

RE-THINKING THE STAGE-GATE® PROCESS – A REPLY TO THE CRITICS

With Bob Becker, Product Development Executive, Advisor
and MRT *FastTrack* Expert Panelist

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According to Business Week, Larry Keeley, president and co-founder of Doblin, Inc., is inventing ‘a new science of innovation.’ Keeley created a controversy when he delivered a keynote address at The Management Roundtable’s (MRT) Product Portfolio & Pipeline Management conference (April 24 and 25, 2006, Chicago). “I am going to come to you with a contrarian view of innovation,” Keeley said, “deeply researched, with more than \$7-million worth of data behind the assertion that the Stage-Gate model as we know it today is...going to guarantee total performance mediocrity for your businesses.”

After detailing what he viewed as the flaws in the Stage-Gate approach, Keeley predicted that a new model would replace it, which, in his opinion, would be a boon to innovation.

Keeley’s bold assertions were not accepted by many of the conference participants – industry practitioners who use Stage-Gate processes every day. For a practitioner view, we turned to senior R&D executive, Bob Becker, a former SVP at Mercury Computer Systems responsible for the company’s product portfolio. As a counterpoint to Keeley’s criticisms, we first asked him to consider the latest thinking on the subject as presented in an MRT workshop led by Dr. Robert Cooper, creator of the Stage-Gate model. *After considering these alternative viewpoints, Becker wrote the following summary of the current state of Stage-Gates.*

The Problem with Stage-Gates

In the last several years, there have been an increasing number of dissenters citing a myriad of issues with Stage-Gate process implementations:

- *They are slow and have high overhead*
- *They emphasize more form than substance in discussion and decisions*
- *They treat all projects and products the same*
- *They kill innovation*
- *They treat all choices as ‘one off’ decisions*

If one were to poll all of the companies committed to Stage-Gate product development processes, it’s certain one could find data to support one or more of the assertions above. *Are these suboptimal results caused by something inherent in a “Stage-Gate” process or are they a result of flawed implementations of the process?*

I assert that the notion of *stages* for product development, with their accompanying decision gates, is a reasonable organizing principle that should be built upon, not abandoned. Splitting product development activities into stages orders activities like 1) generating concepts, 2) scoping what a

particular concept may take, 3) generating a business case and detailed planning for execution, 4) doing development work, 5) validating that the design work meets the needs, 6) releasing a product and 7) supporting a product. Such basic activities are fundamental to creating successful products.

Among the arguments in favor of abandoning stages is that they serialize activities, which consumes more time and resources than necessary and causes 'over the wall' behaviors. Operating in such environments can have predictably bad results as a result of handoffs, rework, or a disconnected view of customer needs. Today, it's self evident that some (re)planning might need to occur late in a development cycle or that problems are best found early in the process. *All* of the verification and validation activities cannot wait until *every* aspect of the design is complete. These are examples where isolating core activities within stages – as completely serial activities – would be dysfunctional. If Stage-Gates are interpreted narrowly, for example if *no* planning is done after the start of the development phase, or *no* verifying is done until the development stage is finished, then the process is likely to yield a suboptimal result.

The question of 'when' and 'how much' parallelism to add to the process is important but there are no prescriptive answers. It depends too much on the technology and market dynamics of a particular business. Within the context of a particular business, however, it is possible to map the process, to understand the risks and opportunities involved, and then to create an optimized method for executing the projects at hand.

Gates Are Business Decision Checkpoints

The word 'gates' certainly sounds like something put in place to slow projects down and, in some sense, they do. They are there to prevent the wrong product from getting to market. I view gates as *checkpoints* that are in place to make the *business choice* to either a) continue as planned, b) kill a project, or c) modify the plan for business reasons. Sometimes that business choice may have little to do with the actual product that is going through the gate. It may be that at the portfolio level, there are better opportunities for the company, which represent a better application of its resources. These business choices can be made only at a senior level of the organization where the project portfolio and business opportunities are most visible.

Viewing gates as *business decision checkpoints* means that what gets reviewed at those points is not details on status as much as the risks, market opportunity, and other factors which might affect a business decision. It also implies that the reviewers are decision makers who control key resources and are empowered to change the product portfolio since whatever choice is made is a portfolio decision. If the project continues, it affects the portfolio because the resources are being consumed on that project instead of elsewhere. When gate reviews are framed as business decision checkpoints, they focus attention on the best use of available resources.

Next Generation Stage-Gate Processes: Incorporating Flexibility

In the MRT workshop on "Stage-Gate Innovation," and in his latest book [Lean, Rapid, and Profitable New Product Development](#), Dr. Robert Cooper updated his view of the process. Dr. Cooper now

speaks of a “Next Gen Stage-Gate®” process which incorporates a number of ideas from progressive companies into his earlier framework. Six “Lean, Rapid, Profitable” (LRP) ideas which he incorporates into a Stage-Gate framework include:

1. Customer focus
2. Front-end loaded
3. Spiral development
4. Holistic approach driven by cross functional teams
5. Metrics, accountability and continuous improvement
6. Focus and effective portfolio management – fewer but higher value projects

There is a seventh, broader idea which advocates “*flexible, adaptable, scalable and efficient*” NPD processes. Collectively, these concepts seem to answer many of the complaints of the detractors.

Is Stage-Gate Compatible with Spiral Development?

Among his six “LRP Ideas,” Dr. Cooper advocates spiral development, which may seem to be the antithesis of formal stages. *How can the two be reconciled?* The answer is to look at stages as building incremental commitments of resources and dollars. Having a formal *development stage* in the process in which there are also several ‘build-test-feedback-revise’ loops (as in spiral development) can be effective while remaining consistent with Stage-Gate principles. A stage need not be a narrow list of serial deliverables but should consist of whatever activities make sense in advance of the next business checkpoint or gate.

Also, not all development projects require the same set of gates. Smaller or lower risk projects don’t require as many business checkpoints. Part of being *flexible, adaptable* and *scalable* is ensuring that the process is right-sized for the task at hand and that the best use is made of activities performed in parallel. What best-in-class companies seem to have learned is that their product development efforts cannot be enslaved to a process. They’ve learned that *process is important* for creating good results but that it is equally important to *adapt the process* to optimize business results.

Answering the Objections

It is very possible to have rigid Stage-Gate process implementations that cause some or all of the dysfunctions mentioned earlier. As we’ve seen, one answer is to make sure the gates are appropriate business checkpoints; it’s also necessary that the stages be filled with the optimal activities, resourced appropriately. These basic principles can overcome the dysfunctions, but they require leadership and management to keep the process moving and to make sure that it remains context sensitive. But let’s take another look, point-by-point, at the objections to Stage-Gates mentioned above:

- o *They are slow and have a high overhead* - They don’t have to be. If it’s truly overhead, fix the process to get rid of it. If preparing for gate reviews is overhead, streamline them to supply only

the information required for a business decision. If there is no decision to be made, due to the type of project at hand, there's no need for a gate at that point in the process.

- *They emphasize more form than substance in discussion and decisions* – Any process, not only Stage-Gate processes, for which this is the case should be fixed. This is not an objection to Stage-Gates, themselves, but a comment on the quality of the *implementation* of the process and the governance model overseeing the company's product development efforts. There are good and bad implementations – of Stage-Gates as much as any other process.
- *They treat all projects and products the same* – They don't have to. The answer may be to create three or four different process templates with different tracks or project types and then vary the process accordingly. Giving teams more autonomy to customize the process to meet their objectives can also be helpful. In his recent presentation, Dr. Cooper presented several examples of what companies are doing in this area.
- *They kill innovation* – Innovation in terms of products is orthogonal to the means of executing projects. Stage-Gate in its most basic form does little to promote or thwart ideation activities. Technology development, market development and managing idea pipelines should not be managed like a product development activity. Dr. Cooper does address processes for generating and managing ideas and technologies as either a different process or a "stage 0."
- *They treat all choices as 'one off' decisions* – This is a weakness whenever business leaders make decisions in response to new opportunities or new challenges. Having the right level of decision maker, who can keep the portfolio in mind, can help. Dr. Cooper also advocates instituting a separate portfolio review process. Making informed choices without waiting for a next annual planning cycle (or other big bang) makes sense in most dynamic industries.

When one adds parallelism, adaptability, flexibility and scalability, at what point is the process no longer a Stage-Gate process? I will leave the answer to the academics. What I find useful is the organizing principles of *business checkpoints* coupled with a thoughtful arrangement of activities to help different types of projects meet their *business objectives*. There is no optimal 'one size fits' all process. A process that leverages historical learning and best practices from industry leaders, and which is also right sized for the mission at hand, is as close to optimal as you'll get. ^{MRT}