# Proactive Project Control

## Leveraging Traditional and New Approaches for Project Control

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# Introductions

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# Project Control and Proactive Project Control

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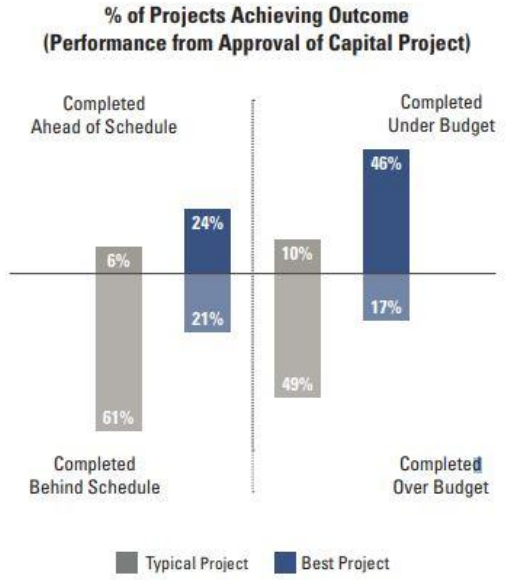
# Current State – Project Control Practice

- Several organizations promote best practices e.g. AACE, PCI, CII, PMI
- Some standards exist e.g. ANSI 748
- Not a college major
  - Standard body of knowledge does not exist
  - Marketplace demand not where it should be
- Deemed as part of the Project Management Body of Knowledge
- Still confusion about what it entails:
  - Accounting
  - Cost tracking
  - Scheduling
  - Billing

**HOW DID PROJECTS PERFORM?**

Dodge benchmarked 162 projects identified by owners as best or typical vs. schedule and budget performance (what owners cited as most valuable to them). The sample represents projects using various delivery methods and contract types across the United States for owners completing more than five capital projects over three years.

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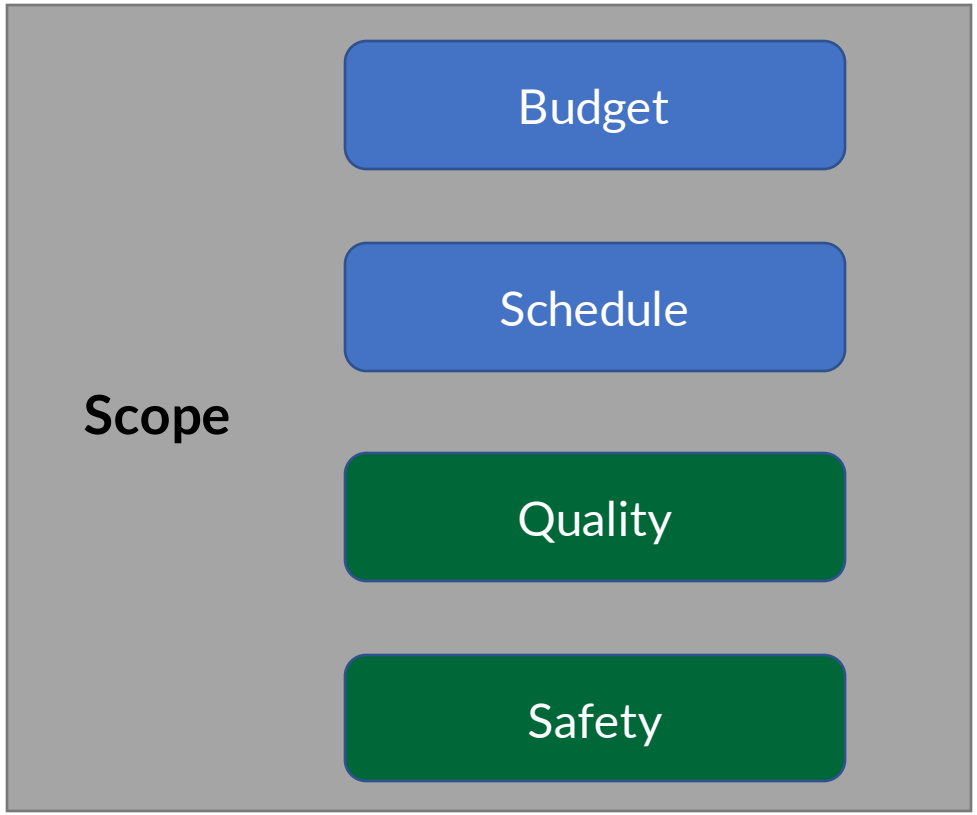
# Project Control – Challenges

- Several PMs do not understand the value
- Seen as the Project Control Department's duty – this should the Project Team's duty
- The name "Project Control" can be seen as an auditing function rather than a support function
- Lack of a standard body of knowledge makes the hiring process uncertain – person with the same title can have different backgrounds / skills
- Too many tools being offered as the solution to project control issues
- Companies lack standard processes
- Upper management buy-in
- Implementation can be cost prohibitive for smaller companies
- Backwards looking rather than forward looking

# Project Control – Challenges




- Are we budgeting the projects well?
- Are we scheduling the projects well?
- Are we Managing the schedules and budgets well?

# What is Proactive Project Control?

# Definition of Proactive Project Control

- The utilization of traditional Project Control tools in conjunction with Lean Construction tools to produce better outcomes
- Rather than focusing on identifying deviations from the plan, we focus on attaining conformance or exceeding the plan (*)
- Mindset change to include proactive measures into the project control processes
- Monitoring vs. Control

Traditional Project Control Tools:

- CPM Scheduling
- Earned Value Management (EVM)

Lean Construction Tools:

- TVD
- Last Planner System®
- Takt Planning

Others:

- Value Management

*(*) Glenn Ballard's – Last Planner System Thesis*

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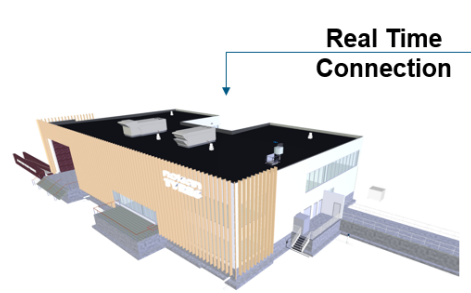
# Cost Management Tools

# Target Value Design (TVD)

- TVD is based on the concept of “Target Cost” which is commonly used in manufacturing
- TVD proposes:
  - Rather than estimating based on a detailed design, design based on a detailed estimate (Cost Model)
  - Rather than designing alone and then come together for reviews or group decisions, work together to produce decisions and then design to those decisions
- How to implement?
  - Accurate cost data
  - Set Targets (Cost Model)
  - Check design vs. Estimate (Cost Model) often during design






Benefits of 5D Estimating

- Improved accuracy vs. OST
- Ability to evaluate design changes in almost real time
- Improve efficiency of estimating teams

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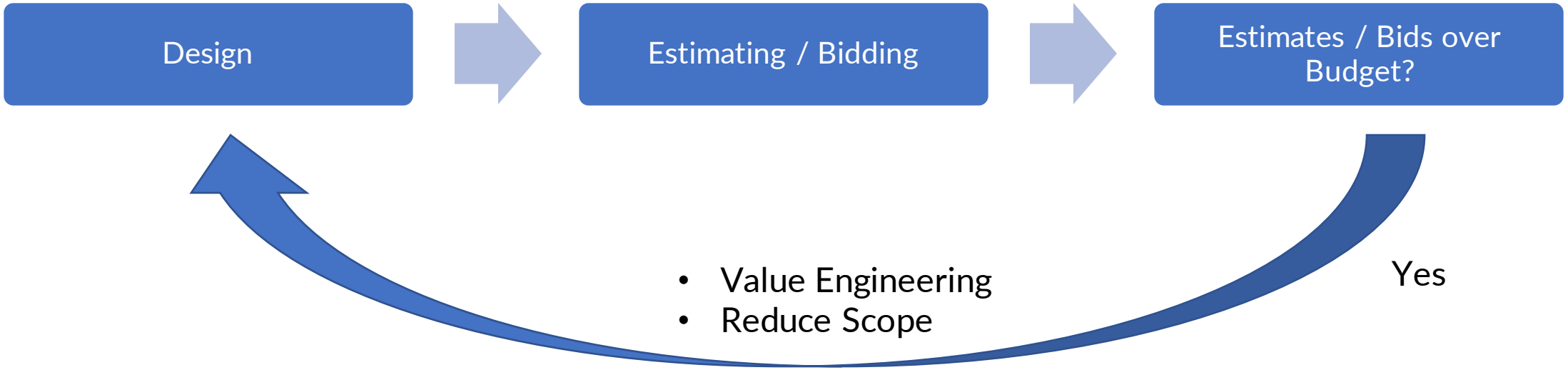
# Target Value Design (TVD)

- Accurate budgeting starts with accurate estimating and identification of project requirements and scope
- Don't let this happen:



# Tools for Construction Management – Construction Data Intelligence (CDI) Approach

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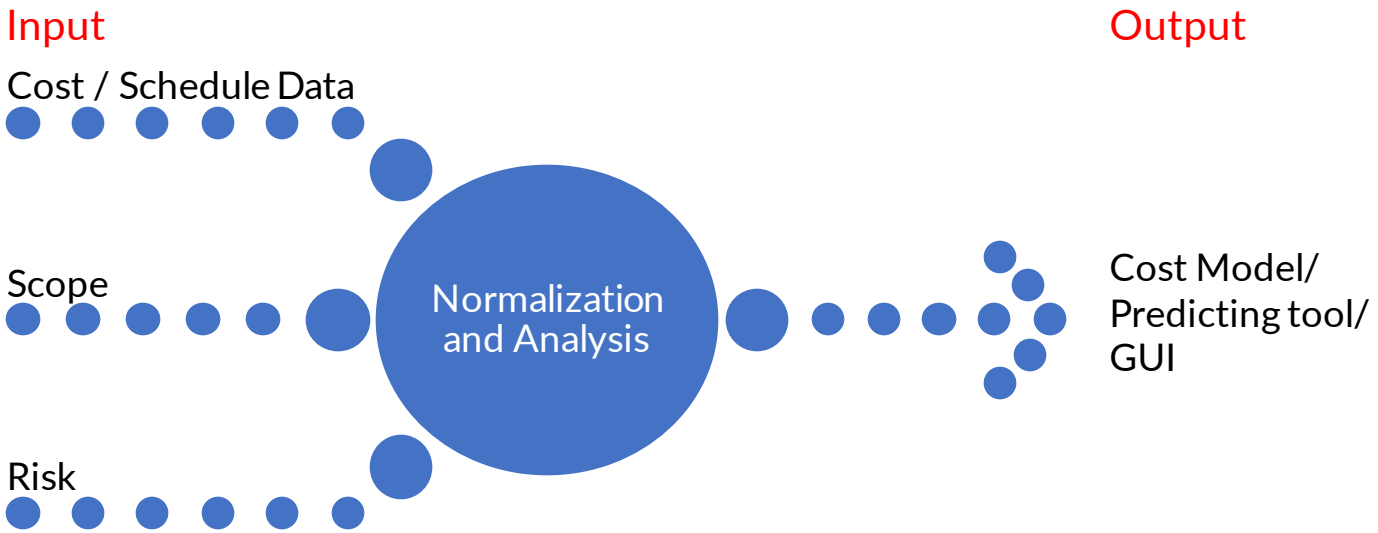
# CDI Approach

- Construction Data, particularly cost data, vital in early stage planning and scheduling for project delivery.
- Process of capturing data, evaluating data quality and normalizing it to a format is essential in forecasting and predicting project outcomes and evaluating risk.

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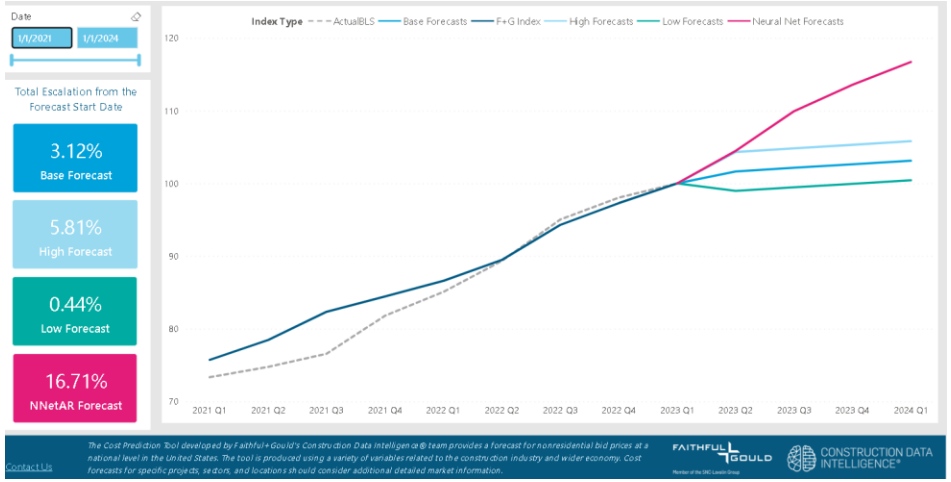
# CDI Approach

Aims of output:

- Benchmarking/Cost Modelling – Using data and intricate work breakdown structures can predict the final cost of a project
- Market Reporting – Analyzing and assessing market and field data can project escalation, forecast labor rates & shortages, can implement location factors and compare material price changes.
- Data Analysis – Using tools like Power BI/Tableau/Excel can showcase significant datasets to highlight major discrepancies

**AACE Cost Estimating Classification System**

| Estimate Class | MATURITY LEVEL OF PROJECT DEFINITION DELIVERABLES | END USAGE | METHODOLOGY | DESIGN DEVELOPMENT / ESTIMATING CONTINGENCY | | EXPECTED ACCURACY RANGE |
|---|---|---|---|---|---|---|
| | (Expressed as % of complete definition) | (Typical purpose of estimate) | (Typical purpose of estimate) | (Typical estimating method) | (Typical allowance) | (Typical variation in low and high ranges) |
| Class 5 | 0% to 2% | Functional area, or concept screening | Program or Rough order of Magnitude (RoM) | SF or m2 factoring, parametric models, judgment, or analogy | 20% + | L: -20% to -30%<br>H: +30% to +50% |
| Class 4 | 1% to 15% | Schematic design or concept study | Concept or Feasibility | Parametric models, assembly driven models | 15% to 20% | L: -10% to -20%<br>H: +20% to +30% |
| Class 3 | 10% to 40% | Design development, budget authorization, feasibility | Schematic Design | Semi-detailed unit costs with assembly level line items | 10% to 15% | L: -5% to -15%<br>H: +10% to +20% |
| Class 2 | 30% to 75% | Control or bid/tender, semi-detailed | Design Development | Detailed unit cost with forced detailed take-off | 5% to 10% | L: -5% to -10%<br>H: +5% to +15% |
| Class 1 | 65% to 100% | Check estimate or pre bid/tender, change order | Construction Documents | Detailed unit cost with detailed take-off | 0% to 5% | L: -3% to -5%<br>H: +3% to +10% |

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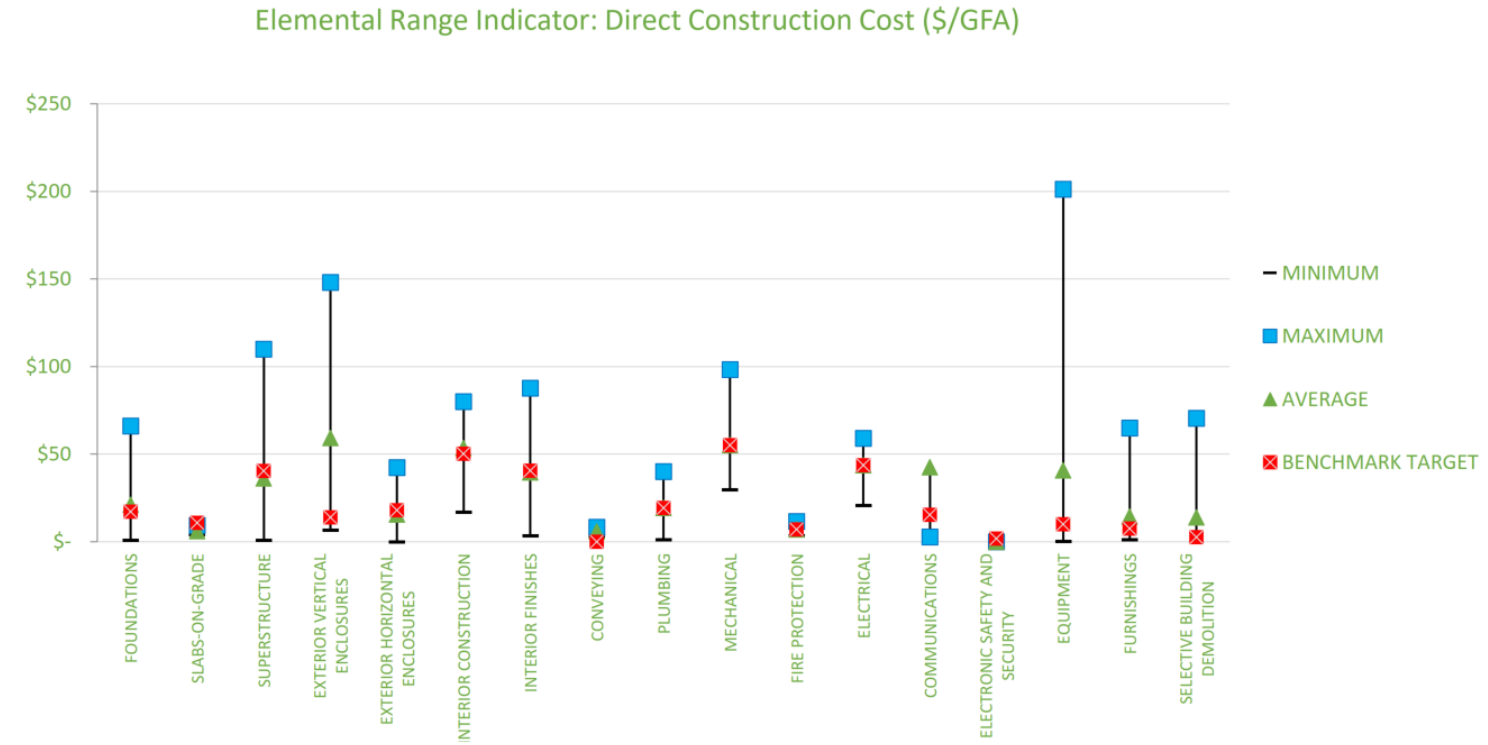
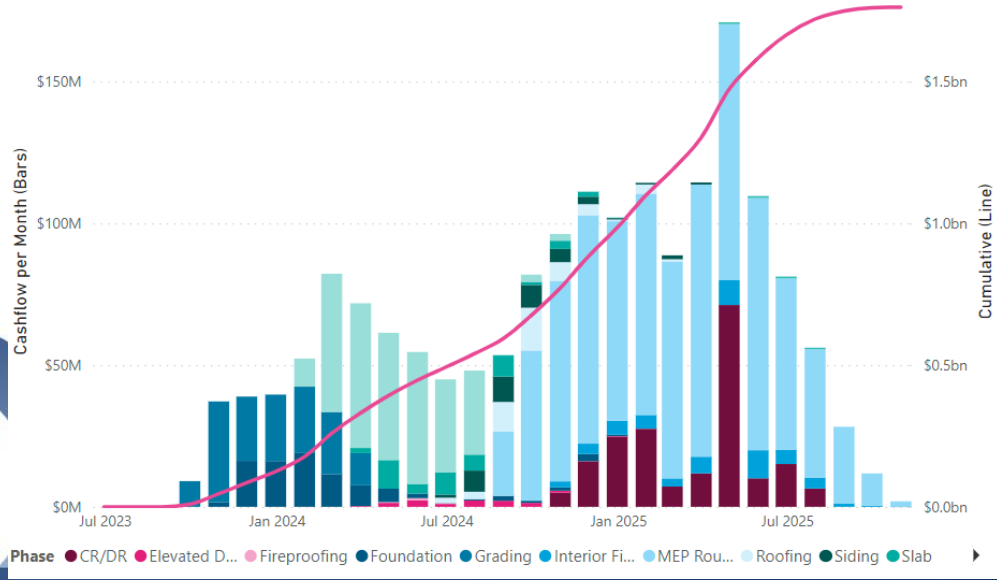



# CDI Approach - Examples




| Building Area | Cashflow per Month (Bars) |
|---|---|
| 01 | $494,663,719.55 |
| 02 | $460,130,291.36 |
| 03 | $432,992,498.08 |
| 04 | $4,360,826.24 |
| 05 | $12,332,876.95 |
| 06 | $402,196.58 |
| 07 | $666,969.98 |
| 08 | $164,496,417.37 |
| 09 | $838,142.92 |
| 10 | $2,639,324.25 |
| 11 | $19,637,429.73 |
| 12 | $21,617,713.28 |
| 13 | $27,689.66 |
| 14 | $27,689.66 |
| Construction Documents | $0.00 |
| DESIGN DELIVERABLES | $0.00 |
| ELECTRICAL | $0.00 |
| PRECON TRADE PARTNER AWARD | $0.00 |
| SITE WORK | $147,366,809.47 |
| **Total** | **$1,762,200,595.06** |

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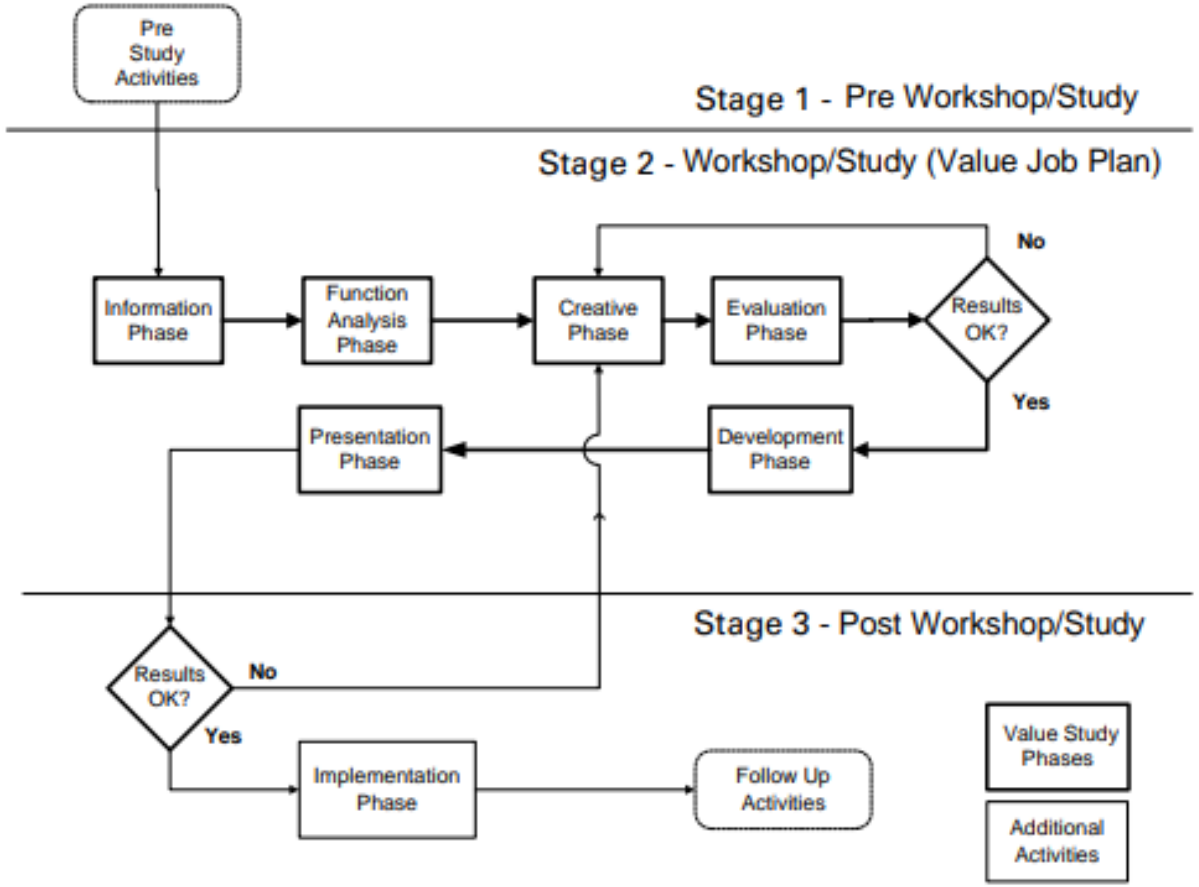
# Other tools: Value Management

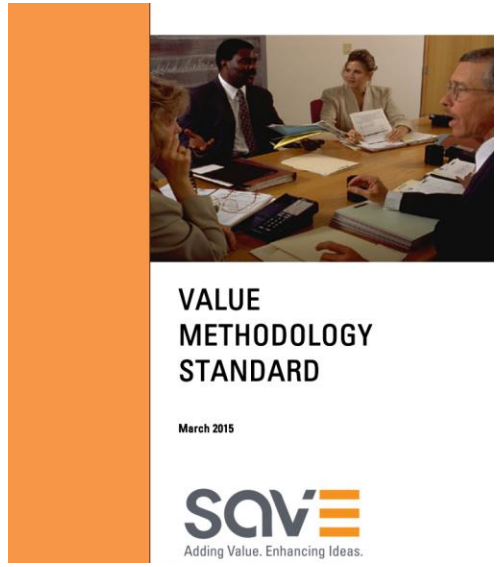
# Value Management

- The Value Methodology (VM) is a SAVE (Society of American Value Engineers) process
- Value is the expression of the relationship between Function and Resources: Function / Cost
- Function = that which a project, product of process must do to make it work and meet customers needs – focus on what it does and answers que question “What does it do?”
- Value Management = Value Engineering are not aimed at cost reduction ONLY

- The VM has 8 phases process:
  1. Planning Phase
  2. Information Phase
  3. Function Analysis Phase
  4. Creative Phase
  5. Evaluation Phase
  6. Development Phase
  7. Presentation Phase
  8. Implementation Phase

# Value Management (VM)

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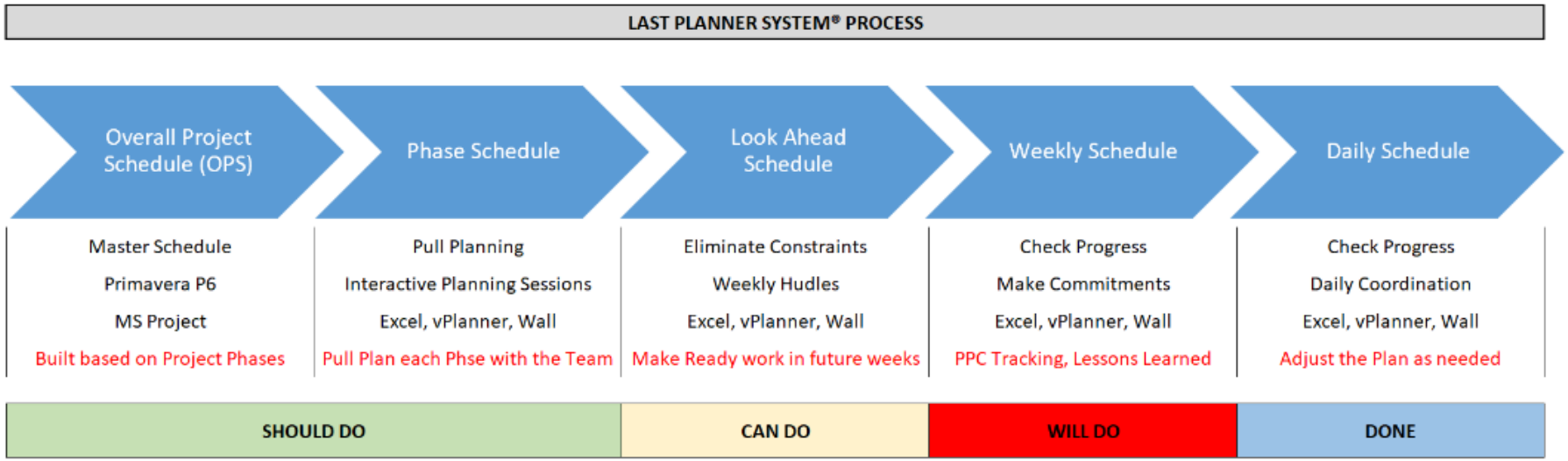
# Schedule Management Tools

# Last Planner System®

- Process aimed to engage the personnel performing the work with planning the work
- The Last Planner = The Person making the daily production decisions

- Research from the LCI shows that Last Planner System® implementation has resulted in up to 30% overall schedule reduction
- This approach supports a “Make It Happen” Mindset

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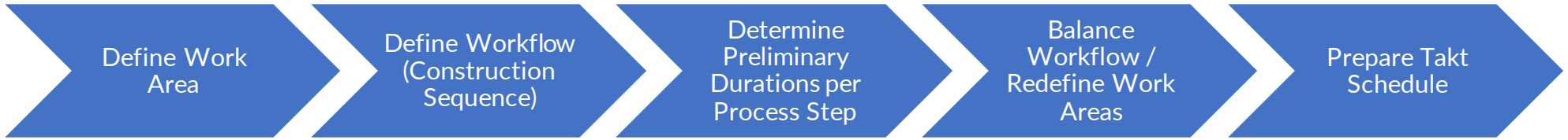
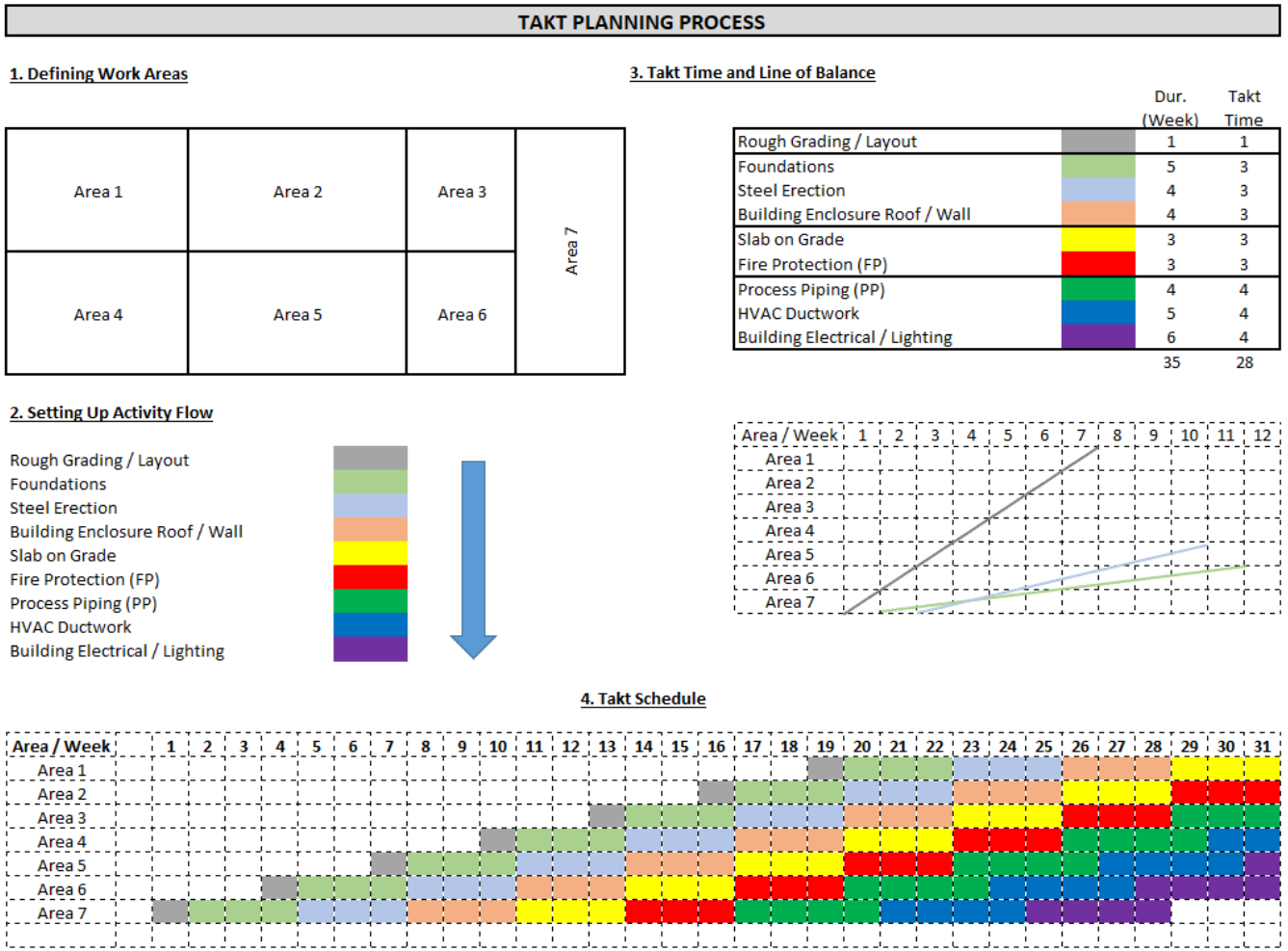
# Takt Planning

- Originated in manufacturing Takt time = is equal to the time needed by the system to produce a Unit or to move on Unit from one stage of production to the next one
- Takt Time = Speed of Production



# Takt Planning

- Pros:
  - Improves project communication
  - Improves workflow
  - Improved predictability for crew planning / assignment
  - Improved Visibility as what should be going on can be easily found in the Takt Plan
- Cons / Barriers:
  - Requires Subcontractor / Trade Partner Involvement
  - Requires Facilitation in early stages
  - Requires Transparency

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# THANK YOU

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# Q&A’s

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