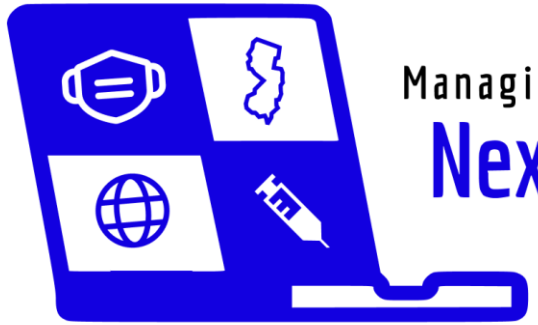


Project Management Metrics, Key Performance Indicators, and Dashboard

May 2, 2022

Project Management Institute New Jersey

Dr. Harold Kerzner, Ph.D.
International Institute for Learning, Inc.
https://www.iil.com
Linkedin.com/in/drharoldkerzner/



Project Management Metrics, Key Performance Indicators, and Dashboards

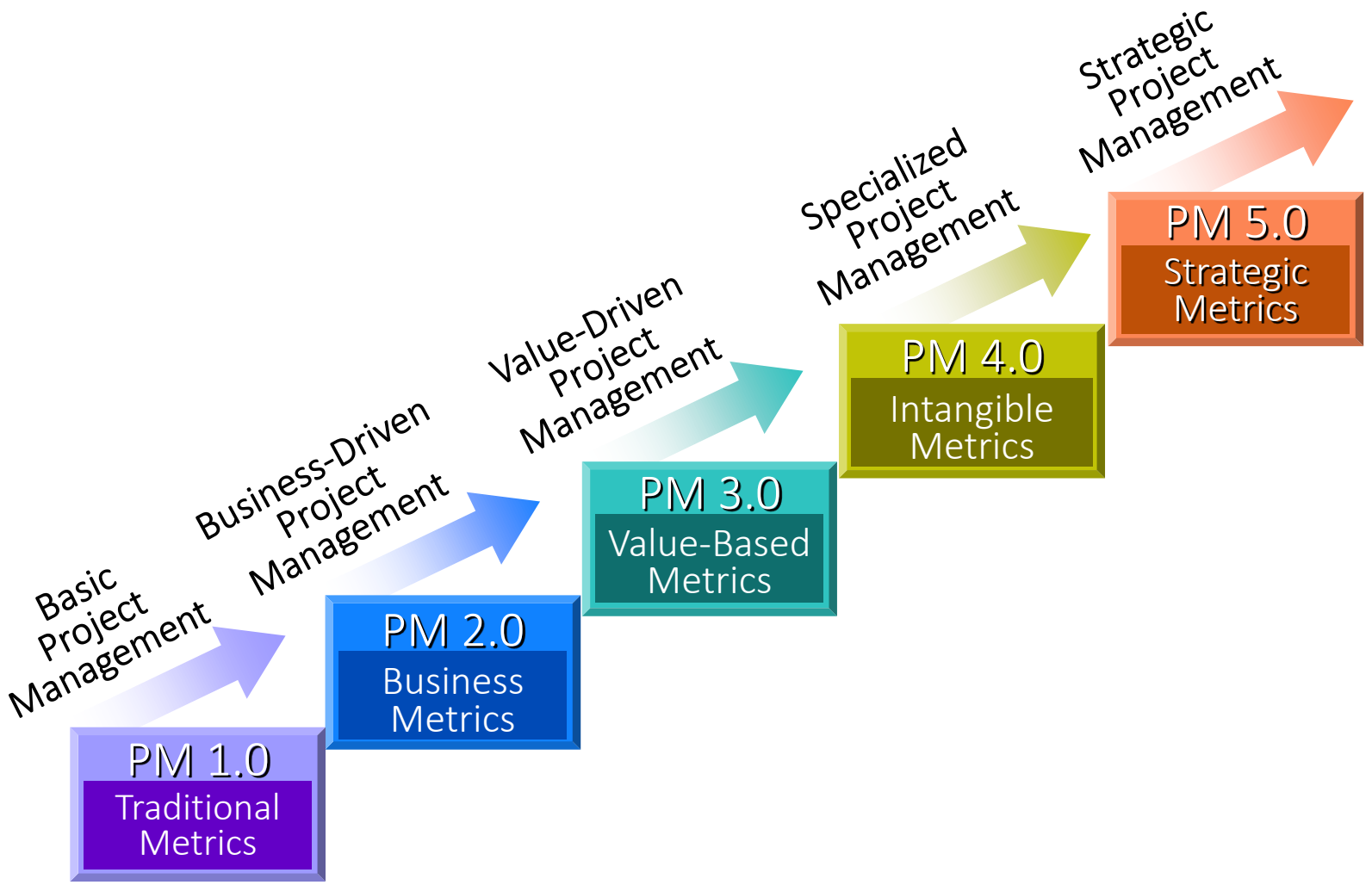
Harold Kerzner, Ph.D.

INTERNATIONAL INSTITUTE FOR LEARNING, INC.
IMPROVING ORGANIZATIONAL PERFORMANCE WITH INTELLIGENCE, INTEGRITY AND INNOVATION

Part 1:

An Overview of Metrics Management

Metrics Growth



Part 2:

The Importance of Creating Value-Reflective Metrics

Necessities for PM 2.0 and PM 3.0 to Exist

Stakeholders are expected to make informed decisions rather than just any decision

Informed decision-making requires more meaningful metrics

The metrics information must be shared rapidly



PM 2.0, 3.0, and Web 2.0

Data can be displayed over cell phone or tablet screens.



Metrics Accompany You Everywhere

All project personnel will have metrics at their fingertips.

Part 3:

Other Driving Forces for Better Metrics



The Search for the Truth

Without good metrics, stakeholders and clients must read through volumes of reports to find the true status and health of a project.

Identifying The Need

- We need to go to paperless project management
- We need metrics that allow project governance to make decisions based upon evidence rather than guesses
- The need for more metrics is inevitable
- Metrics allow us to better manage the competing constraints of time, cost, scope, risk, customer satisfaction, safety, etc.
- Our definition of project success is changing

Definition of a Project

- ***PMBOK® Guide* definition**: A temporary endeavor undertaken to create a unique product, service or result.

  - *PMBOK® Guide* – Sixth Edition, Glossary

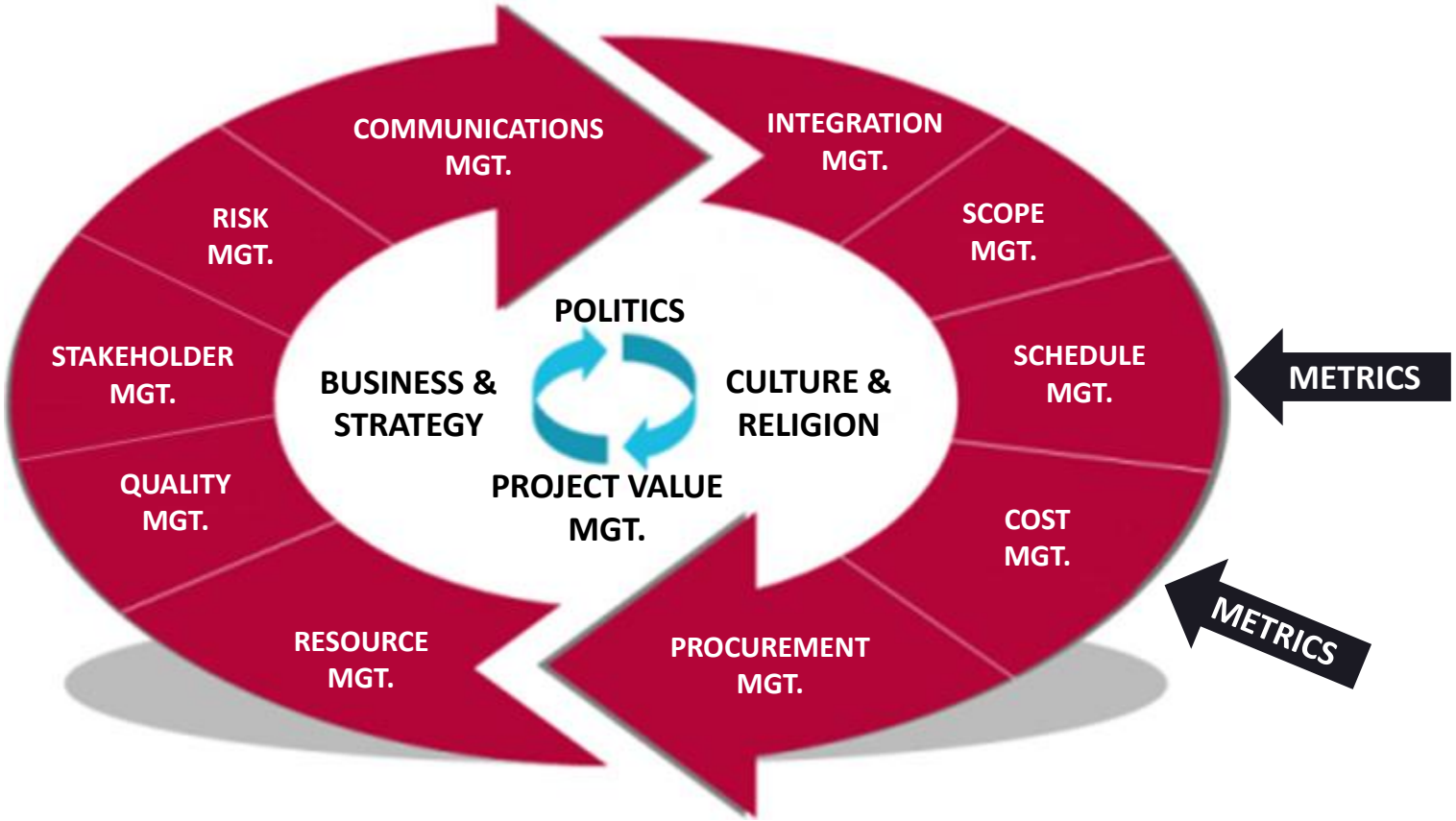
- **Future definition:** A collection of sustainable business value scheduled for realization.

Definition of Project Success

Traditional definition: Completion of the projects within the triple constraints of time, cost, and scope.

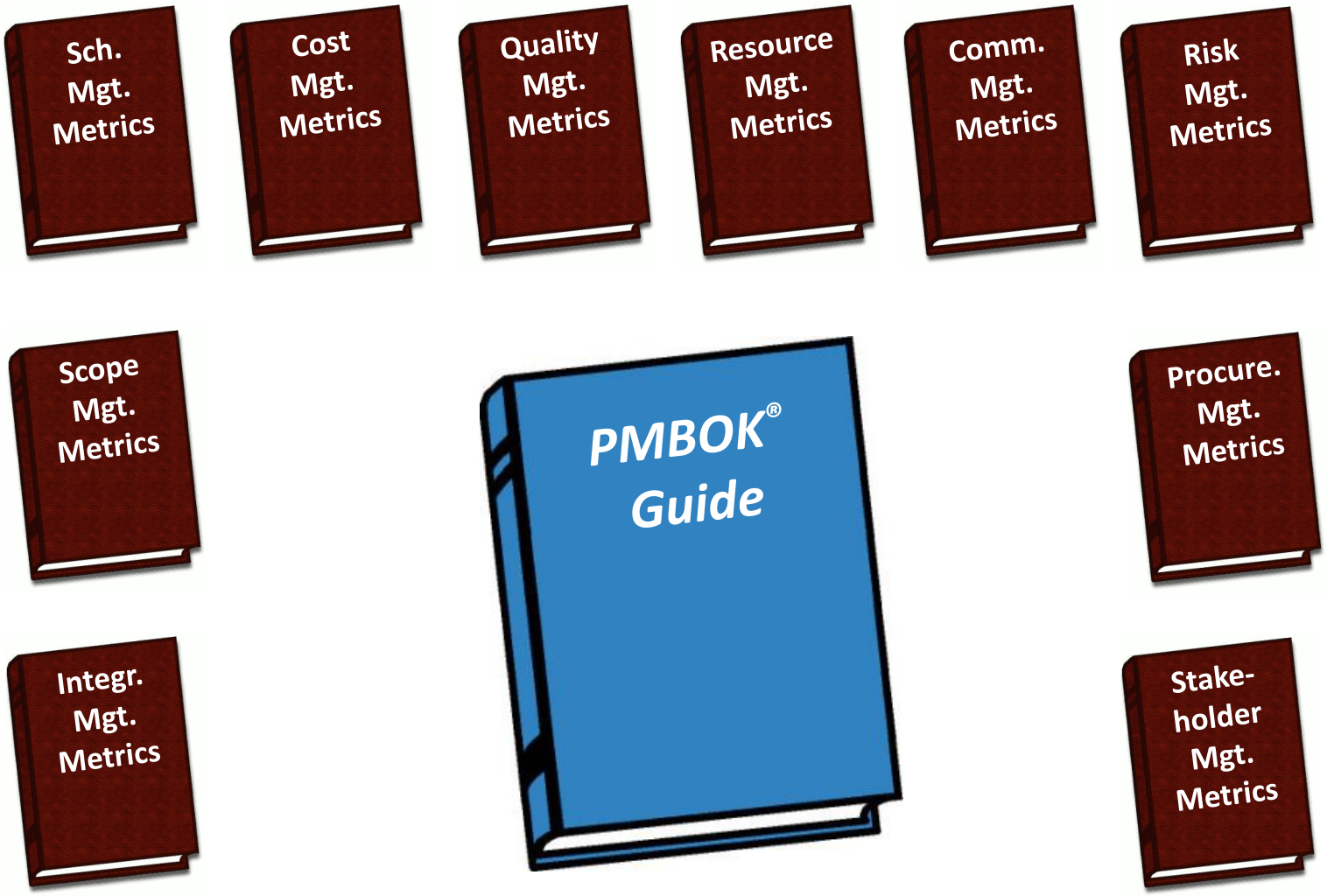
Future definition: Achieving the desired business value within the competing constraints.

The *PMBOK® Guide* and Metrics



Adapted from *PMBOK® Guide* – Sixth Edition, Table 1-4, p. 25

The *PMBOK® Guide* and Metrics



Part 4:

Understanding Metrics



The Rule of Inversion

The Rule of Inversion states that we should select the easiest metrics to measure, track, and report – namely, time and cost.



Understanding the True Status

The true status of the project cannot be determined from just the time and cost metrics. Other metrics are needed.



The Need for Additional Metrics

Without reliable metrics, performance reporting is like rolling the dice.

The Need for Data Mining

Effective data mining will be necessary to determine the correct set of metrics for each project.

Types of Metrics

Types of Metrics	Intent
Traditional Metrics	**Primarily focus on where we are today**
Key Performance Indicators	**Extrapolate the present into the future to tell us where we will end up**
Value-Reflective Metrics (also called Value-Based Metrics)	**A combination of metrics and KPIs that tell us the growth of value as the project progresses**

Shopping for the Right Metrics

- Not everything that counts can be counted
- Not everything that can be counted counts

How Many Metrics are Needed?

Too many:

- Metric management steals time from other work
- Providing too much information such that stakeholders cannot determine what information is critical
- Providing information that has limited or no value

Too few:

- Falling short of the right information
- Inability to make informed decisions

Beware of Micromanagement Issues



Selecting metrics and KPIs that have too much detail and must be looked at under a microscope are an invitation for stakeholder micromanagement.



Metric Issues

Can a large metric library cause headaches?



Satisfying Stakeholders' Needs

Because each stakeholder may have different needs, dashboard reporting systems allow the project manager to prepare customized dashboards to satisfy each stakeholder's needs.

Part 5:

Understanding Key Performance Indicators

Defining a KPI

- Metrics focus on where we are today
- KPIs are forward looking and give us a glimpse of the future of a given metric most often through trend analysis

Dissecting the KPI

Key =
a major contributor to success or failure

Performance = measurable, quantifiable, adjustable, and controllable elements

Indicator = reasonable representation of present and future performance

Criteria for a KPI

KPIs can be selected using the following criteria:

- **Predictive:** able to predict the future of this trend
- **Measurable:** can be expressed quantitatively
- **Actionable:** triggers changes that may be necessary
- **Relevant:** the KPI is directly related to the success or failure of the project
- **Automated:** automated reporting minimizes the chance of human error
- **Few in number:** only what is necessary



Getting Buy-in

Buy-in by the stakeholders and the team is significantly more important than trying to find the perfect set of KPIs.

Part 6:

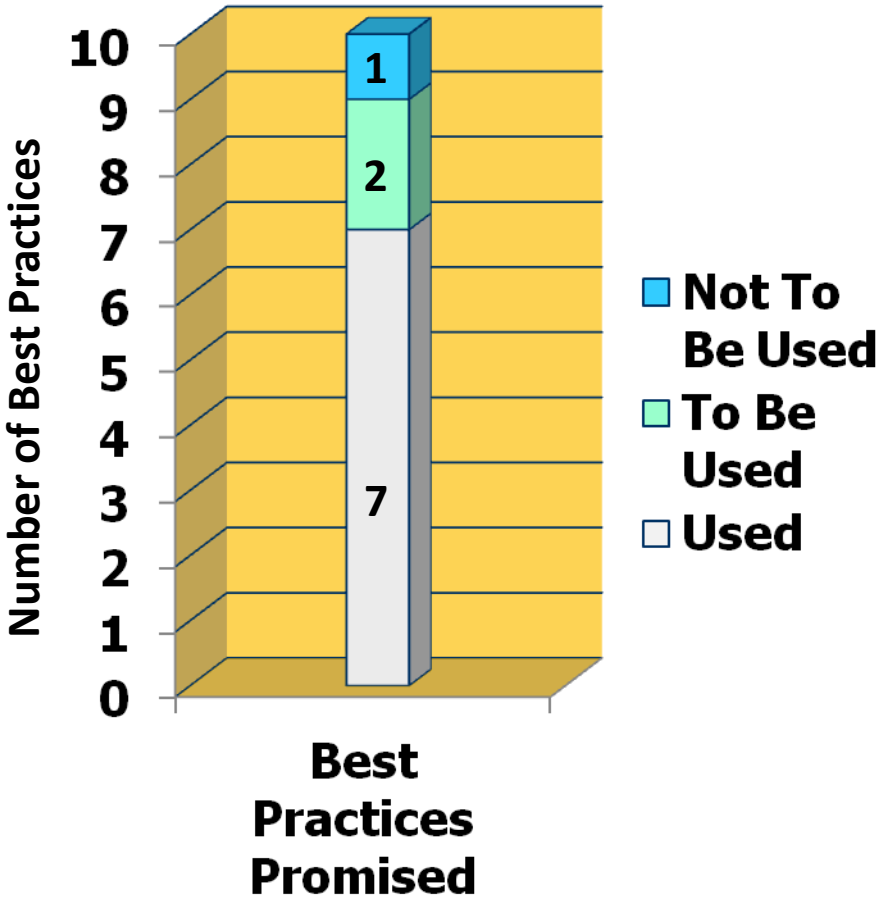
Graphical Displays of Metrics and KPIs

Tech Mahindra Ltd's Customer Delight Index (CDI)

Symbol	Meaning	Jan	Feb	Mar	Apr
	Data not entered				
	Dissatisfied				
	Satisfied				
	Delighted				

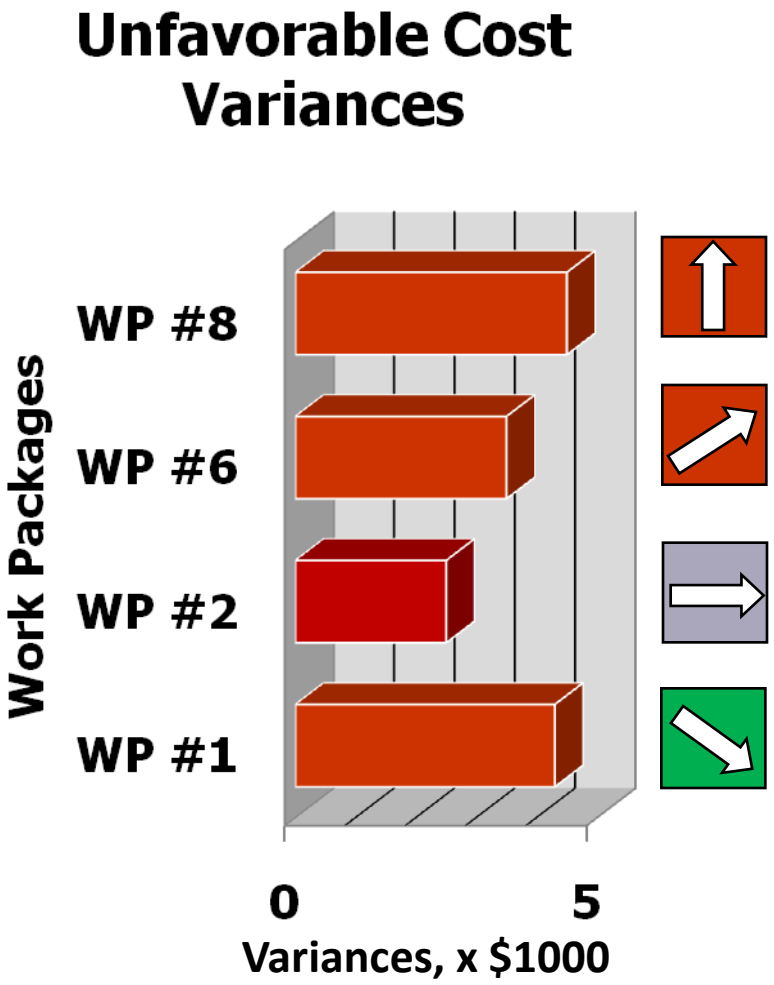
(Adapted from Tech Mahindra's Customer Delight Index [CDI]
©2013 Tech Mahindra. All Rights Reserved.)

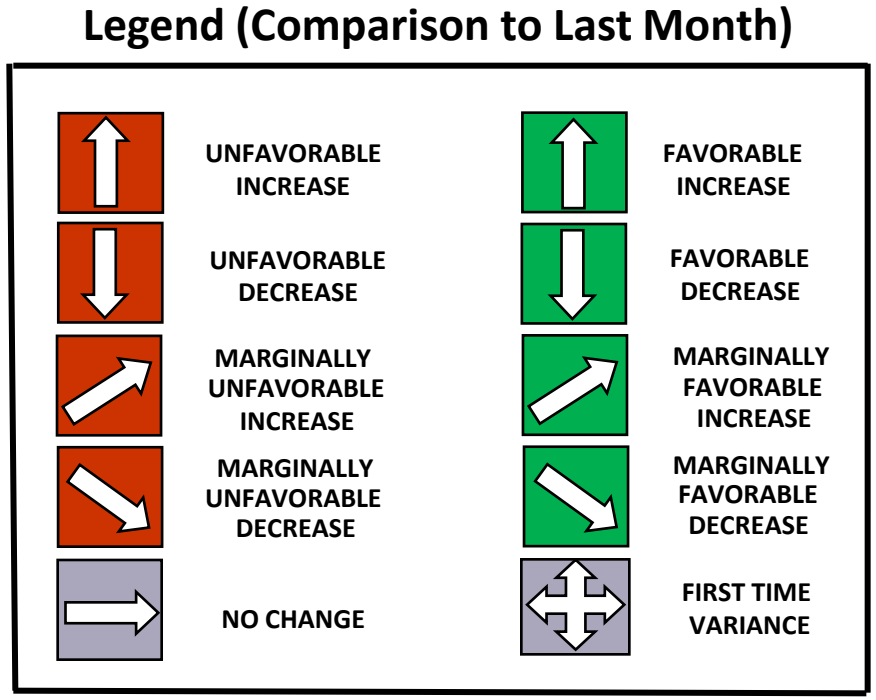
Metric: Best Practices Promised



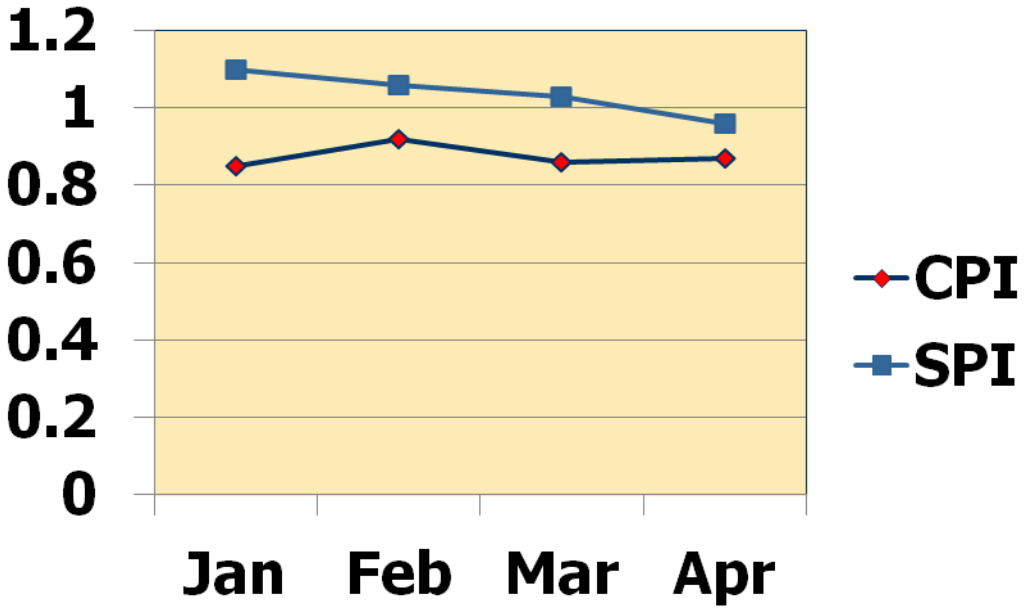
Best Practice Used	Best Practice To Be Used	Best Practice Not To Be Used
3	8	23
5	17	
9		
11		
14		
18		
21		

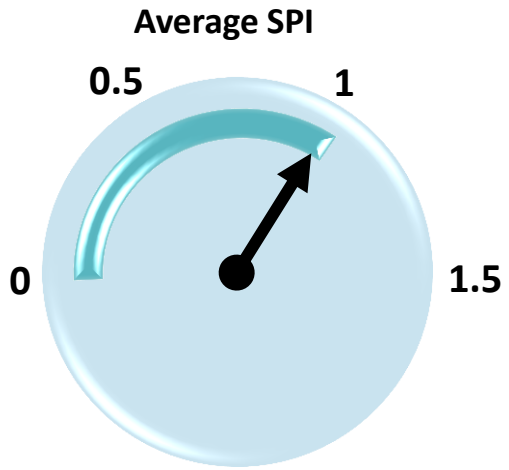
Metric: Color-Coded Variances (Monthly)

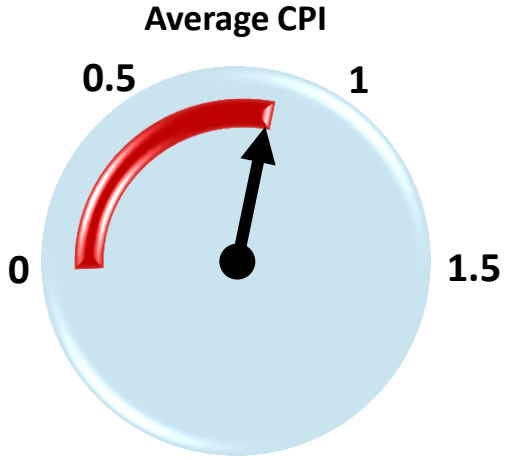




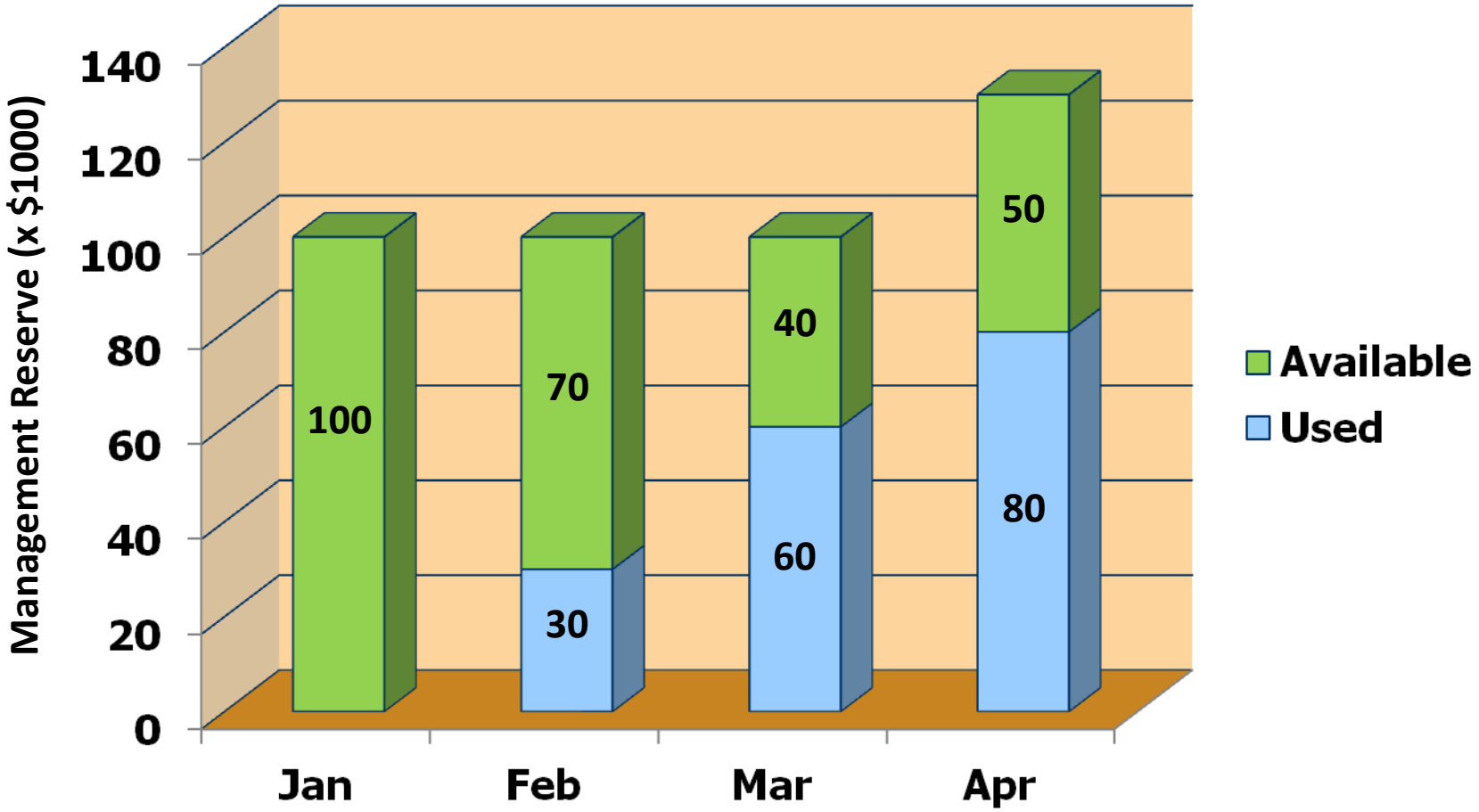
Metric: Cumulative Month-End CPI and SPI Data



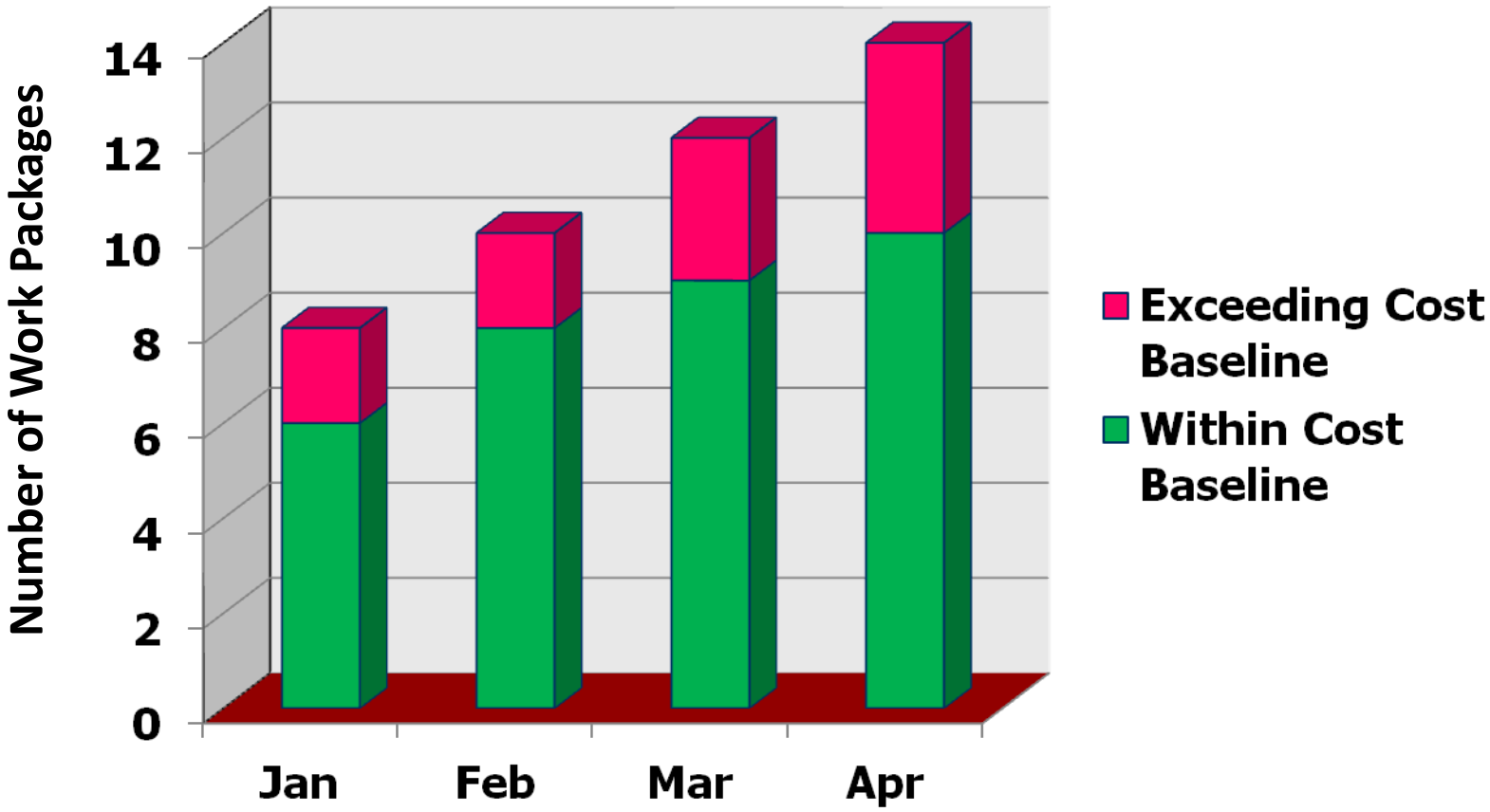




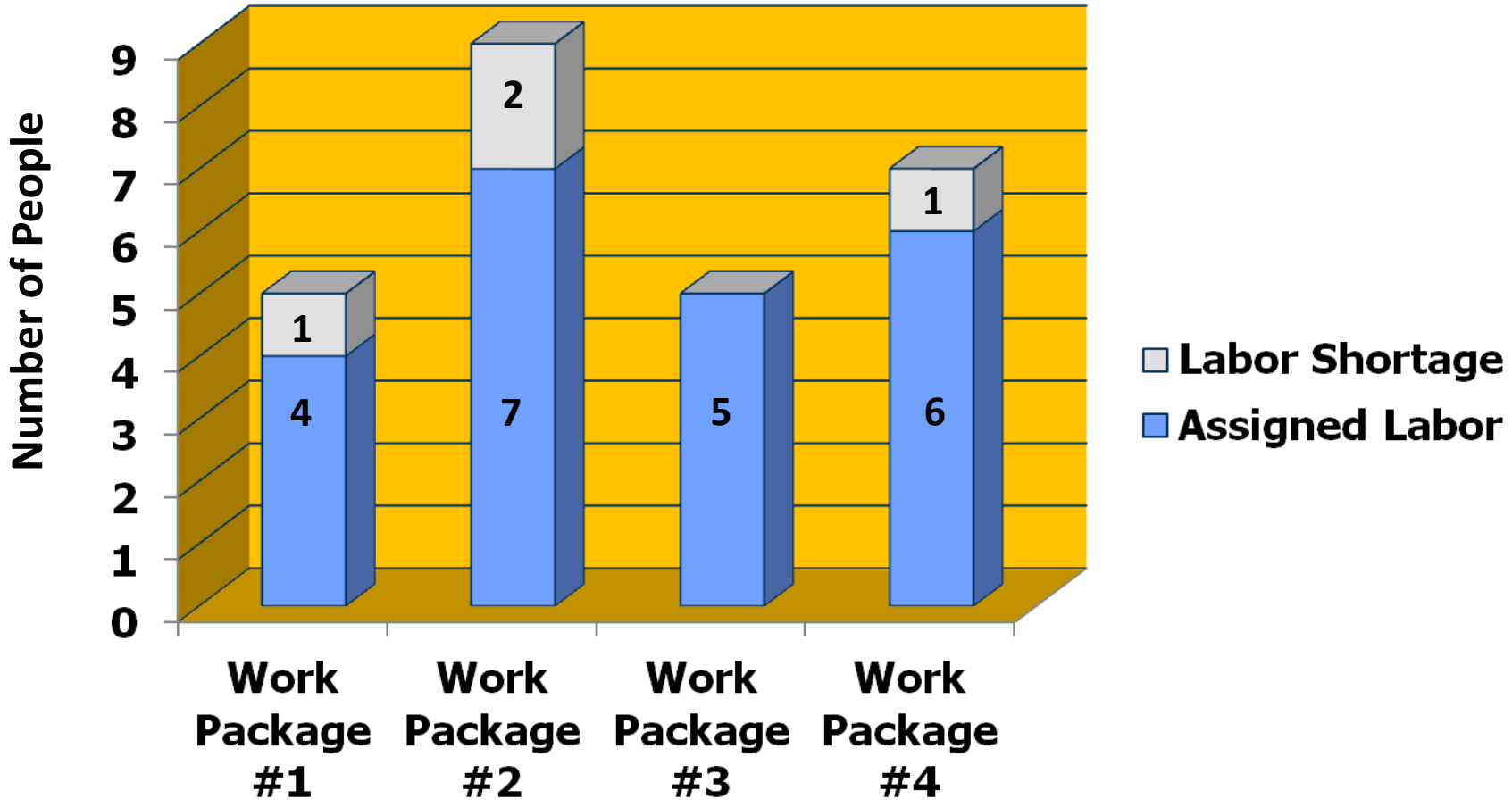
Metric: Management Reserve



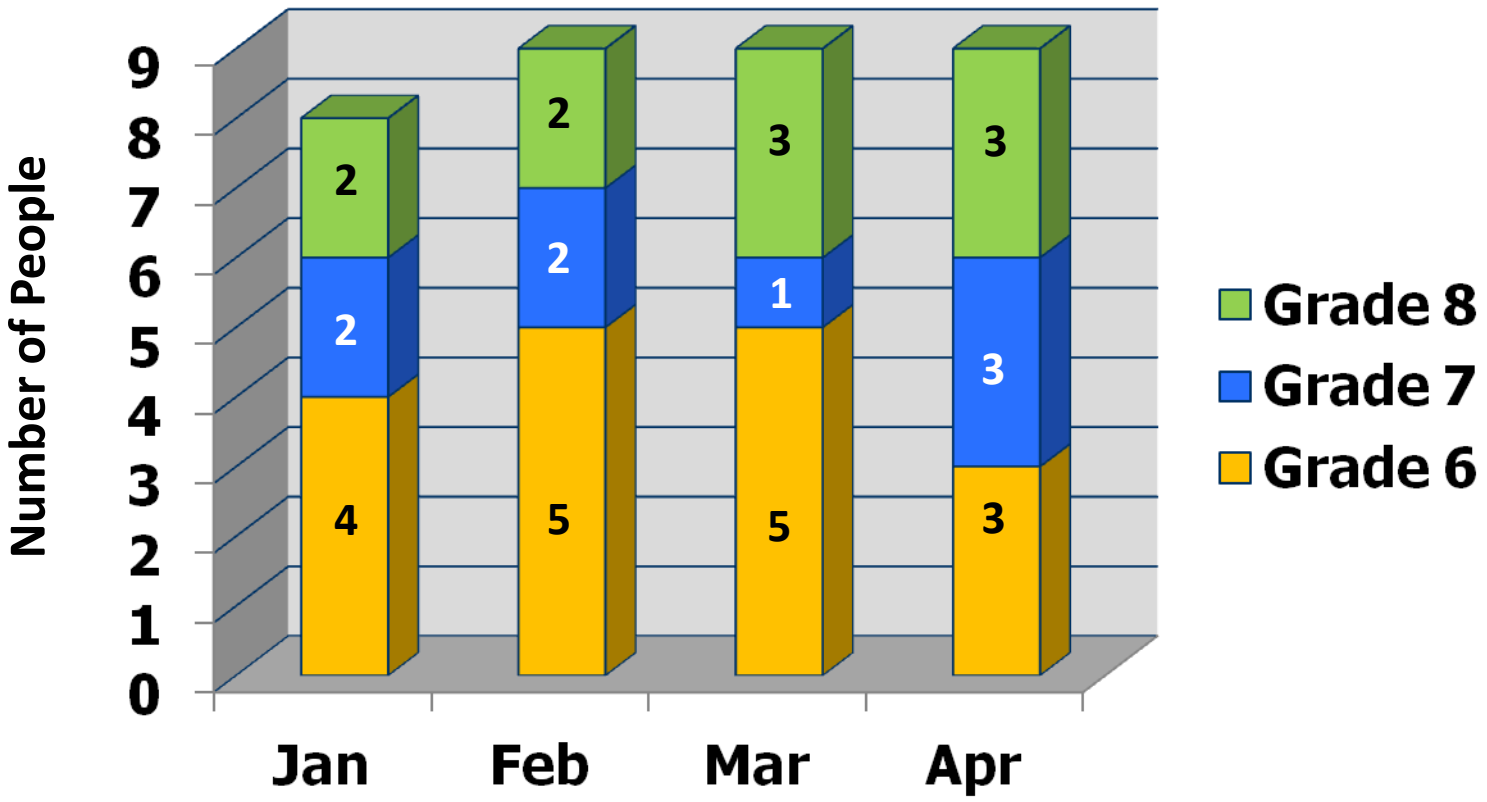
Metric: Number of Completed Work Packages Adhering to and Over Budget



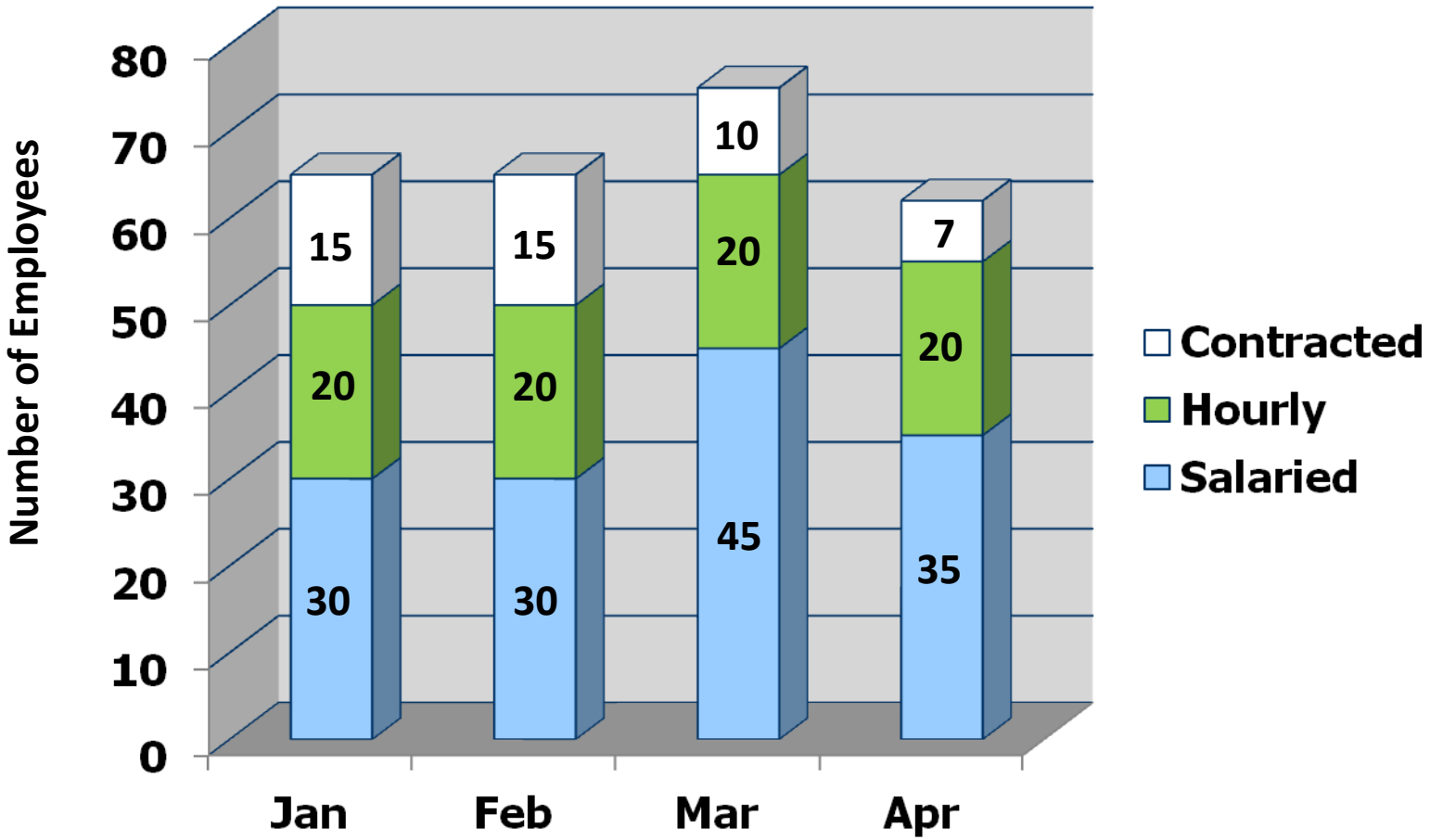
Metric: Assigned Versus Planned Resources



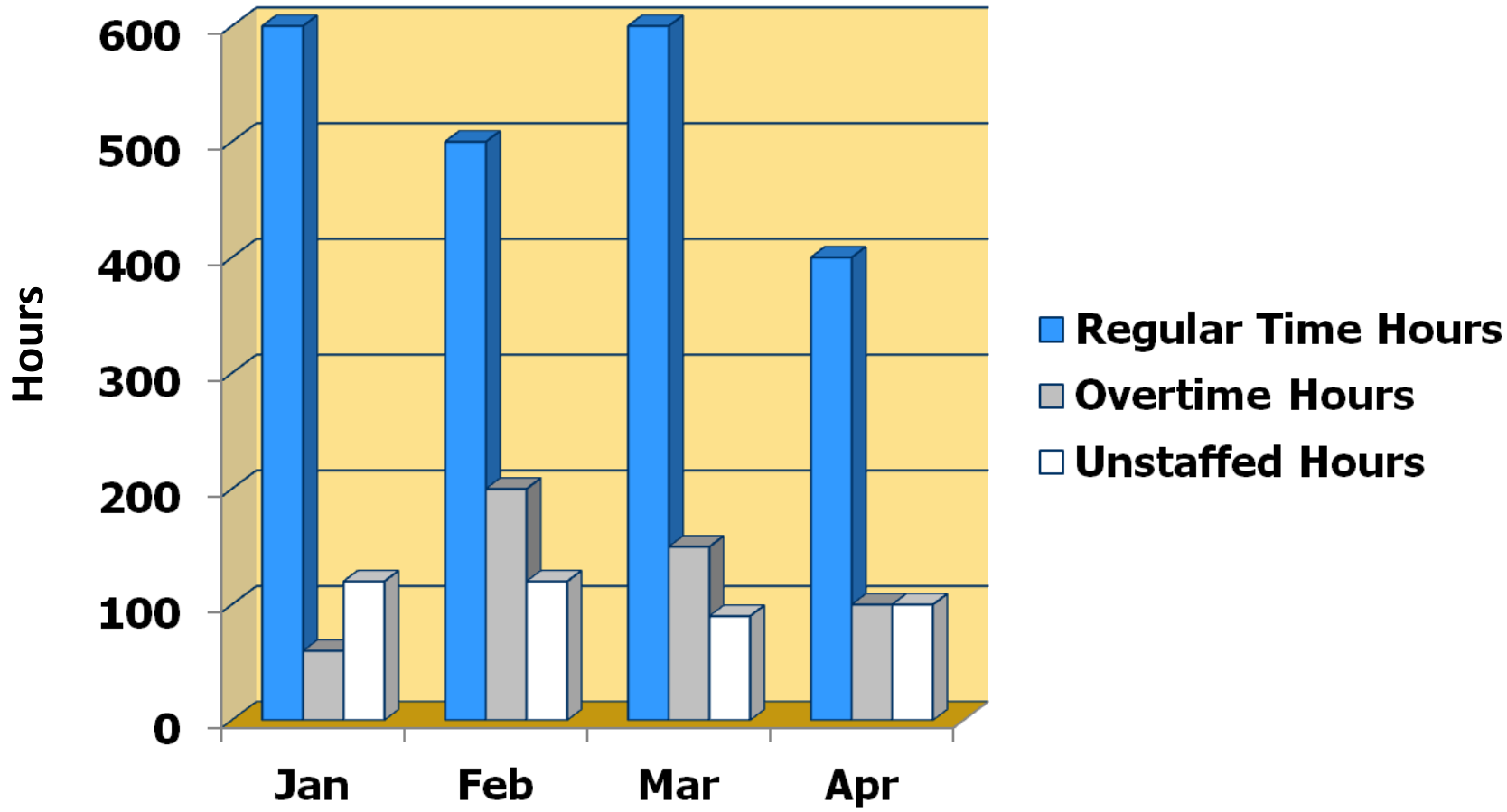
Metric: Quality of Assigned Labor



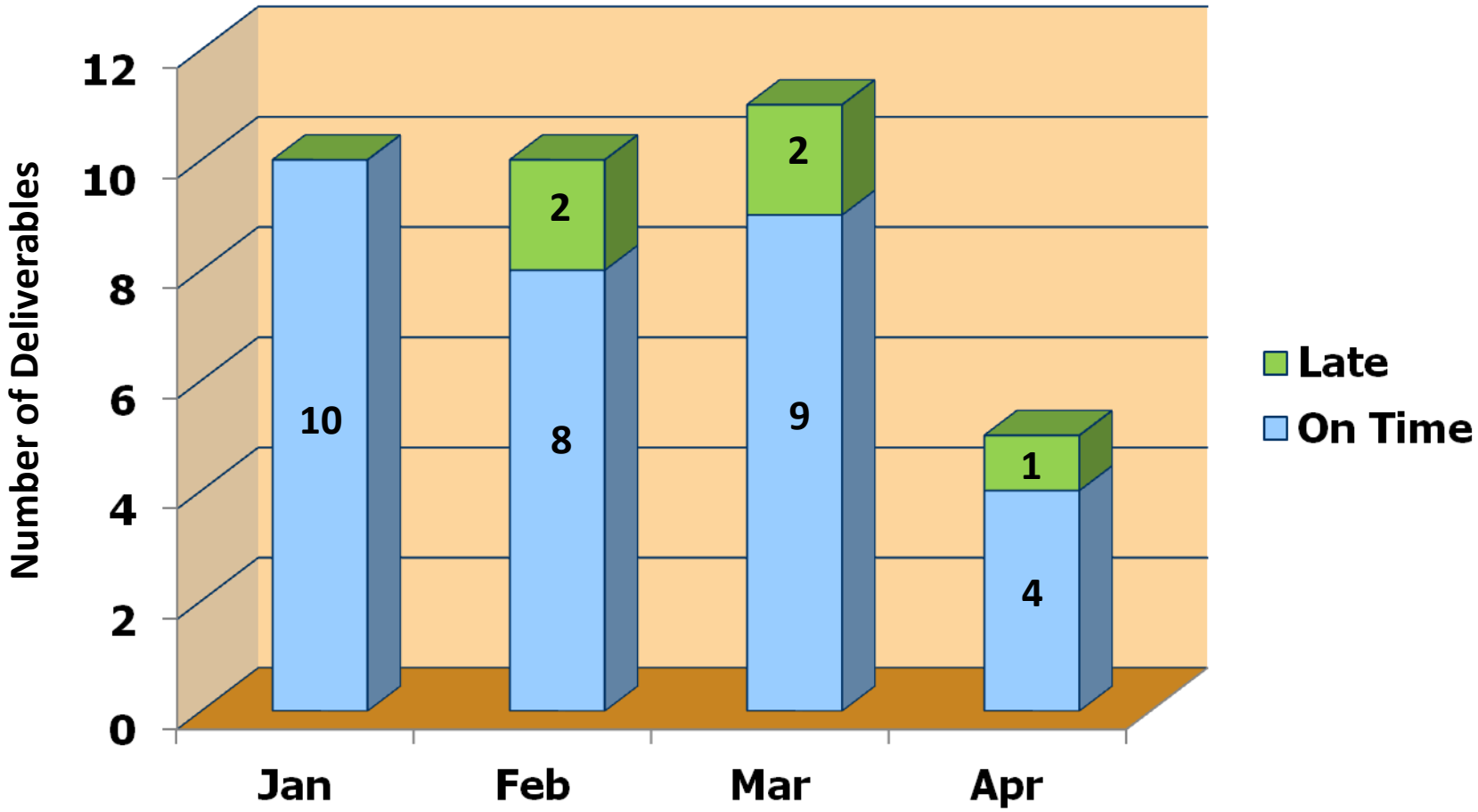
Metric: Total Project Manpower



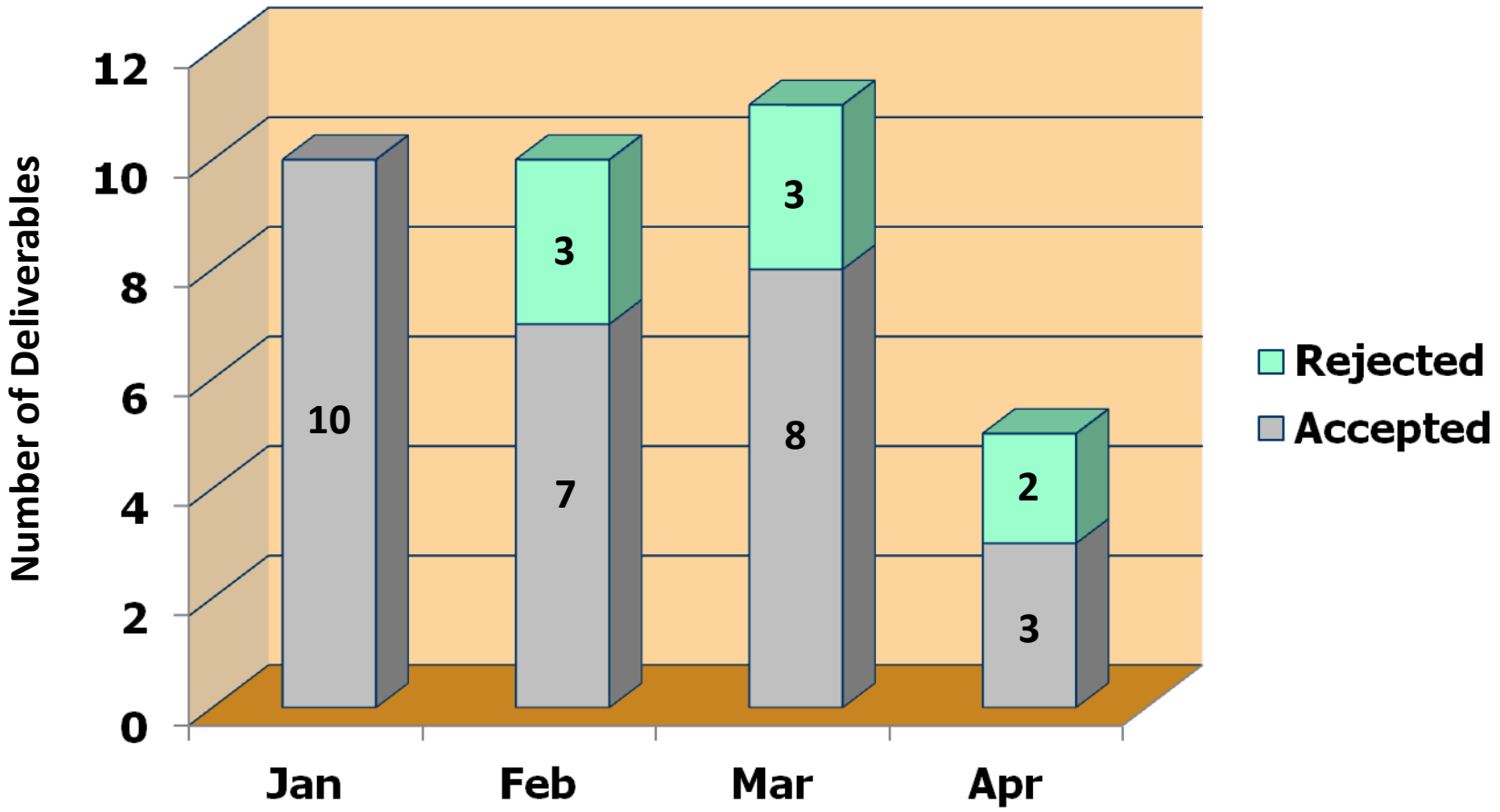
Metric: Regular Time, Overtime and Unstaffed Hours



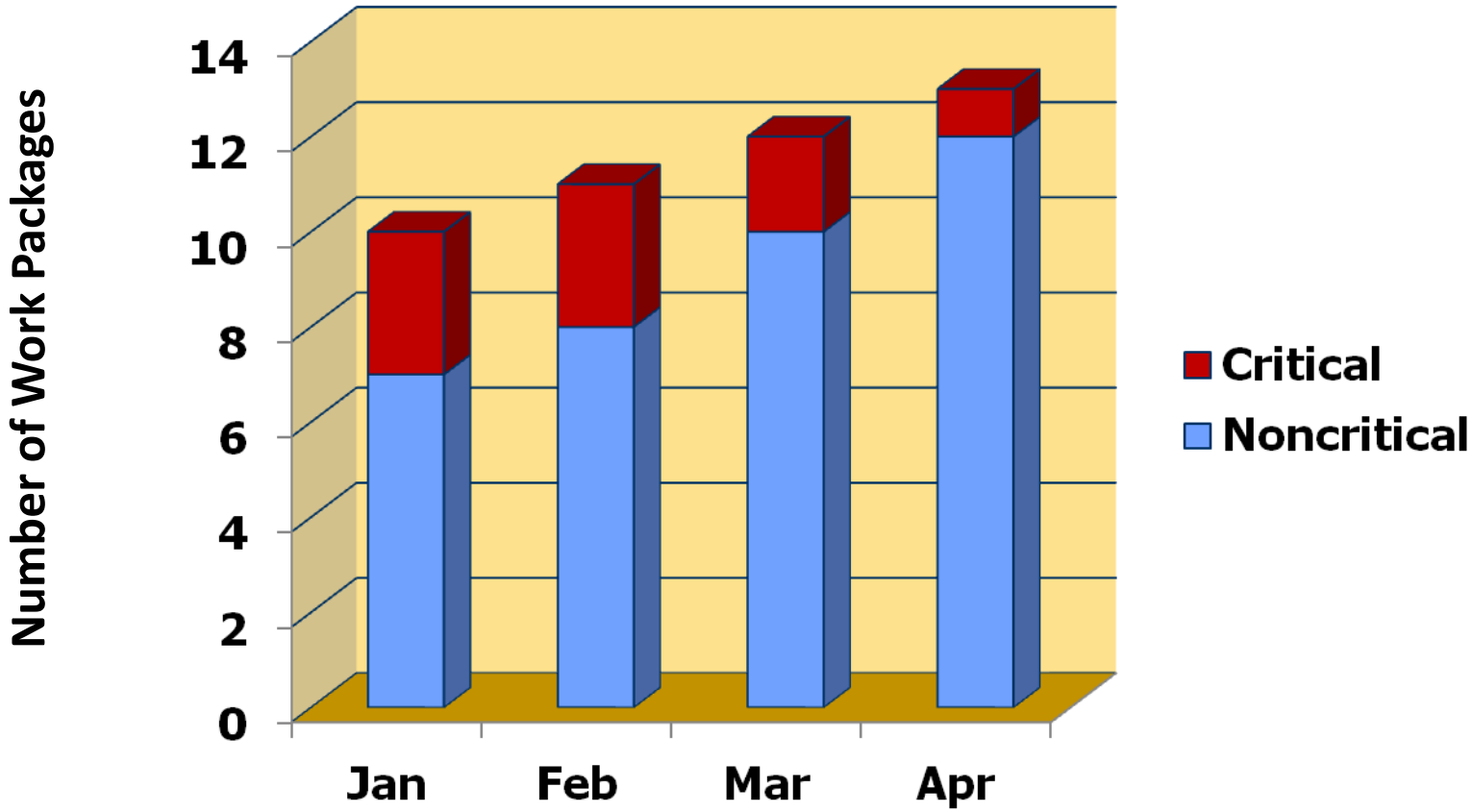
Metric: Deliverables on Time or Late



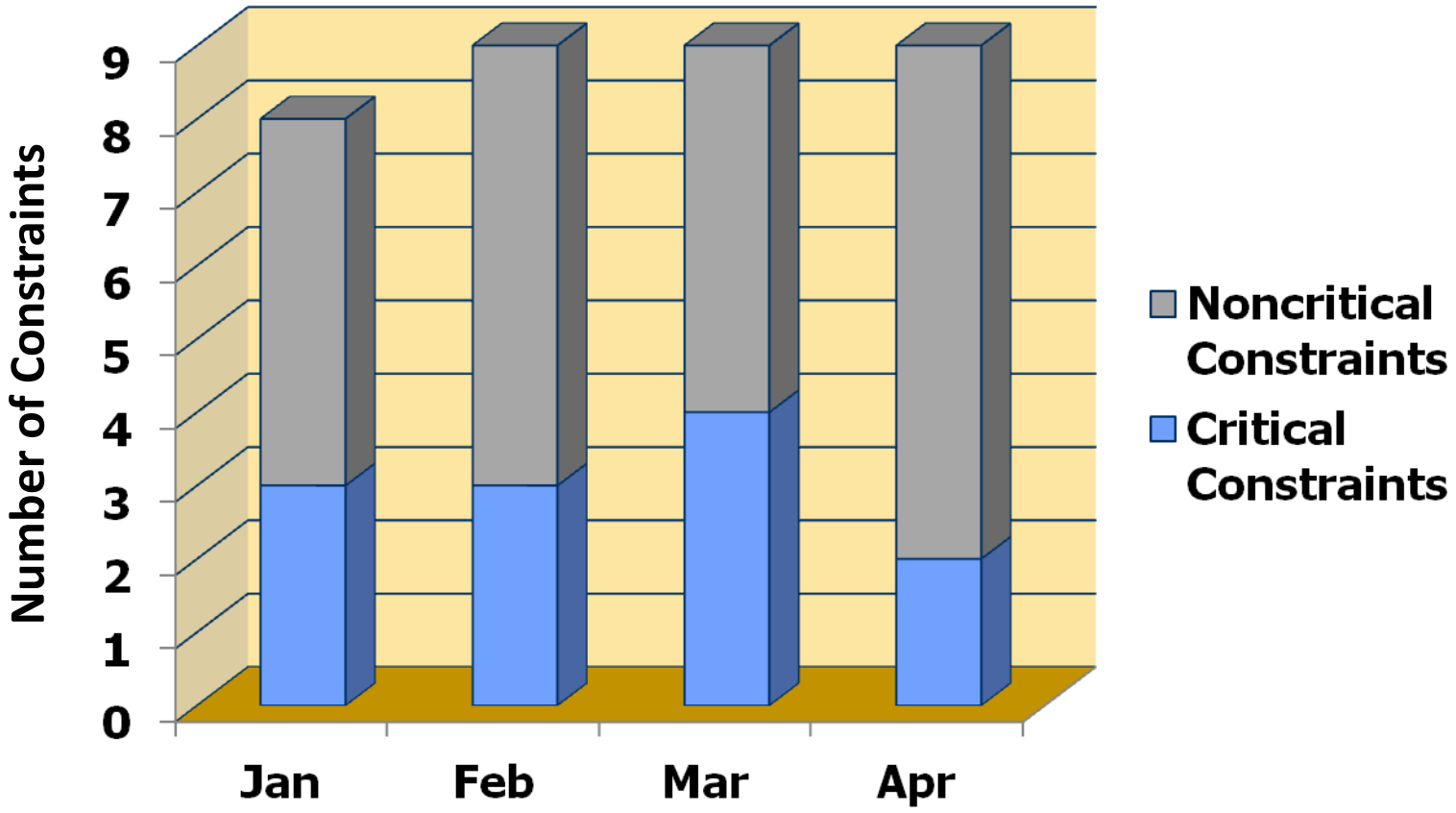
Metric: Deliverables Accepted or Rejected



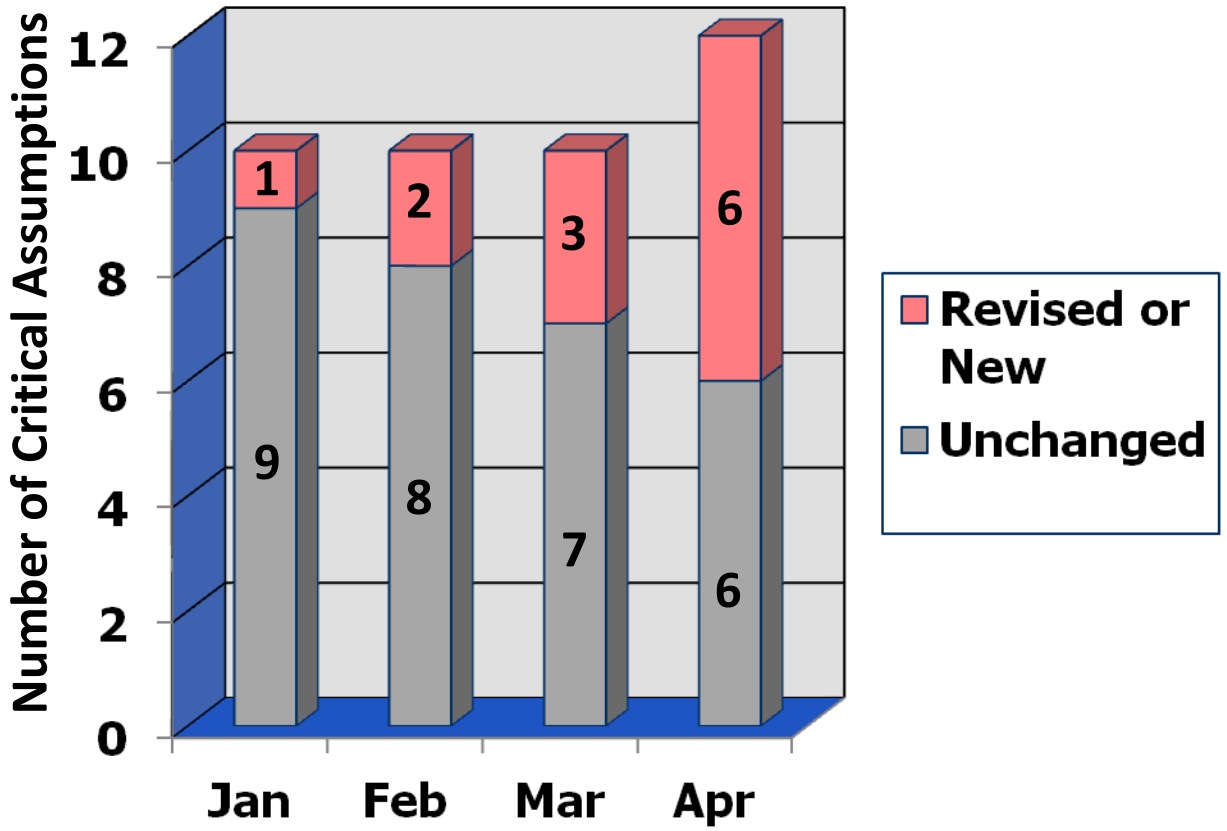
Metric: Work Packages Open With and Without a Critical Risk Designation



Metric: Number of Constraints

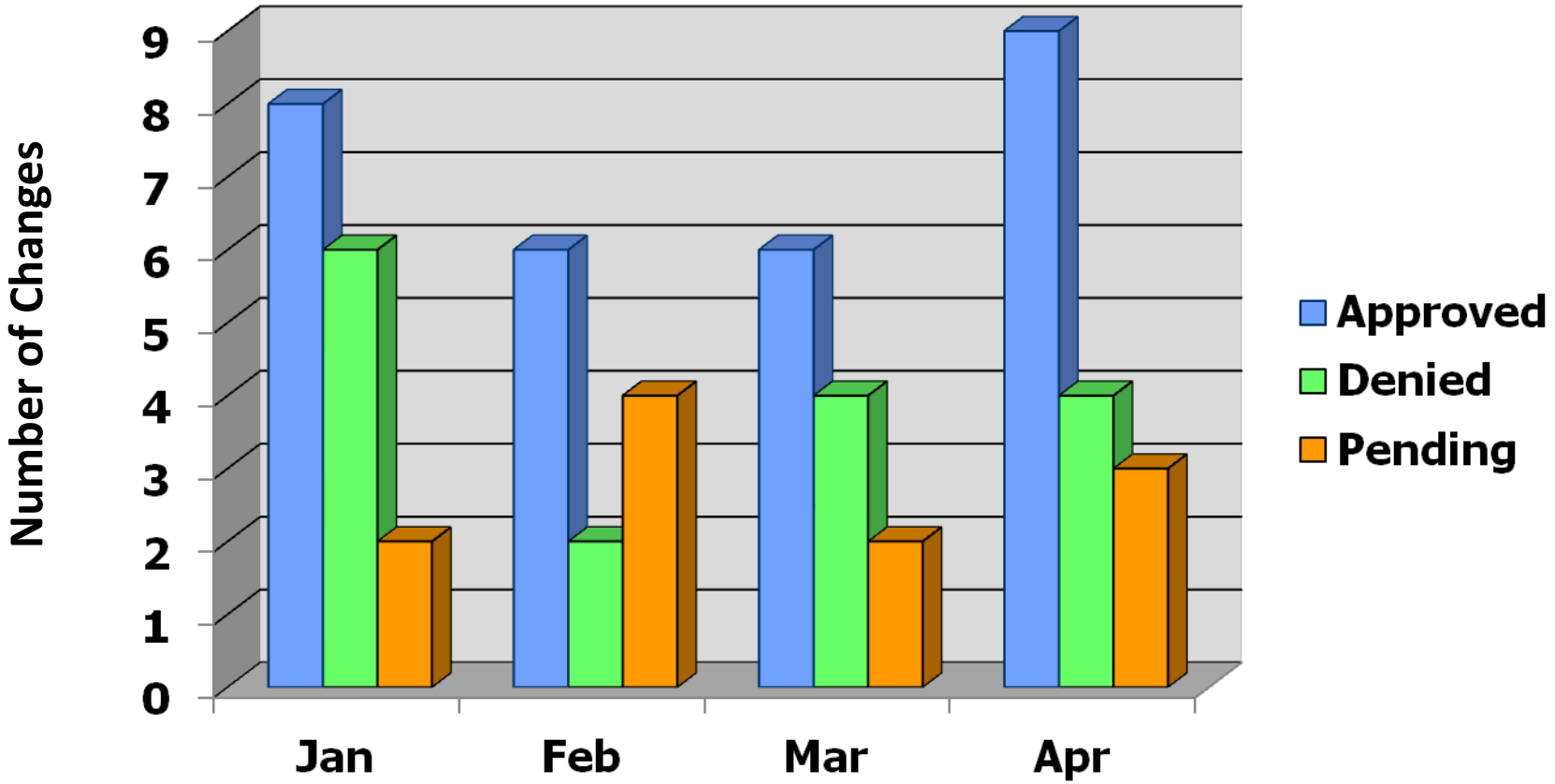


Metric: Number of Critical Assumptions That Have Been Revised or Added



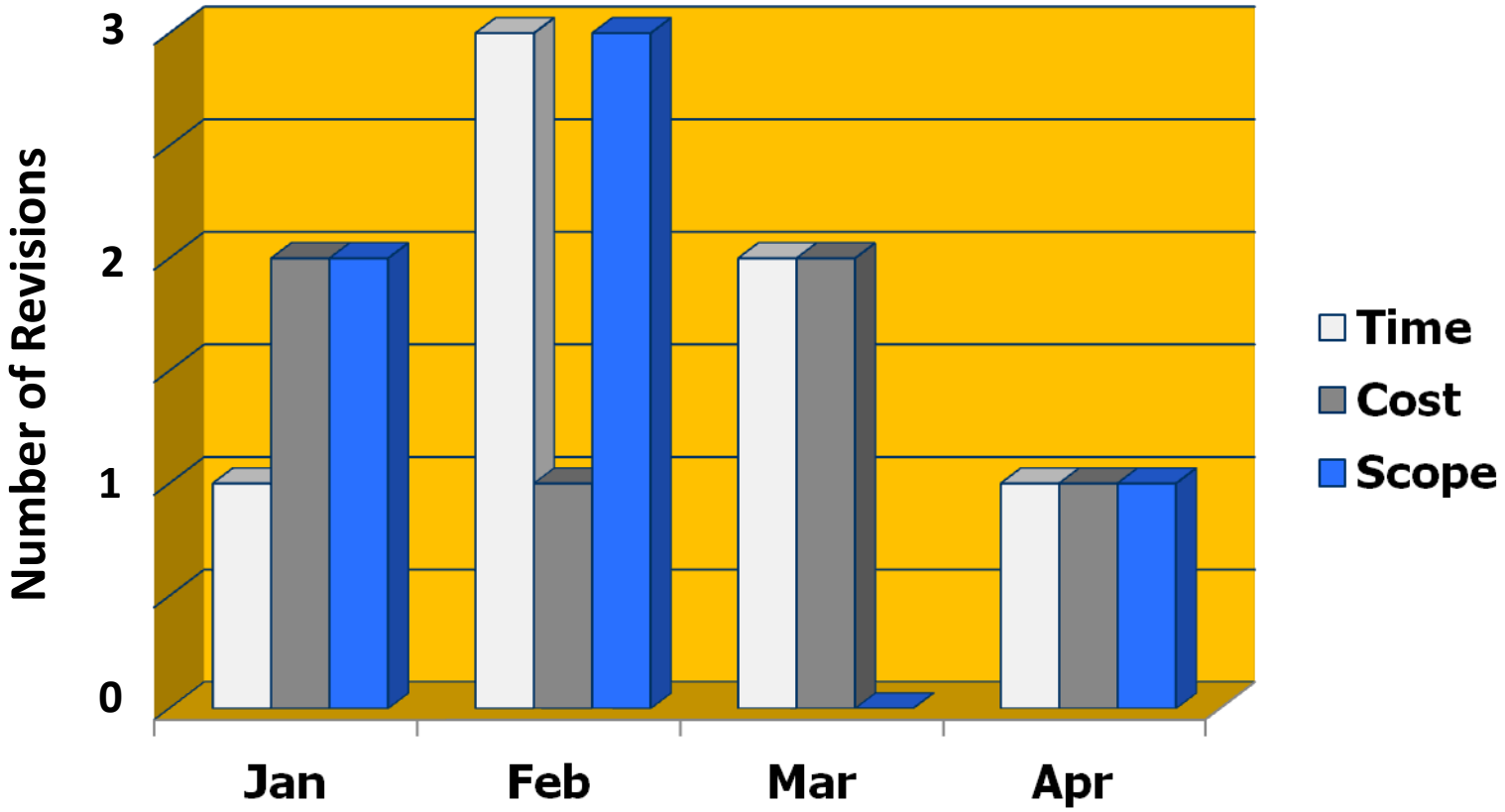
Month	Assumptions	
	New	Revised
Jan	0	1
Feb	1	1
Mar	2	1
Apr	5	1

Metric: Scope Changes Approved, Denied and Pending

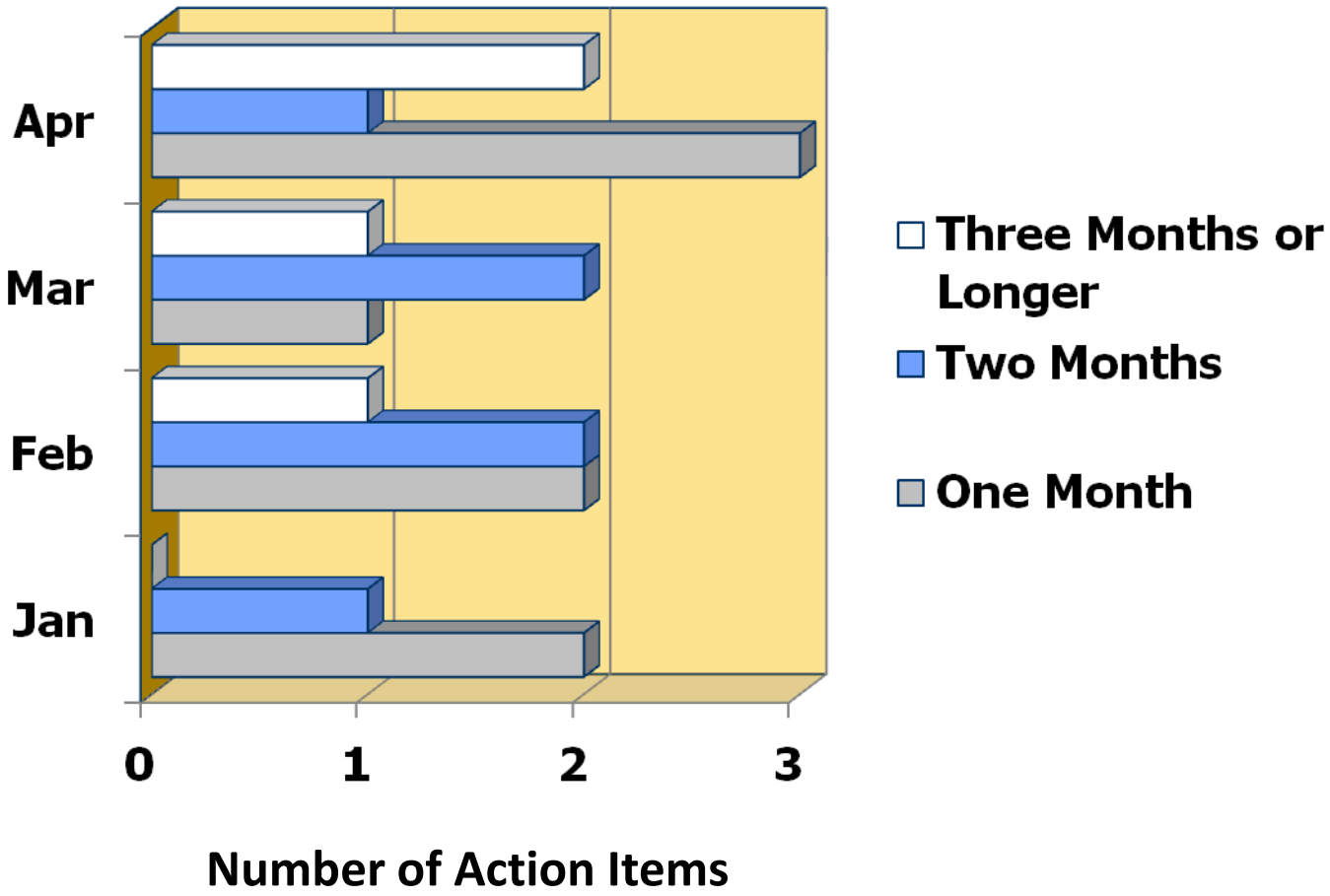


Note: This metric can show the rate of change in the requirements (i.e., requirements growth over time).

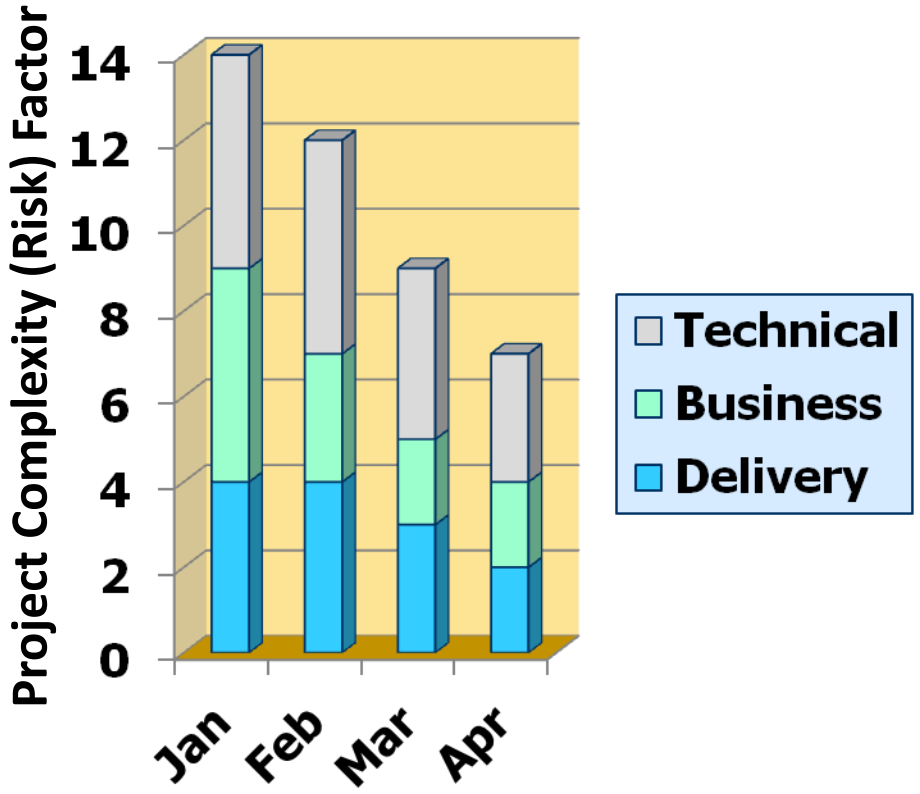
Metric: Number of Baseline Revisions



Metric: Open Action Items



Metric: Project Complexity (Risk) Factor

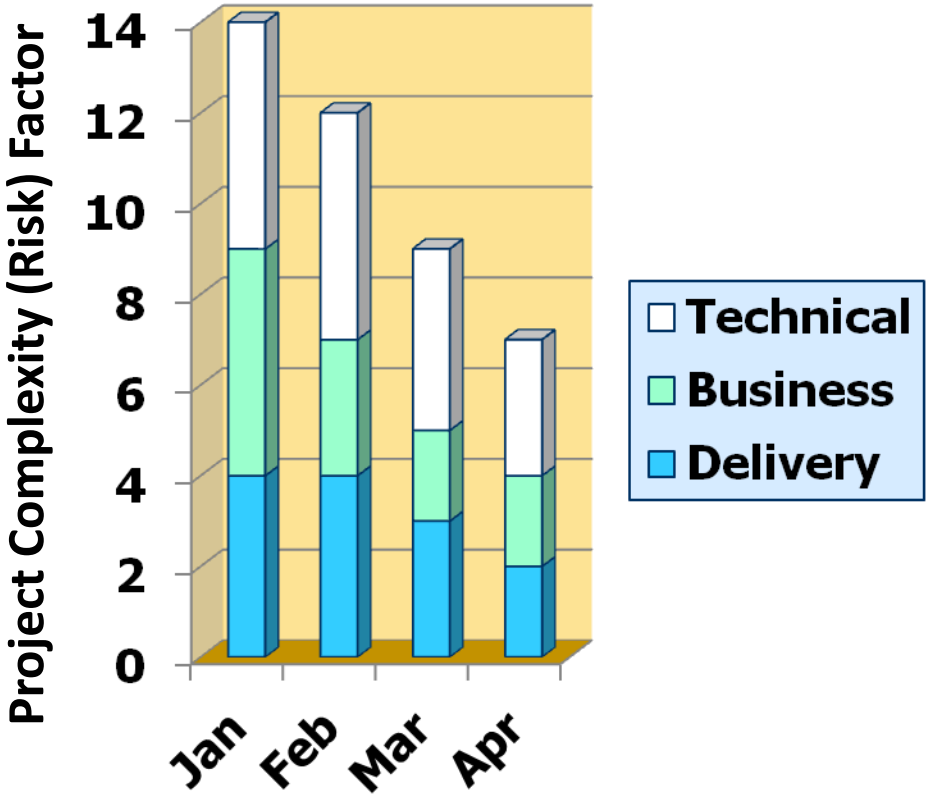


April's Results

Complexity Factor	Rating
Technical	3
Business	2
Delivery	2

Table Legend
5 = Very High
4 = High
3 = Moderate
2 = Low
1 = Very Low

Metric Library: Project Complexity (Risk) Factor

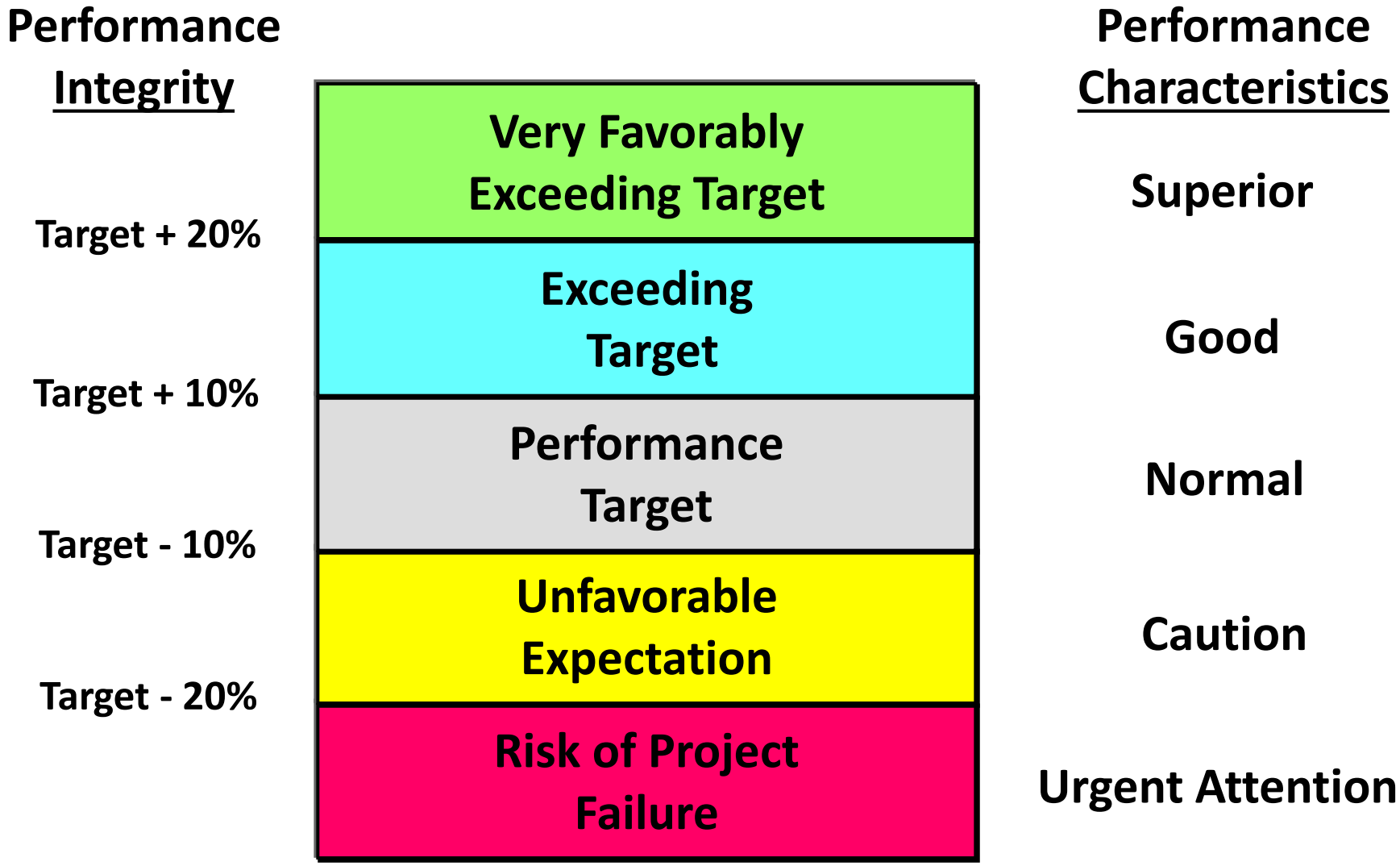


Factor	Information
Description	Shows Changes in Project Complexity Over Time
Metric Owner	Ellen Stanford
Advantages	Directly Related to Downstream Risks
Disadvantages	Highly Subjective
Metric or KPI	Metric
Value Attribute	Not Applicable
Type of Image	Stacked Column
Measurement	Human Judgment
***PMBOK*® AOK**	Risk Management
***PMBOK*® Domain**	Execution

Part 7:

Value-Based or Value-Reflective Metrics

The Metric / KPI Target Boundary Box



Value Points for the Target Boundary Box



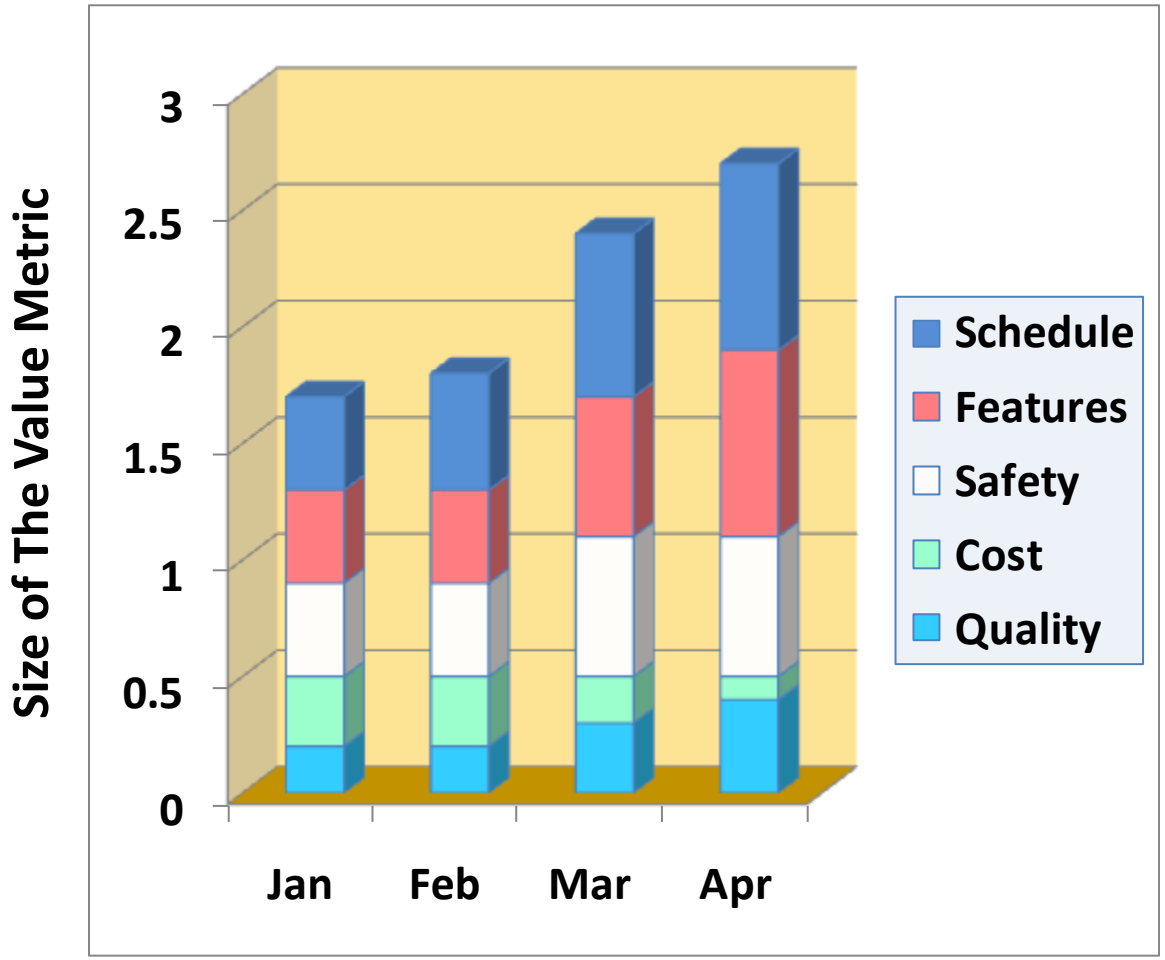
Performance Characteristics	Value Points
Superior	4
Good	3
Normal	2
Caution	1
Urgent Attention	0

Value Metric Measurement

Value Component	Weighting Factor	Value Measurement	Value Contribution
Quality	**10%**	**3**	**0.3**
Cost	**20%**	**2**	**0.4**
Safety	**20%**	**4**	**0.8**
Features	**30%**	**2**	**0.6**
Schedule	**20%**	**3**	**0.6**

Total = 2.7

Metric: Project Value Attributes



April Measurements

Value Attribute	Rating
Schedule	4
Features	3
Safety	3
Cost	2
Quality	4

Rating Legend
4 = Superior
3 = Good
2 = Normal
1 = Caution
0 = Attention

Part 8:

Understanding Dashboards

Purpose of a Dashboard

- The purpose of a dashboard is to convert raw data into meaningful information that can be easily understood and used for informed decision making

- The dashboard provides the viewer with “situational awareness” of what the information means now and what it might mean in the future



Some rules exist for dashboard design and layout:

- **Rules for selecting the right artwork**
- **Rules for screen real estate**
- **Rules for artwork placement**
- **Rules for color selection**
- **Rules for accuracy of information (2D vs. 3D)**
- **Rules for aesthetics**

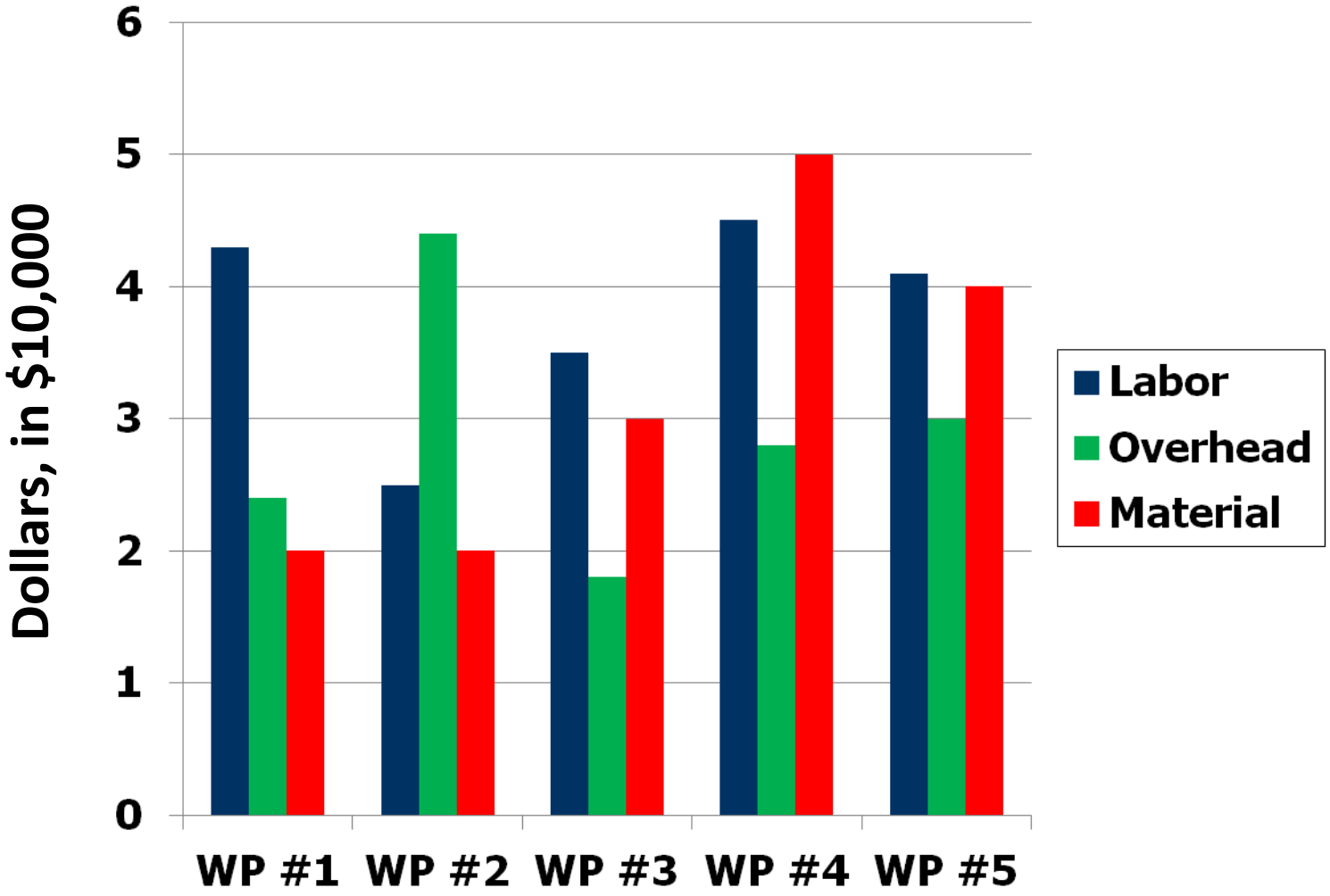
Part 9:

Selecting the Right Dashboard Images

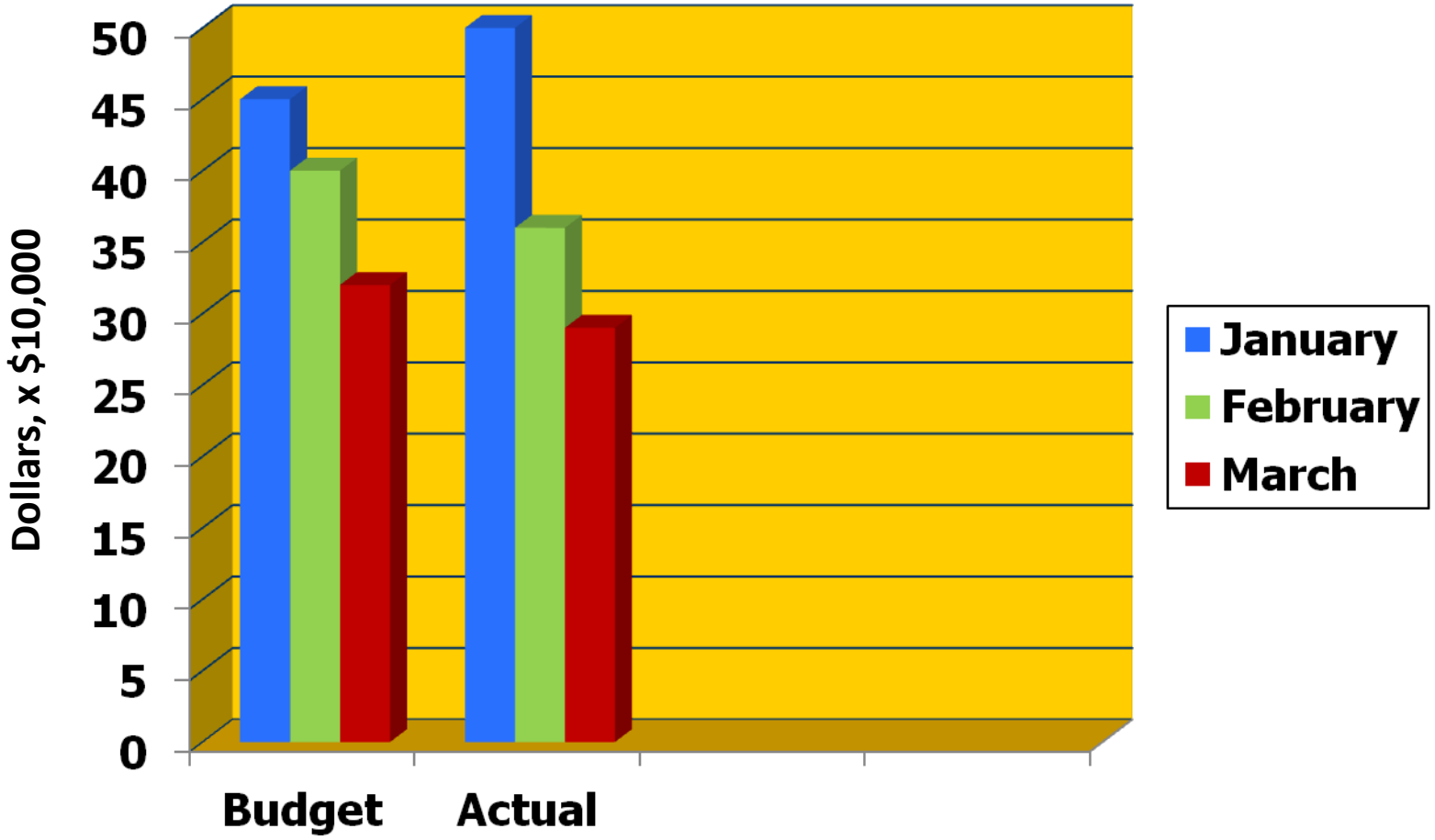
Dashboard Failures

Dashboards do not fail because of technology. They fail because of poor design.

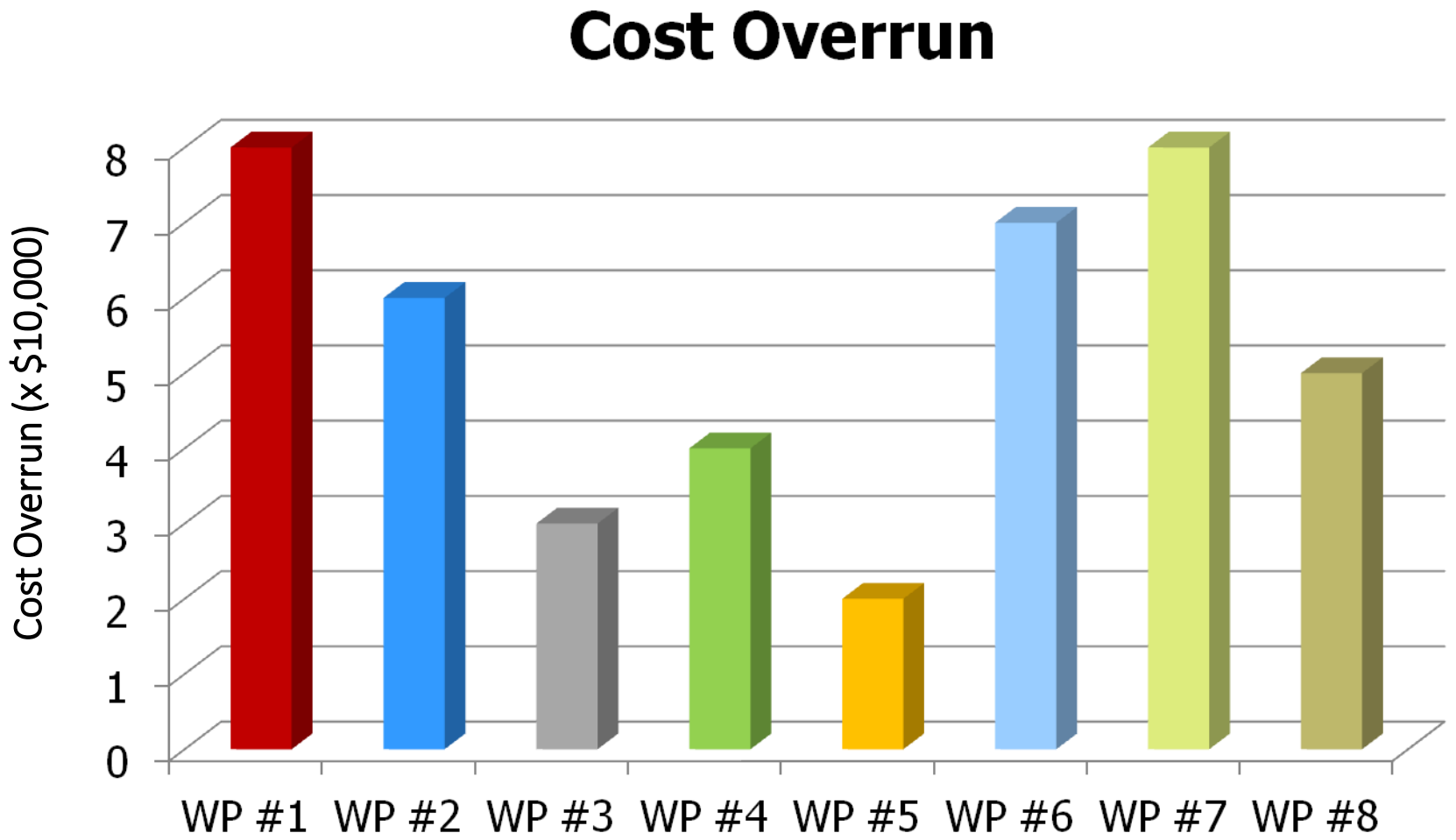
What's Wrong With This Dashboard Image?



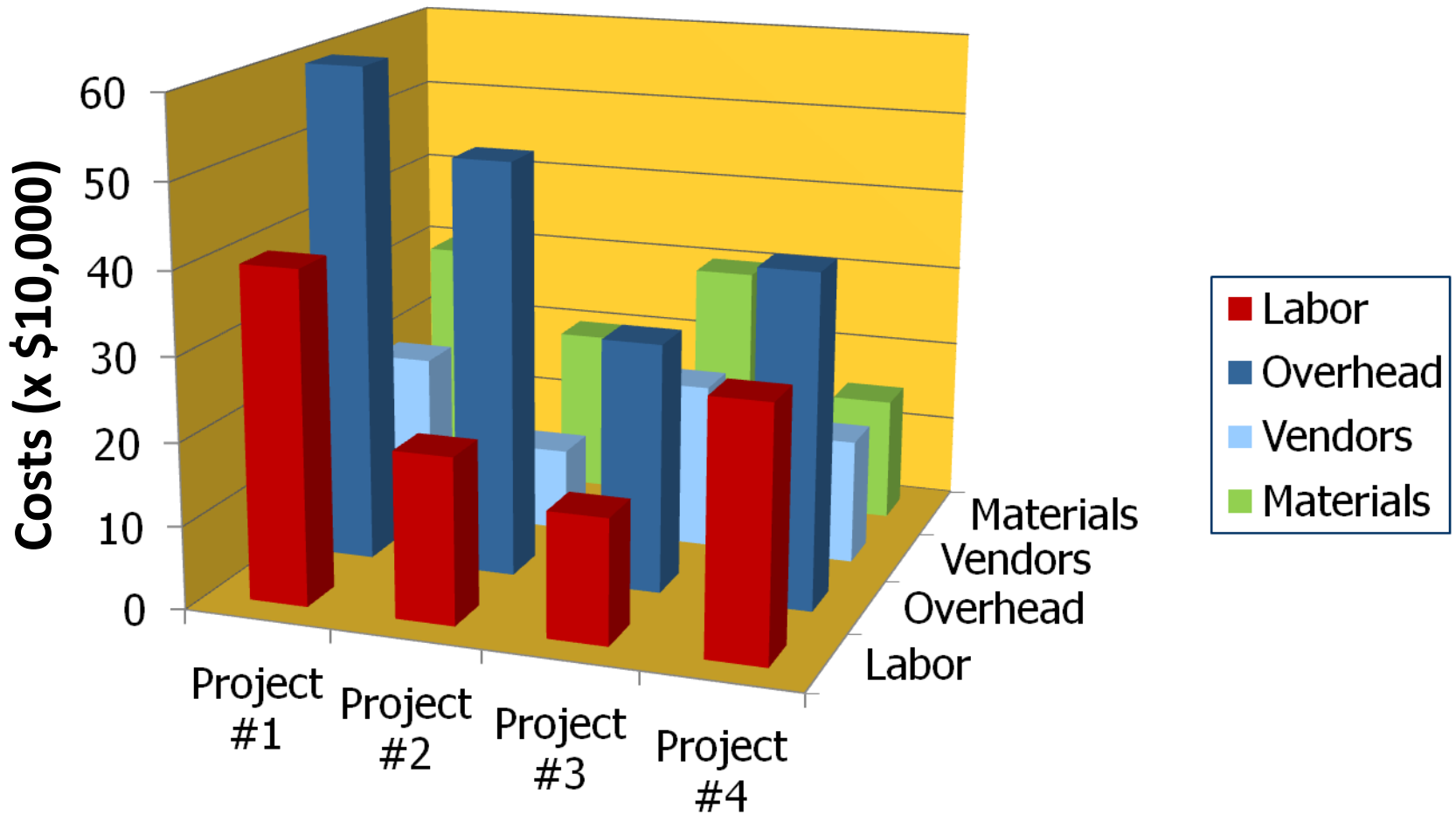
What's Wrong With This Dashboard Image?



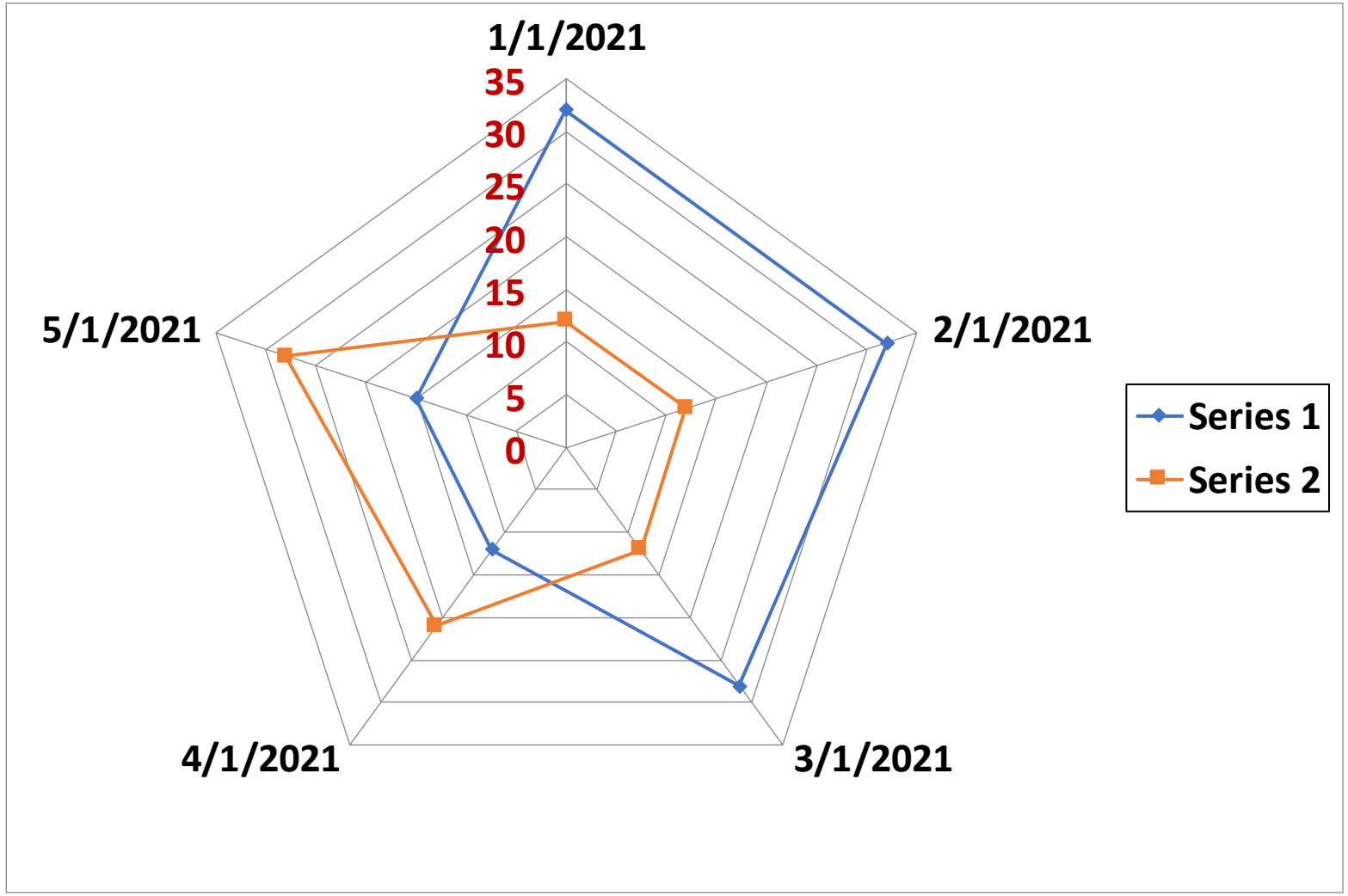
What's Wrong With This Dashboard Image?



What's Wrong With This Dashboard Image?



What's Wrong With This Dashboard Image?



What's Wrong With This Dashboard Image?

Cost Variances

Work Package #3: Cost Variance	
Work Package #4: Cost Variance	
Work Package #7: Cost Variance	
Work Package #8: Cost Variance	
Work Package #9: Cost Variance	

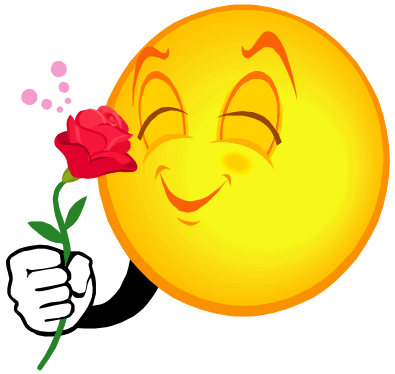
What's Wrong With This Dashboard Image?

How would you interpret these dashboard emoticons?





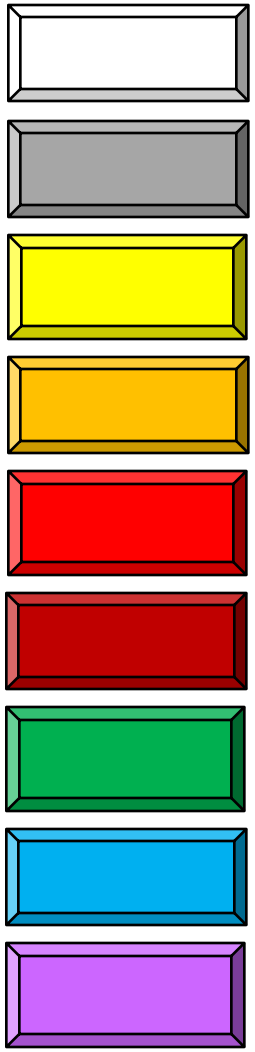








Multi-Color Status Reporting



Status not addressed or recorded

Meeting expectations; on course

Some improvements needed now

Some improvements needed in the future

Not meeting expectations; critical issues

Problem exists and no action taken

Exceeding expectations

Completed

Still active and completion date has passed

Questions?




THANK YOU
Dankon
Maake
Ua Tsaug Rau Koj
Mochchakkeram
Terma Kasih
Multumesc
Merci
Raibh Maith Agat
Chokrane
Juspaxar
Mamana
Kiitos
Kia Ora
Grazie
Obrigado
Asante
Vinaka
Matondo
Dank Je
Merci
Nirringrazzjak
Obrigado
Obrigado
Multumesc
Mochchakkeram
Obrigado
Spasibo
Spasibo
Cam on ban
Kiitos
Raibh Maith Agat
Merci
Matondo
Salamat
Nirringrazzjak
Matur Nuwun
Chokrane
Raibh Maith Agat
Kiitos
Salamat
Obrigado
Mochchakkeram
Ua Tsaug Rau Koj