The StageGate Process for Program Management – A Survival Guide for Project Managers through Two Case Studies

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Companies on the leading edge of product development are constantly struggling with the question of devoting their resources in areas that are the most likely to produce tangible results. Large companies, with tens, or even hundreds of projects in their project portfolios, are in serious need of a resource allocation control methodology to achieve corporate product and strategy objectives.

Project portfolio management is a decision making process where active and potential products and projects are constantly being evaluated, selected, and prioritized. Existing projects may be accelerated, killed, or de-prioritized and resources allocated (or reallocated) to higher priority projects.

Like stock market portfolio managers, senior executives who constantly review and control their investment in their project portfolio stand a higher chance of maximizing the positive impacts of those projects on their operations. Even the best and most senior project managers have only a limited viewpoint which limits their ability to compare the value of projects in the portfolio.

With increased competition in the marketplace and the need to control development costs, most companies are looking for new and better ways to manage their product development process. Savvy companies are realizing that a high percentage of resources devoted to the development and launch of new products are spent in unsuccessful ventures. Shortened product life cycles and experience with failed products (or products that never make it to market) are driving leading companies to find better ways to manage their product conception and development process.

Despite the growing popularity of portfolio management processes, the Product Development & Management Association (PDMA) states that many large company executives identify portfolio management as the weakest area in product management. These management teams admit that there are rarely serious Go/No Go decision points and more specifically, no criteria for making the Go/No Go decision. These companies are facing too many projects competing for limited resources.

StageGate, a product of Product Development Institute, Inc. (PDI), is one method for implementing project portfolio management. With a series of decision points along the project lifecycle, projects are periodically reviewed and evaluated for value and priority. A recent study by the PDMA shows that 68% of leading U.S. product developers now use some type of Stage-Gate process (“Winning at New Products”, R. Cooper, 2001).

But from the Project Manager’s perspective, StageGate can be quite a daunting ordeal – after all, they are expected to justify the project that they have been working on so hard for so long. In some cases, successful justification of the project and approval for subsequent stages may be

tied to bonuses or even continued employment. Such situations are ripe for gaming the system by Project Managers.

But while many project managers see the StageGate process as just one more item to deal with in the course of running their projects, top management sees it as a means of controlling all of those troublesome issues that plague many development projects – delays, overruns, and projects taking on a life of their own and proceeding without real justification. Translation – like it or not, processes like StageGate are here for the long term, and Project Managers are going to have to integrate into the process or be left behind. In fact, from our experience the more senior Project Managers we worked with found the process beneficial – it forced them to focus on the issues in their projects that mattered most, such as, does this project really have a benefit that can be defined and used to justify the expense of the project.

Recently, we had the opportunity to work with a group of project managers at a major financial institution (I'll refer to this company as *CX*) which was in the process of implementing a Stage/Gate review process for controlling its projects. The company was in the initial stages of implementation, and was still identifying an optimal design and process for integrating the Stage/Gate process within the existing development and management processes. As part of our involvement, we documented a number of observations on the process as well as the PM's response to the process, and felt it worthwhile to relay some of the issues that were being identified from a project manager's perspective.

Overview of the StageGate Process

StageGate introduces a critical review process to a project at several points along the project lifecycle, as shown in Figure 1. Sponsors and/or Project managers are expected to justify their projects at the review stages with a group of senior vice-presidents and decision makers, and request authorization for funding for subsequent stages. Approvals are granted only for the stage immediately following the appropriate gate (e.g., Gate 2 will approve only Stage 2; subsequent approval is needed for Stage 3).

CX began their implementation of this process in early 2005, and, realizing it was a work in progress, was constantly revising and improving the process throughout that year. In CX's implementation, each of the StageGate decision points consisted of a proposal presented to the StageGate Committee addressing (depending on the stage) justification for the project, the project's fit within the strategic goals of the enterprise, measurable and quantitative goals for the project, and estimated costs for subsequent phases. This was followed by a meeting with the committee in which the PM, project sponsor, and supporting cast would make their case for continuation (or, in some cases, discontinuation) of the project.

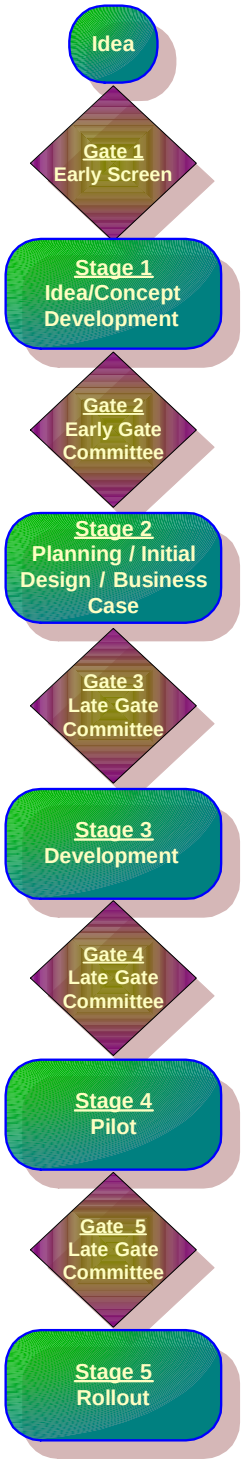

Figure 1. CX StageGate Process

StageGate Decision Making Process

The decision making process for the StageGate Committee is a complex one. At CX, the committee was charged with authorizing subsequent stages of a project based on two criteria – does the project's outcome deliver sufficient benefit to justify its cost, and is there sufficient funding to support it. Once authorized the project is passed on to other groups (e.g., the Project Management Office, the resource management groups, etc) for implementation. The StageGate Committee acts strictly as the funding source, and bases their decisions on the Cost/Benefit Analysis done for the project in question. From this PM's perspective, however, there are a number of other factors that StageGate Committee needs to accommodate in the decision making process.

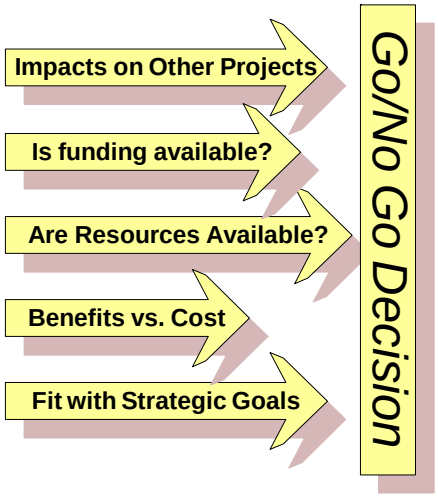

Figure 2. Decision Factors for the StageGate Committee

- **Resource availability**. In making the "Go/No-Go" decision, the StageGate Committee should be considering the availability of resources to conduct the project. Several PMs we had interviewed had projects that had been approved to proceed, however, resources were not available to perform the work necessary. Leaving out this aspect of the decision can lead to delays in delivery (and subsequent benefit) if ignored.
- **Project fit with strategic goals.** In preparing cost-benefit analyses for their projects, the PMs we mentored made sure to understand the overall goal of the Operational Efficiency program in terms that could be translatable to the benefits these projects would produce. In these cases, this translation was simple dollars and cents – the company had a goal to reduce the cost per participant X dollars by some point in time. In justifying the project to the StageGate Committee, a prime consideration was the percentage of this reduction these projects would achieve at some point in the future.
- **Is funding available?** One of the primary purposes of the StageGate Committee is to manage the product development budget available for supporting projects that fit into strategic goals. The StageGate Committee must be able to identify realistic funding levels for projects, and set priorities based on the amount of funding available. Projects may be denied not because they are without merit, but because there are other higher priority projects competing for the same funding. The StageGate Committee has the overall perspective on active or potential projects, their potential value, and the priority they take within the corporation.
- **What impact will this have on other projects?** One aspect of the resource issue may be that prioritization of currently authorized and funded projects may be necessary – some projects that are either in the pipeline or already started may need to be delayed or postponed because of the resource demands of a newly identified higher-priority project. This increases the level of complexity of the cost-benefit analysis by adding factors related to delaying delivery of other project deliverables – how does this balance with funding/approving some other projects?

Case Studies

The process can be demonstrated through two example projects that took different turns in going through the StageGate Process (Project A and Project B). For both projects, the project teams consisted of members from both the business and systems sides of the organization, with each side taking responsibility for various portions of the project. First, though, we will provide more detail on the initial stages of the specific implementation of StageGate by CX.

Stage 1 – Idea and Concept Development

The first step in the CX StageGate process is the submittal and development of a project idea and concept by anyone in the company. Project ideas are screened by an "Early Gate" committee, and successful project concepts are passed on for further development by a Preliminary Evaluation (PE) team. The preliminary evaluation team is charged with a very quick (e.g., generally within 2 weeks) evaluation of the project, estimation of project costs (total costs as well as Stage 2 costs), and identification of one or more potential approaches.

The PE team is not charged with developing either a scope or a problem statement for the project, which was being recognized as a shortcoming of the system. Additionally, only a preliminary benefits analysis is conducted for this stage, the impact of which will be discussed later.

The results of the preliminary evaluation are fed into a proposal and brought back to the StageGate Committee for authorization of Stage 2. Note that several important items are deferred until Stage 2, including assignment of a Project Manager, scope development, and definition of the problem statement.

Stage 2 – Initial Design and Business Case

A number of critical steps are taken during Stage 2 (shown schematically in Figure 3) which will have downstream impacts on later stages. At this point, a project manager and project team are assigned to the project, the problem statement is further defined, the project scope and objectives are developed, the business requirements are gathered, the initial design and approach are formulated, costs for ensuing stages are estimated, and the benefits of the project are defined and quantified.

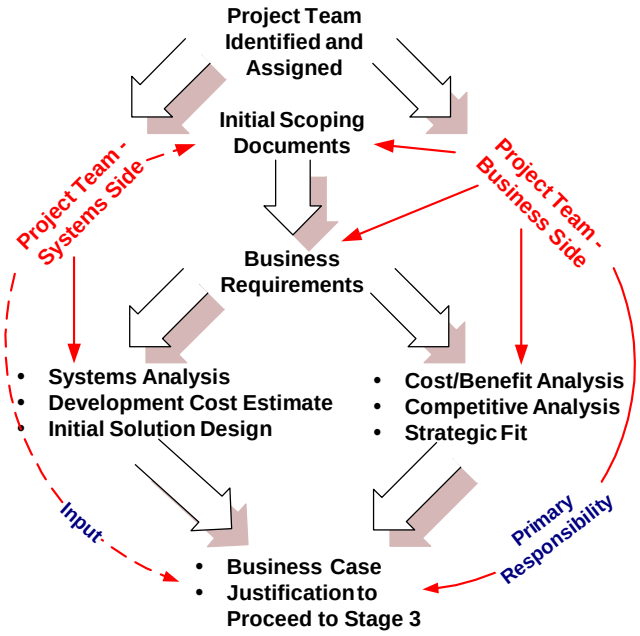

Figure 3. Stage 2 Process Flow

Both of the projects described below had been authorized for Stage 2, and were heading for Stage 3. As the project teams worked through this Stage, they found that it became critical to understand and

clearly define the problem statement that served as the foundation of the project, and that this should be done very early in the process.

Project A

Project A was an operational efficiency project, designed to cut operational costs. The project went into Gate 2 without a quantified potential benefit. While developing the initial design, gathering the business requirements, and building the Business Case, the project team recognized a potential for savings far in excess of the informally expressed numbers; this would, however, be accompanied by higher-than-expected costs for development.

Initially estimated at approximately $1.4 million in costs during the Stage 1 evaluation, the project team identified the potential benefit of the project with savings of over $2 million per year, with a corresponding cost estimated at $3 million and a net present value over 3 years of approximately $1.5 million.

While it was recognized that the estimates developed during Stage 1 were at a 50% confidence level (versus the 80% for the more refined Stage 2 estimates), the more-than-doubling of the project estimates caused concern within the project team going into the StageGate meeting. This StageGate Committee was relatively new at reviewing project proposals, and the review process had been described by other PMs as something akin to an "Inquisition".

Recognizing that, and taking advantage of review opportunities available to the team (CX had instituted a pre-meeting review procedure for all StageGate project proposals), the team was able to pull together the metrics and analysis required to justify the project. Building on the experience of other PMs, the team also developed an "expected questions" list addressing those items not in the proposal, but which could be anticipated to be asked in the StageGate Committee meeting. This proved to be extremely useful, in that about 70% of the questions asked during the Gate 3 committee meeting were covered in this document.

Obviously, preparation for the StageGate Committee was a key factor in approval. The team was confident in receiving approval with an excellent story based on the return on investment for this project, the fact that it would have a significant impact on the cost reduction goals for the operation, and that the sponsor was fairly influential in the cost reduction program.

It was after the decision to proceed to Stage 3 (Development), (and the resulting jubilation), that the team discovered the impacts of this decision by the StageGate Committee. With the model CX had been using, the StageGate Committee was responsible only for reviewing the merits of each individual project and managing their development budget. Resources were the responsibility split between the PMO and the functional departments. Because of the size of this project, resources were taken from several other PMs in various stages of their projects, resulting in potential delays to those projects.

The problem was evident – the PMO had no input on the approval of the project, with the Gate committee acting under the assumption that if the money was appropriated, then the resources would be found. Eventually, resources were found for the other projects through creative staff assignments and temporary employees, but not without a high degree of anxiety on the part of the other PMs.

A second issue also surfaced after approval for the development stage. Project A is an operational efficiency project with a number of subprojects with little or no dependencies

between subprojects. Each was designed to deliver its own products or systems, and as each deliverable became available, the operations group would be able to begin using it and taking advantage of its cost savings.

The problem here, though, was the conflict with the StageGate waterfall process. As mentioned, items such as training were defined as a later phase of a project (Stage 4), and consequently,

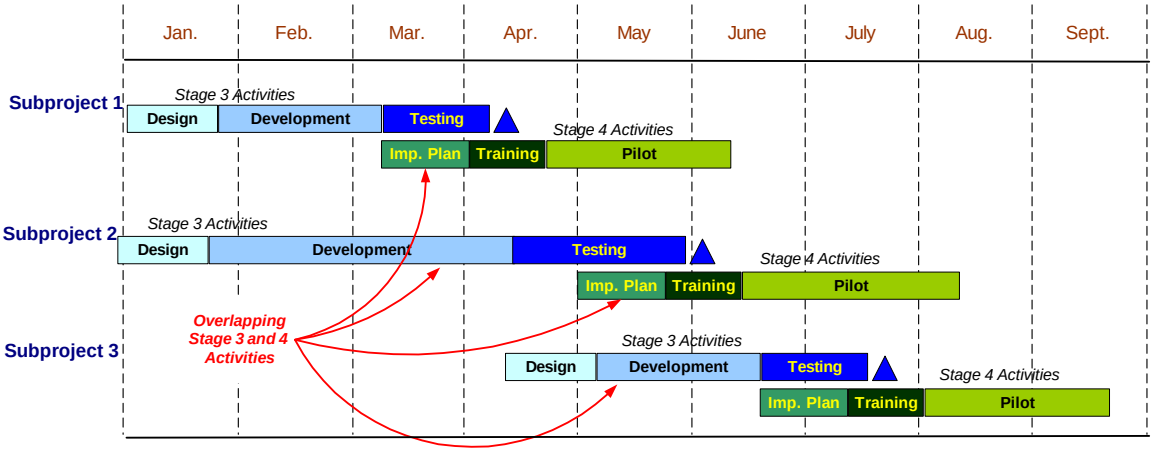

Figure 4. Overlapping stages for subprojects can cause issues with the StageGate process.

funding for these items was delayed until after the Gate 4 review. In this case, however, there was considerable overlap between Stage 3 activities on one subproject, and Stage 4 activities on another subproject.

There was no easy resolution to this problem. The simple solution of approaching the StageGate Committee at the termination of each development stage for each of the eight subporojects became a non-starter, when a limitation in the management software CX used to manage funding was identified - it turned out that the software would not allow money to be spent from multiple stages simultaneously. Consequently, there was a need for creative accounting to accommodate the overlap noted above, which, in some ways, negated the advantages of the StageGate process

Project B

The second project was also an operational efficiency project. This project went into Gate 2 without quantified potential savings; however, it was believed to have the potential to save the enterprise “millions”.

The Gate 2 estimated cost for this project was about $2.5 million, and was under a very tight timeframe since CX needed to take advantage of its product coincident with end-of-the-year activities. The constrained timeframe, therefore, wound up driving the initial phases of the stage, and forced the project team to overlap portions of the Stage 2. The scope of the project was developed, business requirements gathered/defined, and a systems analysis started as the Cost/Benefit Analysis was being initiated.

During the gathering of the business requirements, the project team began to question the validity of the assumptions under which Stage 2 had been authorized. Under the CX StageGate implementation, only a preliminary Cost/Benefit Analysis in Stage 1 is performed in order to authorize Stage 2. As was later learned, this became a major shortcoming of this implementation.

The project team proceeded through the requirements gathering, and then split to carry out two concurrent tasks - the systems team conducting a systems analysis while the business team developed a business case. At that point, serious consideration of the data gathered for the Cost/Benefit Analysis was initiated, and a hard look at that data indicated the "problem" which had driven the process was not the major issue initially identified. At that point, the project team began consideration of alternative solutions which were more in line with the specific issue and its magnitude; even with this change, the project costs still far outweighed the potential advantages of any implementation. Because of this, the project was killed at the Gate 3 decision point.

In this case, the demand to justify the project at Gate 3 required a hard look at real data to identify and address the real issues behind initiation of the project. The project team found that while there had been complaints surrounding this issue for some time the actual impact on costs and effort was minimal. While the issue had been around for a while, there had been no investigation of the full impact of the issue on operations, and therefore, no full definition of the cost impact or even an exact definition of the problem.

As mentioned, the project team was under severe time constraints to develop and implement a solution. Because of that, the initial design and systems analysis was proceeding even as the realistic CBA was being developed, which caused Stage 2 costs to continue to be accrued as a more careful analysis of the situation proceeded. While Stage 2 had been approved at just under $500k (actually Stage 2 spending was around $350k), the systems analysis portion of this Stage was about 60% of those costs. Over 50% of this could have been avoided had a more accurate definition of the magnitude of the problem been done earlier in Stage 2, or, even better, prior to Gate 2.

The success of the StageGate process is evident in this project. StageGate forces an evaluation of the benefit of the project versus its projected costs at various points along the project lifecycle, and if the project cannot be justified, it is re-scoped or killed. This project, without the originally anticipated benefit, was killed by the process before incurring high development costs.

Lessons Learned

We will address the Lessons Learned from these two projects from two perspectives - that of the project manager, preparing his/her project for StageGate Review, and that of the organization, where individuals have been charged with implementing a StageGate process within their enterprise.

From the project manager perspective:

- **Trust, but verify.** Project B started with the project team believing they were addressing a major issue that was causing millions in wasted effort. As the issue became better defined, the magnitude of the "problem" did not match the amount of "noise" it was generating, and much time and effort went into developing and re-developing a solution that fit the scope of the issue. Verification of the basic assumptions initiating the project can help to alleviate unnecessary efforts later in the project.

- **Tailor the solution to the need.** We've all heard this as Project Managers – don't goldplate your projects because it will kill your budget and schedule. But while goldplating is usually associated with add-ons after the project scope and approach is defined, scope and approach should be planned with consideration to the potential benefits. Because StageGate forced the project teams to constantly evaluate their solutions in relationship to the return those projects would provide, the requirements that were developed were justifiable and real. StageGate review committees are interested in is the return for the money spent, and this process forces cognizance of the return side of the project, not just the cost.
- **Be prepared**. Some of the PMs we worked with felt they were being lead to the guillotine going into their Gate presentations. For Project A, the PM had armed himself and the team with the confidence that, if implemented, the project was easily justifiable. Even if some questions were left unanswered, they would be able to satisfy the StageGate Committee in a subsequent review.
- **View the process as a dialog, not an ordeal**. The PM and the StageGate Committee bring differing perspectives to the decision process on each project. The PM knows the value of the project from the Cost/Benefit Analysis, while the committee knows the overall environment that project fits into. Both perspectives are needed in partnership to make an informed decision on the fate of the project. Recognizing that partnership is essential for both sides to make the right decision.

From the organizational perspective:

- **The role of the StageGate Committee needs to be clearly defined and communicated.** The PMs we interviewed had the impression that the gate committees were still feeling their way along in defining their responsibilities. The PMs having resource issues could only address the issue with their sponsors and, if there was one, a steering committee. At CX, PMs do not have power to assign resources, and if their Steering Committee could not (or, in some cases, would not) help, the natural recourse was the gate committee. Without clear definition of committee power over resources or priorities, the StageGate Committee was also powerless to move projects along.
- **The Gate Committees must include the factors listed above in their decision-making process.** We found representation on the gate committee from several functional groups with control over resources; however, their role (from a StageGate Committee standpoint) was strictly to decide the viability and approval of projects. As noted in the decision-making process, there are several factors involved in the decision to proceed with a project, and economic viability is just one. Excluding one or more of these factors will lead to unrealistic expectations for the project and potentially impact its viability (for instance, if the project is delayed because of resource issues, a late time-to-market may have a major impact on the value of the project).
- **Trust, but verify.** We heard rumors of some project advocates enhancing their project position through overestimating the value of the project. The StageGate Committee did not independently investigate the assumptions made in the CBA, leaving open the potential for project advocates to game the process. In cases where careers are tied to projects, the temptation to do so may be higher than ethical standards can overcome.
- **A project historical record is required.** Failed or low-value projects have a tendency to be re-named, re-packaged, and re-cycled. In fact, Project B had been brought before the

StageGate Committee at one point and not approved, but after being re-named and repackaged, was subsequently approved. Procedures for identifying and addressing such recycling should be a part of the StageGate Committee process.

- **The hurdle for authorizing a project should be reasonable, but tough.** In the case of Project B, the project team was authorized for a total of just under $500k for Stage 2 activities. Without the conscientiousness of the Project Team, this funding could have been totally expended without producing a project with the value expected. By clearly defining the problem to be addressed in Stage 1, along with the expected value of the projects product, the project team can focus more intensely on developing the solution that meets those objectives.

Nick Pangaro and Terry Yetsko are principals with ***NE Project Management Consultants, LLC.*** *Both are PMI-Certified Project Management Professionals with over 50 years experience in Project Management. Mr. Pangaro's experience lies in managing projects in IT, regulatory compliance, engineering, financial and knowledge based information systems. Mr. Yetsko is an electrical engineer with experience ranging from production test equipment to monitoring and control systems for the extrusion coating industry and high powered radio-navigation transmitters.*