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Product Innovation Best Practices Series

EFFECTIVE GATING

Make product innovation more productive by using gates with teeth

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By Dr. Robert G. Cooper

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EFFECTIVE **GATING**

**Make product innovation more productive
by using gates with teeth. BY ROBERT G. COOPER**

Most firms suffer from having

far too many projects in their product development pipelines, for the limited resources available. Even worse, the great majority of initiatives are low value projects to the corporation; there's a real shortage of blockbuster development projects. Look at our provocative survey results in Exhibit 1:

- The great majority of firms (76%) have too many projects and an overloaded development pipeline.
- Three-fourths of businesses confess to doing a poor job of prioritizing new product projects.
- Almost four out of five respondents admit to a lack of high-value projects in their development portfolio: it's dominated by a lot of tweaks and modifications.
- And 78% lack a systematic portfolio management methodology to help them select and prioritize development projects. (See the Additional Readings for the APQC study on best practices in product innovation).

These insights paint a bleak picture, and are at the heart of much of what ails new product development today: projects taking too long, underperforming projects, and declining productivity from research and development (R&D) spending.

The problem—too many projects, with too few high-value ones—stems from a fundamental deficiency that plagues many companies' idea-to-launch processes: Your gates and portfolio management systems are broken! If your business is typical, you're saying yes to too many initiatives and overloading your development pipeline—while at the same time, picking a lot of low-hanging-fruit or low-value projects.

Gates with no teeth. Stage-Gate® is a road map for moving a new-product project from idea to launch. While your company might have installed a Stage-Gate® system, the gates (the vital decision-making points in the process) often lack teeth. The result is that projects rarely are killed at gates. As one executive declared: "We never kill projects, we just wound them!" Thus, instead of the well-defined funnel that is used to depict the new product process, one ends up with a tunnel where everything that enters comes out the other end—good projects and bad. Yet management is deluded into believing that it has a functioning gating process.

Simply stated, management does not know how to say no, or "to drown some puppies." In many firms we investigated, after the initial go decision, the gates amount to little more than a project review meeting or a milestone check-point—but

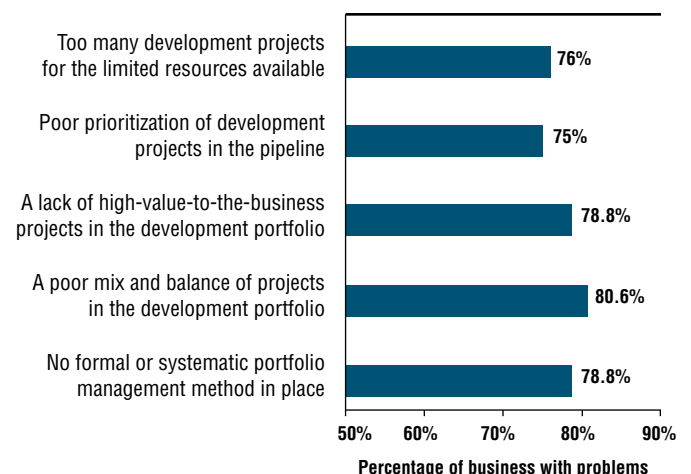
not a serious Go/Kill decision meeting. As one senior manager exclaimed, "Projects are like express trains, speeding down the track, slowing down at the occasional station [gate], but never stopping until they reach their ultimate destination, the marketplace."

For example, in one major high-tech communications equipment manufacturer, once a project passes Gate 1 (the idea screen), it is placed into the business's product roadmap. This means that the estimated sales and profits from the new project are now integrated into the business unit's financial forecast and plans. Once into the financial plan of the business, the project is locked-in: there is no way that the project can be removed from the roadmap or killed. In effect, all gates after Gate 1 are merely rubber stamps. Somehow management missed the point that the idea-to-launch process is a funnel, not a tunnel—and that gates after Gate 1 are also Go/Kill points: This should not be a one-gate, five-stage process!

Gates are rated one of the weakest areas in product development, with only 33% of firms having tough rigorous gates. Further, only 56% of development projects meet their sales targets (44% do not), which means that gates simply aren't doing their job: Too many bad projects and too many projects in trouble are sliding through! By contrast, in a robust gating system, poor projects are spotted early and killed. And projects in trouble are also detected, and sent back for rework and put back on course. But it seems that as quality control check points, the gates aren't too effective in too many companies, and allow a lot of poor projects to proceed.

■ Exhibit 1

Problems in the development portfolios of the typical business



EXECUTIVE briefing

Product innovation productivity suffers from too many projects, with too few high-value ones, in most firm's development pipelines. "Gates with teeth" help to prune the development portfolio of weak projects, and deal with a gridlocked pipeline. And a robust innovation strategy, coupled with strategic buckets, refocuses resources on high-value development initiatives.

Hollow decisions at gates. A closely connected problem is hollow gates. Here, the gate meeting is held and a go decision is made, but resources are not committed. That is, management fails to understand that approval decisions are meaningless unless a check is cut: The project leader and team must leave the gate meeting with the resources they need to progress their project. Instead, projects are approved, but resources are not—a hollow go decision—and so it becomes quite easy to continue to approve projects, since there is no resource limit. And that leads to too many projects in the pipeline.

The ugly results. Approving too many projects, with limited resources, triggers many ailments. First, project team members are spread too thinly. Multitasking is a good thing up to a point, but too much multitasking leads to decreased productivity. And with resources spread so thinly, projects start to take too long: In some firms, the process is virtually gridlocked, nothing moves. Even worse, some project team members cut corners to save time: they do a quickie market study instead of a thorough one, or cobble together a poorly conceived launch plan. The end result is long times to market and underperforming launches.

Drown the Puppies

If "gates without teeth" and "hollow gates" describe your company's gates, then it's time to start "drowning some puppies" (i.e., say no).

Prune the current portfolio—major surgery. One way to kick-start the process is by undertaking a ruthless one-time pruning operation—a tough-minded project-by-project portfolio review. One major chemical company was suffering from too many projects, with more than 1,000 active development initiatives in its pipeline. A thorough review of the list revealed that many were mediocre: limited value to the company or lacking strategic impact. A brutal pruning exercise reduced the list to 250 projects. The result was that time to market was cut in half within one year, and project execution improved dramatically.

Pruning the portfolio means making difficult choices. A 75% pruning rate in the previous example is extreme; our experience suggests that in the typical portfolio, roughly half the projects should be cut. Drowning puppies is unpleasant for most management, however: All projects look good, all are worthy or needed and no one likes to kill any of them.

Then strive for focus over the longer term: Do fewer, but better, new-product projects. Project selection must occur in light of your resource constraints—ensuring that the right projects are undertaken for the limited development resources available. It is better to undertake four projects and do them properly, rather than trying to do 10 badly.

For example, a division of Cooper Standard Automotive faced a gridlocked product development system back in 2000. A chart from that year showed 50 major projects under way, time to market was "infinite" and there were zero launches. Then, a tough-minded executive forced a decision-factory mentality into his gate meetings: kill the weaker projects. The result was that by 2007, the number of major projects was down to eight, time to market reduced to 1.6 years, and major launches were up to five annually. Revenue from new products steadily increased from 2000, and had risen by more than 10-fold by 2007.

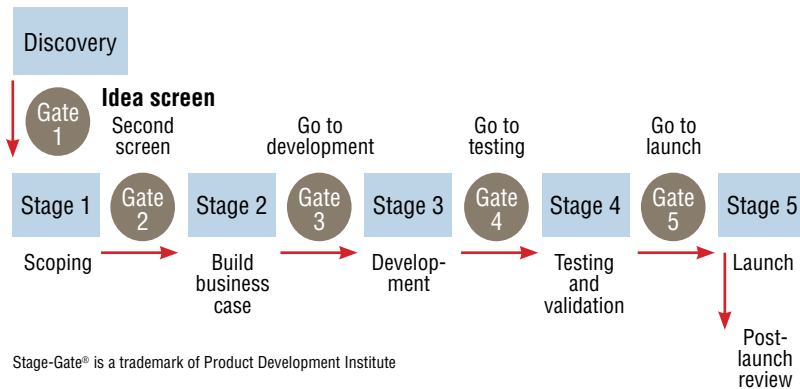
Build clearly defined gates into your innovation process. Gates must be built into your idea to launch system, as in a typical Stage-Gate® process shown in Exhibit 2. But gates are not just project review meetings or milestone checks. Rather, they are Go/Kill meetings: Gates are where senior management meets to decide whether the company should continue to invest in the project based on latest information, or to cut losses, and kill a bad project. Note that gates are also a resource commitment meeting, where the project leader and team receive a commitment of resources to pursue their project: Projects cannot just be approved without committing the resources, otherwise the result is hollow gates and too many projects!

Employ visible Go/Kill and prioritization criteria. A number of firms use scorecards for early stage screening (for Gates 1, 2 and 3 in Exhibit 2), where the project is scored by the gatekeepers right at the gate meeting on key criteria. Scorecards rely on qualitative factors, such as market attractiveness, leveraging core competencies and competitive advantage (rather than just on financial numbers such as net present value) to assess the relative attractiveness of a project at a gate. Following the presentation of the project by the project team, the gatekeepers score the project on about six to 10 such criteria on zero-to-10 scales. The scores are displayed on a big screen (see Exhibit 3), discussion and debate ensues, and a Go/Kill decision is made.

Although not the most popular screening method, scorecards are rated highly in terms of effectiveness (make the right

Exhibit 2

A typical Stage-Gate® Process



decision) and efficiency (in a timely fashion), and fit management’s style. Users also indicate that, although the overall project score is useful to prioritize projects, the real value is that a group of senior executives meet, discuss the project, walk through a set of key questions, reach closure and then make a decision.

A second selection method, and one employed with considerable success at firms such as Procter & Gamble (P&G), is the use of success criteria: “Specific success criteria for each gate relevant to that stage are defined for each project. Examples include: expected profitability, launch date, expected sales, and even interim metrics, such as test results expected in a subsequent stage. These success criteria, and targets to be achieved on them, are agreed to by the project team and management

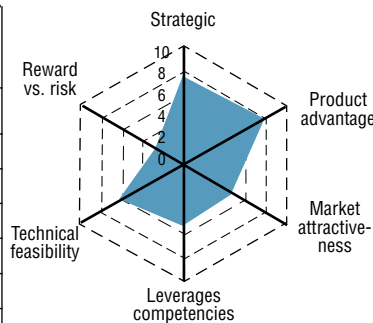
Exhibit 3

Displayed scores at Go/Kill gate meeting facilitates rich discussion

Project: Monty-21

Project attractiveness score: 34.4 cut of 60 or 57%	Decision: GO, COMMIT
--------------------------------------------------------	----------------------

Evaluator	Strategic	Product advantage	Market attractiveness	Leverage competencies	Technical feasibility	Reward vs. risk	Score out of 60
JCC	0	10	4	7	7	10	38
MB	10	7	4	4	7	4	36
SJC	10	10	7	4	4	4	39
NCC	10	7	7	4	7	0	35
FK	7	7	4	4	7	0	29
FM	7	5	4	4	4	0	24
GRT	10	10	4	7	7	4	42
HH	7	7	4	7	7	0	32
Total	61	63	38	41	50	22	275
Mean	7.6	7.9	4.8	5.1	6.3	2.8	34.4
Team	10	7	4	4	7	4	36
Std. dev.	3.42	1.89	1.39	1.55	1.39	3.54	



at each gate, and then used to evaluate the project at successive gates.” (See Cooper, R.G. & Mills, M., “Succeeding at New Products the P&G Way: A Key Element is Using the ‘Innovation Diamond,’” *PDMA Visions*, XXIX, 4, October 2005, pp 9-13.) If the project’s estimates fail on any agreed-to criteria at successive gates, the project could be killed.

Employ a resource allocation method at your gates. Gates are held in real time: when a project completes one stage, and requires resources to proceed to the next phase. Although the gate meeting is largely focused on one or a few projects, the decision to proceed cannot be made in isolation. To ensure the effective resource allocation right at the gate meeting, consider displaying a list of active projects together with current resource commitments (by department or by person). Often the entire resource pool is fully allocated, and then tough decisions must be made—where to find the resources for the project under review at the gate. Management cannot keep adding projects to the “active list” without dealing with the resource implications.

Implement a formal portfolio management system. Your portfolio management system should be integrated into your gating process. Portfolio reviews are held periodically—typically two to four times per year—and are more holistic than gates, looking at the entire set of projects (but obviously less in-depth per project than gates do). Portfolio reviews deal with issues such as achieving the right mix and balance of projects, project prioritization, and whether the portfolio is aligned with the business’s strategy.

For example, EXFO Engineering has implemented both a Stage-Gate® and portfolio management process. The gates make Go/Kill decisions on individual projects. But four times per year, the business leadership team, chaired by the CEO, evaluates, ranks and prioritizes the complete slate of development projects during the portfolio review meeting. Any project at or beyond Gate 2 is included in this prioritization exercise. (See Bull, S., *Innovating for Success: How EXFO’s NPDS Delivers Winning Products*, Proceedings, First International Stage-Gate Conference, St. Petersburg Beach, FL, Feb 2007.)

Improve data integrity. Data integrity (or its lack) is the top issue identified in a recent APQC

portfolio management study. One step is to implement a solid new product process (as in Exhibit 2) that specifies what data to gather, when to get it and even suggests how to obtain it. But then practice discipline! Without a new product process, project teams are left without guidance, and the end result is that inconsistent data of variable quality is gathered. Thus it becomes difficult to rate projects or rank projects against each other, so effective portfolio management is next to impossible. Move to “lean gates.” Information only has a value to the extent it improves a decision. But often, far too much data is delivered to the gatekeepers at each gate—the deliverables have become too “bulky.” The project team screams “too much bureaucracy,” while the gatekeepers complain that they read pages of materials, much of it not relevant. Project teams are usually not clear about what it required, so they prepare voluminous reports to bullet-proof themselves. Strive for a better understanding between project teams and gatekeepers regarding just what information is needed at each gate. And keep the deliverables and their templates to the essential information needed to make the gate decisions. Johnson & Johnson’s Ethicon Division has an effective Stage-Gate process that begins with Stage 1 “understanding the opportunity” and ends with Launch. A positive feature of the process is “lean gates.” Previously, the gate deliverables package was a 30-page to 90-page presentation, a lot of work for any project team to prepare. Today, it’s down to the bare essentials: one page with three back-up slides. The expectation is that gatekeepers arrive at the gate meeting knowing the project. Senior management is simply informed at the gate review about the risks and the commitments required. Finally, there is a standardized presentation format. The result is that weeks of preparation work have been saved. (See Belair, G., *Beyond Gates: Building the Right NPD Organization*, Proceedings, First International Stage-Gate Conference, St. Petersburg Beach, FL, Feb 2007.)

Low-Hanging Fruit

Not only are companies undertaking far too many projects, they’re the wrong ones: There is a shortage of major, breakthrough, high-value development projects (see Exhibit 1). And Exhibit 4 shows the portfolio breakdown in the typical firm, with a comparison to the top performers. Again note the shortage of more innovative, bolder projects, especially for the average and poor performing businesses.

Lots of projects but too few game-changers. The problem in part stems from approving too many projects (gates with no teeth), so that there’s nothing left over for the big ones: The high-value developments get squeezed out. As one executive put it: “My business has a limited R&D budget. I can’t afford to risk a major percentage of that budget on a handful of big projects. I’ve got to hedge my bets here, and pick the smaller an lower risk ones. If I had a larger R&D budget, then I might tackle some more venturesome projects.” (See Cooper, R.G.,

“Your NPD Portfolio May Be Harmful to Your Business’s Health”, *PDMA Visions*, XXIX, 2, April 2005, pp 22-26).

With resources thinly stretched, executives favor smaller, easier-to-do and faster projects—the “low hanging fruit” projects. The trouble is they’re also low value to the company. Some of these fast-and-easy projects may be needed, but when your entire development portfolio is dominated by them to the detriment of breakthrough new products, then the long-term viability of your business is in jeopardy.

Refocus Your Resources

Some firms have taken steps to deal with the issue of too many small, low value projects and a lack of breakthrough initiatives, as follows:

Articulate a product innovation and technology strategy for the business. Most businesses have a business strategy, but no real product innovation strategy. Lacking such a strategy, project investment decisions are undertaken on an ad hoc basis without direction or focus. So it’s not surprising that the development portfolio ends up with too many of the wrong projects. A robust innovation strategy should delineate:

- your business’s new product goals. For example, what proportion of your business’s sales will come from new products?
- your strategic arenas. Which markets, product categories or technologies will you focus your new product efforts? Your battlefields must be decided.
- your attack plans: How do you plan to win in each strategic arena?

Build a discovery stage into your idea-to-launch system.

Feed the innovation funnel! One reason for a dearth of breakthrough new product projects is a shortage of game-changing ideas. One benefit of an innovation strategy is that it defines the “search fields” for new product ideas, or where to hunt. Now the emphasis shifts to finding some good ideas.

Increasingly, companies are looking at managing the idea generation process. And they are bolting on an effective idea generation and handling system on the front-end of their new product system. One study finds that of all the steps taken to improve new product performance, idea management has the strongest impact (Arthur D. Little, *How Companies Use Innovation to Improve Profitability and Growth. Innovation Excellence Study*, 2005). Steps to a proficient discovery stage (Exhibit 2) include:

- Set up an idea capture, handling and screening system.
- Seek ideas from customers: Voice of customer methods were rated the most effective in terms of ideation in a recent survey (Cooper, R.G. and Edgett, S.J., “Ideation for Product

Innovation: What Are the Best Sources?" *Visions*, XXXII, 1, March, 2008, pp 12-17).

- Actively solicit ideas from your own employees.
- Move to "open innovation" to seek ideas external to your company—from sources such as consumers, private inventors, small businesses, vendors and the external scientific community. (Docherty, M., "Primer On 'Open Innovation': Principles and Practice," PDMA *Visions*, XXX, 2, April 2006.)

Reserve resources for the "big" projects, and use strategic buckets. If all of your development projects—new products, platform developments, extensions and modifications—are dumped into the same bucket, which ones rise to the top? The easy, quick and low-value ones do, which is why most firms have an over-abundance of these. Instead, consider setting up strategic buckets: envelopes of resources (dollars or person-days), but split by project type.

Strategic buckets are based on the premise that "strategy becomes real when you start spending money". Once an innovation strategy has been articulated, it's time to move to deployment. That is, make the spending decisions: Strategically, how many resources is your business prepared to commit to major projects (such as platform developments) versus new products vs. the small low-value ones? Next, projects are categorized by bucket, and then prioritized within buckets (but not across buckets). Continue to prioritize until out of resources in each bucket. The result is a development portfolio that mirrors your business's strategic priorities, and contains the best projects within each project category, without exceeding your resource limits.

Ring-fence the resources, and set up an innovation group. Consider ring-fencing resources for major projects. Too often,

■ Exhibit 4

Breakdown of development portfolios

Project types	Worst performers	Average business	Best performers
Promotional developments and package changes	12%	10%	6%
Incremental product improvements and changes	40%	33%	28%
Major product revisions	19%	22%	25%
New to the business products	20%	24%	24%
New to the world products	7%	10%	16%
	~45%	~55%	~65%

← 10 point steps →

Top performing businesses in new product development were identified using ten criteria, including meeting sales and profit targets, percentage of sales from new products, on-time and time-to-market performance, and ROI (return-on-investment) from R&D spending.

when people are designated to major product developments, their jobs are split and their "other duties" and "urgent items" soon dominate. The result is that a relatively small percentage of the designated resources are actually spent on major product developments. Instead, take a handful of talented people and dedicate them full-time to genuine product or platform development. These ring-fenced resources, or "innovation group," include technical people, but ideally also include marketing and production people. More than half of top performing businesses in product development employ this ring-fencing tactic (twice the proportion as poorer performers).

Fewer, but Higher-Value Projects

The message is clear: We must learn to drown some puppies by establishing gates with teeth, and committing the needed resources at these gates. And then seek higher-value projects by developing a product innovation strategy, employing strategic buckets, and feeding the innovation funnel via a robust discovery stage.

About the Author

Robert G. Cooper is professor emeritus at McMaster University (Hamilton, Ontario); president of the Product Development Institute Inc. (Ancaster, Ontario); distinguished research fellow at the Institute for the Study of Business Markets, Pennsylvania State University (University Park); and creator of the Stage-Gate® system (www.stage-gate.com). He may be reached at robertcooper@cogeco.ca.

Additional Reading

For more on open innovation, see: Chesbrough, H. (2003), *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Harvard Business School Press.

The APQC study (American Productivity & Quality Center) on best practices in product innovation is reported in a three-part article series in *Research-Technology Management*: Cooper, R.G., Edgett, S.J. & Kleinschmidt, E.J., "Benchmarking Best NPD Practices," *Research-Technology Management*, 47, 1, Jan-Feb 2004, pp 31-43; 47, 3, May-June 2004, pp 50-60; and, 47, 6, Jan-Feb 2005, pp 43-55.

Cooper, R.G. and Edgett, S.J. (2006), "Ten Ways to Make Better Portfolio and Project Selection Decisions," PDMA *Visions*, XXX, 3 (June), pp 11-15.

Cooper, R.G., Edgett, S.J., & Kleinschmidt E.J. (2002), *Portfolio Management for New Products, 2nd edition*. New York, NY: Perseus Publishing.

Cooper, R.G. & Edgett, S.J. (2007), *Generating Breakthrough New Product Ideas: Feeding the Innovation Funnel*, Product Development Institute Inc., www.stage-gate.com



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info@stage-gate.com
www.stage-gate.com

Andean Region
+57.301.288.0532

Stage-Gate LA México
+52.55.5265.6590