PM Techniques for the One-Man Project

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Agenda

Background

Project Management in the HPC Environment

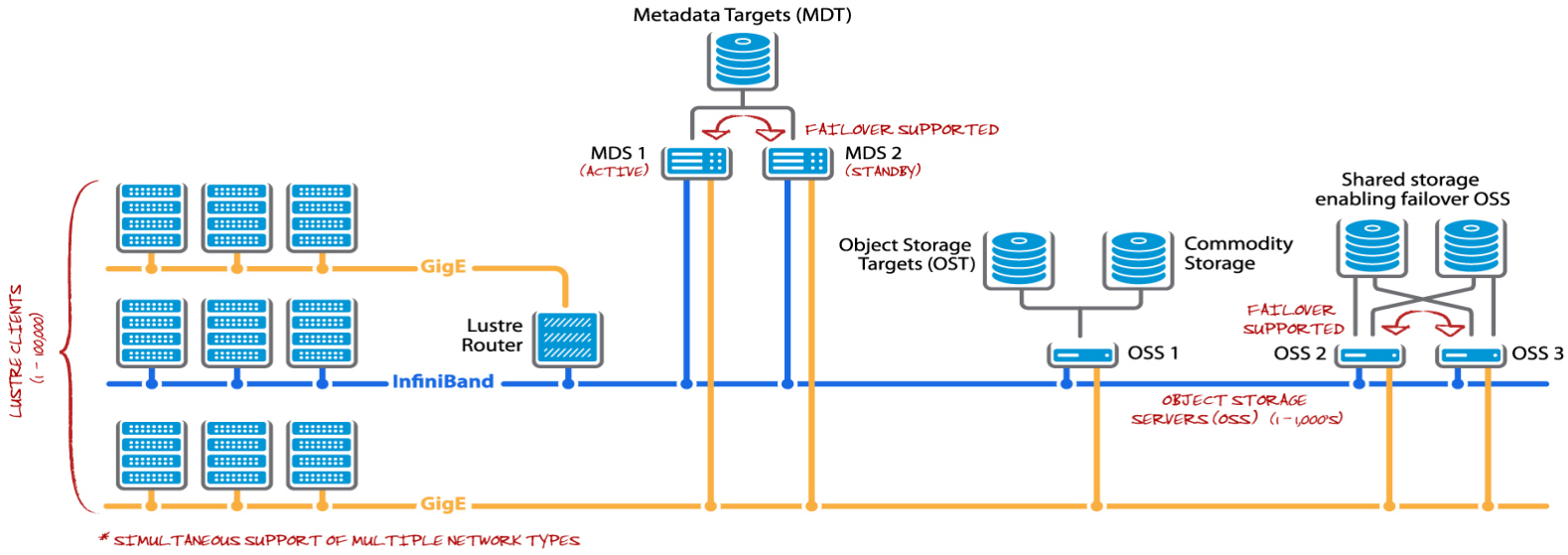
- Functional Areas
- Highest Value Adds
- Point of Diminishing Returns

Applicability of large-teams model

The one-man project

Lustre

- Lustre is an open source parallel file system used largely for scientific computing applications requiring massive bandwidth, storage, or both



- Lustre Team Lineage:
  - Cluster File Systems -> Sun ->Oracle -> Whamcloud -> Intel
- Lustre git repository: http://git.whamcloud.com/fs/lustre-release.git/

Current Lustre R&D Focus

- Advancing performance and scale in High Performance Computing
- Currently leading the FF Storage Exascale Program
  - Focused on advancing performance related features in Lustre to support the Exascale roadmap & support of Big Data
  - Consortium of 7 labs form the stakeholder group: LLNL, LANL, LBL, PNNL, ORNL, ANL, SNL
  - Coordinating with 5 DoE Office of Science Co-Design Centers

Large Scale Program Management

Regardless of methodology (Waterfall, Agile, Prototyping, etc.) there are key steps that lead to a successfully led project

All of these steps target controlling project outcomes:

- Schedule Management
- Scope Management
- Budget Management

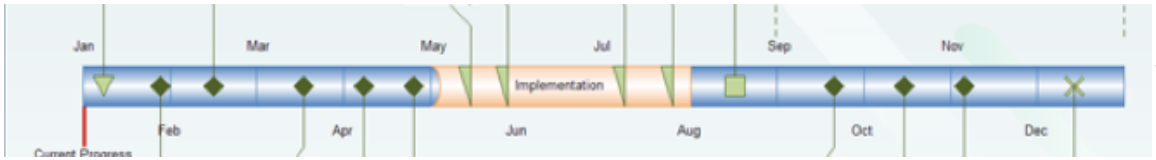
Which all culminate in:

- Managing Expectations

Key Practices Employed by (Large) Projects

With the Primary Goal being to control:

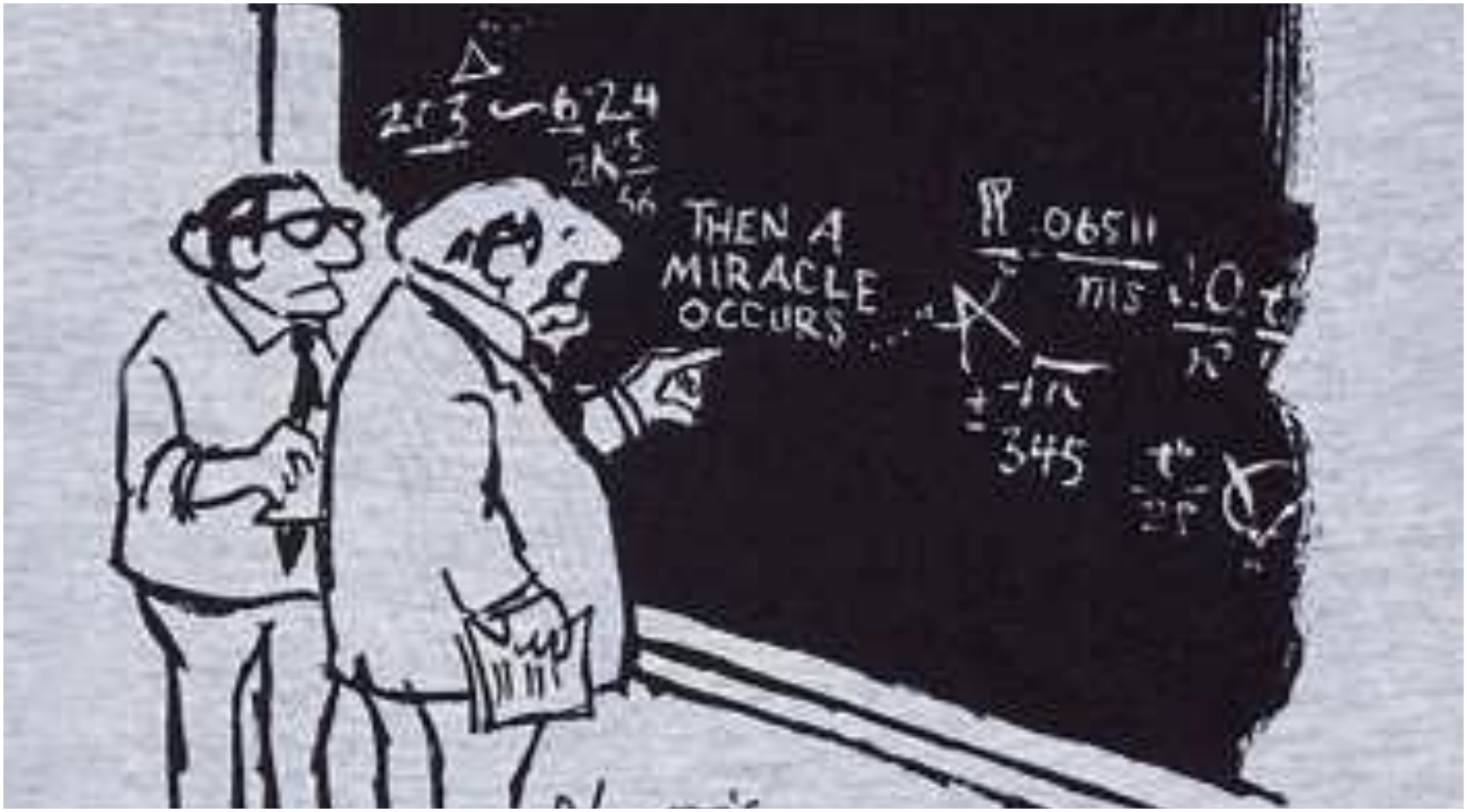
Scope



Schedule

Resources:  , 

Then a Miracle Occurs



Most Powerful Project Control Tools

- Project Charter
- Project Scope
- Design Document
- Test Plan
- Schedule
- Sign-Off
- Risk Register

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- **Project Purpose**
- **Project Objectives**
- **Project Justification**
- **Requested Start/End Dates**
- **Summary Budget**
- **Key Requirements**
- **High-Level Risks**
- **Project Stakeholders**
- **Project Approval Req.**
- **Project Sponsor**
- **Project Manager**

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- **Problem Statement**
- **Project Goals**
- **In-Scope Elements**
- **Out-of-Scope Elements**
- **Project Constraints**
- **Project Assumptions**
- **Key Deliverables and Milestones**

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- **Solution Requirements**
- **Use Cases**
- **Solution Proposal**
- **Solution Mapping**
- **Cross-Functional Impacts**
- **Unknowns**
- **Acceptance Criteria**
- **Key Definitions**

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- **Test Goals**
- **Functional Test Areas**
  - **Happy Path Testing**
  - **Alternate and Exception Path Testing**
- **Regression Tests**
- **Stress Tests**
- **Performance Tests**
- **Interoperability**

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- **Integrated Schedule**
  - **Primary Tasks**
  - **Supporting Tasks**
  - **Implementation Tasks**
- **Determination of Resources**
  - **People**
  - **Hardware**
  - **Cash**
- **Identify post-implementation ongoing operational tasks**

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- **Sign-Off**
- Risk Register

- **Official Sign-off between each phase:**
  - **Physical or Electronic**
- **Phases:**
  - **Project Charter**
  - **Project Scope**
  - **Solution Architecture**
  - **Design Document**
  - **Test Plan**
  - **Implementation**
  - **Project Acceptance**

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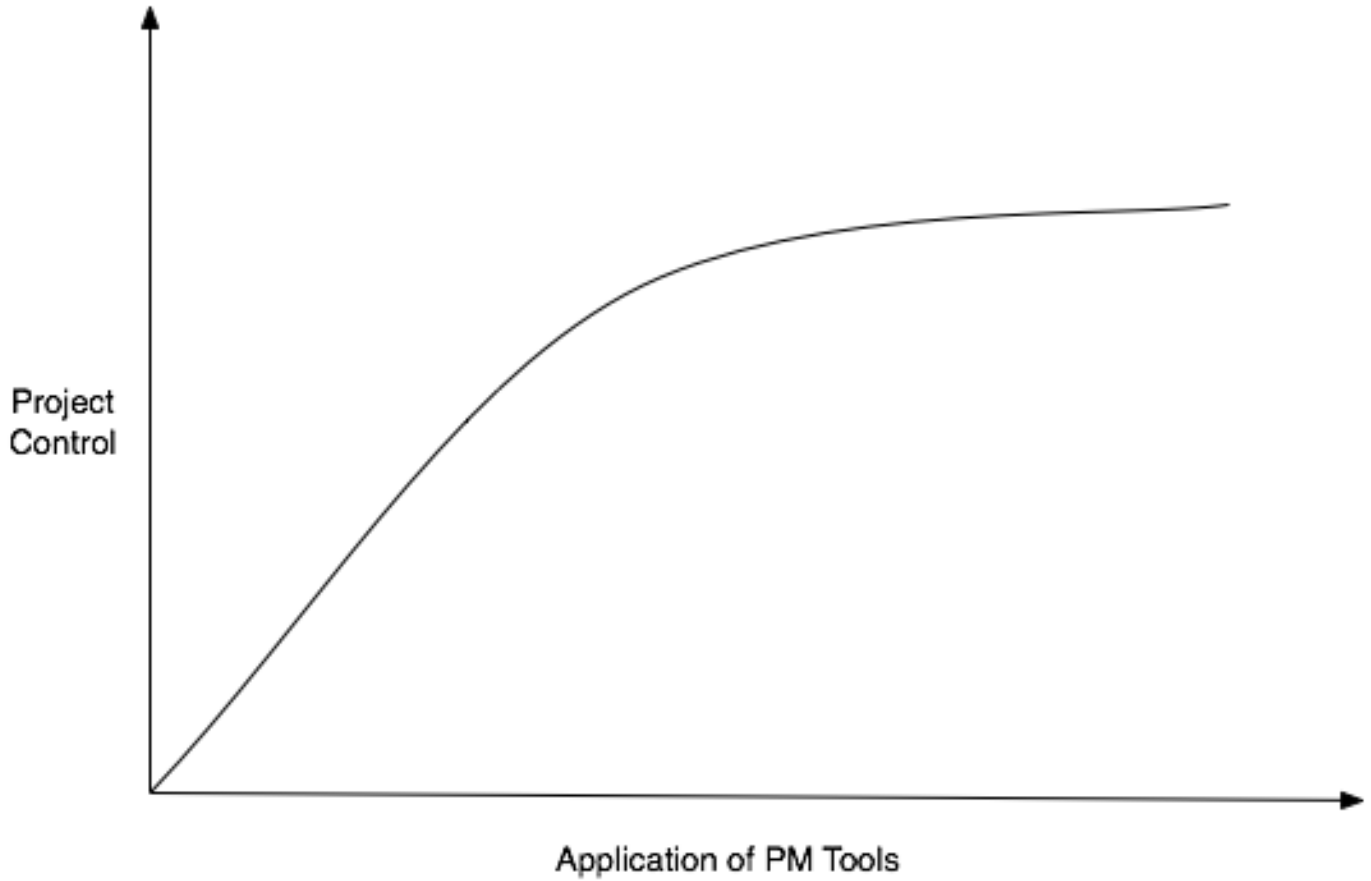
- **Identification of elements that may have impact on the outcome of the project:**

- **Assess impact & likelihood of occurrence**
- **Develop mitigation plans to manage or avoid**
- **Active management of an ongoing risk register**

The One-Man Project

- Many projects, teams, environments can't support having project managers
- The techniques aren't about difficulty, but discipline
- Each of us can apply key PM techniques in a light-weight fashion to enhance success for SW, operational, and individual projects
- The Goal here is not to apply all the standard practices, but to select the few that maximize project control without diminishing effort returns

Point of Diminishing Return for PM Application



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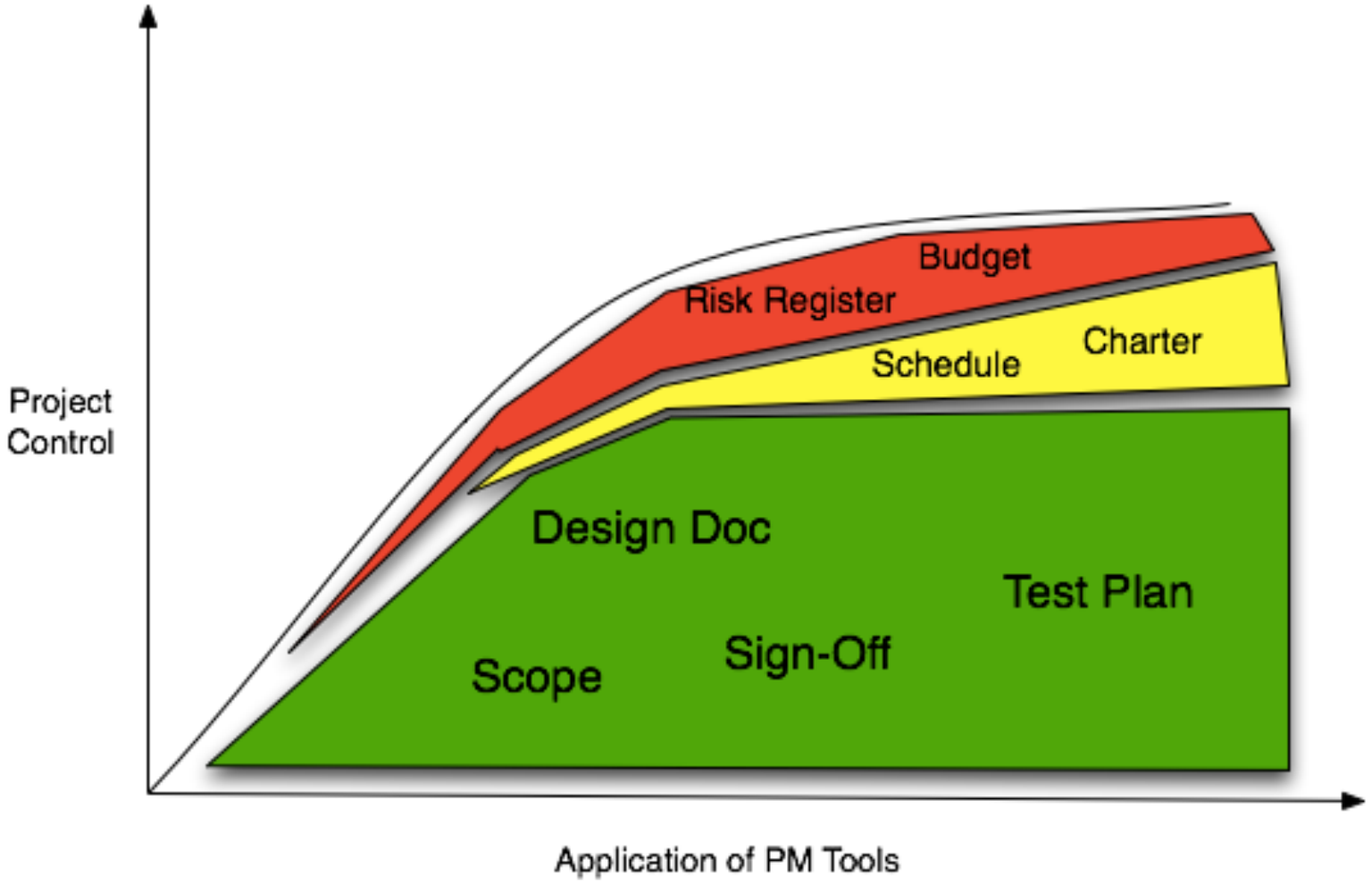


Scope Checklist

- ✓ Problem Statement
- ✓ Project Goals
- ✓ In-Scope Elements
- ✓ Out-of-Scope Elements
- ✓ Project Constraints
- ✓ Project Assumptions
- ✓ Key Deliverables and Milestones

Design Checklist

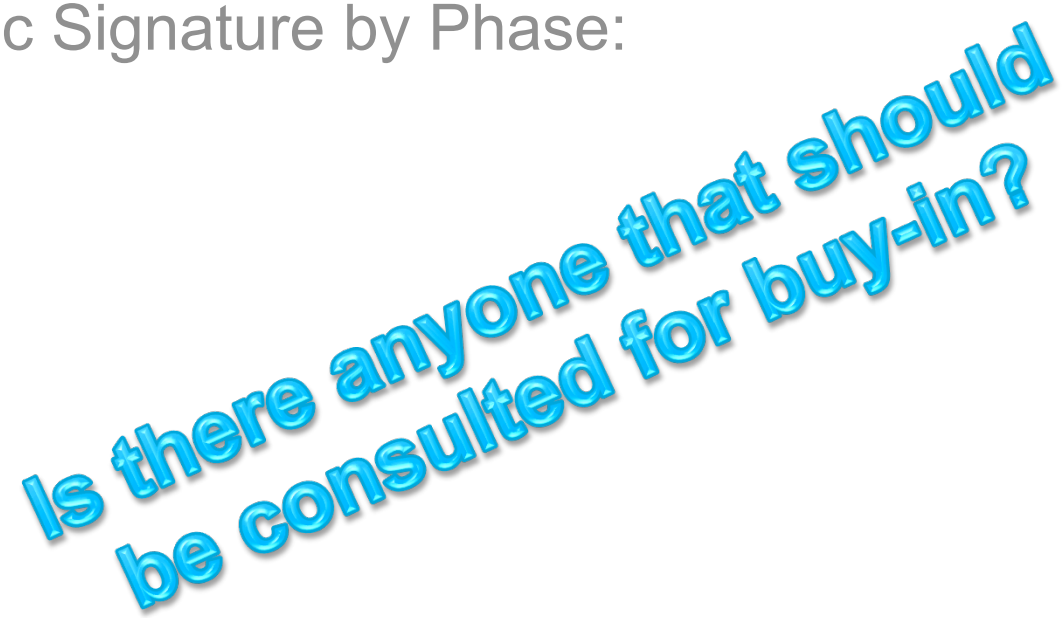
- ✓ Solution Requirements
- ✓ Solution Proposal
- ✓ Solution Mapping
- ✓ Unknowns
- ✓ Acceptance Criteria

Test Plan Checklist

- ✓ Test Goals
- ✓ Functional Test Areas
  - ✓ Happy Path Testing
  - ✓ Alternate and Exception Path Testing
- ✓ Regression Tests
- ✓ Stress Tests
- ✓ Performance Tests
- ✓ Interoperability

Sign-Off

- Physical or Electronic Signature by Phase:
  - Project Charter
  - Project Scope
  - Solution Architecture
  - Design Document
  - Test Plan
  - Implementation
  - Project Acceptance



And the Rest

- Project Charter
- Formal Project Schedule /Project Plan
- Risk Register
- Project Budget

Why We Are Here?

- Maximize control with minimum of effort
- Focus on checklists, not formal documents
- Re-visit throughout the project to validate and stay on track

Thank You

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