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# YOUR SCHEDULE IS IN SHAMBLES AND THIS IS WHY – A SYSTEMATIC APPROACH TO WHY SO MANY PROJECTS FAIL

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CONSULTING | ANALYTICS | DIGITAL SOLUTIONS | ENGINEERING | CYBER

# PRESENTERS

Ray Britt

Kai Lemay

Patrick Myers

# INTRODUCTION

## $12.20 of every $100

*2017 PMI survey showed only 1 of 2 projects are completed on time*

## ~50% Fail to finish on time

*2016 report revealed that $12.20 of every $100 was wasted due to poor project performance*

# *Why is this tolerated???*

In contrast look to another industry:

- The airline industry had 0.06 accidents per 1 million flights in 2017
- High price associated with loss of life and property has resulted in meticulous, prevention-focused analysis of factors that cause accidents
- **This process is very applicable to the field of project management**

# ROOT CAUSE ANALYSIS

- Lets explore meticulous, prevention-focused analysis. When an airplane accident occurs, the Federal Aviation Administration conducts a "root cause analysis."

- Root cause analysis –breaks down the accident to answer the following questions:
  - why did the accident or issue happen?
  - what was the root cause(s)?
  - how can the precipitant(s) of the accident be avoided?
  - What corrective actions need to be taken to ensure it does not happen again?

- This systematic approach for identifying and understanding the root cause of failure is both effective and applicable to the field of project management

- The main difference being an airplane accident analysis is conducted after something bad has occurred (reactive), while in project management, we can understand the warning signs both before the project starts or while in execution to make immediate changes to prevent failure before it occurs (proactive)

# TYPES OF ROOT CAUSE

Lets explore some types of Root Cause….
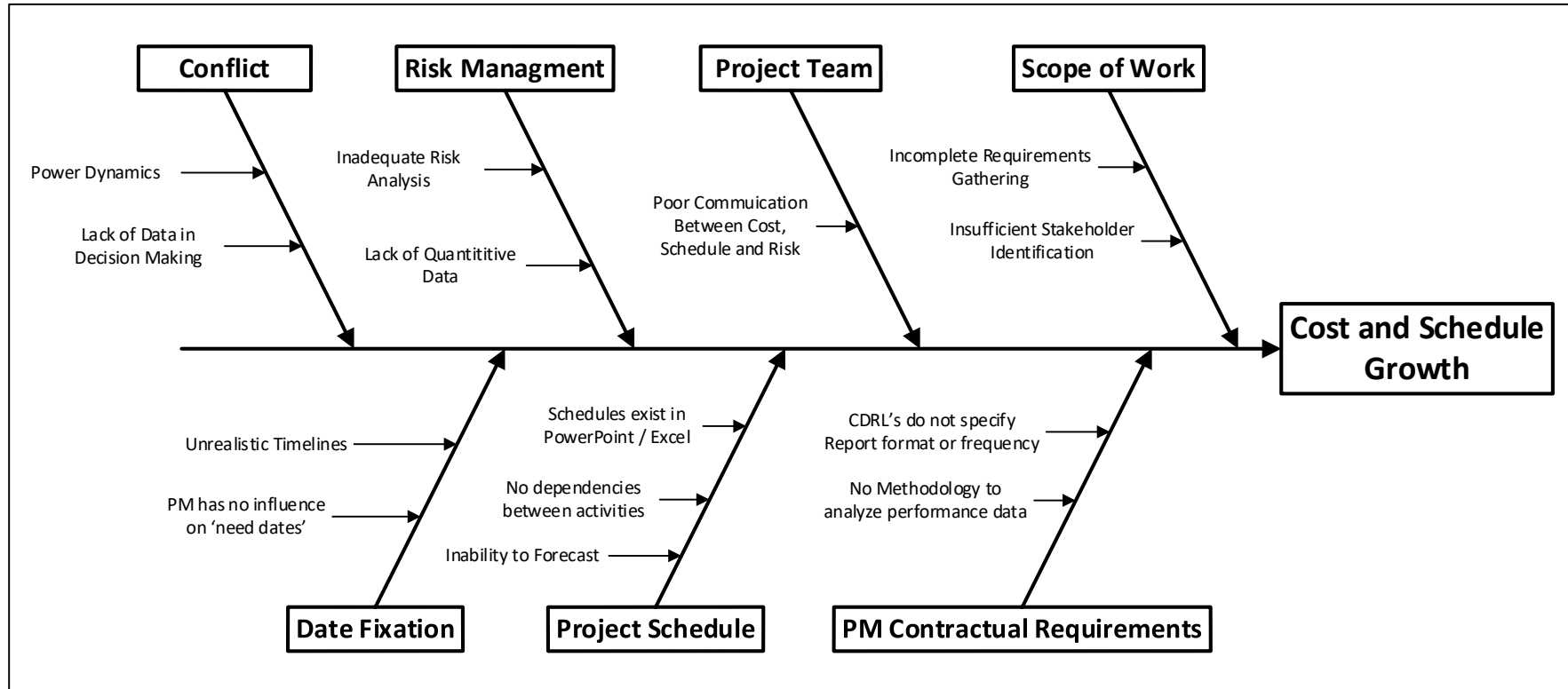


*The issues are not rank ordered, nor does any-one issue carry more weight than another. Each can cause serious issues depending on the project phase and severity to where each root cause impact's planning, monitoring or execution of the project.*

# SCOPE OF WORK

- A clear scope of work, or at least a clear understanding of the desired end result by all project team members and stakeholders is critical to all project success. To avoid scope creep it is critical to define:
  - what needs to be completed
  - by whom
  - how it will to be completed
- This can be a challenge, especially on large scale defense programs and design build construction projects, where scope creep can run wild as stakeholders bring new requirements to the project.



Leads to

Change orders
Additional requirements
Schedule Delays
Cost overruns
Upset Stakeholders



*Fun fact – One VH-71 Presidential helicopter was projected to cost more and take longer than building the 747 Air Force one. This was due to excessive scope creep on the project*

# CONTRACTUAL REQUIREMENTS

- Contractual Requirements determine:
  - Type of contract (FFP, CP, CPFF, T&M, etc.),
  - Period of performance (or length of time the who, what, when, and how the work will be performed,
  - Deliverables required as a part of that contract (for government contracts these are known as Contract Data Requirements List or CDRL's, for commercial contracts they are usually known as Terms and Conditions)

- Many projects fail to define and clearly state requirements for the management of contractor deliverables (i.e. schedules, cost data, risk information, program reviews frequency, etc.). These contract details determine:
  - The frequency that performance data is received from the contractor
  - The owners' methodology to understand how well work is progressing (how their money is being spent).

- Failure to include the above contract details can end up costing projects huge sums of time and money (especially on cost plus contracts). Contractors who are not required to regularly supply performance information to owners can hold the information hostage during project execution (after substantial amounts of money have already been spent in execution) and propose additional costs for contract modifications to obtain this information

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# PROJECT TEAM

- In recent years focus has been placed on the importance of project management certifications; to address that bluntly: ***Project Management certifications do not make staff automatically experienced to manage a project***

- Having a team that is adaptable and diverse in knowledge / skillset is necessary to adequately manage a project. An experienced project manager, a team that is skilled in cost and resource management, schedule development and management (specifically Critical Path Method or Agile depending on the project), and scope, risk, and quality management are critical to project success

- These disciplines do not exist in a vacuum; cost, schedule, and risk performance are all related. To address these interrelated disciplines, constant communication among project team members is necessary
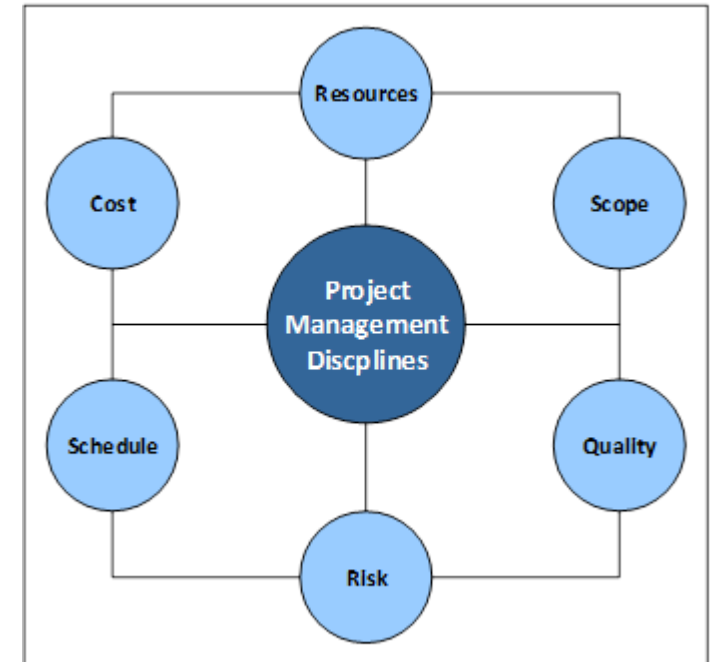
# PROJECT SCHEDULE

- The schedule on any project contains the entire scope of work that the program team must complete, along with the appropriate sequence for completing those tasks. Unfortunately, many programs fail to create anything more than a picture (AKA the "taco chart," "chip dip chart," PowerPoint/Excel schedule), or worse they don't use anything at all

- Without a plan that contains a complete list of activities and connections (logical dependencies), creating the project network diagram and driving path (critical path) to the end date, the project is unable to track changes to the plan and forecast downstream impact of changes as the project is being executed.

- Without a plan that can change dynamically as the project executes, often represented in a Gantt Chart, the team is unable to identify delayed activities that may impact other activities, contributing to schedule growth and finishing behind schedule.
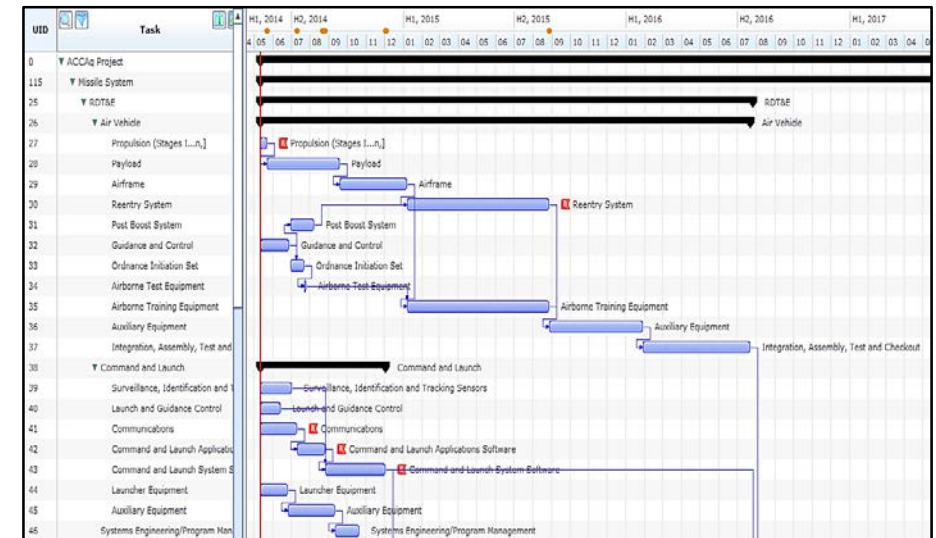
# RISK MANAGEMENT

- Risk can be a broad discussion topic; however, the risk management process is very straight forward:
  - Identify risks
  - Assess and analyze risks
  - Plan risk response
  - Control risks.

- Within risk management, there are many types of risk that require different methods for management / analysis, but it is an *iterative* process throughout the project

- For many projects, risk management involves nothing more than creating a list of broad statements about events that may occur and quickly discussing them during project meetings. The issue with this approach is that risk impacts on cost and schedule are not quantitatively assessed

- This list of broad statements is a good starting point to develop specific IF-THEN statements about each event (note the word "specific," meaning a precise, detailed statement on each risk event). These statements form the foundation for risk assessment, quantification, analysis, management and either mitigation (negative risk) or enhancement (positive risk)

- Performing risk analysis is a crucial step in truly understanding how risks impact project cost and schedule targets and identifying what actions can most effectively mitigate or enhance impacts
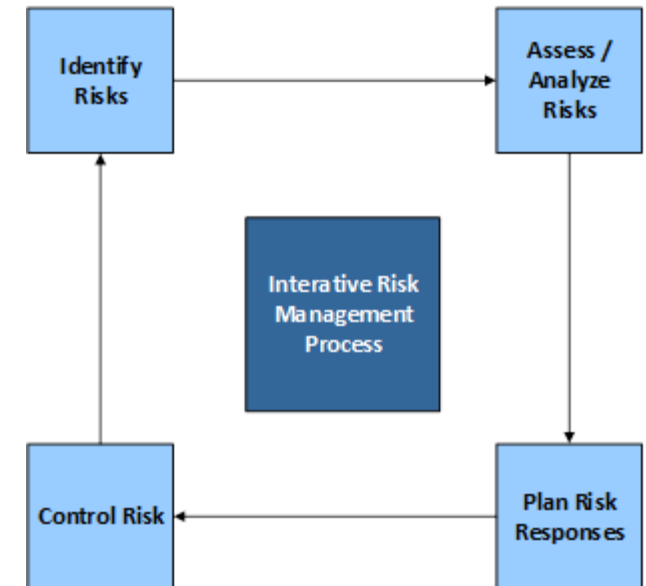
# OVERLY OPTIMISTIC PLANNING & NEED DATES

- Believe it or not, people are optimists; think about almost any projects' planned completion date and compare to the actual completion date – in almost every case the planned completion date is significantly earlier than the actual completion date.

- At least one of two issues are present on every project (1) overly optimistic planning by the project team (2) an external stakeholder imposing a completion date on the project (and in many cases the latter leads to former).

- The main driver as to why teams plan to a certain date is because a 'need date' (often unachievable) is imposed by a client, stakeholder, 3rd party, and/or business office (usually the person/organization paying for the work)

- There may be multiple reasons for fixating on a specific need date for the completion of work, but the project team should never chisel that date in stone or skip a due diligence assessment to determine if the externally imposed 'need date' is truly achievable.
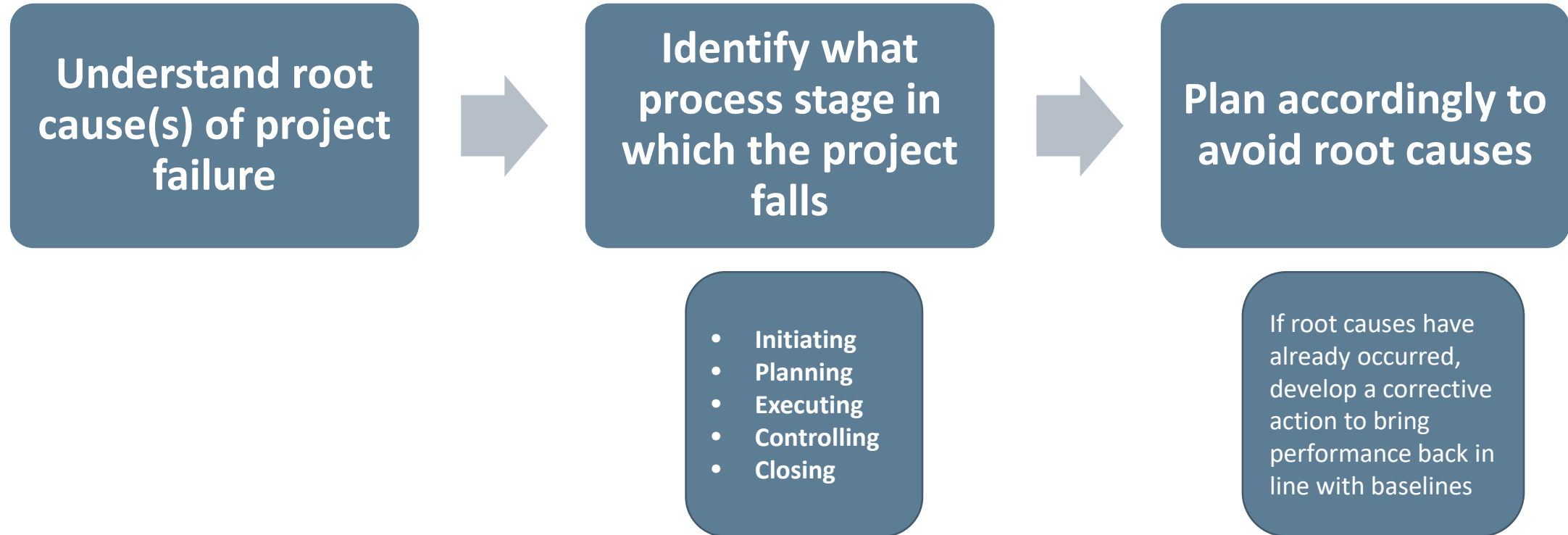
# CONFLICT

- Human beings are social creatures each with their own experience, opinions, and ideas and when brought together can do amazing things, but not without some level of conflict. The Tuckman Ladder Model describes the stages of a project as: Forming, Storming, Norming, Performing, and Adjourning – note *storming* is towards the beginning as most projects start with some conflict

- Conflict among the team isn't bad – in many cases, conflict between two parties about a method to complete work, respond to an issue, or mitigate a risk can spar debate, which leads to discussions

- Many project teams miss out on healthy debate due to the following: power dynamics between team members, not wanting to hurt feelings, fear of repercussions, or inability to communicate their idea in a meaningful way that will resonate with other team members.



*Don't get stuck here!*

# SO WE'VE IDENTIFIED THE CAUSES, NOW WHAT?

**Understand root cause(s) of project failure**

➤

**Identify what process stage in which the project falls**

➤

**Plan accordingly to avoid root causes**

- **Initiating**
- **Planning**
- **Executing**
- **Controlling**
- **Closing**

If root causes have already occurred, develop a corrective action to bring performance back in line with baselines

# ROOT CAUSE PREVENTION

- The project team cannot control everything on a project. For example: the requirements, scope and deliverables may be determined by another organization; the project manager may not have authority to choose the project team (meaning varied skill sets); stakeholder requirements and expectations may not be achievable - this is not an all-inclusive list

- Because we can't control everything the first item to focus on are the project elements we can control and work to try and change or at least understand and plan for the items that cannot be controlled

# DATA DRIVEN PROJECT MANAGEMENT

**Schedules** – Integrated Master Schedule (IMS), logically linked network of activities

- Use of Critical Path Method to calculate project completion date and communicate the timeline with stakeholders with 'need dates'

- Regular schedule updates with the team to understand current status and project completion dates

- Comparison of schedule estimates to cost estimates to ensure the two reinforce each other

**Cost Data** – Cost Estimates with valid basis of estimate, Budget Management, Contingency and Reserve analysis

- The stage of the project will determine the best methodology to use. A project early in planning or execution will use analogous or parametric techniques, whereas projects later in execution or controlling may use an engineering or actuals technique

**Qualitative and Quantitative Analysis** – identifying risk, opportunities, and uncertainty, and assigning a ranking to them followed by conducting a quantitative (numerical) analysis by attaching values to the risks, opportunities, uncertainties and their impacts

- Qualitative risk analysis is the first step to identifying and ranking risks on project, this is commonly done as a risk cube or matrix with numbers or qualitative rankings (high, medium, low)

- Quantitively risk analysis is the next step, this attaches numerical values to the risks and assigns the impacts to specific tasks in the schedule or costs in the cost estimate

- These values are: likelihood in percentages, impacts in days, dollars or a factor based (percentage or multiplicative) approach



Risk Cube
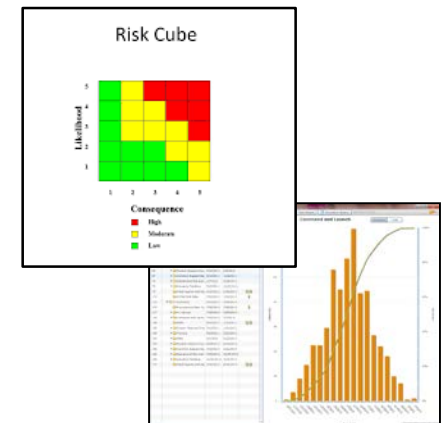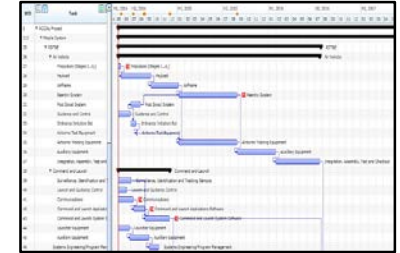
# SCHEDULE RISK/COST RISK/INTEGRATED COST AND SCHEDULE RISK ANALYSIS

- Conducting schedule, cost or integrated risk analysis will allow the project to understand how cost and schedule growth are correlated, what risks are on or impact the critical path, budgets vs risk adjusted costs, schedule criticality, mitigation and what-if analysis.

- These analyses further reinforce making data driven decisions and will allow the team to model potential future actions.

- For example, an output of this analysis might show a risk that has a large schedule or cost impact, but it impacts tasks that are not on (and will not be on) the critical path, so from a scheduling standpoint, contingency reserves could be more effectively allocated elsewhere
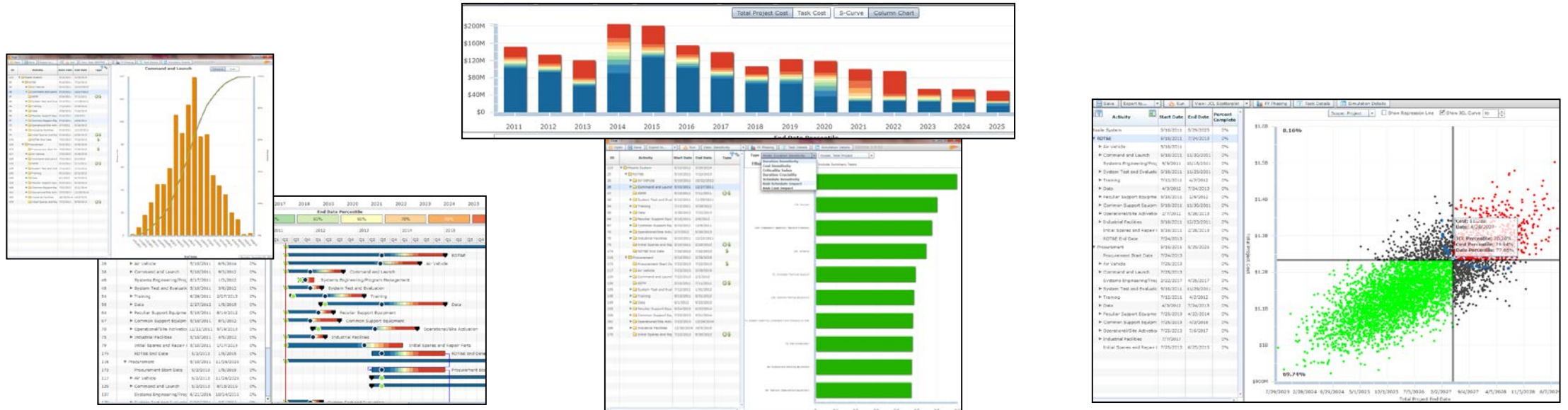
# STAFFING ANALYSIS

- Understanding the project team's existing skill set, determining the required skill sets, and performing a gap analysis will aid in deciding the types of training or additional support necessary for project team to reach its costs and scheduled targets.

- This is something a project manager should do as soon as possible to ensure that either needed training can be conducted or additional support can be added to the project either as needed or immediately depending on the situation. If additional support is needed this is something the project owner or stakeholders may need to help with (as its in their best interests) and the project team should communicate this as soon as possible.

# CONTRACTS – CDRL'S/TERMS & CONDITIONS

- Read the contract. Then re-read the contract. Understanding the Terms and Conditions or contract requirements is the first step to recognizing if there is an issue and if corrective action needs to be taken

- If the contract's language is not understood or vague, find someone who can help discern exactly what the intent is and provide information on what is to be provided per the contract (usually a contracts manager or contracts attorney)

- Work with the contracts professionals to ensure contractors are obligated to provide cost and schedule performance reports, risk data, and other specific data metrics as required on the project with the correct level of detail, format, and frequency. If this information is not included on the contract add it, if the project is already underway modify the contract to add this data in. This will likely incur cost (modifying contracts usually does), however continuing to execute a project without the proper data on performance metrics will likely cost more than a contract modification.
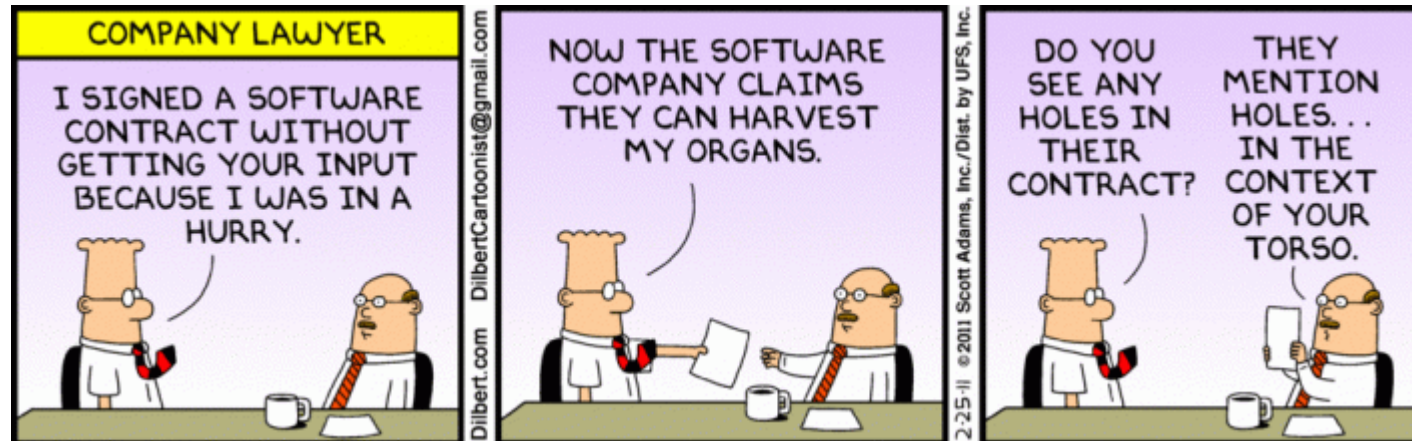
# CONFLICT RESOLUTION

- Given the complex nature of projects conflict will always exist, differing of opinions and disagreements between project team members will continue to happen until the project is complete. It is how these conflicts are handled that will determine how successful the project is at completion. If a team member or stakeholder fears repercussion or conveys their thoughts in such a way that others may not receive them (by directive or forceful means usually) their ideas will not be communicated. This could be the difference in receiving information that could prevent something from happening which is a major impact to the project

- There are many methods of conflict resolution, honestly a full paper could be written on just that subject, but the most important thing is to recognize the signs of conflict:
    - Disagreements
    - forceful or strong language
    - Anger
    - personnel shutting down or not sharing information
  The team must work to resolve these issues head on. An open-door policy among team members tends to work best and allows for free-flowing lines of communication that help suppress conflicts, this requires trust, another critical component among any team

- All team members and stakeholders should conduct themselves in a professional manor throughout the project. This isn't as simple as stating "treat others how you would like to be treated" but there is a lot of truth in that statement. Viewpoints should be supported by data, and decisions should be made using data. Communication of viewpoints should be conducted in a rational manor and time should be taken to listen and receive different viewpoints from team members and stakeholders. It is critical that all project team members regardless of rank feel comfortable to share information with others to ensure successful navigation of issues

# CONCLUSION

- Many organizations manage projects the same way over and over, but still expect a successful outcome

- Ignoring the root causes for failure will lead your program to not meet cost and schedule objectives

- The goal is to serve as a road map of potential pitfalls to avoid while managing the project. If a data driven approach is utilized, the team is identifying root causes for failure, and creating plans to combat them the project will perform better and cost and schedule objectives will have a higher chance for success

- Here lies the exception to Einstein's definition; If you follow these steps iteratively, different results are guaranteed



"The definition of insanity is doing the same thing over and over again and expecting different results."
Albert Einstein