountable for “defending” market segments and managing product portfolios, led by division managers or their selected executive leaders. IPMTs are composed of representatives from the Development, Production, Marketing, and Finance communities.

An IPMT is responsible for defining and executing a division’s strategic and tactical business plans. In this capacity it evaluates market opportunities and commissions Product Development Teams (PDTs) to evaluate product concepts, prepare development proposals, and carry out approved development efforts. A contract drawn up between the IPMT and the PDT formalizes the commitment to a product offering by the PDT and affirms the support to be provided by the IPMT. PDTs have the same functional composition as their chartering IPMTs.

The PDTs are, effectively, project teams. The PDT leader may come from any of the communities that make up the PDT. That individual is designated the *project manager* for the product development effort. The PDT follows the high-level development process laid out in IPD and manages the execution of the project through its life cycle. Figure 3 shows the interaction between the PDT and IPMT.

Another key difference in how projects are managed under IPD is the structured

interaction of the IPMT and the PDT. The IPMT has primary decision-making and operational responsibility during the early phases of the project life cycle. During these phases the project is defined and validated, and the IPMT makes a conscious decision to proceed from planning to implementation. At that point, the PDT assumes primary responsibility for carrying out and managing the development activities. IPMT involvement continues through the checkpoint process and the IPMT's ongoing review of PDT efforts and progress.

Managing transition from development to the product life cycle is a critical point in the product development process. It is here that IPD provides a formal resumption of project management control by the IPMT, which ensures the viability of the product in the marketplace, as part of a product portfolio. The relationship between the life cycle and close-out phases is not clear-cut; for different products the transition will follow different processes, and the IPMT must ensure that transitions are clearly planned and proceed accordingly.

Six Major Issues

To enable the process changes and culture shifts that will support institutionalized project management, IBM has addressed six major issues:

- *How to encourage and provide support for individuals who become project managers.* IBM established a career path that clearly defines who will assume project management responsibilities and where those individuals will be located within the corporation, as well as defining certification and education requirements.
- *How to ensure adherence to and support of project management throughout the corporation.* IBM is addressing cultural and organizational implications with top IBM leadership, also ensuring that executives and managers understand and participate in the process with a consistent definition of their project management responsibilities.
- *How to ensure the incorporation of world-class project management capabilities into the product development process.* IBM is enhancing the project

management and IPD processes to fully define project management processes, roles, and practices so that there will be consistency in both theory and practice throughout the corporation.

- *How to enable the performance of project management processes and practices.* IBM is developing guidance and providing access to project management tools so that project managers will acquire a consistent, tailored set of tools to support their efforts.
- *How to ensure that project managers have the skills and knowledge they require.* IBM is providing an integrated, comprehensive program of long-term education and short-term training that focuses on the simultaneous goals of improving immediate project management performance and establishing a long-term project management capability across IBM.
- *How to provide ongoing support for project managers.* IBM is establishing a Project Management Center of Competency to provide assistance to project managers, facilitate communication among project managers, and create a virtual project management community throughout IBM.

Through attention to all aspects of implementation, IBM is instilling project management as a core discipline of its product development processes. The focus on executive support, process development and institutionalization, and project manager education and enabling is allowing IBM to build an embedded base of project management capability that will transcend short-term fads and trends, and truly change the corporate development culture. ■

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