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# Managing Project Risk

## Lessons learned at Sutter Health

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SUTTER HEALTH – FACILITY & PROPERTY SERVICES

LCI NORTHERN CALIFORNIA CHAPTER – SACRAMENTO MEETING

SEPTEMBER 13, 2017

# the Truth is out there

- 1987: From Morris & Hough's "The Anatomy of Major Projects: A study of the reality of Project Management"  
*There are hardly any reports showing underruns. ... in 3500 projects drawn from all over the world in several different industries, [cost] overruns are the norm, being typically between 40 and 200 per cent*
- 2002: From Flyvberg's "Understanding costs in public works projects: error or lie?"  
*90% of projects overrun their budgets at an average rate of 28%*
- 2009: From: The G.A.O.'s "VA Construction" Study - 2009  
*18 [of 32] projects have experienced cost increases and 11 have experienced schedule delays ... Five projects have experienced a cost increase of over 100 percent. ...Thirteen projects have experienced cost increases of between 1 and 100 percent ... 11 projects have experienced schedule delays, 4 of which are more than 24 months.*
- 2012: From CII's Performance Assessment Study of 957 projects (ave. value \$65MM)  
*Only 30% of projects meet/exceed their cost and schedule goals*

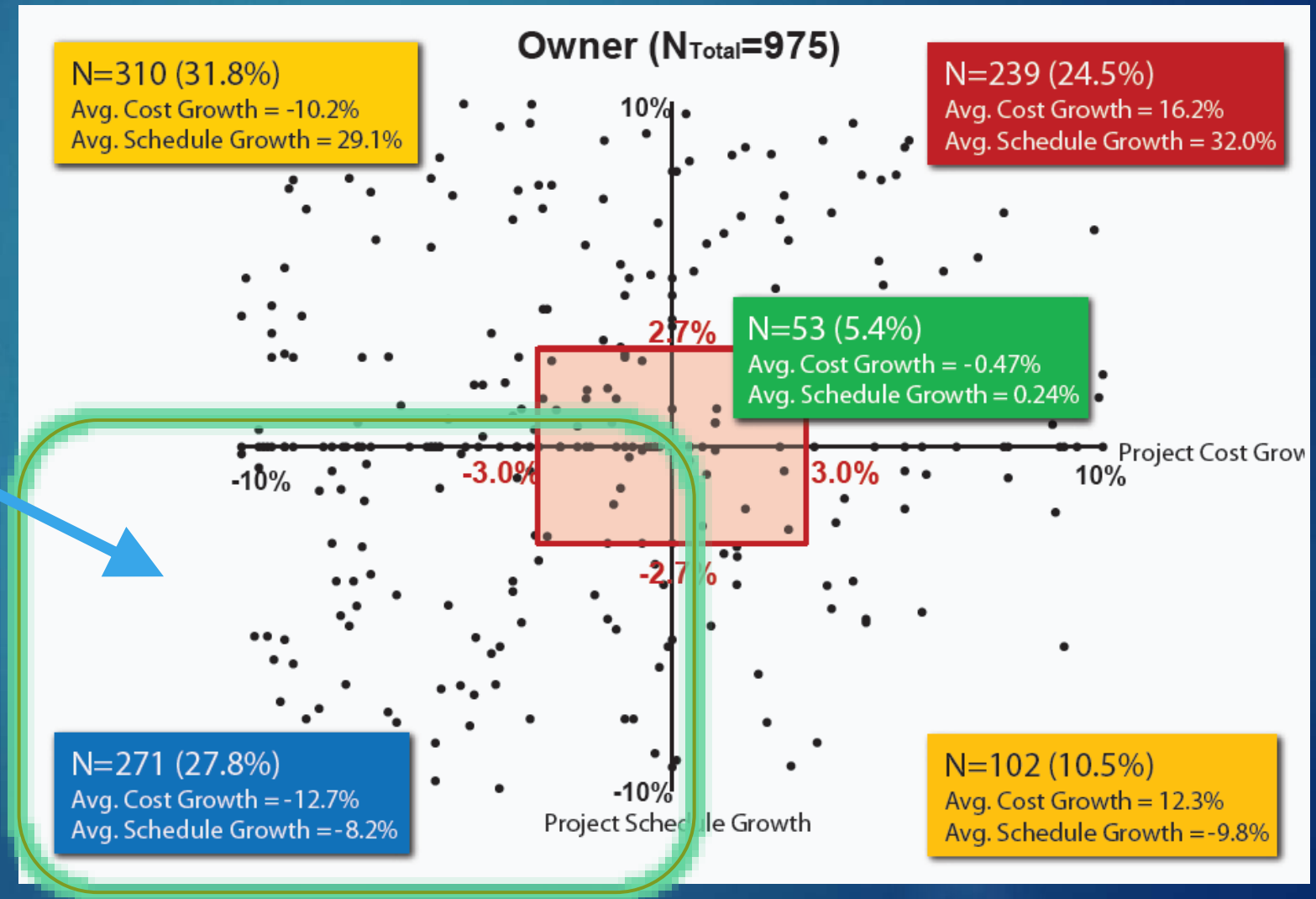
## Summary

**Performance is terrible yet nothing changes**

# the Truth is out there

2012: CII's Performance Assessment Study of 957 projects  
Average project size \$65MM

Only 30% of  
projects  
meet/exceed  
their cost and  
schedule goals



# Risk Management 101

1. Identify what you care about
2. Identify what puts that at risk
3. Eliminate, mitigate or manage those risks

# the Conundrum

1. Project delivery performance is awful
2. Everybody is making money

- We're good at managing our individual company's risks
  - The contracts we use allow us to manage our risks by blaming someone else and getting more money or more time
- 
- We're not good at managing overall project risk
  - Because there's never been much incentive to get good at that

# Risk Management 101

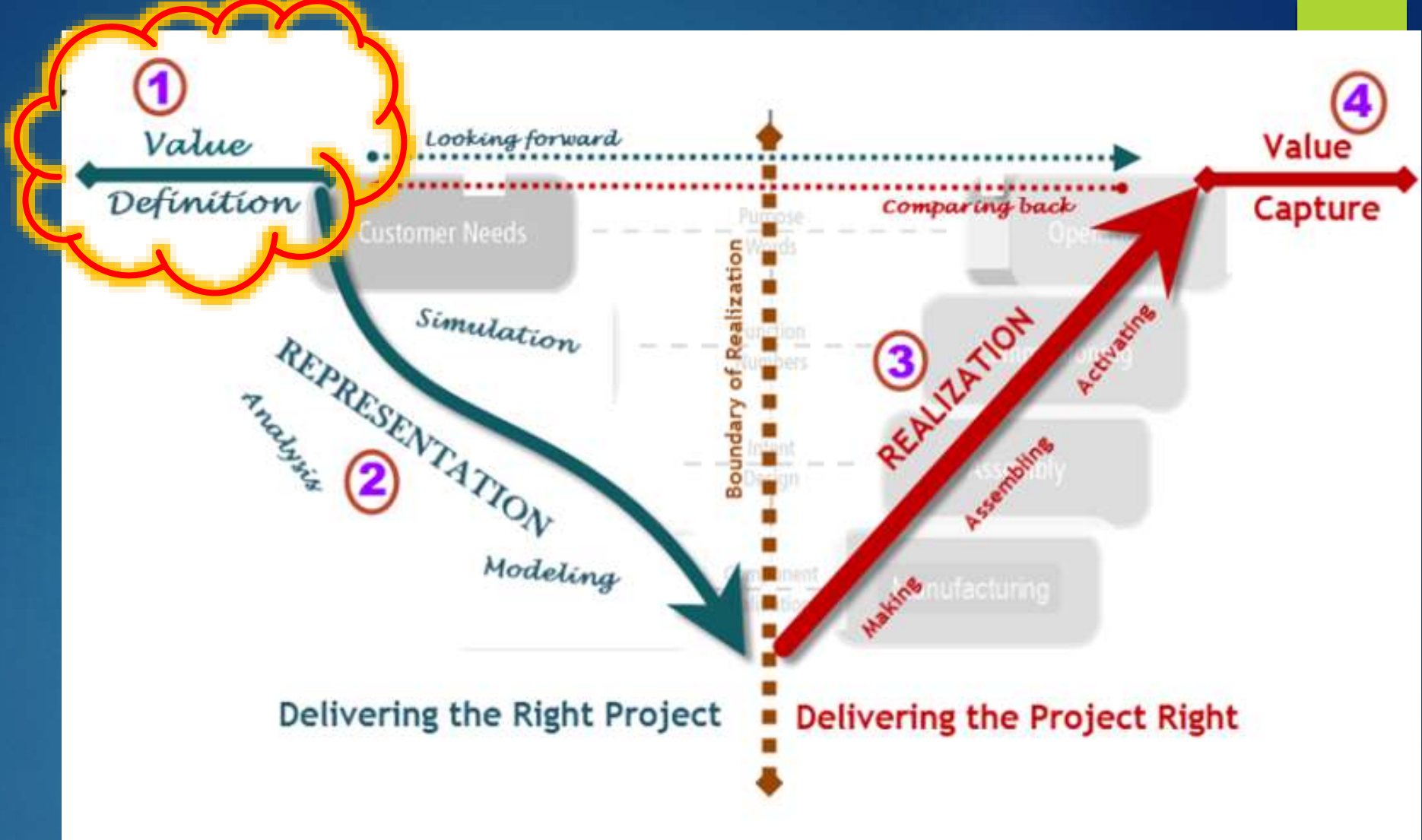
1. Identify what you care about
  1. Delivering what was asked for
  2. On budget
  3. On time
2. Identify what puts that at risk
  1. Lack of alignment on what was asked for
  2. Poor cost projection methods
  3. Poor work-planning methods
3. Eliminate, mitigate or manage those risks
  1. What typically goes wrong
  2. What could go wrong on this project
  3. Strategy for every item

# Risk Management 101

- 1. Identify what you care about**
2. Identify what puts that at risk
3. Eliminate, mitigate or manage those risks



The most neglected phase of project delivery ☹️



From the paper: "4 Phase Project Delivery & the Pathway to Perfection"

<https://iglcstorage.blob.core.windows.net/papers/attachment-7acaa656-7393-4455-b537-66cd6babee18.pdf>



# Why We're Doing This

# What Success Looks Like

## Title Page

## Objective

## Sutter's Goals



A3.1

### Project Charter: Objective, Goals, Conditions of Satisfaction, People & Approvals

Project Title: [Title](#)  
Operating Unit: [Choose an item.](#)  
Operating Unit Sponsor: [Name, Position](#)  
Strategy & Business: [Name, Position](#)  
Development Sponsor: [Name, Position](#)  
Location: [Address](#)  
[City, State Zip](#)  
FPS Project: [FPS Project#](#)

**Purpose:** The intent of the project charter is to:

- A: Define the overall objective of the project
- B: Define what project success looks like for Sutter, and for the project team.
- C: Identify sponsors and stakeholders for the charter, and Sutter team members for the project
- D: Provide visibility, alignment and approval of the intent of the project

#### Authors of this Project Charter:

FPS Planner: [Name, Position](#)  
FPS PM: [Name, Position](#)

**\*Remove all red text (including this) before submitting for signature.**



A3.1

#### A: Project Objective & Constraints:

Viable projects have to meet an operational need. Please state it as concisely and clearly as possible below in sections A1 – A4

##### A1. Project Objective or Value Proposition (Why are we doing this?)

[\[Text\]](#)

##### A2. Consequences of Non-Approval (What happens if we don't do this?)

[\[Text\]](#)

##### A3. Project Scope (What are we doing?)

[\[Text\]](#)

##### A4. Project Constraints / Limits (What limits are there on what we can do?)

[\[Text\]](#)



A3.1

#### B: Project Goals and Conditions of Satisfaction:

Projects are successful to the extent they meet Sutter's goals (B1)

Project teams are successful to the extent they meet Sutter's conditions of satisfaction (B2)

##### B1. Sutter Health's Goals

These goals can come from the project objective, from detailed post-project operational goals, or be applicable only during the delivering of the project. They do not need to be within the control of the project team or listed in order of importance. If they are listed in order of importance, it should be stated.

To create additional goals, click anywhere in blank Goal #1, right-click on cross icon in top left, select 'copy', then paste below Goal #1.

##### Goal #1: [Title](#)

Criteria: [Click here to enter text.](#)  
Constraints: [Click here to enter text.](#)  
Preference: [Click here to enter text.](#)  
Metric: [Click here to enter text.](#)

##### B2. The Project Team's Conditions of Satisfaction (CoS)

- All of these must be within the control of the project team.
- Each Goal in B1 that is not within the control of the project team must have a proxy Condition of Satisfaction that is within their control listed here in B2.
- Each Goal in B1 that is within the control of the project team must also be listed here.
- Any additional CoSs that will be used to evaluate the success of the project and that are within the control of the team should also be listed here.

To create additional CoSs, click anywhere in blank CoS #1, right-click on cross icon in top left, select 'copy', then paste below CoS #1.

##### CoS #1: [Title](#)

Criteria: [Click here to enter text.](#)  
Constraints: [Click here to enter text.](#)  
Preference: [Click here to enter text.](#)  
Metric: [Click here to enter text.](#)

Team's  
Conditions of  
Satisfaction

# The Visual Work Environment



Create a Dashboard for Every Important Part  
of the Value Definition



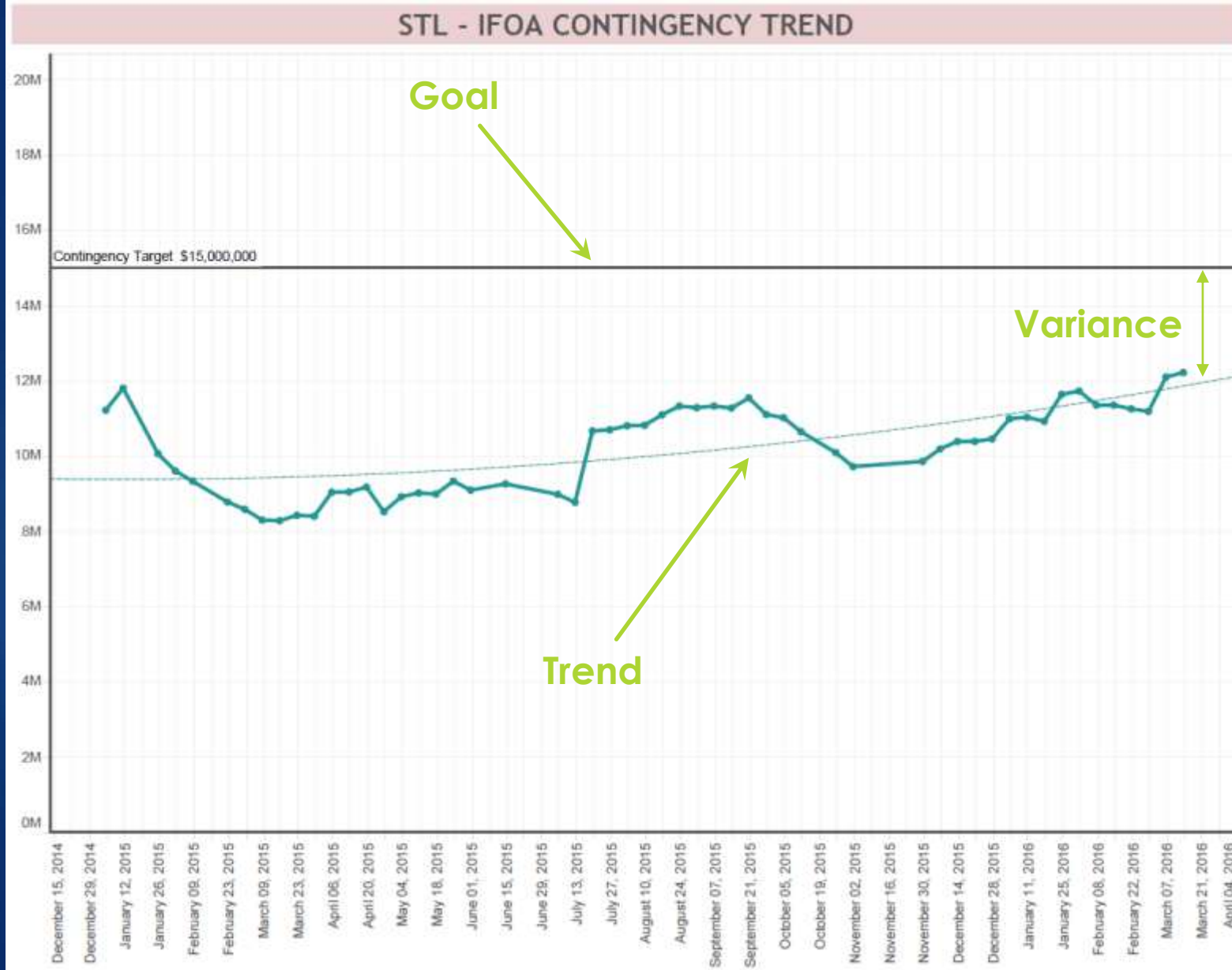
Purpose of Dashboard:

To drive a conversation  
about something important



Every Dashboard Needs  
a Goal  
a Variance  
and often a Trend

# The “Are we ON BUDGET?” Dashboard

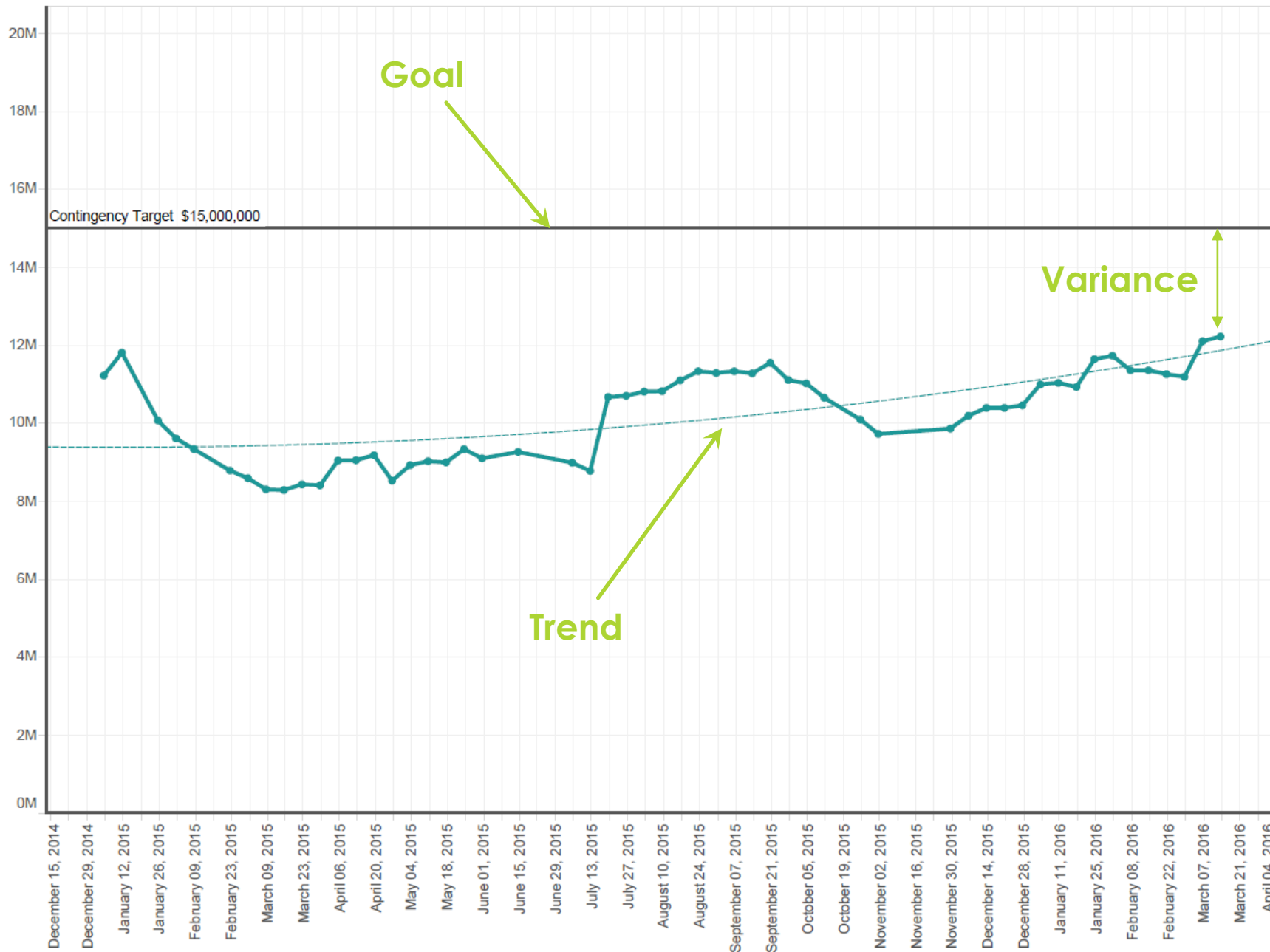


## Pop Quiz 😊

1. Where is the goal ?
2. Where is the latest variance ?
3. Where is the trend ?
4. Is the goal important ?

YES

## STL - IFOA CONTINGENCY TREND

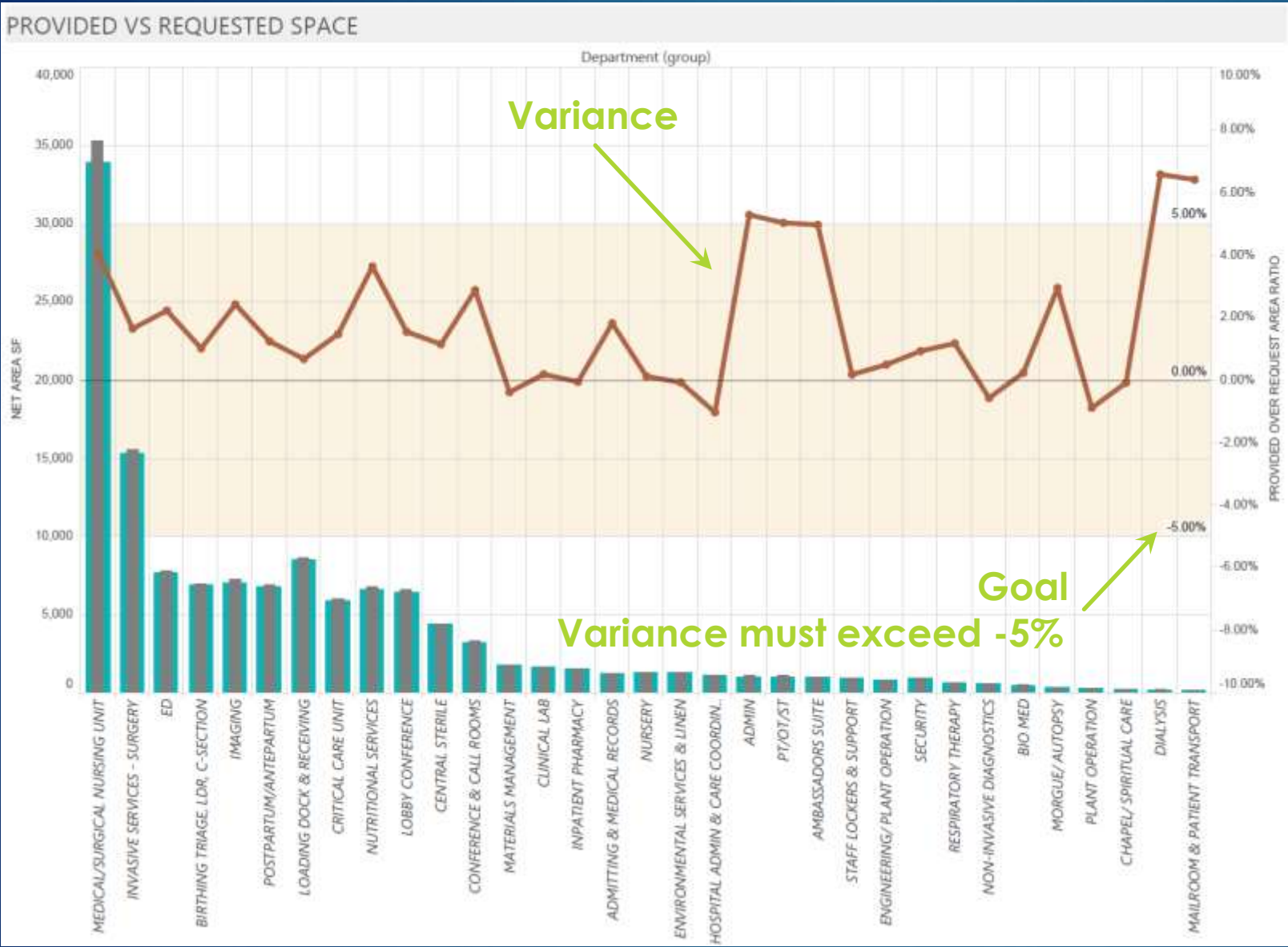


Easy to understand  
&  
Measures something  
important

Therefore it drives a  
conversation worth  
having



# The “Are we DELIVERING WHAT WAS ASKED FOR?” Dashboard



Mission Bernal Campus  
Hospital

# The “Are we ON TIME?” Dashboard

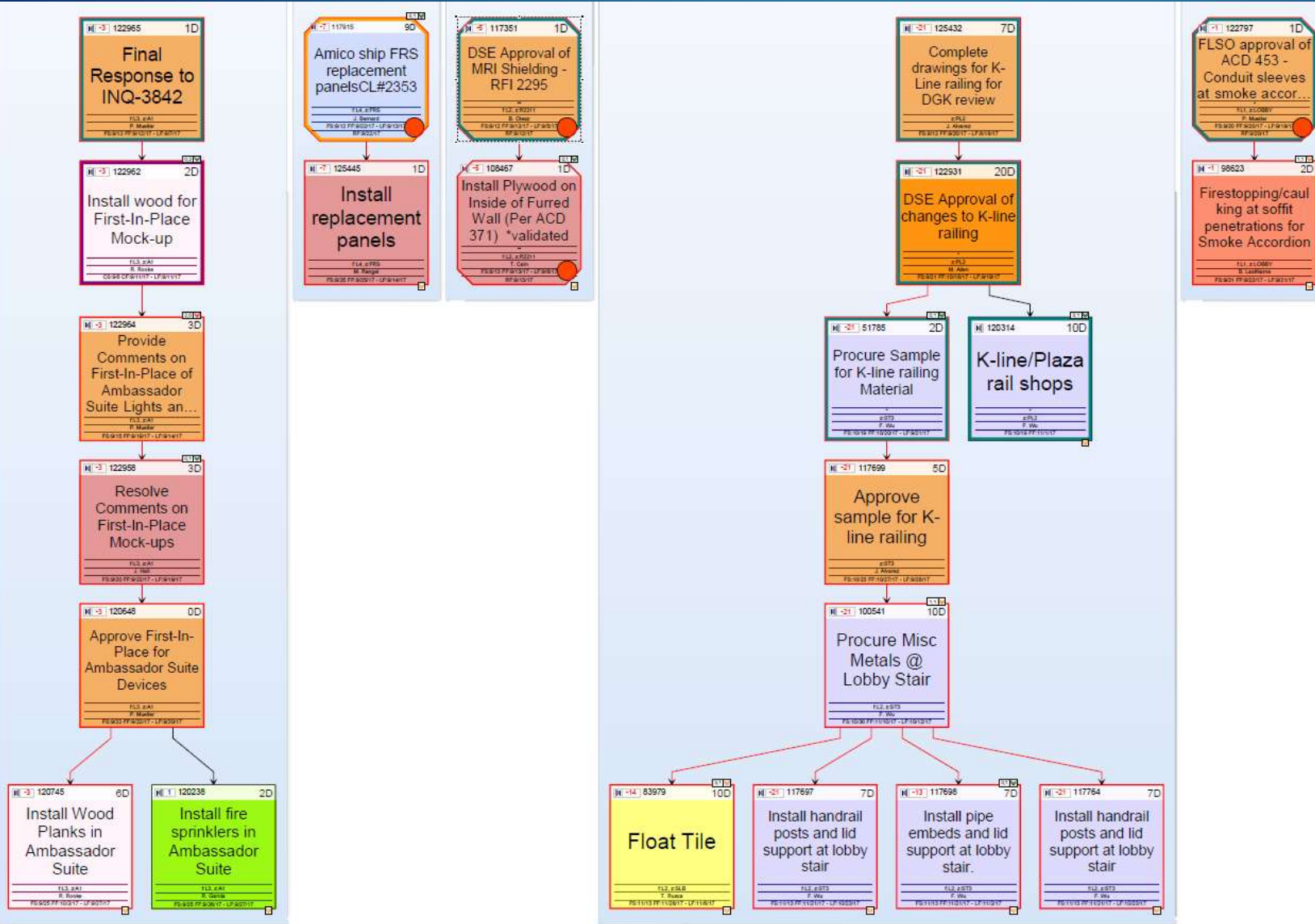
3 days  
late

7 days  
late

5 days  
late

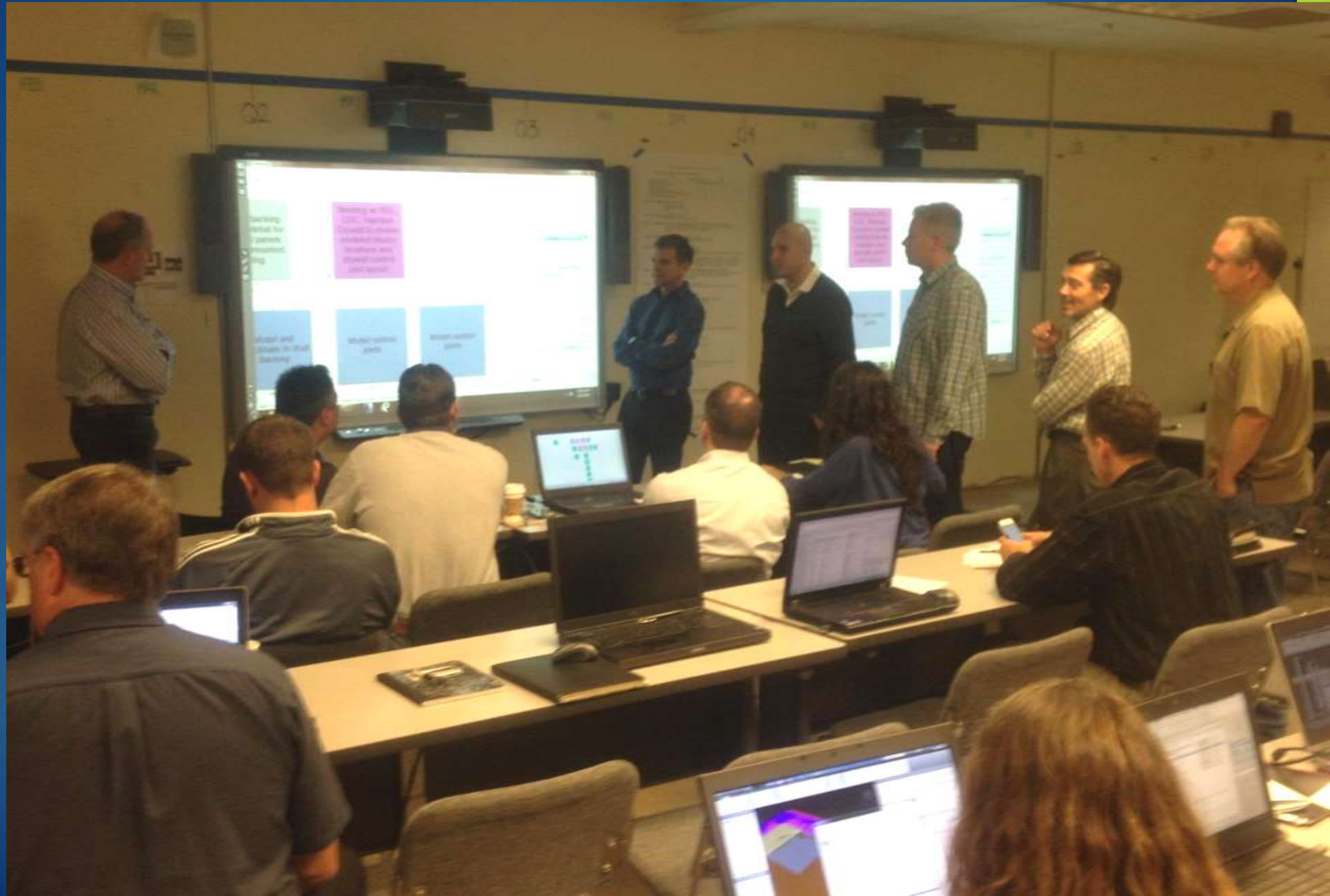
21 days  
late

1 day  
late



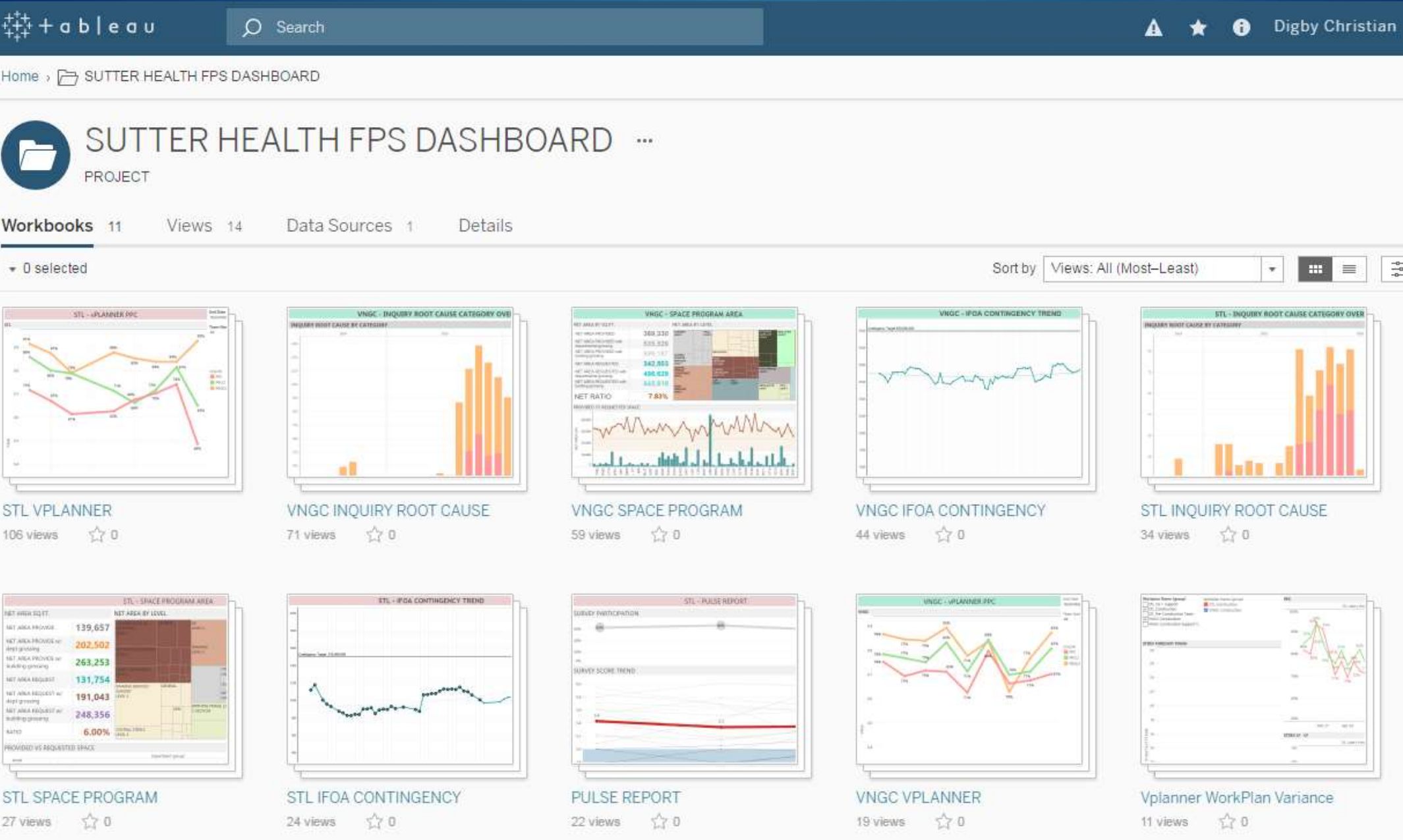
Mission Bernal  
Campus Hospital

# Culture: Weekly Planning





# Business Intelligence (BI) Dashboarding



The  
Future ?

# BIM is a Risk Management Tool

# Not Appearing in the Presentation



The 1 day of training just on using BIM as a risk management tool

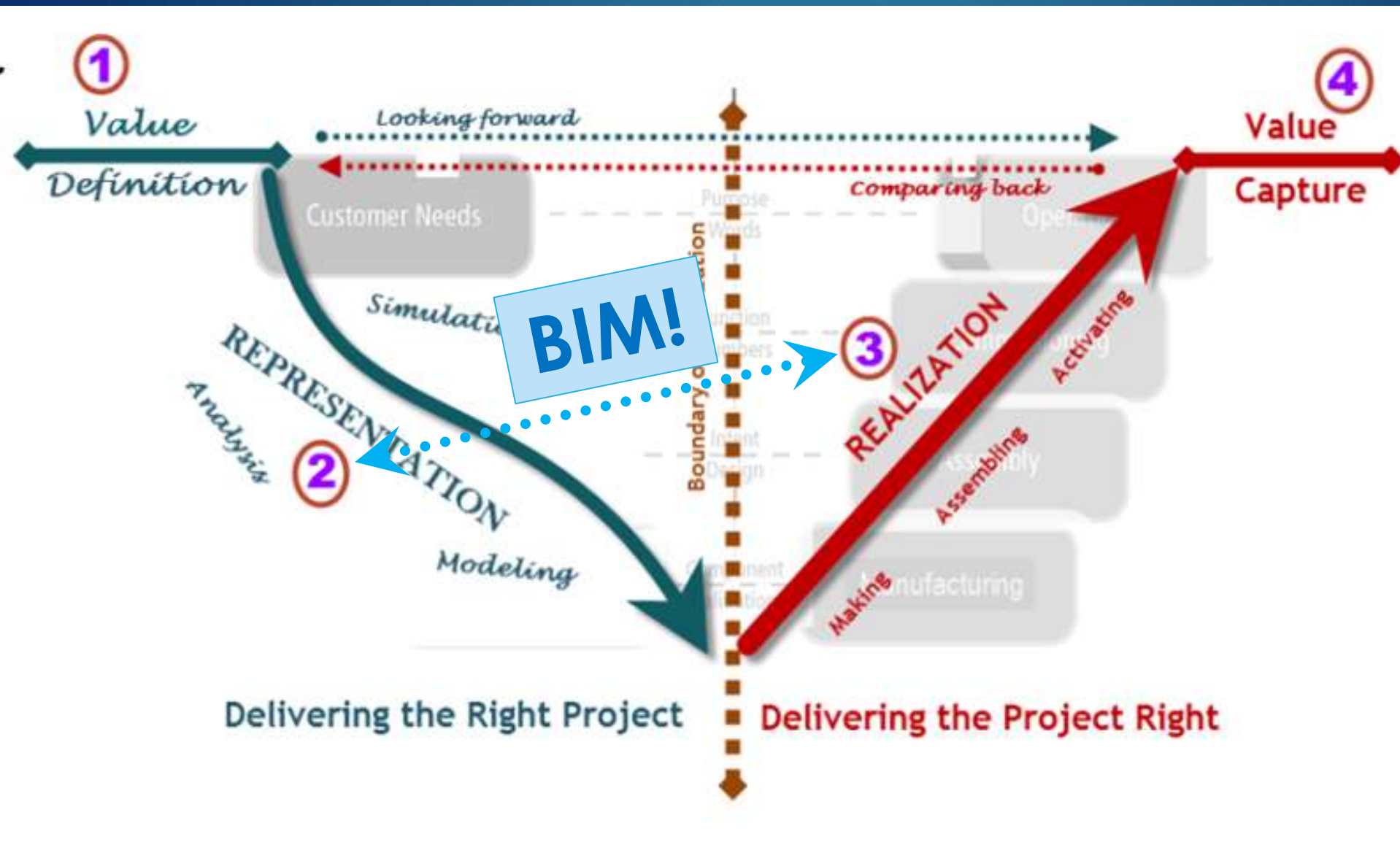


# Cliff Notes of the amazing day of training

1. BIM is a risk management tool, not a design tool. It can be used to manage the risk related to:
  1. Scope
  2. Schedule
  3. Cost
2. Focus on the workflow you'll use to create the model before you create the model
3. Model the Build, then Build the Model
4. Have the latest version of the model available to all at any time
5. Go to the model when discussing any problems in design, or construction ('go to the gemba')
6. Don't be distracted by how you'll "handover the BIM into operations"

# Good BIM Implementation is about managing risk

The focus is on doing Representation so well that Realization is easy




BIM done this way helps manage risk of:

- **Scope** – what is being built
- **Schedule** – what it will take to design & build a project
- **Budget** – what it will cost to design & build a project

# Budgetary Risk Part I

Sophisticated Budgetary Risk Assessment Tool

Probability of Risk x Estimated Cost of Risk = Net Risk



Probability of Risk #1 x Estimated Cost of Risk #1 = Net Risk #1  
Probability of Risk #2 x Estimated Cost of Risk #2 = Net Risk #2  
Probability of Risk #3 x Estimated Cost of Risk #3 = Net Risk #3  
Probability of Risk #4 x Estimated Cost of Risk #4 = Net Risk #4  
Probability of Risk #5 x Estimated Cost of Risk #5 = Net Risk #5  
Probability of Risk #6 x Estimated Cost of Risk #6 = Net Risk #6  
Probability of Risk #7 x Estimated Cost of Risk #7 = Net Risk #7

Net Risk to the Project = \$X,XXX

- Deduct \$X,XXX from the Shared Incentive Pool you created
- Track the size of that pool every week

## Purpose of Risk & Opportunity Log

1. Early sharing of risks to maximize possibility that they will be:
  - Eliminated
  - Mitigated
  - Managed
2. Uncovers confusion around what issues can be an owner change and what are the team's risk
  - Especially likely on IFOA contracts
  - Will drive unhelpful behavior if not uncovered & resolved
3. Builds team culture of making decisions in the interest of the project as a whole



# Culture: Weekly Risk & Opportunity Review





# Best Practices for Risk / Opportunity Management

1. Meet at least bi-weekly to review as a team – builds team culture
  - PM's / Leads from each team / company
  - Need at least one person to be familiar with every item to be discussed
2. Any team member familiar with the issue can put a risk / opportunity on the log
3. Encourage early identification of low probability risks & opportunities
4. Use the actual R/O Log and update it live in the meeting
5. At the end see the net change in impact on the size of the contingency
6. Post the contingency value and trend graph where everyone can see it
7. Have team goal of keeping contingency at 100% of its starting value
8. Encourage opportunities to be listed
9. Filter by largest net risks first
10. Get aligned early on how accurate the \$ value needs to be before it gets transferred into the actual projected cost
  - Especially important on IFOA's

# Budgetary Risk Part II

The Risk of Teams not being good at  
Projecting the  
Cost to Complete their work

## Estimate Structures

1. Design estimates are always time-based
  - Resource loaded work plans (RLWP's)
  - You can see & question variances month by month
2. Construction estimates are normally scope-based
  - Conceptual estimates
  - Take-offs
  - Schedules of value
  - The time-based thinking can be hidden/hard to find

## Some Classic Problems in our Industry

1. The industry is poor at projecting its cost to complete
  - Creates late-breaking stress & poor working environments, fuels conflict.
  - Is often why projects go over budget toward the end of a project and not before
2. Internal communications can be poor
  - Trade PM's can be financially focused
  - Superintendents can be scope and schedule focused
  - Sometimes they don't talk to each other as much as you'd think
  - They can be unaware that they are over-budget
3. Some companies project their cost to complete like this:
  - $\text{Cost to Complete} = \text{Contract Value} - \text{Amount Billed to Date}$
  - When they run out of money they go after change orders
4. Even large experienced companies sometimes wait till completing 50% of their scope before they're confident if they'll be over or under their estimate
  - This is often too late to do anything about if they're over

## Cost to Complete Best Practice

1. Team agrees the scope
2. Team agrees the estimated cost of each element
3. Team agrees the sequence of construction
4. Team allocates the estimated cost across the sequence of construction
5. As each element is complete the team compares the actual to the estimate
6. Team projects its total cost to complete as:

**Actual Cost to Date + Estimated Cost Allocated across Remaining Sequence of Construction**

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## Addressing Cost to Complete Issue Near Project Start

1. Get each partner to present how they calculate their cost to complete to the team
2. Encourage discussion about pros and cons of each partner's method
3. Get the best partners to 'manage up' their less accomplished partners
4. At minimum get each partner to convert their take-off estimate to a time-based estimate containing:
  1. Weekly / Monthly cost of labor
  2. Weekly / Monthly cost of materials
  3. Weekly / Monthly cost of lower-tier buyouts
5. For GC's have them also break out:
  4. Weekly / Monthly cost of General Conditions / General Requirements
6. Review Actuals vs. Projections every Week/Month – and have each team member explain the variances – are they on/over/under budget, are they on/behind/ahead of schedule?

## Basic Cost to Complete Strategy

1. Each superintendent provides their weekly anticipated crew size and mix for the project
2. Each trade project manager agrees that crew profile aligns with their budget
3. Each week the superintendent reports any overruns in crew size / mix for the prior week
4. Root causes are identified and counter-measures agreed and implemented
5. Repeat 1 – 4

## Sophisticated Cost to Complete Strategy

1. Agree a common geography for the building – it can vary by major phase
2. Agree to move to location based planning (LBP)
3. Whole team on-boarded on to LastPlanner & vPlanner
4. Production tracking module of vPlanner activated
5. Team agrees to sequence of construction
6. Team allocates estimate across that sequence of construction (hours, costs or both)
7. Both are entered into vPlanner
8. Actuals are reported as work is completed
9. vPlanner automatically provides a variance report – drives reaction, learning, improvement
10. Have a plan for managing the “go back” work

# The Importance of Culture

# Drivers of Culture



## Strategic Behavioral Drivers

- **Accountability**
  - Make and keep commitments
  - Challenge others to do similarly
- **Transparency**
  - Be honest & open
  - Use a highly visual workplace
  - 'Go to the Work'
- **Single Sources of Truth**
  - Use one work plan
  - Use one 'BIM model'
  - Use one cost projection report
- **Continuous Learning/Improvement**
  - Swarm issues to fix them AND learn and improve the process
  - Use 5 Why's / Root Cause analysis
  - Quickly acknowledge and fix/improve failing process
- **Whole Project Mentality**
  - Make decisions in the interests of the project as a whole
  - Align behavior with overall project success
  - Focus on improving project performance against team goals

## Interpersonal Environmental Drivers

- **Safe Spaces**
  - Team members see each other as individuals not categories
  - Respect is freely given and received
  - Help is freely given and received
  - People can & do say what's on their mind
  - People critique and challenge one another
  - Passion and emotion is welcome
  - Breakdowns in the safety of the space are quickly acknowledged and corrected



# Sutter's Project Culture: Daily Engagement

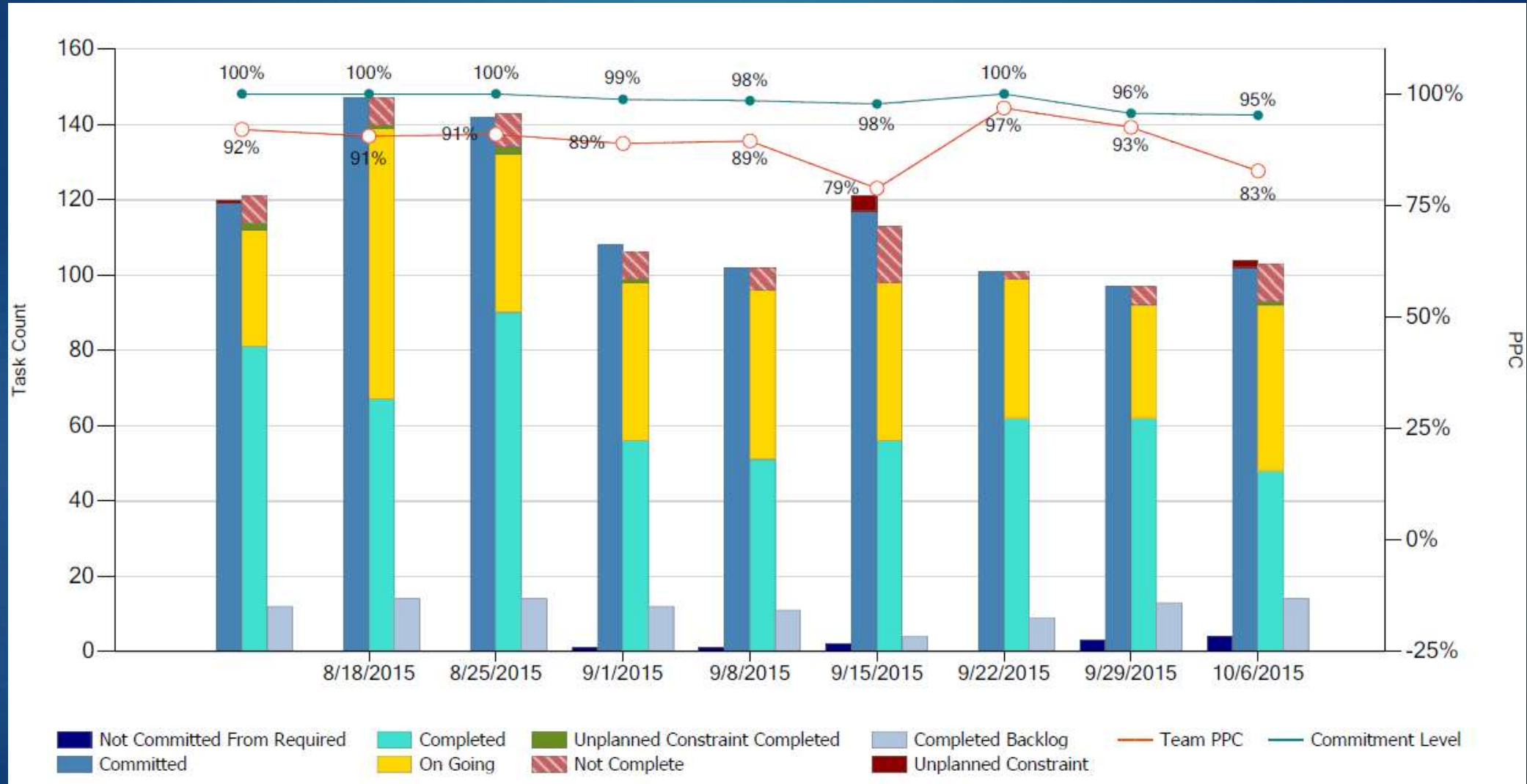


# Culture: Weekly Planning





# Culture: Weekly Performance Analytics



# Culture: Weekly Risk & Opportunity Review



# Questions?

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