



How to Strategically Approach New Product Development

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Most companies are faced with the challenges of developing new products to keep pace with the dynamics of its markets, technology, and competition. Given the vital importance of this activity, it must be approached strategically to optimize the process for developing commercially successful products.

Effectively managing a new product development (NPD) program can be virtually impossible without the right tools and systems in place. Innovation tunnels, phase-gates, and similar systems are often loosely implemented, but not surprisingly fail to achieve the desired results.

The Stage-Gate method of new product development, introduced over 30 years ago by innovation management expert, Robert Cooper, has been superseded by his Innovation Diamond, a more comprehensive approach that provides a solid, integrated framework for the NPD process. Process workflow likewise must be managed, using “lean” expert Donald Reinertsen’s Design Factory Method, which utilizes Queuing Theory.

Innovation Diamond

The Innovation Diamond includes four key aspects of the NPD process: 1) product innovation and technology strategy; 2) resource investment and project focus; 3) idea-to-launch framework; and 4) climate and environment for innovation. Unfortunately, many companies proceed without even a clearly defined product innovation strategy. In addition, the innovation plan should include market entry strategy. Is the goal to be first to market with new and different products, or is it to follow competitors’ innovations with superior offerings?



Source: Cooper, Robert G. Winning at New Products: Pathways to Profitable Innovation. Stage-Gate International – The Official Site of Stage-Gate. N.p., n.d. Web. 06 June 2016.

Once the innovation strategy has been defined, resources can be committed to projects that are aligned with it. Allocation of these resources to pure R&D, new products, incremental development, and product line maintenance must be planned within a three- to five-year horizon, yet be sufficiently flexible to accommodate market and economic changes.

Cooper's Stage-Gate method can serve as the idea-to-launch framework for taking the right actions at the right time in the development process. After each stage of the process, there is a "gate" to ensure that all the work was properly executed before proceeding to the next stage. That includes killing any projects that do not meet specified criteria earlier rather than later in the process, thereby preventing resources from being squandered on losers.

Creating the right environment for innovation begins with the recognition that NPD is not just about engineering. It is a multidisciplinary, cross-functional undertaking involving production, marketing, sales, and finance to ensure that all aspects of a new product are thoroughly vetted. The right environment also allows for a certain amount of managed risk taking, with an understanding of how the risk-reward relationship works.

Queuing Theory

New product development is not unlike manufacturing, according to Reinertsen. Both are economic in nature; both have work in process; and both have significant costs associated with change. Because production equipment typically handles multiple jobs, queuing by priority and determining when more capacity is needed are common in the realm of manufacturing.

Analogous to this scenario in the NPD process are engineering design, prototyping, and product testing. Progress can stall in these areas, delaying the feedback necessary to proceed. Therefore requests from various sources are batched in a queue for claims on resources. Unfortunately, processes like Stage-Gate are often implemented so that 100% of the work in a particular stage must be completed before moving to the next one, telescoping the entire process.

There is a direct correlation between batch size and the length of time a particular item remains in queue, i.e., the larger the batch, the longer it takes for the work to be processed. This can increase exponentially the time it takes to move a project through the stages of development. This situation can be mitigated by reducing project tasks into smaller pieces, grouping similar batch sizes and work and addressing potential bottlenecks in the system.

Because innovation is the lifeblood of business today, planning and managing the NPD process cannot be left to chance. There are no one-size-fits-all solutions, but concepts like the Innovation Diamond can provide a viable framework, which when linked to project management techniques such as Queue Theory deliver consistently positive results.