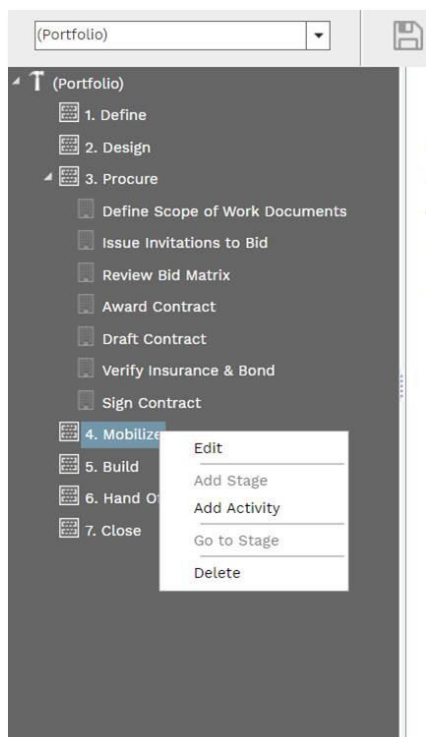


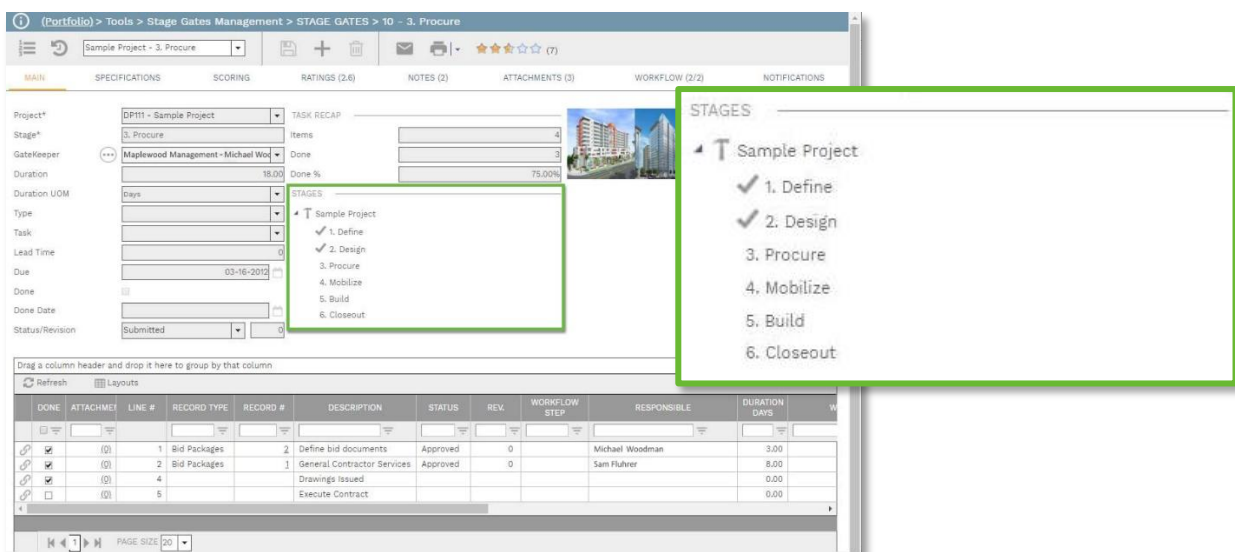
PMWeb Stage Gates

PMWeb Stage Gates – Stage Gates ties major Stages (or Phases) with their default or custom tasks to move projects along from one stage (phase) to another. Not just a schedule, but an interactive tool that ties the actual task from one area of the system into a combined collaborative effort.



PMWeb Stage Gates allows you to plan the various stages for each of your projects along with the tasks associated within each stage. An unlimited number of stages can be created. Each stage can be composed of an unlimited number of activities. Activities can be any project-related task and can be linked directly to other PMWeb records, including Schedule tasks. This means that stage deliverables can be created within PMWeb and the stage is updated in real time as each deliverable develops.

PMWeb Stage Gates are easy to build and manage. Templates can be created at both the portfolio and program levels. Each stage can be completely reconfigured for each project if desired. Records are automatically routed through your enterprise using normal emails that tie directly back to the PM Web system. Administrators see at a glance where every record and document currently reside, who is responsible for them and when the next actions are due.



Monitor Stage Progress and Task Progress in One Screen



Project Development with Stage Gates

PORTFOLIO, PROGRAM & PROJECT MANAGEMENT

- Project Management
- Document Management
- Visual Workflow
- Planning/Estimating
- Scheduling
- Asset/Facility Management
- Business Intelligence

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Overview

Stealing a page from the manufacturing sector, more and more property owners, developers and construction professionals are adopting the Stage Gate process to design, develop and manage their projects.

The Stage Gate Process, first popularized by the Motorola Corporation in the 1980s, was originally designed to standardize, and to bring more discipline to, the research and development of Motorola's new consumer products. In light of Motorola's success other technology companies followed its lead and Stage Gates, in various flavors, has become a widely adopted development methodology.

It was perhaps inevitable that these large, successful manufacturers would adapt the principles of Stage Gate development to effectively design, construct and operate their own infrastructure projects.

What is the Stage Gate Process?

The Stage Gate process is made up of *stages* and *gates*:

- **Stages** are comprised of any number of activities which shape and define the project. Stage activities can occur in sequence and/or in parallel, with the goal of creating predefined deliverables.
- **Gates** are evaluation points where the decision is made to continue the project (go) or end it (kill), based on an evaluation of the stage deliverables and other criteria.

The overriding goal of Stage Gate management is to commit fewer resources to the early stages of the process and to rigorously examine the results of each stage to determine whether the project should proceed or be stopped. A key component of a gate review is to also evaluate the plan for the next stage.

Because the stakes grow exponentially with each successive stage, the gate review process necessarily becomes more rigorous and difficult with each step. When properly executed, project leaders are required to actively justify the project at each gate review. Weak projects are identified, adjustments are made to strengthen them and failing projects are canceled or shelved.

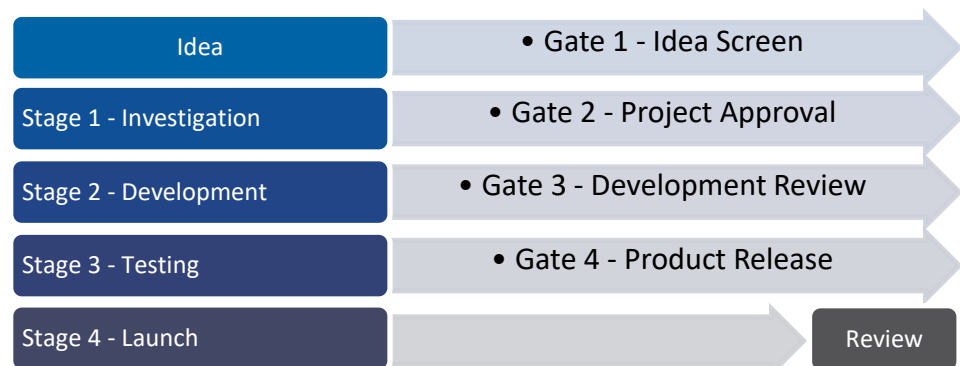
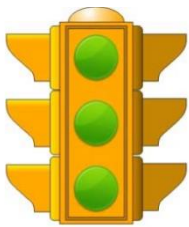


Figure 1 - A Typical Manufacturing Stage Gate Model

The Stage Gates concept can be used in any project management situation in any industry.



The Greenlight Paradox

Stage Gates and Construction Project Management

Although it originated in a manufacturing environment, the Stage Gates concept can be used in any project management situation in any industry. IT departments everywhere, for example, benefit from Stage Gate project development because it forces a periodic check that, among other things, the technology that is being adopted is still relevant and has not become outdated. This is critical in the IT world where technology evolves very rapidly. Owners, developers and other construction professionals can also benefit by using the Stage Gate process.

Developing construction projects is inherently costly and can carry a high level of risk from its earliest stages. Site searches and acquisitions, preliminary designs and related due diligence all require the services of highly skilled (read “expensive”) professionals. Simply coordinating all the parallel tasks and the efforts of the varied resources necessary to move a project plan forward often requires a substantial allocation of resources.

Most enterprises already have some sort of process in place by which project initiatives are green-lighted. The problem is, that once granted, the green light takes on a life of its own. As more and more resources are spent developing a project, managers and executives become reluctant to even consider cancelling it, even if it begins to go off track, because each perceives that to be a tacit acknowledgement that the resources spent to date may have been wasted. In some firms, where development teams are required to compete for resources, a project cancellation on a team’s record may mean the team moves to the back of the resource line next time out. Ironically, as the total resource cost mounts, the expense itself starts to be a justification for the project to live on. The sheer volume of resources expended has a seemingly unstoppable momentum of its own, keeping the project moving on, even if it turns out not to merit continuation. The green light stays on, rarely turns yellow and almost never turns red.

In construction projects, the potential for costs to spiral out of control early in their development cycle makes it vital to identify and then improve or kill problem projects as soon as possible. Historically, rigorous analysis of this sort was often only done at the end of projects, in part because of the difficulty of collecting and organizing the necessary data. The end of a project is precisely the wrong time to test its viability. A successful Stage Gate process is one that forces project leaders to defend and gatekeepers to recommit to projects at each gate.

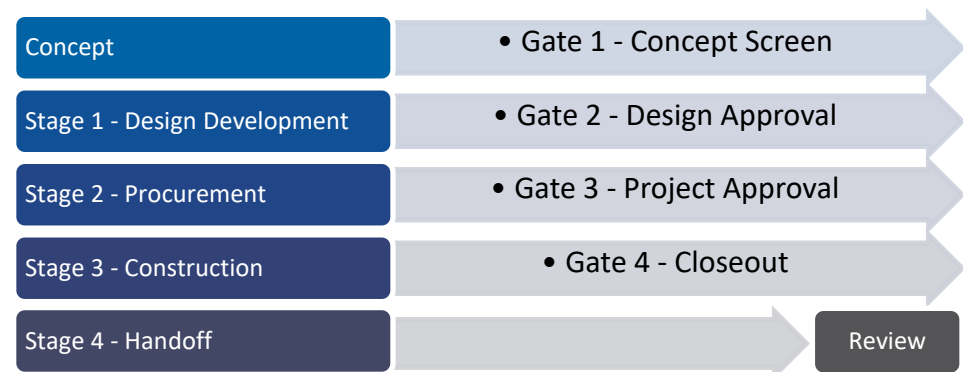


Figure 2 – Typical Stage Gates Used in Construction Project Management

Development teams manage hundreds of records and coordinate activities across many disciplines.

Understanding the Stage Gate Workload

A properly designed Stage Gate process includes specific deliverables that the project development team must create as part of their stage activities and submit at the gate review. Some deliverables that might be part of a procurement gate review include:

- Bid Documents, including attached drawings, specifications, schedules, and more
- Vendor Qualifications with supporting insurance and W-9s documents
- Bids with acknowledgements of all bid items and addenda
- A Detailed Bid Analysis that compares vendor prices side by side in a cost matrix
- Contract Documents ready for signature

Development teams may create, collect and store dozens or even hundreds of additional records and documents that support the deliverables for a stage. The logistics involved in managing all of these records can quickly overwhelm even the most experienced and organized development team.

Coordinating the work of the team is also a big challenge. A project development team is usually composed of any number of cross-functional team members, each of whom may be simultaneously working on multiple projects. Efficiently tracking and directing the efforts of this disparate group of resources is sometimes just as difficult as preparing the deliverables.

We can break down the workload of a project development team into these major categories within any stage:

- Conceptual Development – actually “thinking” about the project
- Document and Record Management
- Creating the deliverables
- Preparing the Plan for the next phase
- Coordinating the Process

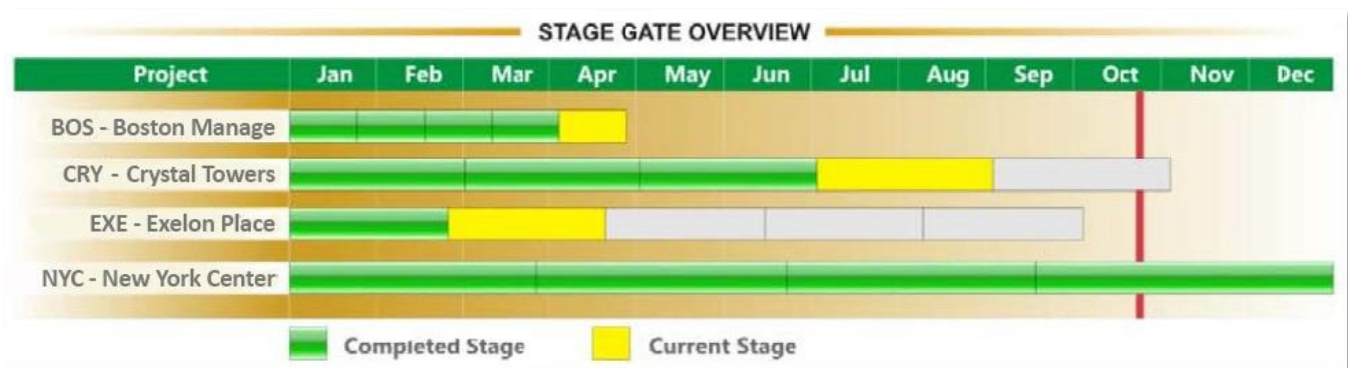


Figure 3 - A Central Database Lets You View Stage Gate Progress Across the Portfolio

Automating Stage Gates, using software specifically designed to do that, is the only practical and cost-efficient way to manage the process.

The Argument for Automating the Stage Gate Process

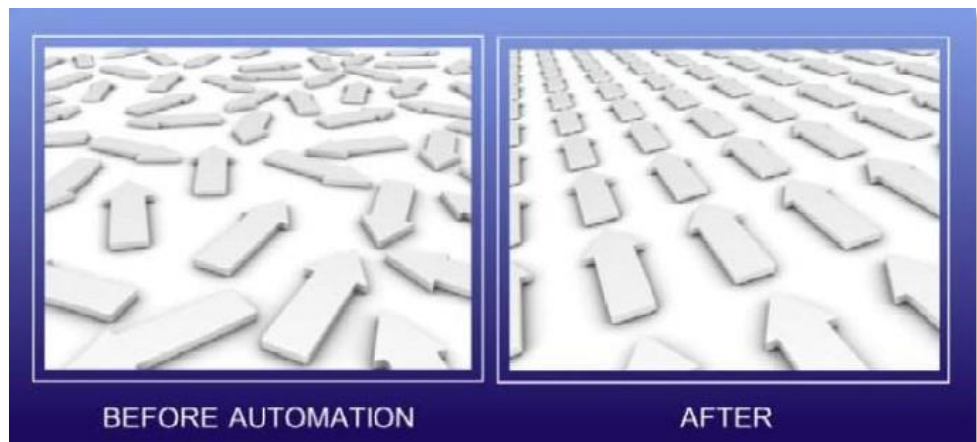
As discussed in the previous section, the project development team's workload is heavy and composed of many disparate tasks and responsibilities. In addition, even a slight increase in the complexity of a project often causes an exponential growth in the magnitude of the work required to complete each stage as well as the number of deliverables that must be created, collected, tracked and stored.

For many enterprises that use Stage Gates all this work is managed using inherently inefficient combinations of spreadsheets, email, paper files, calendars and more. Users build deliverables and manage their schedules using whatever tools they have at hand. System administrators struggle to create and enforce document standardization. No one can be sure where documents are in the process (often they can't even be physically located). Data is not updated in real time and collaboration is cumbersome.

Some have tried to improve their processes by migrating to electronic document management systems. The drawback to this approach is that everything in the document manager must still be created as separate records (word processing documents, spreadsheets, checklists, drawings and so on) before being uploaded and stored. File attributes must be created and the metadata must be added to each uploaded document. At that point, the best that can be said about a document manager based system is that a new storage system has been created. In effect, metal file cabinets have simply been replaced by an electronic one.

The fundamental shortcoming of the scenarios described above is that neither one does anything to define and enforce a system process. And basic to the Stage Gate methodology is the concept of establishing and then sticking to a process.

Automating Stage Gates, using software specifically designed to do that, is the only practical and cost-efficient way to manage the process.



*No system of any kind
will be used if
it makes users'
lives more difficult.
Systems that are
not used will fail.*

Any system that is intended to automate Stage Gates should have these characteristics:

✓ **Global access**

To encourage collaboration and real-time data updates, each team member must be able to easily access the system from any location, around the clock. The obvious choice, then, is a system with web deployment capability that can be used from any browser-capable device without requiring local setup, including not having to install and maintain plug-ins.

✓ **Workflow for accountability**

Until team members can easily monitor progress on each task, quickly locate each deliverable and collaborate in a structured environment, they will spend as much time working on the *process* as they do working on the *project*. A comprehensive workflow system should serve as the platform for any process, including Stage Gates. Workflows must be pre-definable, but flexible and easy to create. The workflow should automatically notify users when the ball is in their court and notify administrators when tasks are overdue.

✓ **User-defined stages with clearly defined deliverables**

No two enterprises or projects are identical, so a Stage Gate system has to be easily adaptable for users, without requiring the services of a programmer to re-define a stage. Each task should also be capable of clearly defining all of the related deliverables and monitoring the progress of each.

✓ **Ease-of-use**

No system of any kind will be used if it makes users' lives more difficult. Systems that are not used will fail.

✓ **No duplicate data entry**

This is related to the ease of use requirement above. Data that is entered in one part of the system should be immediately available to all of the other parts of the system so that other users can see it and use it and are not required to enter it again.

✓ **Enterprise level security**

A centralized security system that is easy to configure must control who has access to what, and what they can do with the things they see.

✓ **Metrics**

Built into the system must be user-definable metrics to help quantify gate reviews as much as possible.

✓ **Global search**

This means a single-search capability across the entire portfolio and across all data types, if desired.

Using PMWeb Stage Gates

PMWeb Stage Gates define, manage and automate the entire process.

PMWeb is a modular portfolio/program management solution designed to meet the project management requirements of medium to large enterprises. It is completely Web based and can be used on any device with a browser, without special apps or plug-ins. PMWeb is unique in that it manages the complete lifecycle of a project or asset, from its plan to construction to operation. It also features a powerful Visual Workflow system that acts as a platform for the entire application.

Another prominent feature of the system is PMWeb Stage Gates, which define, manage and automate the entire Stage Gate process. An unlimited number of stages can be created and each stage can be composed of an unlimited number of activities. Activities can be any project-related task and can be linked directly to other PMWeb records. This means that stage deliverables can be created within PMWeb and the stage is updated in real time as each deliverable develops.

The screenshot displays the PMWeb Stage Gates Management interface. The top navigation bar shows the path: (Portfolio) > Tools > Stage Gates Management > STAGE GATES > 33 - 3. Procure. The main content area is divided into several tabs: MAIN, SPECIFICATIONS, SCORING, RATINGS, NOTES, ATTACHMENTS (3), and NOTIFICATIONS. The MAIN tab is active, showing a form for a project record. The form includes fields for Project* (U-200 - SKYLINE), Stage* (3. Procure), GateKeeper* (Langdon Wilson - Sandy Mckmillan), Duration (60), Duration UOM (Days), Type (02 - Schematic Design), Task, Lead Time (30), Due (Dec-06-2020), Done, Done Date, and Status/Revision (Draft). A TASK RECAP section shows Items (9), Done (0), and Done % (0%). A STAGES section lists the project stages: 1. SKYLINE, 2. Design, 3. Procure, 4. Mobilize, 5. Build, 6. Hand Off, and a link to a 'hany older stage gate'. Below the form is a table with columns: DONE, LINE #, DESCRIPTION, STATUS, REV., WORKFLOW STEP, RESPONSIBLE, DURATION DAYS, TASK, START DATE, LEAD TIME, DUE DATE, DONE DATE, and NOTES. The table contains five rows of data, with the first row highlighted. The table is paginated with a 'PAGE SIZE' of 5.

DONE	LINE #	DESCRIPTION	STATUS	REV.	WORKFLOW STEP	RESPONSIBLE	DURATION DAYS	TASK	START DATE	LEAD TIME	DUE DATE	DONE DATE	NOTES
☐	1	Meet to Define Procurement St	Approved	0		Jon Lloyd,Sarah Karter,Steve	0.00		Mar-08-2020	0	Mar-08-2020		
☐	2	Define Scope of Work Document	Approved	0		Sarah Karter,Steve Prentiss	0.00			0			
☐	3	Issue Invitations to Bid	Pending	0	2 of 5	Sarah Karter,Steve Prentiss	0.00			0			
☐	4	Review Bid Matrix	Approved	0		Sarah Karter	0.00			0			
☐	5	Award Contract	Approved	0		Steve Prentiss	0.00			0			

Figure 4 - Monitor Stage Progress and Task Progress in One Screen

PMWeb Stage Gates are easy to build and manage. Templates can be created at both portfolio and program levels and each stage can be completely reconfigured for each project if desired. Records are automatically routed through your enterprise using normal emails that tie directly back to the PMWeb system. Administrators see at a glance where every record and document currently resides, who is responsible for them and when the next actions are due.

Virtually every feature of PMWeb can be used in conjunction with the Stage Gate process.

Virtually every feature of PMWeb can be used in conjunction with the Stage Gate process. Since stage activities can link directly to any PMWeb record, anything can serve as a deliverable. As is true throughout PMWeb, unlimited notes and attachments can be added to Stage Gate records along with user-defined fields, checklists and ratings. The team can collaborate on image files and live maps, perform space planning and assess multiple risk scenarios, all without leaving the PMWeb system.

<i>Some PMWeb records that can serve as Stage Gate deliverables</i>	<i>Some of the PMWeb features that directly enhance the Stage Gate process</i>
Portfolio Plans and Initiatives	Visual Workflow
Risk Analyses	Procurement
Schedules	Scoring
Estimates	Checklists
Online Bids	Email Notifications
Contracts and Purchase Orders	Online Image Viewer with Redlining
Budgets	Document Manager
Funding Authorizations	Custom Fields
Change Orders	PMWeb Reporting
Forecasts	Business Intelligence Reporting
Plus many more....	

In addition to being able to use PMWeb schedules as potential deliverables you also have the option of linking any gate task directly to a schedule task. As the project schedule is updated the gate task date can be updated as well.

The screenshot displays the 'STAGE GATES SETUP' interface in PMWeb. On the left, a navigation pane shows a tree structure under '(Portfolio)' with categories: 1. Define, 2. Design, and 3. Procure. Under '3. Procure', 'Define Scope of Work Documents' is selected, opening a context menu with options: Edit, Add Stage, Add Activity, Go to Stage, and Delete. The main workspace is divided into two sections: 'STAGE DEFAULTS' and 'ACTIVITY DEFAULTS'. 'STAGE DEFAULTS' includes fields for 'Stage Description*' (set to '3. Procure'), 'GateKeeper' (with a user selection icon), 'Type' (dropdown), 'Duration' (0.00), and 'Duration UOM' (Days). 'ACTIVITY DEFAULTS' includes 'Activity Description*' (set to 'Define Scope of Work Documents'), 'Record Type' (set to 'Bid Packages'), 'Responsible' (with a user selection icon and set to 'Sarah Karter, Steve Prentiss'), 'Duration' (0.00), and 'Duration UOM' (Days).

Figure 5 - Defining Stage Gates is Quick and Easy

*PMWeb Scoring
adds an
objective metric
to gate reviews.*

Scoring Stage Gates

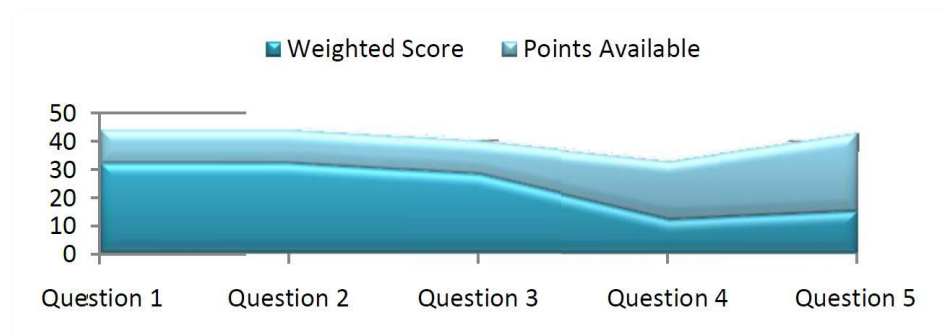
The decision whether to pass a project through a gate or instead to kill it is not a black and white one. It is often highly nuanced and must be based on a wide variety of qualitatively different factors. Assessing all these factors individually and then aggregating the assessments into one decision is a formidable task. In some enterprises this is used as justification for allowing executives to make their go/kill decision based on their “gut instinct”. This runs completely counter to the stated purpose of managing by Stage Gates, which is to bring more rigor and accountability to the process. One way to achieve this goal is to introduce a tool that can be used to more objectively measure each of the many variables involved.

In PMWeb, that measuring tool is called *Scoring*. PMWeb Scoring allows you to create a list of an unlimited number of criteria called “questions” for every gate, give each question a weight relative to all of the other questions, and then score them. PMWeb automatically aggregates a weighted score for you. While stage reviews still require a great deal of qualitative analysis, PMWeb Scoring adds an additional, more objective metric to gate meetings.

MAIN		SPECIFICATIONS		SCORING (89.00)		RATINGS		NOTES		ATTACHMENTS		NOTIFICATIONS		
Drag a column header and drop it here to group by that column														
 Edit  Add Line  Add Scoring  Delete  Refresh  Layouts														
LINE #	GROUP	QUESTION ID	QUESTION	ANSWER	SCORE	POINTS AVAILABLE	WEIGHT	WEIGHTED SCORE						
1	Deliverables		Contracts negotiated, completed and attested?	All commitments complete	70.00	75.00	30.00%	28.00						
2	Deliverables		Milestone schedule	Needs refinement	100.00	100.00	10.00%	10.00						
3	Deliverables		Next stage scope	Scope is ready and looks strong	45.00	50.00	15.00%	13.50						
4	Scope		Has there been significant scope creep?	On track	90.00	100.00	25.00%	22.50						
5	Schedule		Is the development schedule on track?	Only a slight delay	60.00	80.00	20.00%	15.00						
					365.00	405.00	100.00%	89.00						
1 PAGE SIZE 20														

Figure 6 - PMWeb Scoring

Metrics like PMWeb Scoring are crucial to enterprises who have adopted Lean Six Sigma™ and other similar managerial initiatives. Without being able to derive statistical measurements of process and their deviance from standards, Six Sigma and the like cannot be carried out.



Stage Gates that are automated, using software specifically designed to do so, simultaneously make project development easier and more transparent.

How Do Stage Gates Relate to Portfolio Planning?

It is important to note that Stage Gate management does not replace Portfolio Planning but is, instead, an additional tool that complements it.

Portfolio review is a generalized exercise that is primarily concerned with weighing the long- and short-term benefits of multiple projects as components of a comprehensive strategy. Competing initiatives are evaluated side by side based on how well they are expected to achieve the overall objectives of the plan. Projects are funded based on whether or not they meet the target needs of the enterprise and whether or not resources are available to fit projected needs. The evaluation process is usually formulated as a series of standard questions and answers. In PMWeb Portfolio Planning these questions are tracked using the same PMWeb Scoring tool described above (see Scoring Stage Gates).

Stage Gate management might be seen as an *extension* of Portfolio Planning, in which the questions that were originally asked of the project are asked again at each stage review along with additional ones, specific to the gate. A gate review therefore serves two purposes:

1. Requires managers to assess whether or not the project continues to fit within the framework of the Portfolio Plan.
2. Requires project champions to prove that the project can stand on its own merits.

PMWeb offers both Portfolio Planning and Stage Gate management in one unified platform.

Conclusion

Stage Gate management provides a framework of discipline and accountability for developing and carrying out any type of project. While the process was initially developed to serve the needs of manufacturers, it carries value for project managers across all industries, including those in construction.

A well-designed Stage Gate process ensures that projects prove themselves to be of value to the enterprise, not only in the initial planning stages but throughout their entire lifecycle.

Stage Gates that are automated, using software specifically designed to do so, simultaneously make project development easier and more transparent.

While it is not a panacea, Stage Gate management is a valuable weapon in a project manager's arsenal.