

# Visualizing Projects

# Mark J. Woepffel

## **Visualizing Projects**

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*This is where most project plans begin and end: in the dark.*

# “Planning” won’t dispel the darkness

## Why are projects late?

If you’re responsible for the performance of a project team, you may be tempted to blame the usual suspects: it’s hard to get everyone working together; you can’t get enough resources, you need to start projects sooner to finish earlier; and the big one, the 800 pound gorilla of process management shibboleths – you need better planning.

But in our experience, rebooting hundreds of previously stuck projects, none of these excuses are true, especially the last one. The truth is that there are no truly accurate plans, only better or worse plans. If you’re not achieving the progress you want, your biggest opportunity for progress is not better planning, but more effective execution that addresses the real reasons projects are late, which are:

1. Confused, conflicted or uncertain **priorities**
2. No practical means for **collaborative execution**
3. Too much **work in progress**
4. Premature starts on tasks that begin without **full kits**
5. **Conflicting** goals and agendas

## Why can’t we see the real answer?

“Better planning” didn’t help one of our recent clients cut project lead time from **31 to 8 days** and increase revenue by **\$400 million a month**. And it wasn’t “better planning” that helped a major petro company increase engineering project throughput by **24%** in six months, saving **\$12 million** in the process.

No, these teams, and many others, achieved extraordinary gains by learning just one thing: how to see.

What really improves project performance? Visualizing your process. Take a look...



*Let's have a meeting!*

# Why meetings suck

The existentialist philosopher, Jean-Paul Sartre, once observed that, “Hell is other people.” He wasn’t quite right. Hell is other people, in a closed room, looking to assign blame for yet another missed deadline.

The problem is *not* that project participants are innately misanthropic. In fact, we believe they naturally find satisfaction in productive collaboration. The real problem is that they cannot collaborate effectively because they have no common means for doing so.

- They can’t see *where* the project is, what its status may be.
- They can’t see, among the competing claims to their time, *what* the priority is – and what they should work on next.
- They can’t see *how* they might be able to help each other – and therefore, themselves – apply their energies to the most urgent work.
- Instead, teams focus on what they *can* see, the work that didn’t get done. As a result, teams defend themselves in tedious meetings that look backward into the painful past, rather than looking forward into a productive future.

## Ten minutes to clarity...

What if, instead of being imprisoned in a room for an hour, dodging or directing blame, you could spend just *ten minutes* a day collaborating on crystal-clear next steps?

You can. All you need is a hallway, a whiteboard and some smart thinking.



*No room, no chairs, no “meetings”*

# Start with a clean slate

Let's get rid of the room.

Let's get rid of the chairs.

While we're at it, let's get rid of meetings – or at least what we traditionally think of as meetings.

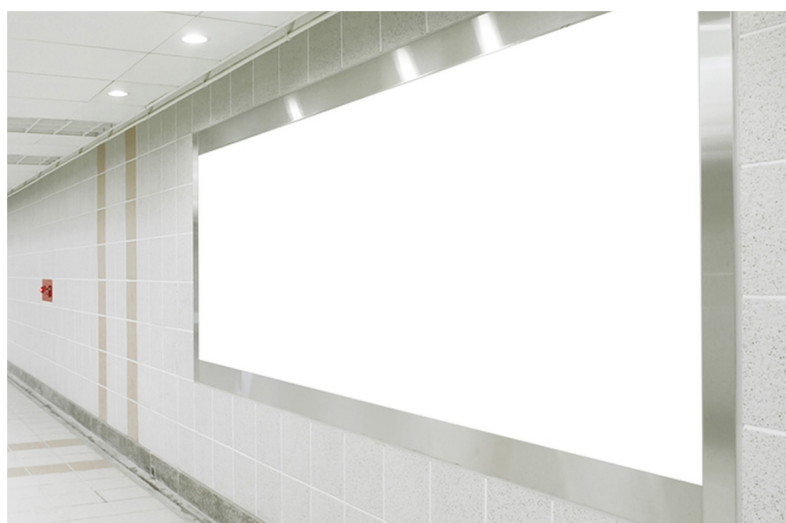
We will gather, but here's what we won't do any more:

- We won't point fingers.
- We won't assign blame.
- We won't ask “why” things have gone wrong.
- We won't dwell on the past.

## Stand up for the future

We use a hallway because we want people to stand – pretty soon, they'll be on the move, returning to their work with a clear understanding of what, exactly, they should be working on.

We use a whiteboard or a strip of paper because they are flexible: we can tailor our visualization to the exact needs of our project.



*Figure 1: In just a few minutes, everyone will share one common understanding of what needs to be done and who needs to do it.*

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*Assign columns to every step in the process.*

# What's your process?

The board is the center of everyone's attention. So what will they see?

First, you need to look into your process: step by step, what has to be done to complete a project from beginning to end? What are the inflection points for progress, the hand-offs that must be made, the transitions that require decision-making?

While project processes may be complex, for the purposes of efficient execution, you want a summary that distills the process to its most important steps. For one engineering group, it was sufficient to define it in four stages, each of which was represented by a column on its whiteboard:

1. Design
2. Draft
3. Check
4. Approval

More often, the process is more complex. In Figure 1, there are ten steps to completion, including Technical Clarification, Job Creation, 3D Concepts, 3D Modeling, Design Freeze Review, Detailed Drawings, etc.

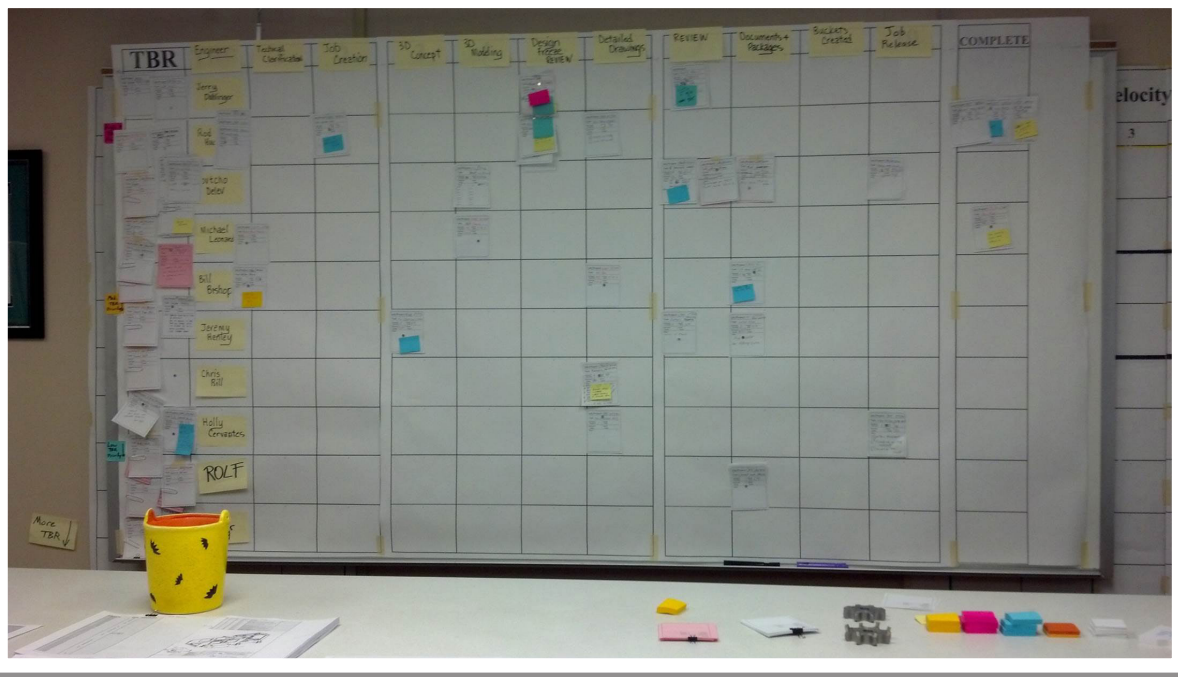


Figure 2: Every managed step gets its own column.

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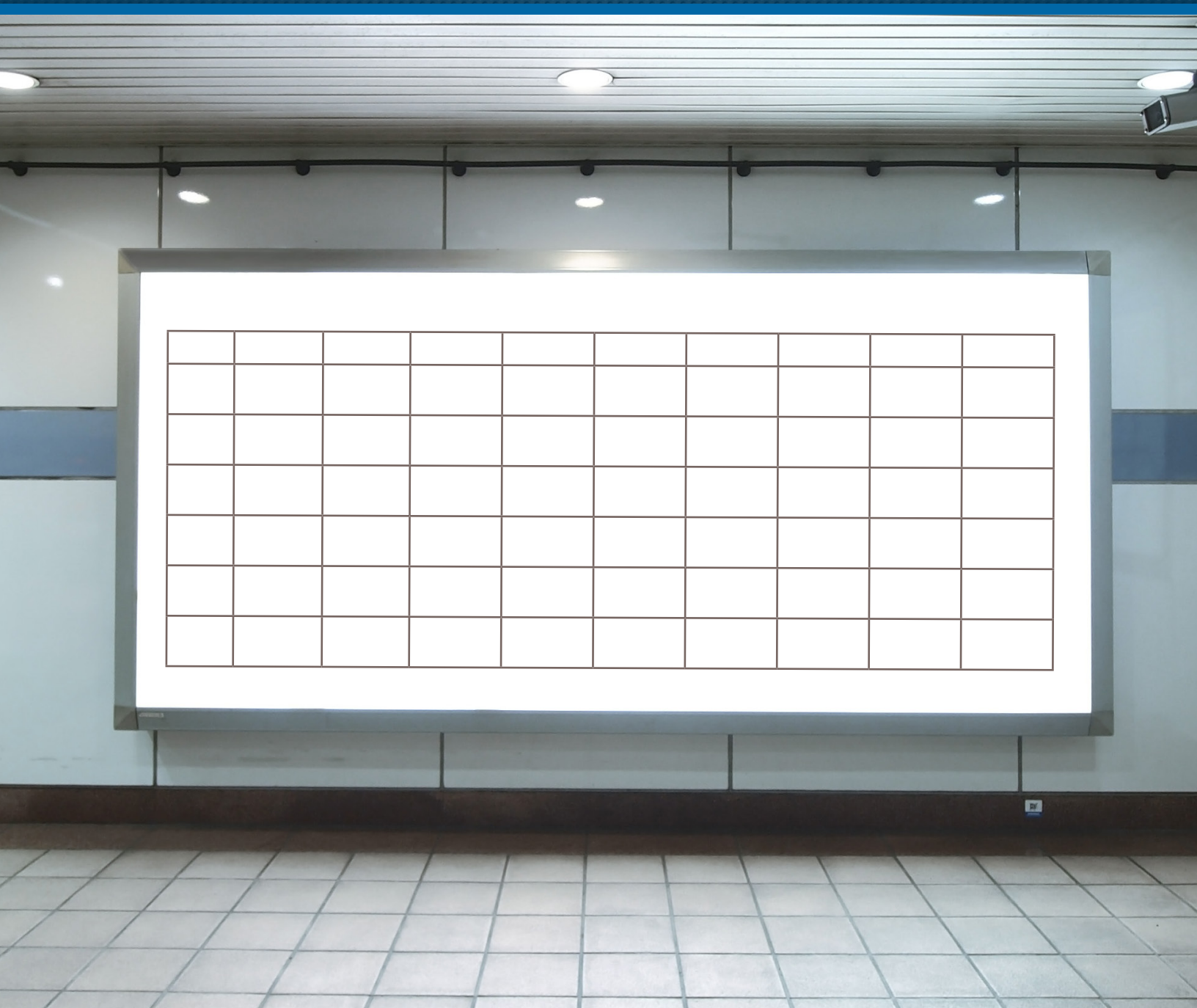
## Already eye-opening?

Sounds simple, right? But for many teams, even listing the steps proves illuminating; for it may be the first time anyone has searched out and articulated the project process.

More importantly, for the team that gathers around the board, it may be the first time that they've seen beyond *their* project portions to visualize the *entire* project process. Notice that we haven't completed the board – but we've already created a context that hadn't been visible before.

### Success Secret #1

In an upcoming step, team members will use “sticky” notes or tags to assign their current work tasks to the appropriate columns. Often, two wonderful things will happen: 1) a column will be blank --sometimes this is appropriate, but sometimes it suggests that that a step in the process is irrelevant and, therefore, can be removed from the board; and 2) team members might have left-over tasks in their hands, indicating that a process column is *missing*. **In fact, one of the first major contributions of visualization is that it often exposes the hidden process steps and work that have previously gone unmanaged.**



*Dedicate rows to the things you need to manage.*

# What do you need to manage?

The vertical columns of process steps are complemented with horizontal rows of....whatever is most relevant for you to manage in order to fulfill the process steps. These can be (but are not limited to):

- Individual people, such as engineers, designers, assemblers, machinists, etc.
- Teams of people, identified by function, department, location, etc.
- Job sites or locations
- Assembly components or subcomponents
- Partners, vendors or suppliers



## What about your rows?

Depends on who or what you manage.

- ✓ If you're responsible for a project team, each row could be assigned to an individual team member.
- ✓ If you're responsible for managing many teams, each row might represent a project group.
- ✓ If you're orchestrating a global project with components scattered around the world, the rows might represent various project locations.

### Success Secret #2

Visualization opens insights into *anything* you want to manage, at any point in the business hierarchy. Once you've learned how to apply it to one level, you can apply it to any level, from floor operations all the way up to corporate strategy.



*Everyone contributes to a shared understanding of progress.*

## Filling in the gaps

Once the vertical process steps and the horizontal management rows have been defined, you and your team have a “visual project board” to which you can assign work or tasks to their appropriate places.

In some boards you are literally filling in the empty spaces. In others, the blank spaces are just as enlightening as are those where no work is taking place. As a general principle, you create tags or notes that represent work elements or packages that must be executed or fulfilled at various stages in the process.

In this particular example, we’re taking a board from a product launch in which the tags stand in for the first ten units in production. Each note pasted to a square represents a unit assigned to a person, team or location (whatever is being managed in the horizontal row) within the step represented by the vertical column.

The *color* of the note, however, is not decorative: it instantly flags important information about the unit’s progress, status, or even type of work. While every team is free to (and often do) associate colors and meanings as they wish, many companies worldwide have found the following code useful:

- **Blue:** The work, or task, at this step has been completed. This works especially well for project (as opposed to portfolio) management boards.
- **Green:** Work is in progress by the agent in the row on the step in the column
- **Yellow:** Work is at risk – while it hasn’t come to a halt, there’s sufficient reason to suspect it may be delayed.
- **Red:** Urgent – progress has stopped at this point.
- A box with a diagonal strike-through means “not applicable”: the process step in the column doesn’t involve the agent in the row.

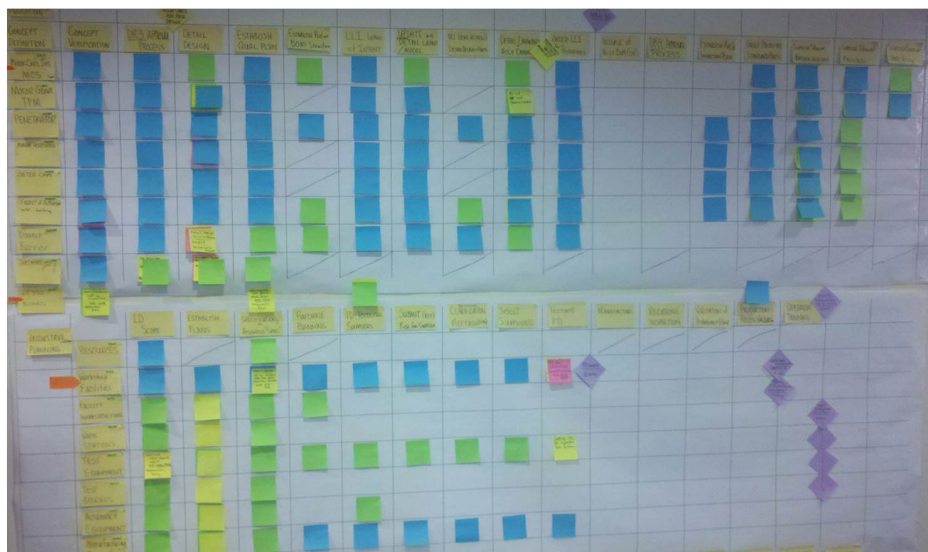


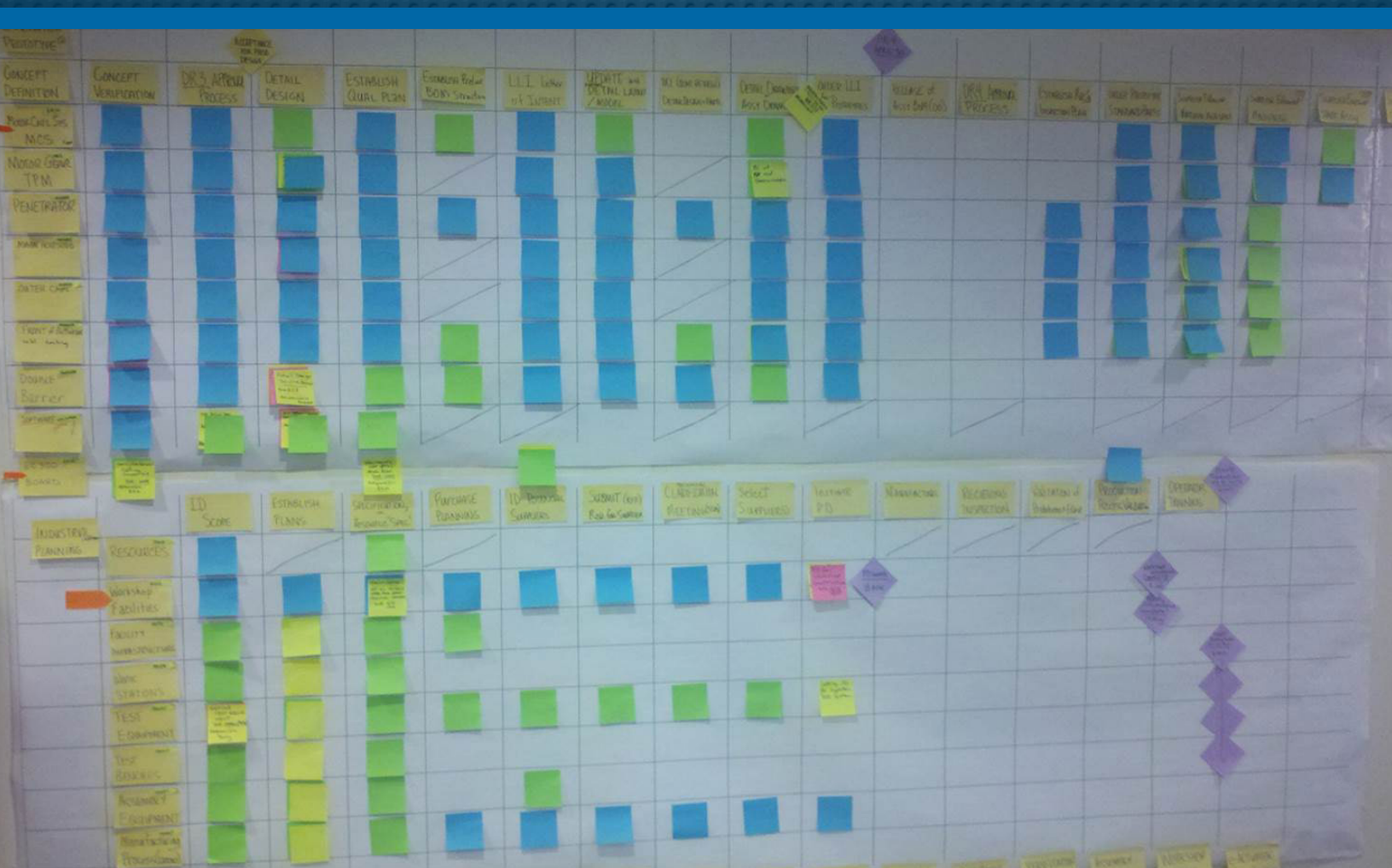
Figure 3:



### Success Secret #3

According to the code above, red and yellow tags indicate trouble. While it's good to know where the trouble is, it's even better to understand what's being done about it. We recommend adding the following four pieces of information to every red and yellow tag:

1. The **date** the problem was first identified.
2. A shorthand label for the nature of the **problem** (i.e., mechanical error, supply shortage, design change)
3. Name of person **responsible** for resolving problem
4. Estimated duration **time** for fixing it.



***By visualizing the work in progress, priorities can be identified by objective observation rather than subjective politics.***

## Now you can see the priorities

By posting all the project tasks to ONE board, and attributing a status to each task, your team instantly moves its attention from a competing body of tasks to a SINGLE project, openly displayed.

In this new context, what takes priority? Whatever is most likely to threaten the completion deadline.

What threatens completion? Look at the board:

- Any red tags indicating stoppages are an obvious threat.
- Any yellow tags suggesting possible delays should be examined.
- Any clustering of multiple tasks within a single grid space might indicate a bottleneck that should be resolved.

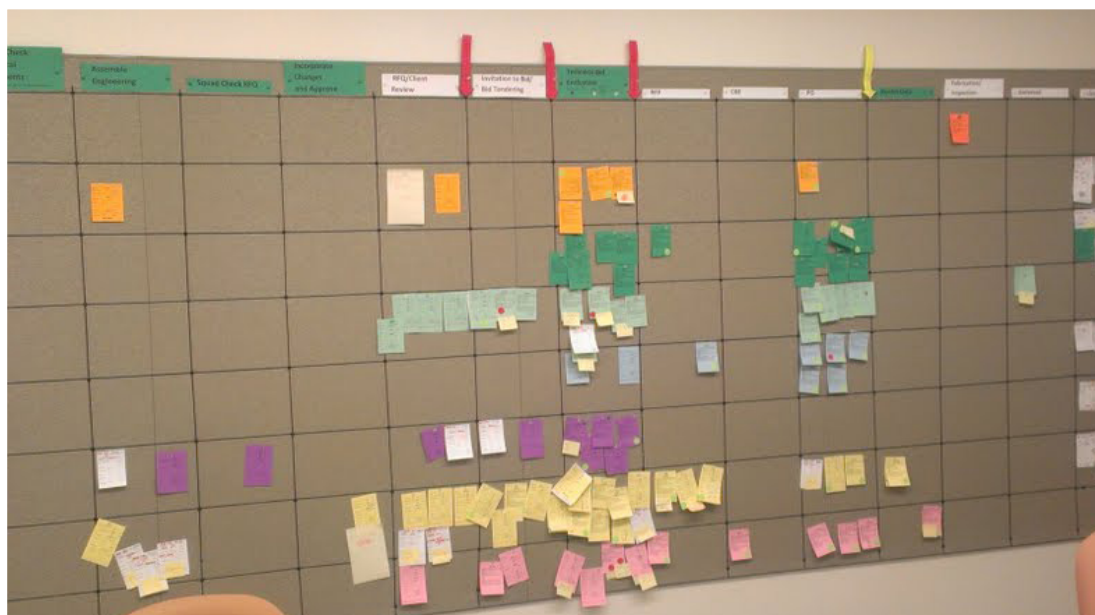


Figure 4:



### **Success Secret #4**

Once you visualize your process, priorities are no longer set by whoever complains the loudest or calls most frequently, but by the facts everyone can see.



***Figure 5: Together, team members can see the meaning of their contributions within the big picture context.***

## A common understanding leads to collaborative execution

It's just human nature: the work we see is the work we think is important. And when we're isolated in cubicles, concentrating on our tasks, it's not just that we fail to see the forest for the trees – frankly, all we can think about is our own particular branch.

The visual project board lifts the fog and exposes the forest. When they can see their work within its larger context, team members can immediately identify finds ways to help others – and to ask for help without shame or blame.

### Rescuing the work floor

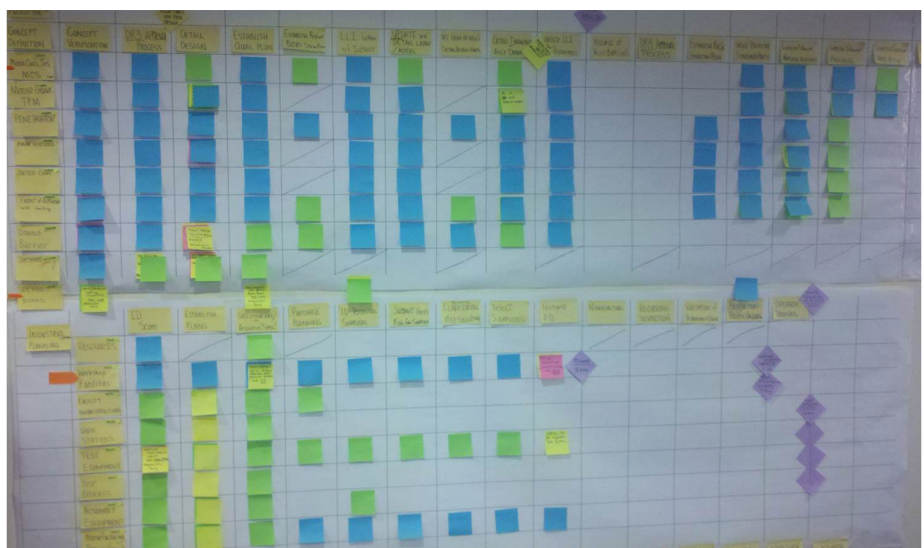


Figure 6:

In Figure 6, the client had created two parallel visual project boards, an upper and lower, that corresponded to two simultaneous projects: a design project, executed by engineers, at the top; and a shop floor production set-up, executed by the production team members, at the bottom.

Before the visualization, the client's engineers and production resources had been rivals competing to gain resources or displace blame. But when they put the board together, they discovered their common purpose – and even found ways to come to each other's aid.

Note that the upper board is loaded with blue tags indicating task completions. Note, too, the high number of green tags at row five in the bottom half. Realizing that they had capacity to spare, the engineers applied two of their colleagues to the overwhelmed workload below, helping the operators meet an otherwise threatened deadline.




*The multi-tasking you see can be contained to reduce switching/set-up delays.*

## Bring work in progress under control

Multi-tasking: the dark art of doing many things...poorly.

Every time an engineer, a designer, an operator – or anybody – has to switch from one task to another, valuable time is lost. When the former task is resumed, more time is absorbed coming back to speed or reconstructing the necessary tooling. On either end, the focus that makes work both efficient and rewarding is lost.

When any given row has a disproportionate number of green tags (for work in progress), it's clear that real productivity has been sacrificed to inefficient multi-tasking. With a quick team conversation, managers and team members can redistribute the load to restore focus to the project.



*We find that, in general, most project organizations have at least 50% more capacity than they actually need. But their capacity is lost primarily through the stopping and starting, the working out of sequence, the waiting, the set-up times – all of that comes out of not seeing where we are.*

Mark Woepfel,  
Author of

***Visual Project Management;***  
*Simplifying Project Execution to Deliver On Time and On Budget*



Figure 7



Figure 8

***When work is released at the right time, tasks move efficiently through the process steps.***

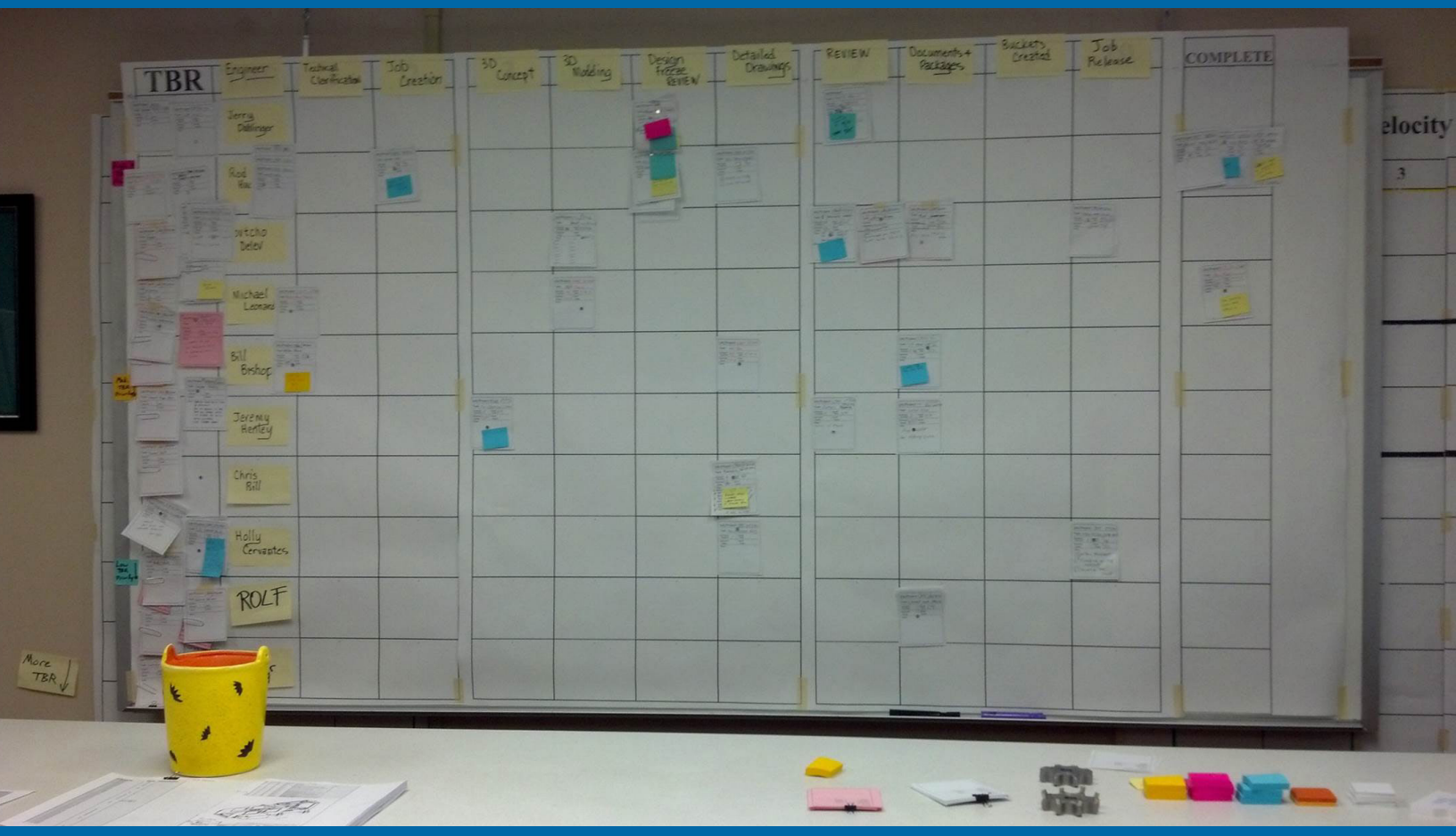
# Full kit: projects start only when they can be finished

It's just common sense: the sooner you begin, the sooner you finish, right?

Wrong. When projects begin without their “full kit” – the complete set of approved designs, drawings, tools, parts, etc. – they become subject to fits and starts. Multi-tasking increases and, worse, a greater proportion of the project becomes subject to re-work and re-tooling as the designs and other components come into the process sequence.

A “full kit” commitment restricts work release until all the pieces are in place. On the visual project board, the full kit can be seen at the extremes of the board:

- ✓ **Beginning:** Note the column to the far left of the image on page 27 and figure 4, “TBR” or “To Be Released.” Here, the manager can track the assembly of the kit, tag by tag, and restrict releases to tasks those with full kits.
- ✓ **End:** Figure 4 captures the visual project board for a major petroleum company. Each row represents a different oil rig; each column, a necessary step to preparing the rigs for a maintenance overhaul. To fulfill the overhauls, the rigs must be shut down, which is both time-consuming and expensive. For efficiency's sake, the company wants to minimize the number of shut-downs; complete oil rig task preparations are deliberately allowed to accumulate at the end of the board, so that the oil company can execute multiple maintenance operations while the rig is put off-line.



***A quick glance at the board tells you what really needs to be measured – and gives you an easy means for doing so.***

# Measure the right things to get the right behaviors

There is constant tension among project team members when their individual or functional objectives are not in alignment with the project's objectives (i.e., maximizing resource efficiency is not the same as increasing project velocity). Famed management guru Eli Goldratt once said, "Show me how you measure me, I'll show how to behave." His point: metrics shape behavior, therefore it's important take care to identify the behaviors you want *before* you choose your metrics.

Visualizing your process helps you:

- Identify the behaviors you want to influence.
- Identify the systemic conflicts among team members/functions
- Gather the data you need to calculate your metrics.
- Follow the progress of your initiative: are you achieving the consequences you intended?

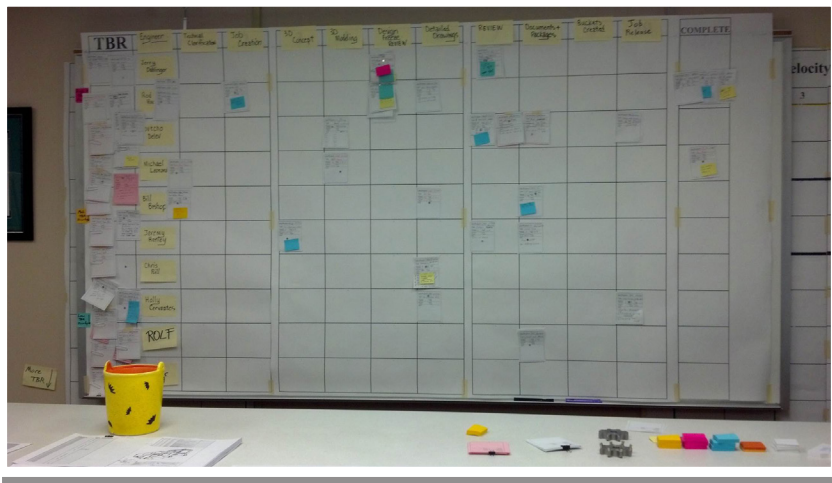


Figure 9

## One board, many success stories

In Figure 9, one board became the source of five easily compiled metrics that quickly measured velocity, escalation and prioritization. Want to know if projects are finishing more quickly? Just count the cards in the last process column and compare the results by day (or week or whatever) to get an account of the trend. Need to see if your team is improving their ability to intercept problems? Track the volume of yellow and red tags. Without resorting to complex spreadsheets or calculations, the client was able to measure real progress in real time.

## It's time to see for yourself...

Take a look at your own projects. Can you see what, where and how you can improve your processes to achieve greater efficiencies? Consider the following questions:

- ☐ Have you neglected simple execution steps in favor of complex planning?
- ☐ Is process compliance your objective rather than project progress?
- ☐ Is your team exhausted by too many meetings?
- ☐ Have you defined all your process handoff steps, one by one?
- ☐ Can you find the "secret" process steps that have been left unmanaged?
- ☐ Do you, and the rest of your team, struggle to identify what the real priorities are – or should be?
- ☐ Do you have a simple way of seeing the status of your entire project, beginning to end?
- ☐ Do your team members have easy opportunities for meaningful collaboration?
- ☐ Are your resources constantly multitasking?
- ☐ Are you often re-sorting and re-prioritizing your work in progress?
- ☐ Do you find that many project tasks are stuck in the system waiting for completion?
- ☐ Do you find that your team is constantly engaged in battles for resources? That you can't get attention from functional or support teams on critical project tasks?



Every "yes" answer represents an opportunity for improvement.

***Can you see how you can make greater progress with your projects?***

# About Mark Woepfel

Mark helps companies that build things produce them faster and more reliably. Expert in project execution and Theory of Constraints. Author of the Manufacturer's Guide to the Theory of Constraints, Visual Project Management, Projects in Less Time; A Synopsis of Critical Chain, Breakneck to the Bottleneck, and numerous eBooks and white papers on the topics of project management, production management, and process improvement.

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## Eager to Learn More?

What is Visual Project Management?

It's not just another book full of the same old advice to improve your project deliveries.

It's NOT about planning better - yet you'll get better on time completion of ALL your projects

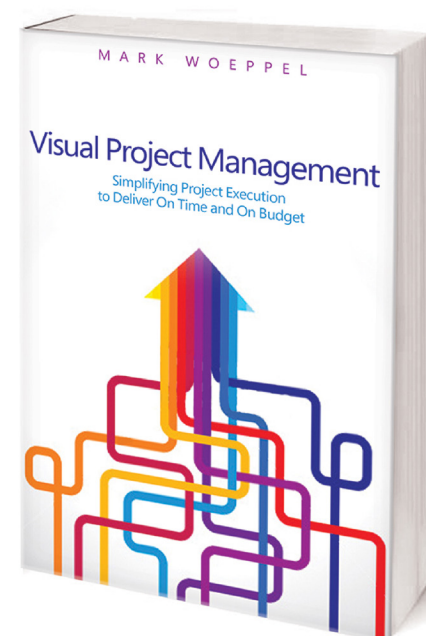
It's NOT about putting up a project or Kanban board – yet you'll learn how to leverage the visual presentation of your projects to do more in less time  
It's NOT warmed over Agile techniques – but you'll learn how to take those techniques and deliver awesome results

Visual Project Management is A SHORTCUT

Despite investing millions in training and developing more “project management maturity”, less than half of all projects are delivered on time and on budget. Visual Project Management introduces ViewPoint, the method that addresses the true root causes of late projects. A set of principles and practices that you and your team can employ—no matter what environment you're in—to improve productivity, reduce project durations, improve delivery performance and stay on budget.

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