RowanUniversity

DEPARTMENT OF ELECTRICAL
& COMPUTER ENGINEERING

ECE 09.461
PROFESSIONALISM &
CONSULTING IN ENGINEERING

LECTURE 8-9

PROJECT & RISK MANAGEMENT

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Management of Your Consulting Project / Contract

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31 March 2025

Management of Your Consulting Project / Contract

AGENDA – Today and Next Week

- **Project Planning / Management 101**

- **Work Breakdown Structure (WBS)**

- **Change Management**

- **Project Status Reporting**

- **Risk Management**

- **Project Completion Planning**

- **Creating a Consultant Budget**

- **Project Challenges – including Ethical Issues**

Project Planning / Management 101

All Efforts Can BENEFIT from PROJECT MANAGEMENT

- **No matter how small or simple…**

- **Tutoring Students in Calculus / Physics?**
  - How do you keep track of Students?
  - Their respective progress?
  - When will they be complete / caught up?
  - How are you communicating with them / potential other Students?
  - Are you getting paid?
    - If so, how are you recording / tracking it?

Project Management 101

- **What is the Difference Between a "Project" and a "Program"?**
  - Project – a temporary task undertaken to create a unique product or service
  - Program – a Group of Projects that are managed in a coordinated way (longer term)

- **Project Management is a "Process"**

- **The Process is used to:**
  - **Initiate** and Conceptualize the "Idea" or Task / Service Presented to You
  - **Plan** for how you will actually complete the Task / Service
  - **Execute** to YOUR Plan
  - **Control** YOUR Plan
  - **Close** out the Task / Service with Your Customer

Project Initiation

- **How does your Project get started?**
  - Formal Response to a Request For Proposal (RFP)
  - Informal Request to tackle a Project
  - Cold Call – Can you work this Project for me?

- **Once you AGREE to take this Project on – many, many wheels get set in motion**
  - **Mission**:   WHY are you doing this?
  - **Objective**:   WHAT do you want to achieve?
  - **Deliverables**:   WHAT is needed to complete the Project?
  - **Client / Customer**: WHO has interest in this Project (usually beyond your Client / Customer – called Stakeholders)
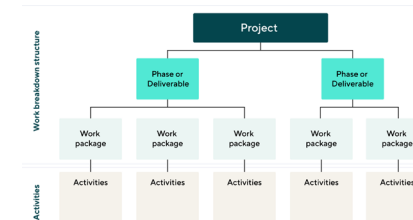
Project Planning

- **Most Projects utilize some form of a Project Management Plan (PMP)**
  - PMP is created to define HOW changes to the Plan will be made / approved then managed

- **Areas to Cover:**
  - Scope of Project / Tasks
  - Time Requirements
  - Cost Discussion
  - Known Issues that need to be addressed
  - Risk Management
  - Quality Control Requirements
  - Communications – how will you interact / exchange information / data / status
  - Resource Requirements
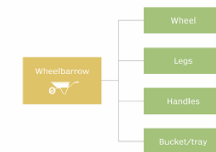   - Personnel
    - Materials
    - Other

Key Elements of Successful Project Planning

1. Stakeholder Needs
2. Project Objectives
3. Deliverables & Due Dates
4. Project Schedule
5. Roles & Responsibilities
6. Project Budget
7. Communication Plan
8. Tracking & Management Tools

Project Planning

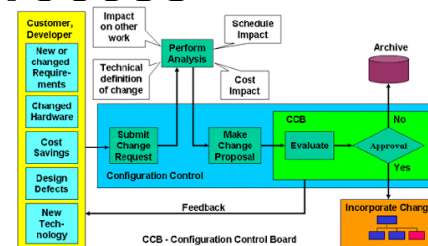## Some Helpful Artifacts to help with Project Planning:

- **Work Breakdown Structure (WBS)**
- **Project Budget**
  - Including Bill of Material (BOM)
- **Project Schedule**
  - START and FINISH Dates
  - HOW to fill in everything in between
  - Major Milestones Definition
- **Responsibility Assignment Matrix (RAM)**
- **Configuration Change Control Process**
- **Risk Management Plan**

Project Execution

- **Up to this point, HOPEFULLY, you have spent considerable time planning this Project in close coordination with your Client / Customer**

- **At some level (WBS or other) – work packages are defined that describe what has to be done along with by whom and what resources are required to complete it**

description of work package

Work Package List

Item #	Area/Process	Sub-category	Description	Priority	Assigned To	Requested by	Status	Due date
WP-100	Requirements	Requirements	Requirement specification	high	Ashley	PM	open	31.01.21
WP-101	Requirements	Requirements	System concept	high	Tom	PM	open	31.01.21
WP-104	Migration	Data migration	Migration concept	high	Ricky	PM	open	30.04.21
WP-105	Migration	Data migration	Mapping table for customers	high	Ricky	PM	open	30.04.21
WP-106	Migration	Data migration	Mapping table for vendors	medium	Ricky	PM	open	30.04.21
WP-107	Software	Customization	Customization internal logic	high	Stefan	PM	open	31.05.21
WP-108	Software	Customization	Customization interfaces	medium	Stefan	PM	open	31.05.21
WP-109	Software	Customization	Customization user interface	low	Francois	PM	open	31.05.21
WP-110	Training	User training	Training schedule for end-users	medium	Rose	PM	open	30.09.21
WP-111	Training	User training	Training documentation (Powerpoint)	medium	Rose	PM	open	30.09.21

- **Now is the time to EXECUTE!**

Project Execution
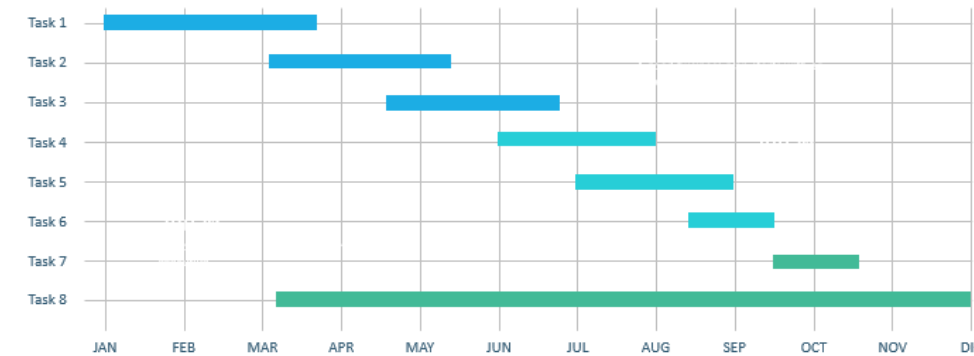
Project Scheduling Management

- **You are off and running and things are** <mark>going well</mark>

- # HOW DO YOU KNOW?

- **Schedule Tracking & Status**

  – All of your planned tasks / work packages should be incorporated into some form of a Schedule

  – Schedule should be created in a software package such as Microsoft Project to enable tracking / resource loading / status updates

  – This tracking will advise you of whether or not you are meeting commitments on schedule / with the appropriate number of resources, etc…

Project Execution

Using Project Software of some type (Project of Equivalent) allows you to "==measure==" Project Activities

- A given amount of effort due in a given amount of time
- Did this happen or still happening?
- Measurement of progress allows you to "report" progress to your Client / Customer
  - *Also reinforces to yourself that you are really on track or not*

It is 100% likely that your Schedule will need to be adjusted before you are done

- No one is good enough to plan even to a modest level of detail without changes

1. monday.com – Best project scheduling tool for customization
2. Resource Management by Smartsheet – Best for matching resources and team members to specific projects
3. Runn – Best project scheduling tool for growing IT and software teams
4. Mavenlink – Best project scheduling tool for workflow automation
5. Resource Guru – Best project scheduling software for optimizing resource utilization
6. Wrike – Best project scheduling tool for teams of all sizes
7. Forecast.app – Best project scheduling software for capacity planning
8. GanttPRO – Best project scheduling software for usability and intuitive UX/UI
9. FunctionFox – Best for creative businesses and teams
10. Celoxis – Best for complex project scheduling
11. TeamGantt – Best project scheduling tool for beginners
12. MS Projects – Best project scheduling software for general users
13. Workfront – Best for robust feature set
14. Microsoft Project Online – Best for general users
15. Notion – Best project scheduling tool for small businesses

Generally Available Project Software Packages

Work Breakdown Structure (WBS)

Work Breakdown Structure (WBS)

- **What is a WBS?**

- **"A product-oriented 'family tree' division of hardware, software, services, and other work products which organizes, defines, and *graphically displays* the products and services necessary to achieve the specified product and/or service**

- **A logical breakdown and graphical display of all work to be performed**

WBS Provides a Vehicle to Manage What You Are Doing

- **Think of the WBS as a hierarchical breakdown of products and services**

- **ALL products and services required to successfully complete the project!**

- **While Consulting Projects will not usually get to this level of detail, it is important to practice the discipline for when you do need it!**

Simple Work Breakdown Structure

The WBS is the Central Element of Project Management

 Bruce Oestreich

In a Traditional Project – the WBS helps Control:

- **Budget**

- **Integrated Master Schedule**

- **Organization Charts**

- **Contract Tasking (Compliance)**

- **Risk Management**

- **Reporting**
  - Analysis
  - Projections
  - Control

Typical WBS Example
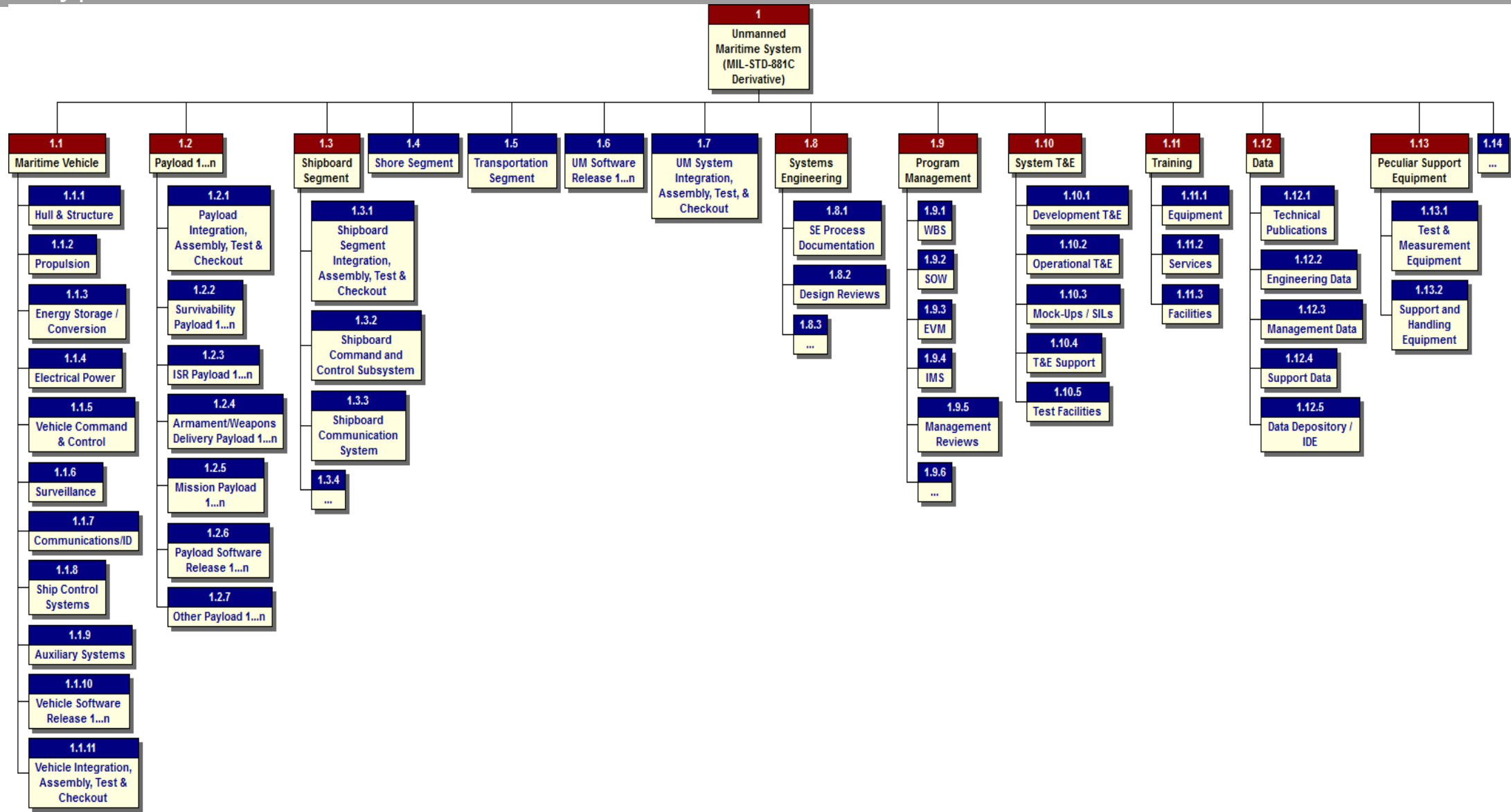
# WBS for ECE Related Consulting Projects

EXAMPLE:

What is the operational or performance need?

Purpose or Value

Specific, measurable verifiable, unambiguous

A/V System
- Facility
  - Electrical
    - Conduit
    - Cabling
    - Panel
  - HVAC
  - Structure
- Equipment
  - Microphone
  - Projectors
  - Speakers
- Controls
  - Audio
  - System
  - Lighting
- Documentation
  - Design
  - Test Plan
  - Training

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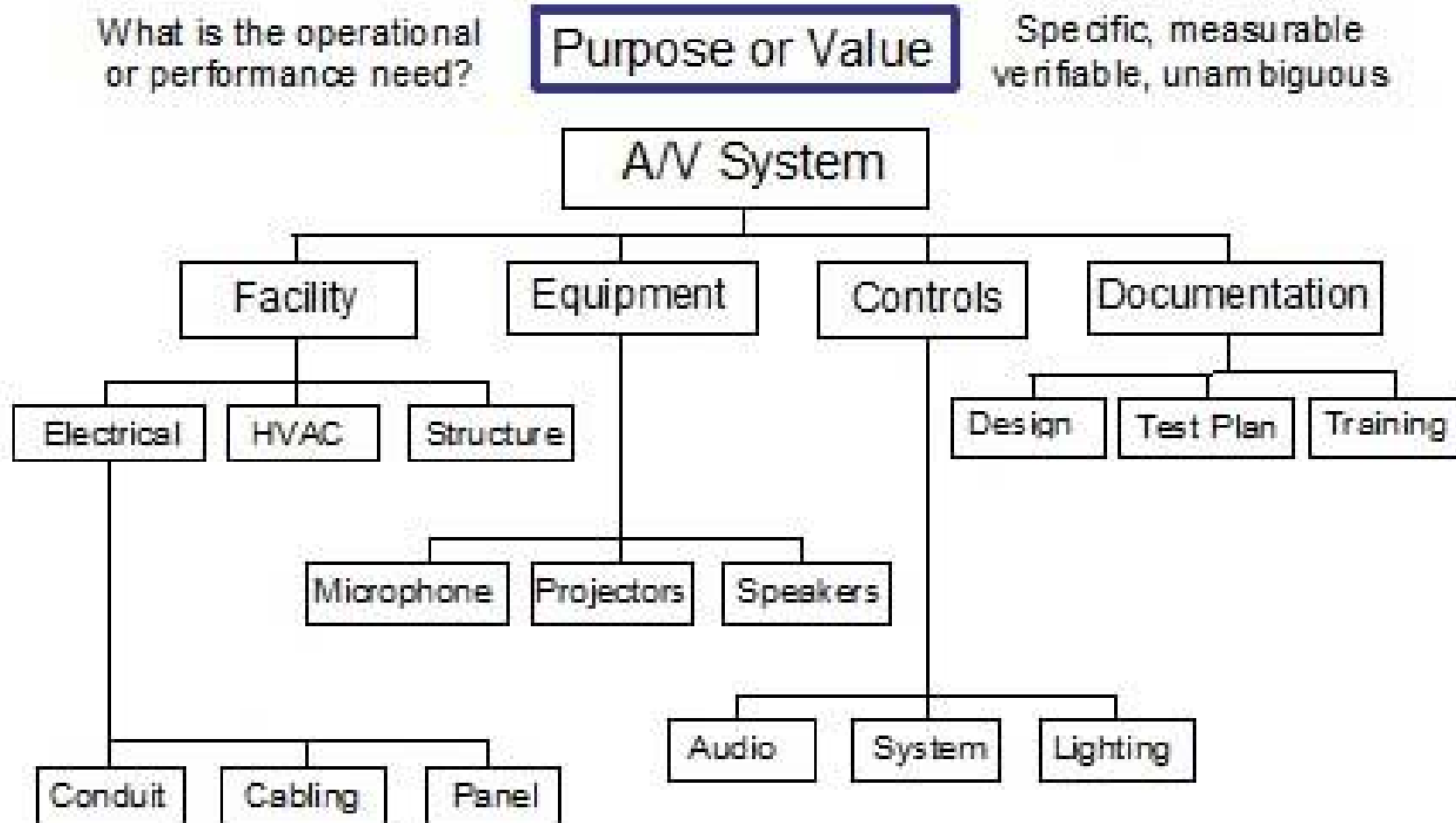
Clinic Consultant Exercise

- **Let's Create a Work Breakdown Structure**

- **WHY?**

- **To get you to appreciate the need to focus on the details and ensure you can deliver EVERYTHING your Client / Customer expects**

Class Exercise – Create a Work Breakdown Structure

- Let's Plan to Find Office Space for our Consulting Practice
  - What are the products and services?
  - Create a "New Office WBS"

- Somewhat Impractical in This Setting to Create Teams

- Let's Crowdsource This Exercise
  - Work through Top Level 1st
  - Get Concurrence
  - Then Decompose to Next Level
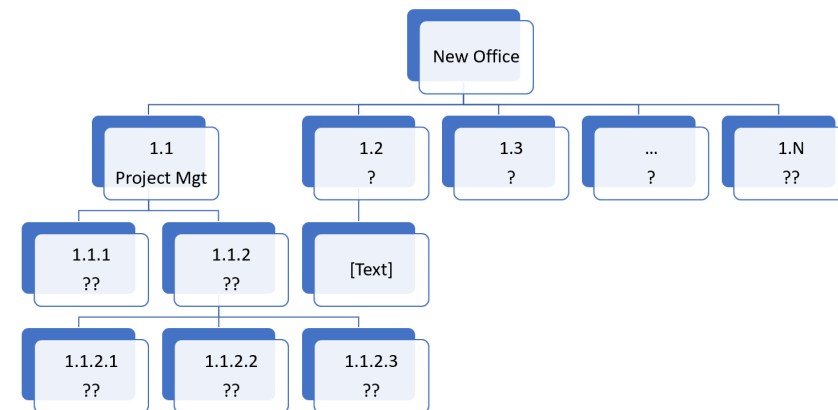
Office Space WBS Summary

- **How did we do?**

- **Is this sufficient to move forward and execute the Project (of finding new Office Space)?**

Rowan University | ECE Engineering Clinic Consultant – SPRING 2025   **Bruce Oestreich**
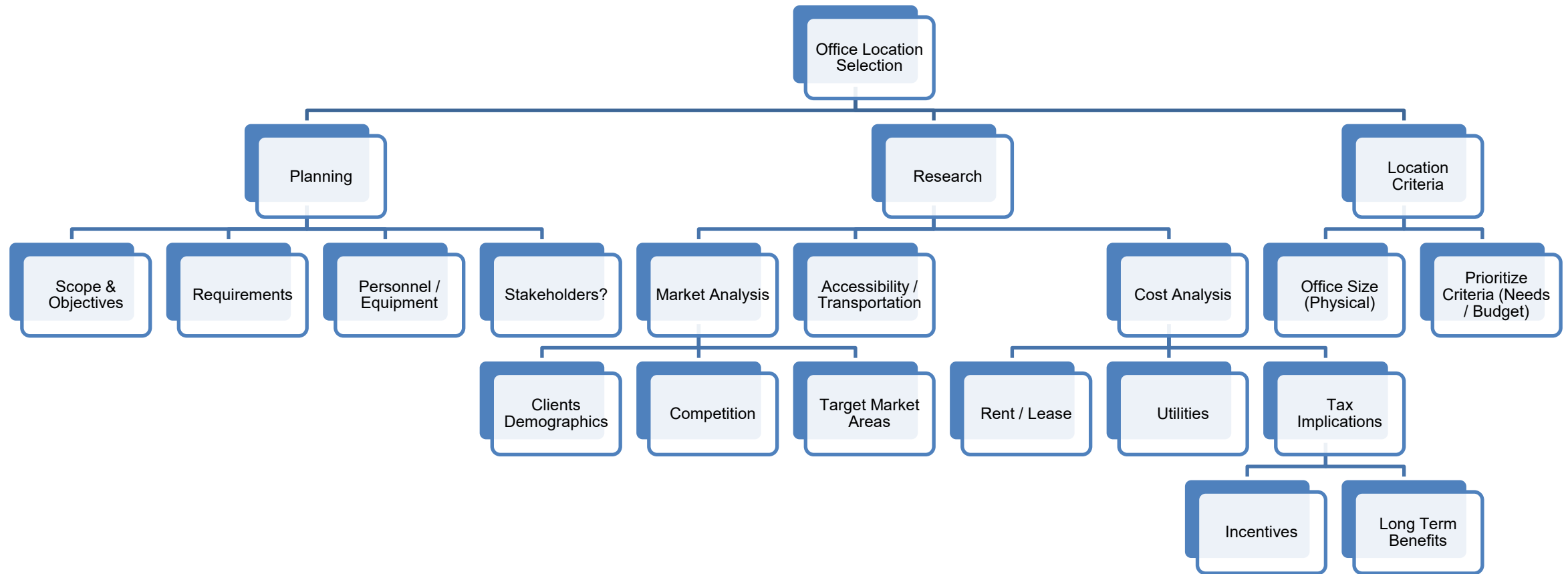
Change Management

Change Management

Change Management **Process**
1. Request for Change
2. Impact Analysis
3. Approve / Deny
4. Implement Change
5. Review / Reporting
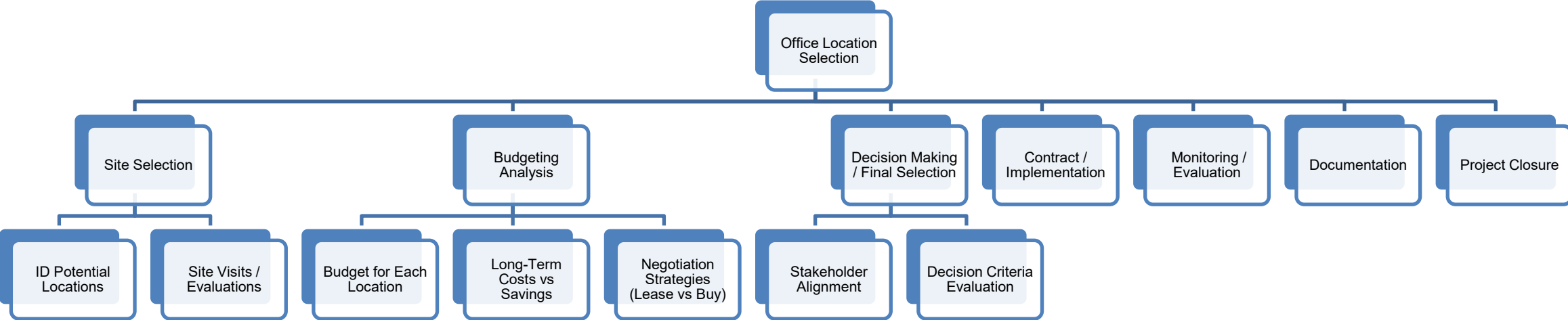
- **When (not if) Changes are required – they need to be carefully controlled and approved**

- **WHY?**

- **It is likely you are on some form of a FIRM FIXED PRICE Contract or Agreement**
  - There is no more money coming to you – regardless of mistakes / errors / oversight / simple bad luck

- **Your Client / Customer is paying the bill – they are keenly interested in any changes as well**

Change Management

Change Management Process

- **Some type of Formal Configuration Change Control should be implemented**
  - Even if it is series of signed and dated bar napkins

- **Change Control allows for you and your Client / Customer to understand what is changing and why it is the best approach**
  - Will this change result in an increase or decrease in the overall cost?
  - If that is not desirable, is there some other task that can be reduced / eliminated to account for this change?

- **Sometimes the Cost just needs to change and your Client / Customer is willing the pay for the increase**
  - Just be careful that you don't spend all of your Project time worrying about changes and not getting the work done!

Project Status Reporting

Project Status Reporting

- **There are 2 basic Types –**
  - Informal
  - Formal

- **While you can suggest one approach or the other, it is ultimately your Client / Customer's decision**

- **Not as easy as it sounds!**

INFORMAL Project Status Reporting

- **Informal Status Reporting**
  - More of a "How Goes It?" Discussion with Client / Customer
    - Could be a Phone Call, Zoom Meeting, Face-to-Face

  - Tends to allow for more open / honest communication

  - Even though formal Project Management Metrics are not used, YOU need some form of Metrics to manage yourself
    - You can still share Metrics informally with Client / Customer

- **How will you manage your own Project Status?**
  - If working independently (as a single entity) – think about what suits you best
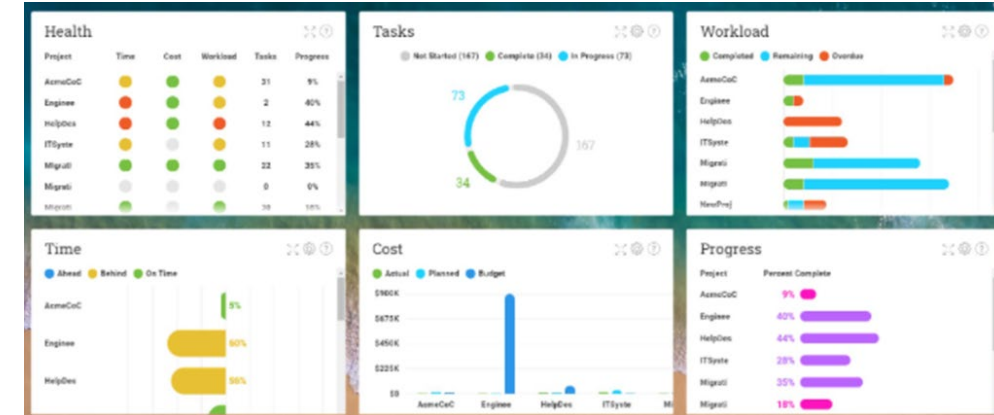
FORMAL Project Status Reporting

- **Formal Status Reporting**
  - Project Management Metrics
    - If you choose this approach, you need to define which metrics to track
    - Additional effort to implement – just keep this in mind
  - How often will you report? Daily, Weekly, Monthly, etc…?
    - Again, it depends on Client / Customer level of interest
    - Also depends upon the amount of work necessary to provide status

Project Execution

- **With your Project humming along, whatever Deliverables or Services should be in work**
  - This could be in prototyping, manufacturing, testing, etc…

- **ACCEPTANCE**
  - When complete – you will need to define some level of "ACCEPTANCE"
    - How will you know whether the Product / Service is ACCEPTABLE to your Client / Customer?
    - Clear Criteria doesn't always exist!

- **APPROVAL**
  - Who and when is/are your Project deliverable(s) / service(s) APPROVED
  - Again, may not necessarily be your direct Client / Customer
  - In many cases, it is THEIR Client / Customer

Review of Results to Date

- **Learn the Project Management Fundamentals**

- **Practice with simple, mundane tasks**
  - Work Related or
  - Home Related

- **Be REALISTIC when planning things**
  - Schedule
  - Resources
  - Challenges

- **More on Challenges Next Week**

QUESTIONS?

Management of Your Consulting Project / Contract

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07 Apr 2025

Management of Your Consulting Project / Contract

AGENDA – Today

- ~~Project Planning / Management 101~~

- ~~Work Breakdown Structure (WBS)~~

- ~~Change Management~~

- ~~Project Status Reporting~~

- Risk Management

- Project Completion Planning

- Creating a Consultant Budget

- Project Challenges – including Ethical Issues

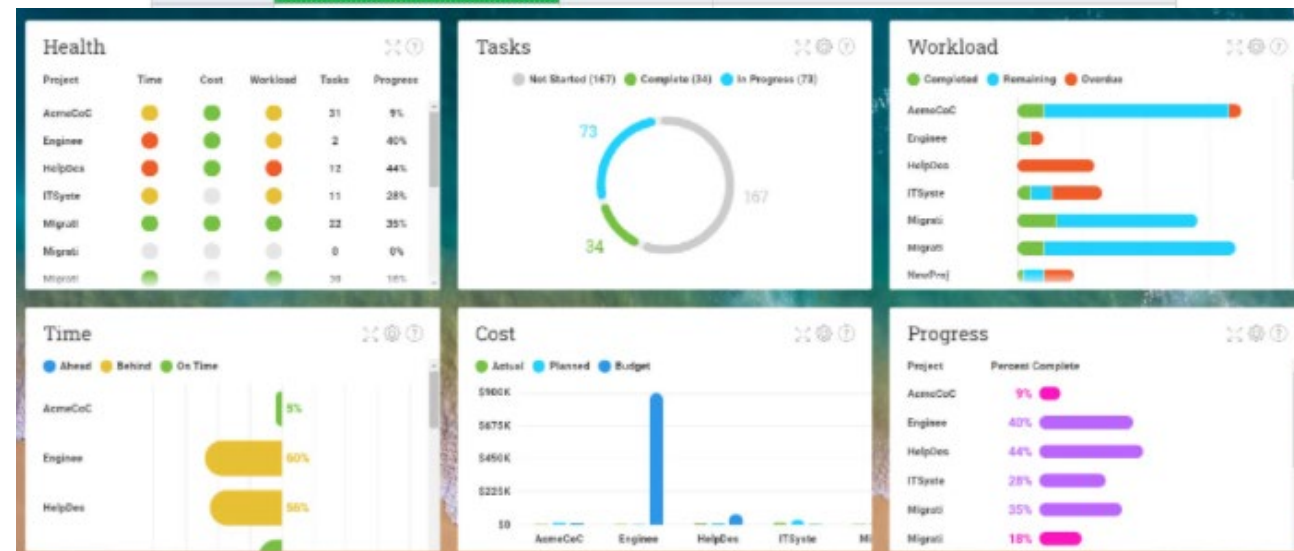# Project Status Reporting – Quick Review

- **We Identified 2 basic Types –**
  - Informal
  - Formal

- **While you can suggest one approach or the other, it is ultimately your Client / Customer's decision**

- **Not as easy as it sounds!**

INFORMAL Project Status Reporting

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    - You can still share Metrics informally with Client / Customer

- **How will you manage your own Project Status?**
  - If working independently (as a single entity) – think about what suits you best
  - DO NOT brush this off and convince yourself it's so easy I can just keep track in head

FORMAL Project Status Reporting

- **Formal Status Reporting**
  - Project Management Metrics
    - If you choose this approach, you need to define which metrics to track
    - Additional effort to implement – just keep this in mind
  - How often will you report? Daily, Weekly, Monthly, etc…?
    - Again, it depends on Client / Customer level of interest
    - Also depends upon the amount of work necessary to provide status
  - Many times your personal bandwidth cannot accommodate this type of reporting – how will you complete?
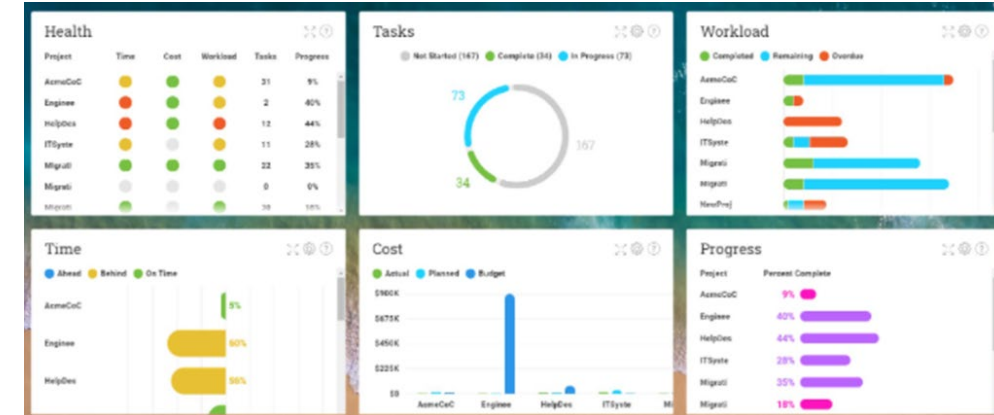
Risk Management

Risk Management

- **Understanding Risk Management**

- **Single Most Important Aspect of Cementing Relationship with Client / Customer**

- **Be Able to Explain It to Client / Customer**
  - When and How You will Use It

A Practical Definition Of Risk
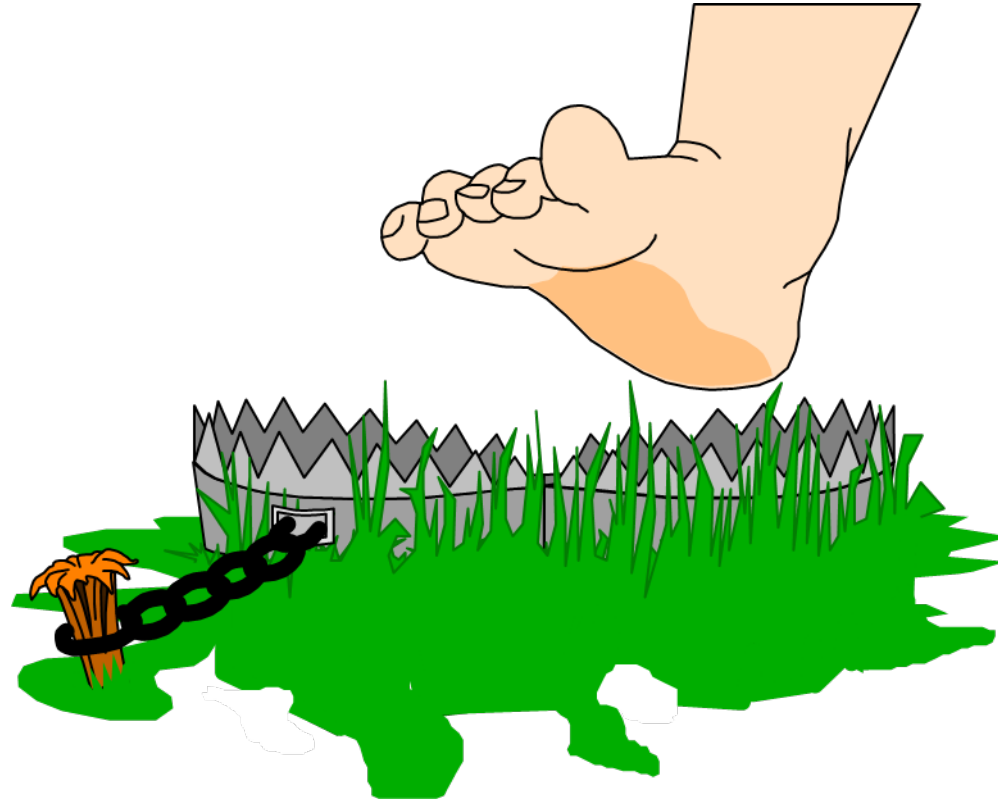
Uncertainty About A Bad Outcome

An undesirable situation or circumstance that has a realistic non-unity probability of occurring and an unfavorable consequence

Characteristics of Risk
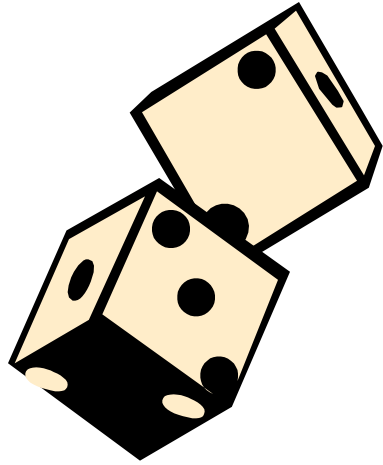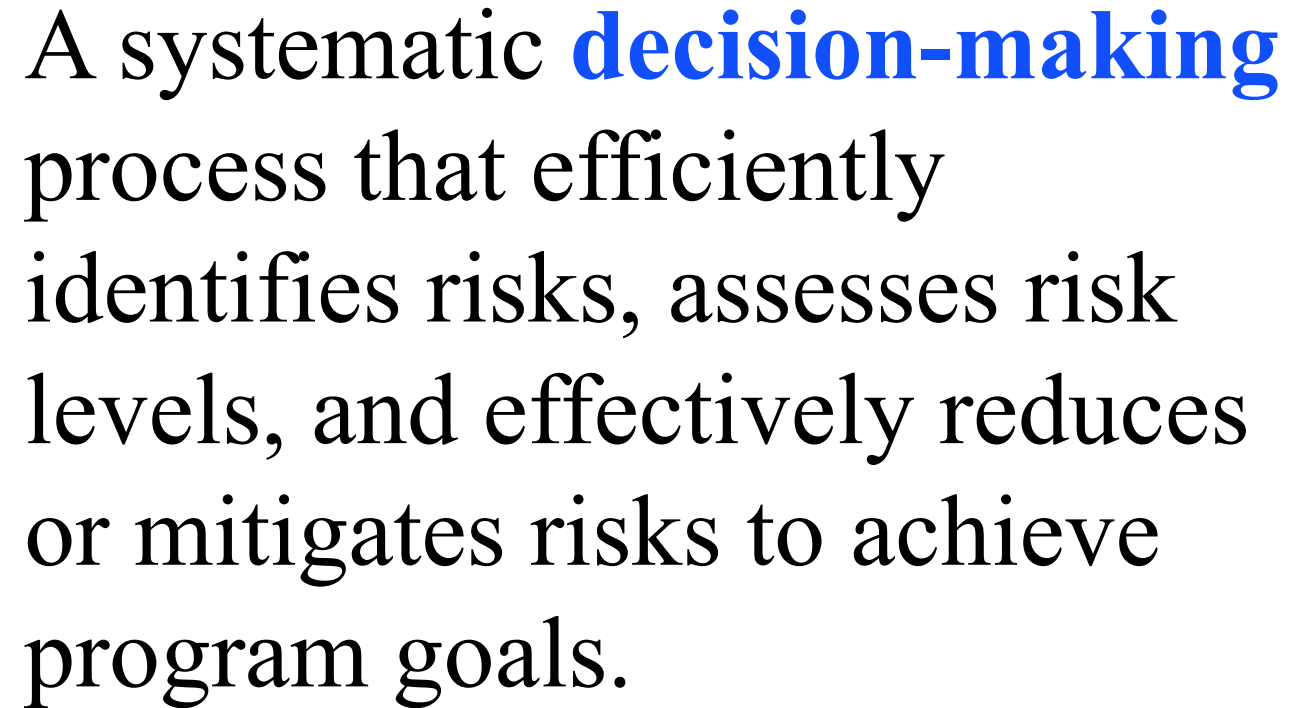
Likelihood,
Probability,
or Uncertainty

vs.

Consequences

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Risk Management

A systematic **decision-making** process that efficiently identifies risks, assesses risk levels, and effectively reduces or mitigates risks to achieve program goals.

A Practical Definition Of Risk
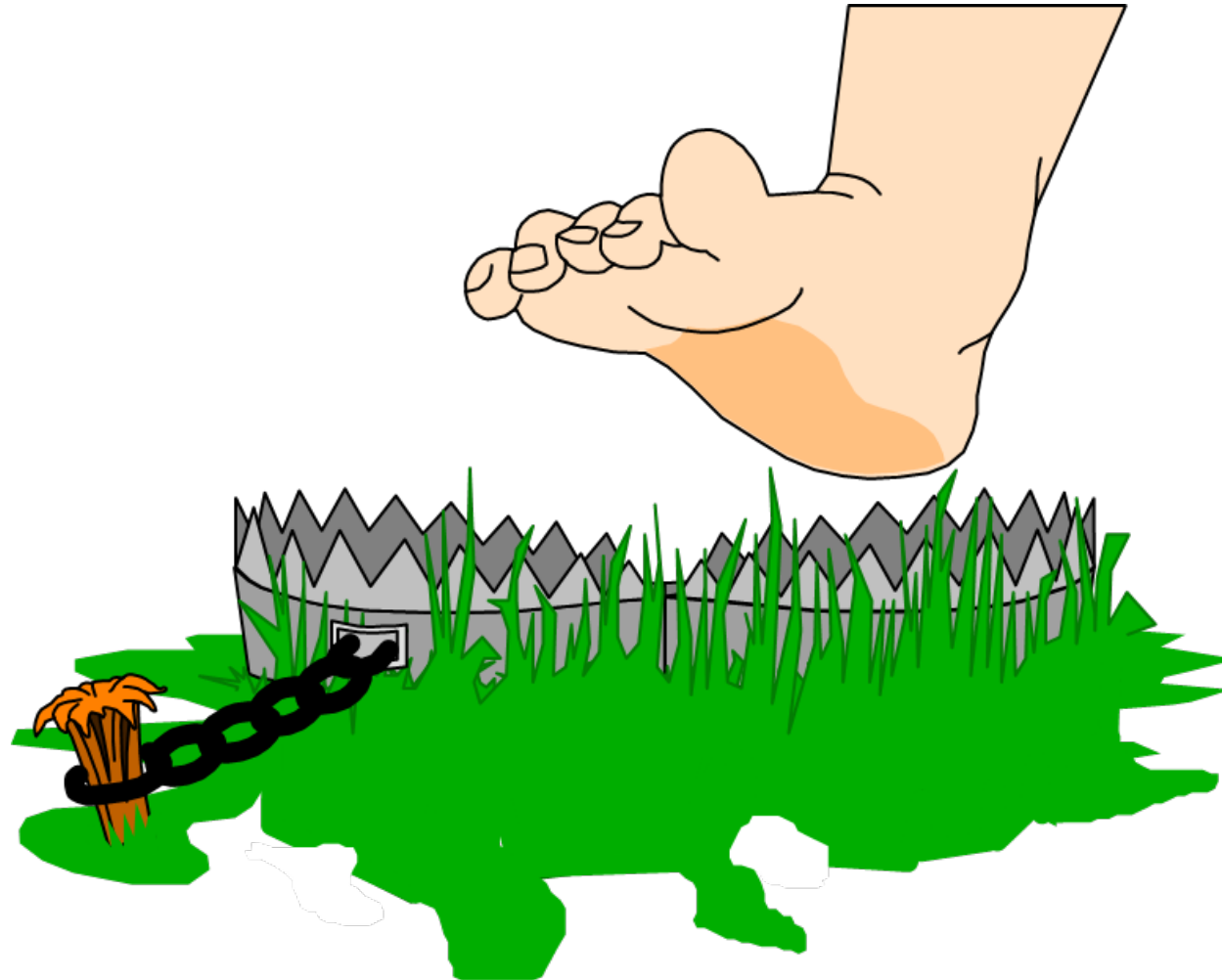
Five Risk Management Questions

- **What Could Go Wrong? (Define / Identify)**

- **How Likely Is It? (Characterize / Analyze)**

- **What Would Be The Consequences? (Analysis / Impact)**

- **What Can We Do About It? (Mitigate)**

- **Are Things Getting Better Or Worse? (Communicate Status)**

How Do We Identify Risks?

Likely Sources of Risk

Sources of Program Development Risk

- **Management**
- **Engineering**
- **Material Control**
- **Purchasing**
- **Manufacturing / Production Engineering**
- **Manufacturing**
- **Quality**
- **Logistics**
- **Test**

More Typical Sources of Risk

- **Hardware Failure**
- **Software Failure**
- **Organization Failure**
- **Human Failure**

Consulting Risks

- **Communications**
- **Over Commitment**
- **Resources**

Risk Identification

- **The process of determining which risks are likely to impact the Project / Systems Engineering Effort**

- **Analyzing the SOW and Work Breakdown Structure help for Risk Identification**
  - **Need to look beyond identification**

  - **Anticipate occurrence of events**
    - **Resource availability**
    - **Technology status**
    - **Familiarity/ training/ knowledge**

Risk Identification in WBS

- **An evaluation of project risk is based upon the examination of the Work Breakdown Structure (WBS) product**

- **Evaluate each WBS element against sources/areas of risk**

- **It is important to consider each WBS element as a distinct product**

Example of WBS Dependent Evaluation Structure
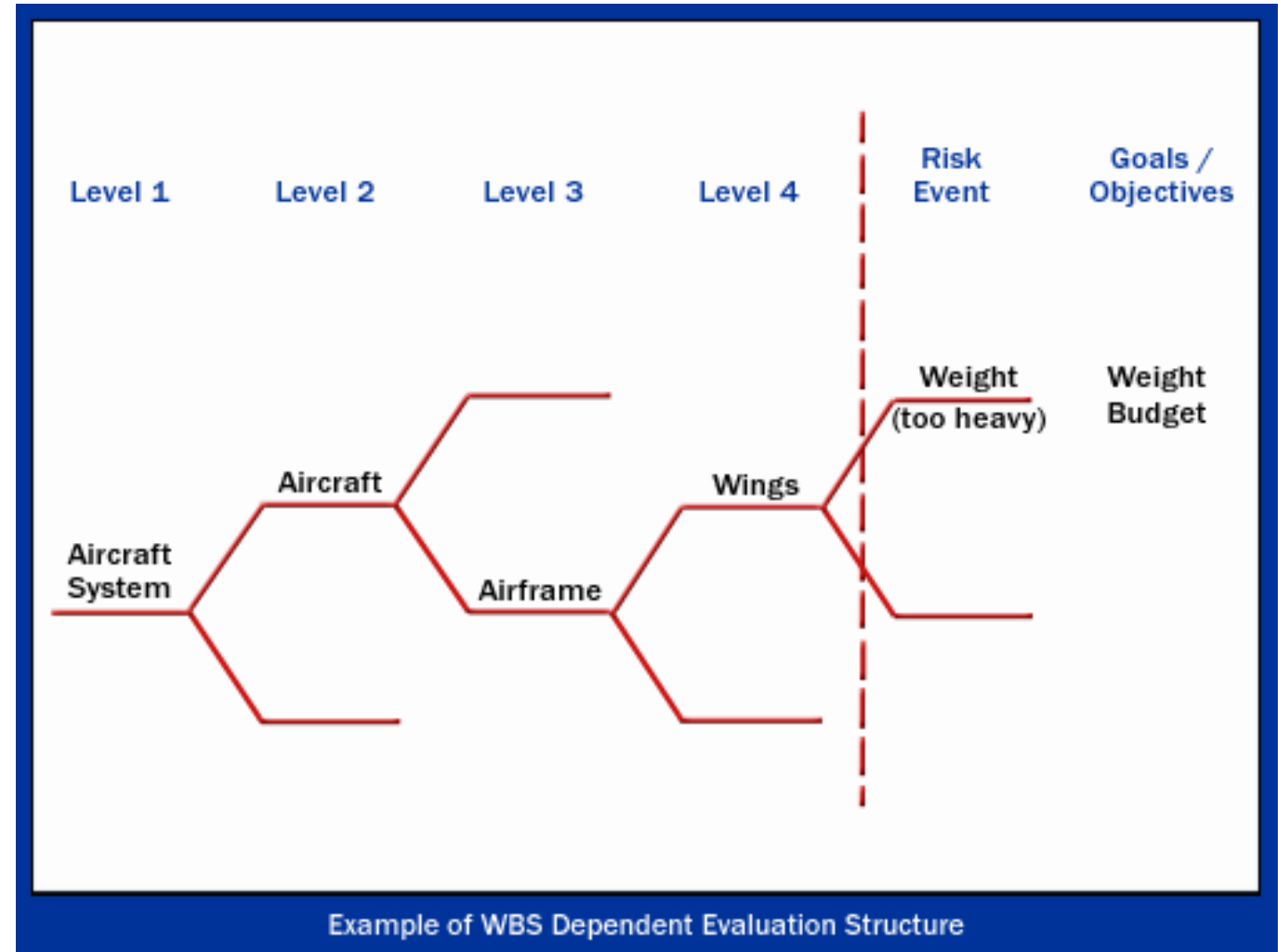
Risk Identification in WBS (Questions)

Who?	Who contributes to activity?
What?	What is the role of contributors?
Why?	What is the goal of activities?
Which way?	How is the activity to be done?
When?	When is the activity to be done?
With what?	What resources are required?

Uncertainty with questions represents risks

Typical Risk Types

Schedule
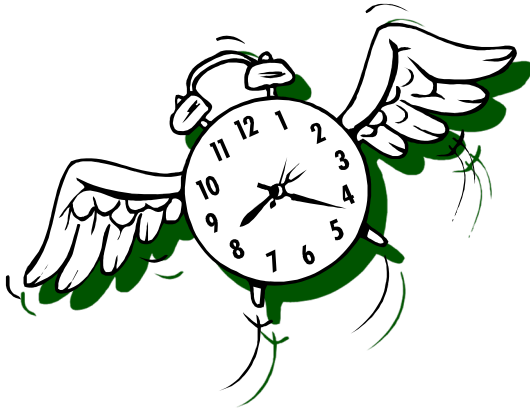
Technical

Cost

Typical Risk Grid
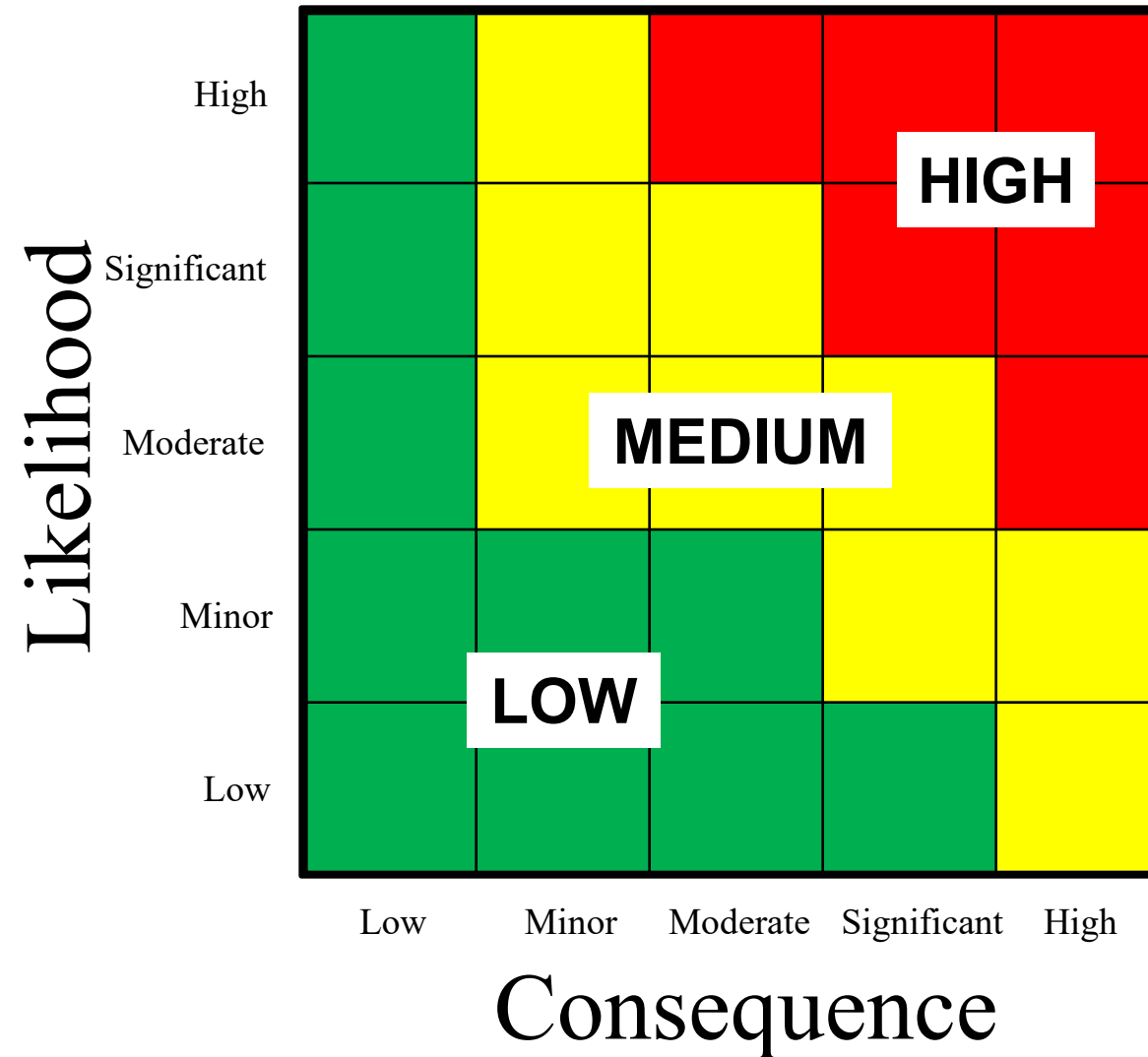
Typical *Likelihood* Template

1	Low	Proven Or Completely Mitigated By An Approved Plan
2	Minor	Demonstrated Or Well Mitigated By Approved Plan
3	Moderate	Partially Demonstrated Or Somewhat Mitigated By Approved Plan
4	Significant	Analytically Demonstrated With Possible Mitigation Plan Identified
5	High	Speculative With No Identified Mitigation Plan

Typical *Consequence* Template

1	Low	Little Or No Impact
2	Minor	Minor Problems That Can Easily Be Handled
3	Moderate	Major Problems That Could Be Tolerated
4	Significant	Significant Damage to program Viability If Not Mitigated
5	High	Major Crisis That Could Result In Program Termination If Not Mitigated

Techniques For Risk Mitigation

- **Risk Reduction Tests**

- **Parallel Developments**

- **Multiple Suppliers**

- **Probabilistic Analysis**
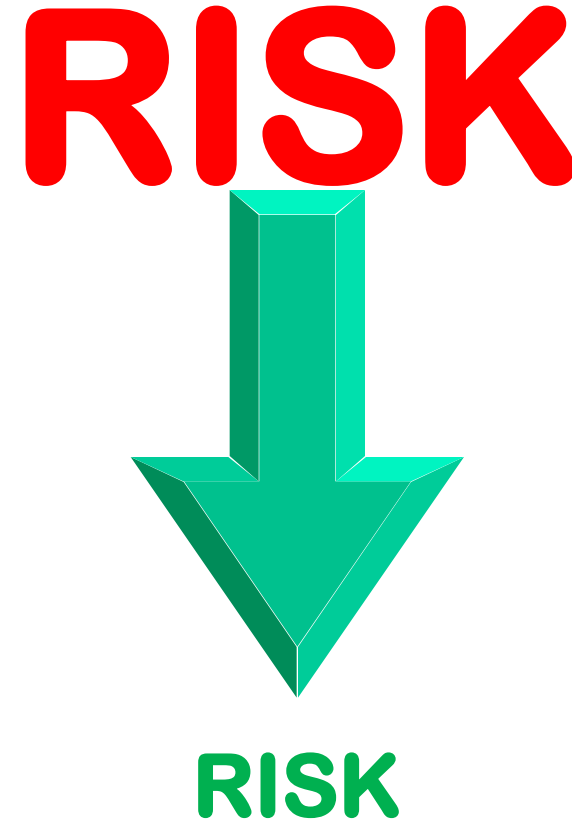
RISK

RISK

Risk Mitigation Plans

- **Plans Include a Series of Steps Defined to Lower the Uncertainty or Decrease the Likelihood That the Risk will Occur**
  - Events, Actions or Activities
  - Planned Dates, Actual Dates
  - Success Criteria
  - Risk Level if Successful
  - Comments

- **Risk Plan Events Should be Included in Integrated Team Schedules**

- **Approved Risk Plans Should Provide Resources (Budget, Staff, ...) to Mitigate the Risk**

- **Risks Should Decline Over Time**
  - As Mitigation Events are Accomplished Successfully

- **Fallback or Alternate Plans May be Required**
  - Decision Points are Needed for When Fallback Plans are Implemented

Follow the Plan

- **Utilize Approved Risk Reduction Resources**

- **May Require Working Alternate & Fallback Plans As Well**

- **Report Progress**

- **Ask for Help Needed**

- **Maintain Risk Database**

Risk Metrics

- **Risk Levels**
  - Likelihood / Consequence
  - High, Medium, Low

- **Status of Mitigation Plans**
  - On Track, Falling Behind, Need Help
  - Getting Better or Worse

- **Quality of Risk Mitigation Plans**
  - Sufficient Number of Timely Events
  - Success Criteria for Every Event
  - Declining Risk Over Time
  - Closure Event
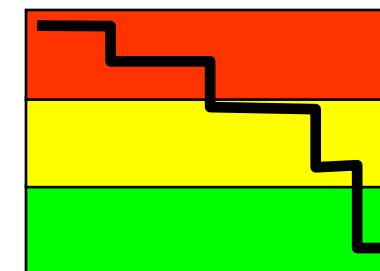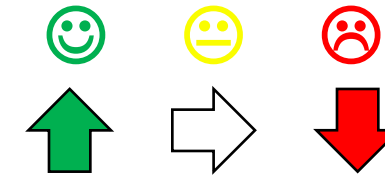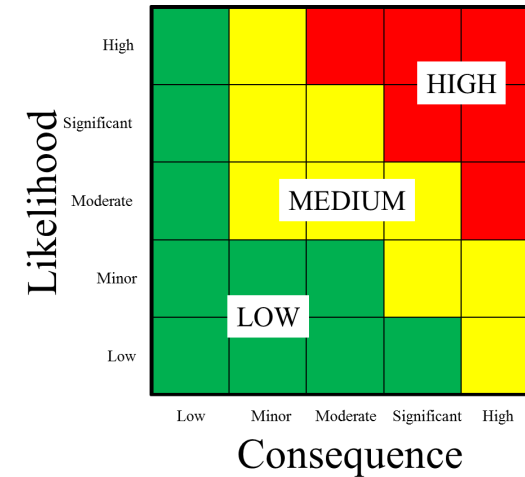
Example Burndown Plan
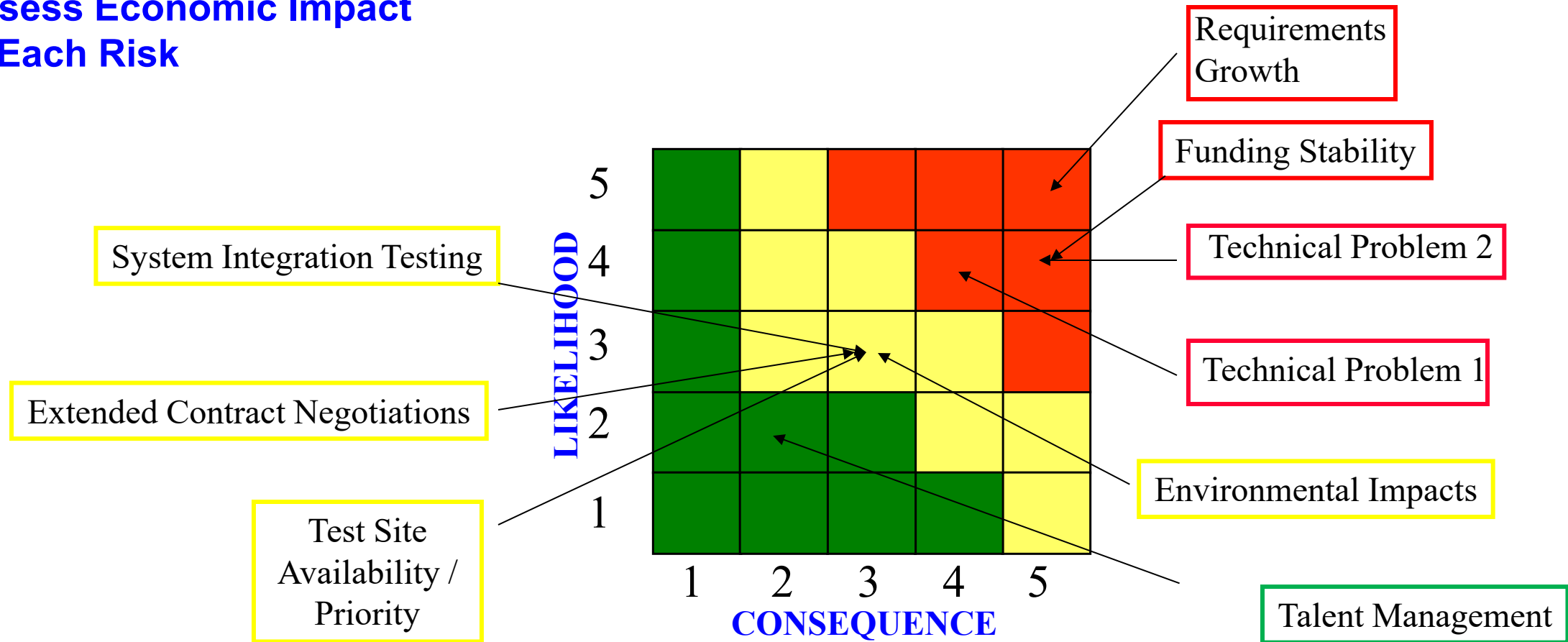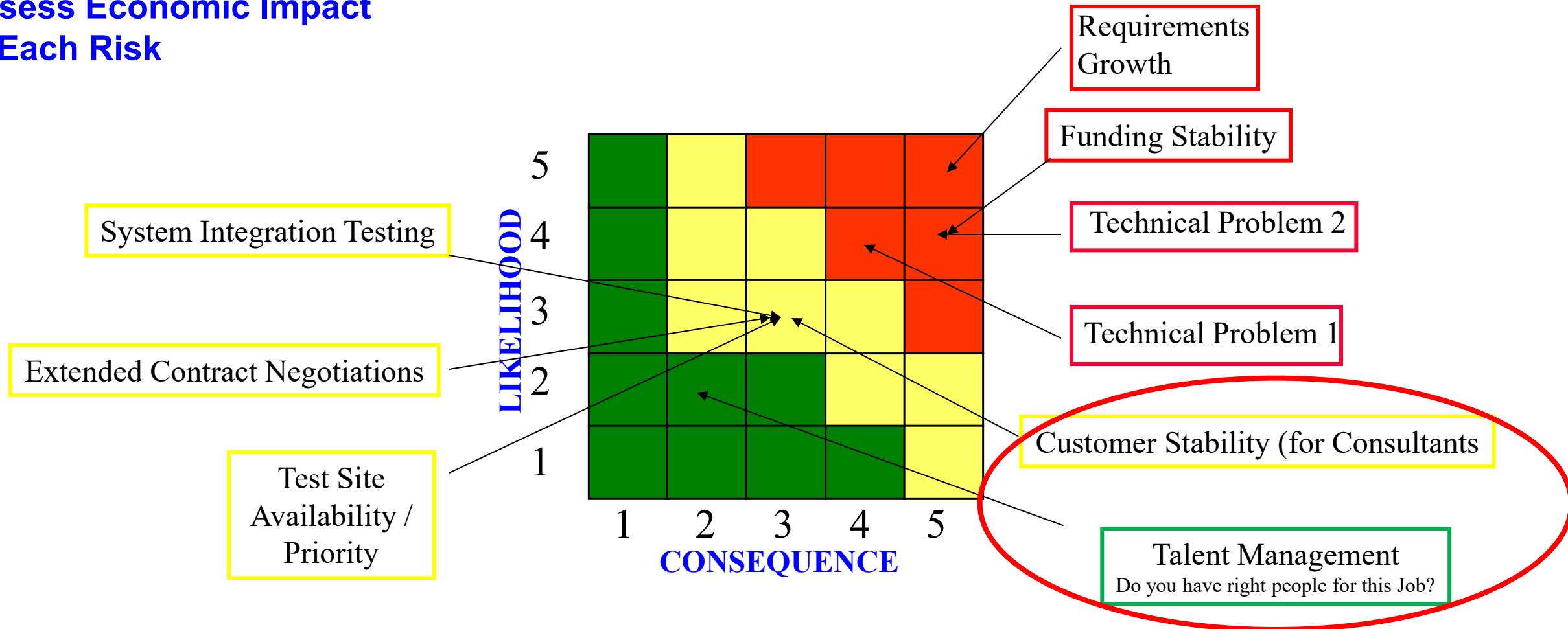
Key Success Factors for Risk Management

- **Program / Project Management Commitment**
  - You / Your Team / **Customer**

- **Total Team Involvement & Commitment**
  - Design Team Takes Ownership of the Risks and Works Them
  - Risk Management is a Part of the Team Culture (including Customer)

- **Focus on Mitigation Plans**
  - Stay in Front and Manage the Issues

Risk Management Summary

- **Risk Management is an *essential* Project Management function**

- **Many tools exist to help perform effective Risk Management**

- **There is a natural resistance by many to ignore risk**

- **You, as the Project Manager must ensure Risk Management is performed properly**

QUESTIONS?

Project Completion

Project Completion

- **Project Tracking / Metrics**

- **How Do You Know When You are**
  "*Complete*"?

- **Closure Criteria**

Project Completion Planning

- **One of the most important portions of Project Planning is determining when your Project is actually complete**

- **Most Projects ignore or do not pay sufficient attention to this phase**
  - Assume it's simply paperwork / bureaucracy
  - All of the work is "done" so we must be complete!

- **I strongly suggest very specific Completion Criteria agreed to and signed by the Client / Customer as part of the Contract / Agreement**
  - Deliverables – Completed and Available
  - Formal Acceptance – with signed off Documentation by You AND Client / Customer

Project Completion Planning

- **Formal Acceptance is much more than just signing Documents**

- **Is the Client / Customer happy with Deliverables?**
  - Acceptable and Approved?

- **Financial Considerations**
  - Payments up to date / planned?
  - Any outstanding Invoices / Bills to pay?

- **Good Consultants create an Incremental Project Completion Plan that allows for 'completion' as the Project Matures and specific tasks / deliverables occur**

Creating a Consultant Budget

Consultant Budget – Why Do I Need One?

- **Your plan is to supplement your primary Job as an Engineer by 'consulting' in particular areas of expertise**
  - In this situation – why do I need a Budget?
  - I'm just supporting / providing information / technical data to my Customer

- **It starts with the basics** **Salary**
  - Consulting Engineers pay their own taxes
    - Example: If your consulting rate is $15/hr. and you consult for 10 hours – you will get paid $150
    - At the end of the year, YOU will be responsible for pay taxes on this money
    - Many people don't realize this – and you will pay the tax rate commensurate with your Engineering job

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Consultant Budget – Why Do I Need One?

OTHER CONSIDERATIONS

- **Equipment**
  - Do you own whatever equipment might be necessary to perform the work?
  - Is your computer sufficient to complete all required tasks?
    - Don't forget about software packages that might be required

- **Travel Requirements**
  - While in most cases, travel considerations can be factored into the hourly rate, it is not always true
  - Airline travel / lodging / rental car typically covered by Customer
  - Current US Government travel rate is $0.70 per mile
    - This is to offset gas, wear and tear on your Vehicle, etc…
    - Is that enough?

- **Time Management / Expectations**
  - Customers typically expect you to support THEIR schedule and demands
  - Potential impact on your 'real' job, time off, vacations, other commitments

Consultant Budget

▪ **Okay – we now recognize we need a Budget**

▪ **What does it look like?**

- Salary – are you consulting solo, or will you require assistance from others?
  - ▪ If you need some short-term help, how will you pay them?
- Taxes – do a quick calculation on how much tax you will owe on your Consulting work
- Space / Utilities – if you require additional space (other than your residence) you will need to consider Office Rental / Utilities / Equipment / etc…
- Supplies / Equipment
  - ▪ While it sounds trivial, these expenses start to add up
  - ▪ Printers / Copiers / 3D Printer / paper, etc…
  - ▪ Not every Customer does everything electronically!

Project Challenges

Project Challenges

Typical Project Challenges

- Misalignment between projects and their business objectives
- Late or delayed projects
- Dependency conflicts
- Execution difficulties
- Overlapping and redundant projects
- Resource conflicts
- Unrealised business value
- Diffuse decision making
- No accountability
- Fragmentation

- **No matter how well you plan, organize, and execute your Project, not everything will go according to that Plan**

- **Things change, unforeseen circumstances pop-up, commitments get missed, and of course**
  - **Sh** Happens!**

- **Think about how you will react to and respond when these Challenges arise**
  - ***Never act surprised!***
  - Your Job is to anticipate these types of situations

Project Challenges – Client / Customer "Centric"

- **Your Client / Customer really doesn't know what they want**
  - They think they do but are asking you for your help **(You're the Expert!)**
  - Ask Yourself: Do you understand what the Problem is and what could be the best solution?
    - Don't Guess! You must be Confident and Certain that you can provide a solution
    - Or – at least get your Client / Customer to AGREE on what the problem is!

- **Your Client / Customer is REALLY hard to work with!**
  - They are uncooperative, non-committal, defiant, argumentative, etc…
  - Keep in mind – they are the Customer AND they are paying you!
  - This will not be your only challenging Client / Customer – determine whether or not you can accept this type of environment

Project Challenges – Your Actions "Centric"

- **You do not fully understand the task at hand (in other words – "You're in over your head!")**
  - DON'T PANIC! It happens
  - Determine what you do and do not understand
  - Meet with your Client / Customer
  - Explain the situation and why you have stopped
    - Will additional information / research resolve this quickly?
    - Perhaps you can rely on other resources (friends, colleagues, others) to get you back on track

- **Worst Case: You mutually agree with Client / Customer to end at this point**
  - Highlight you have not wasted resources / time
  - Hopefully there is rationale behind why you ended up this way
  - It is not necessarily a lost cause / end of a Client / Customer relationship

Project Challenges – Your Actions "Centric"

- **Your Attitude and/or Performance upsets the Client / Customer**
  - Be realistic – are you uniquely qualified to help the Client / Customer?
  - What can you do to remedy the situation?
    - Sometimes another 'face' can resolve the situation (you continue the work – someone else talks to Client / Customer)
  - Put yourself in their situation – would you continue working with (and paying someone) that you are not necessarily happy with?

Project Challenges – Unknown Unknown "Centric"

- **Unexpected Emergencies Arise**
  - Personal Emergencies – Personal / Family Illness / Tragedy / etc…
    - How will this impact your Client / Customer? Not all will be sympathetic
    - Can you work out an acceptable arrangement to continue?

- **Natural Disasters**
  - I've been impacted by Tornadoes, Earthquakes, Floods
  - Not only happens to you – but your Client / Customer
  - How would this impact your ability to continue

- **Financial Instability**
  - Your Client / Customer is experiencing "Cash Flow" problems and cannot pay you as agreed to
  - How long are you willing to continue without knowing about payment?
    - Be careful – it is not a simple answer
    - Might be quite valid reasons or it could be carelessness on your Client / Customer's part
  - What alternatives do you have?
    - Stop Work
    - Defer / Delay most work but keep low level activity going
    - "Trust" and continue – wait for eventual payment
    - Defer / Cancel portions of work / deliverables
  - Don't burn any bridges!

Project Challenges – Potential Ethical Situations

- **Client / Customer Driven Issues**
  - Overt Actions
  - Attitude
  - Assignment Issues

- **Your Client / Customer is paying you to perform Tasks and/or deliver Products per a Contract or equivalent agreement**
  - Some Clients will expect you to do things simply because they are paying you to do so
  - Sometimes, these requests may go beyond what you believe is reasonable or 'ethical'
    - How do you respond?
  - What if your Client / Customer 'overrides' your concern or tells you not to worry about it?
    - Are you willing to walk away from this Contract?
    - Is there a Term or Condition in the Contract that allows you to do so?
    - Even if there is – consider the ramifications on future work

Project Challenges – Potential Ethical Situations

Areas That Can Get "Sticky"

- **Conflict of Interest – A Client asks you to work with their competitor simultaneously**

- **Intellectual Property / Control of It**

- **Inappropriate Data Collection or Data Release (Confidentiality Breach)**

- **Incomplete / Skipped Tasks to Keep the Project Moving Forward**

- **Client / Customer Tells You to Ignore / Discount What is Documented in the Statement of Work / Contract / Other Data**
  - "We'll Fix It Later…"

Project Challenges – Potential Ethical Situations

NOT All Ethical Situations are OBVIOUS!!

- **Example: Dual Role Conflict**
  - You serve on your local municipal Zoning Board as part of good citizenship
  - You decide to provide 'pro bono' engineering consulting to your local Church or non-profit organization
  - Your influence in both roles can become problematic and inadvertently favor one over the other…

Wrap Up - Management of Your Consulting Project / Contract

- **Being a CONSULTANT – in ANY field, discipline, or line of expertise…**
  - Is **HARD** and *Constantly Challenging*!!

- **You are running a Business!** **Keep in mind, the Business needs to come first in order to survive**

- **Paying attention to your Client / Customer will make or break you**

- **Be disciplined, organized, and willing to accept / drive Change when necessary**

- **The Customer is ALWAYS RIGHT – *Even when they are not!***

QUESTIONS?