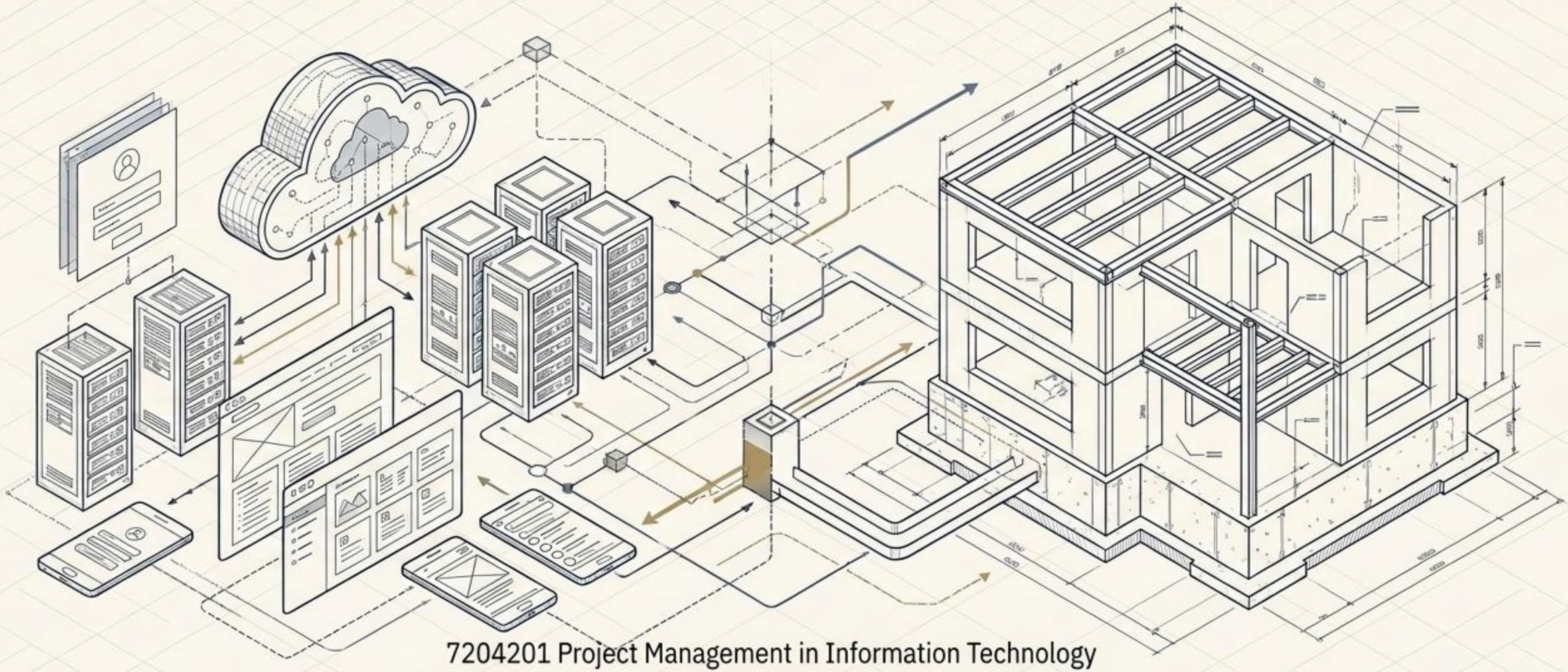
IT Project Writing and Management

Building software architecture foundations with systematic planning and control.



7204201 Project Management in Information Technology

Paranya Palwisut

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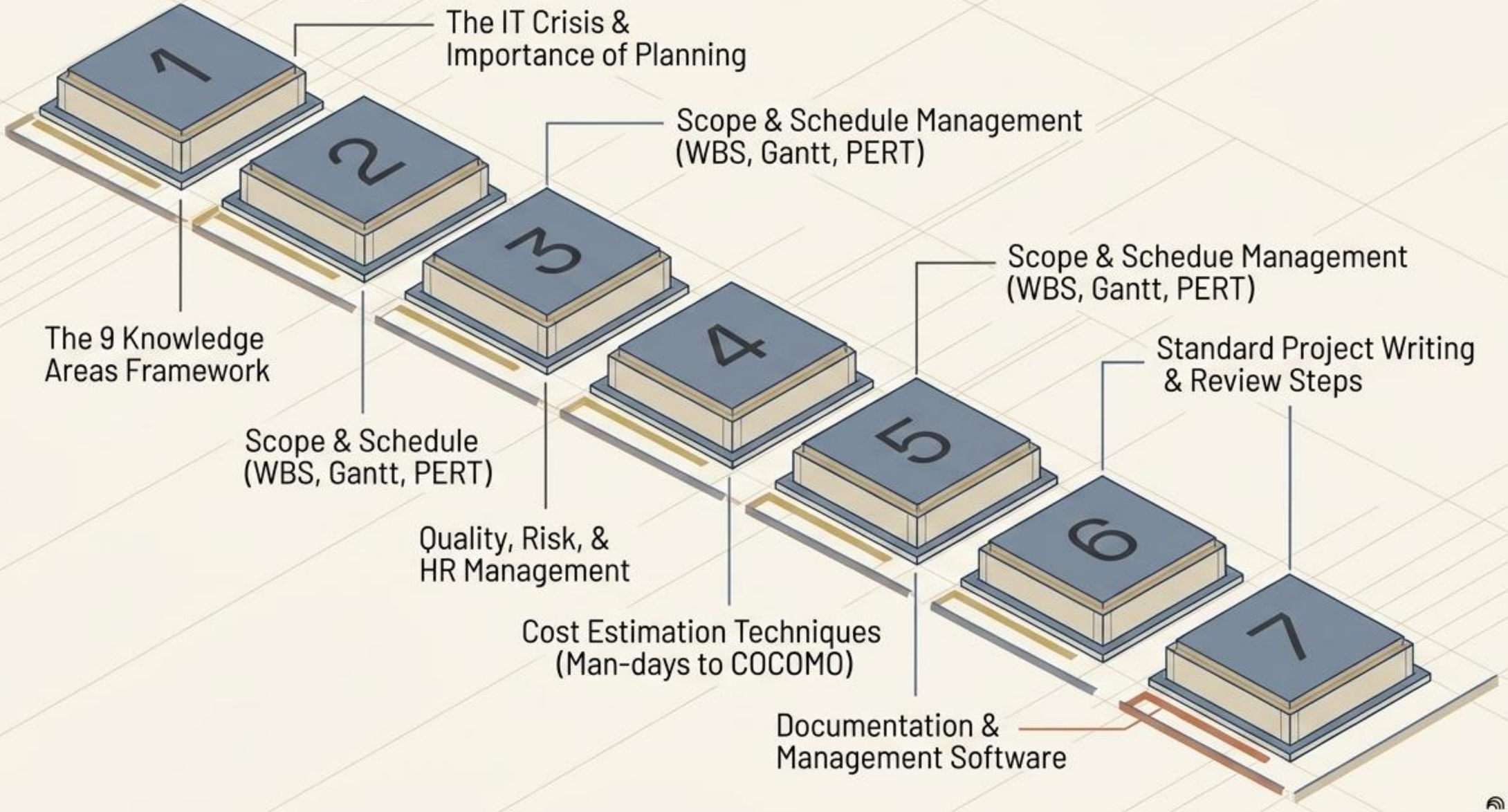
Executive Agenda



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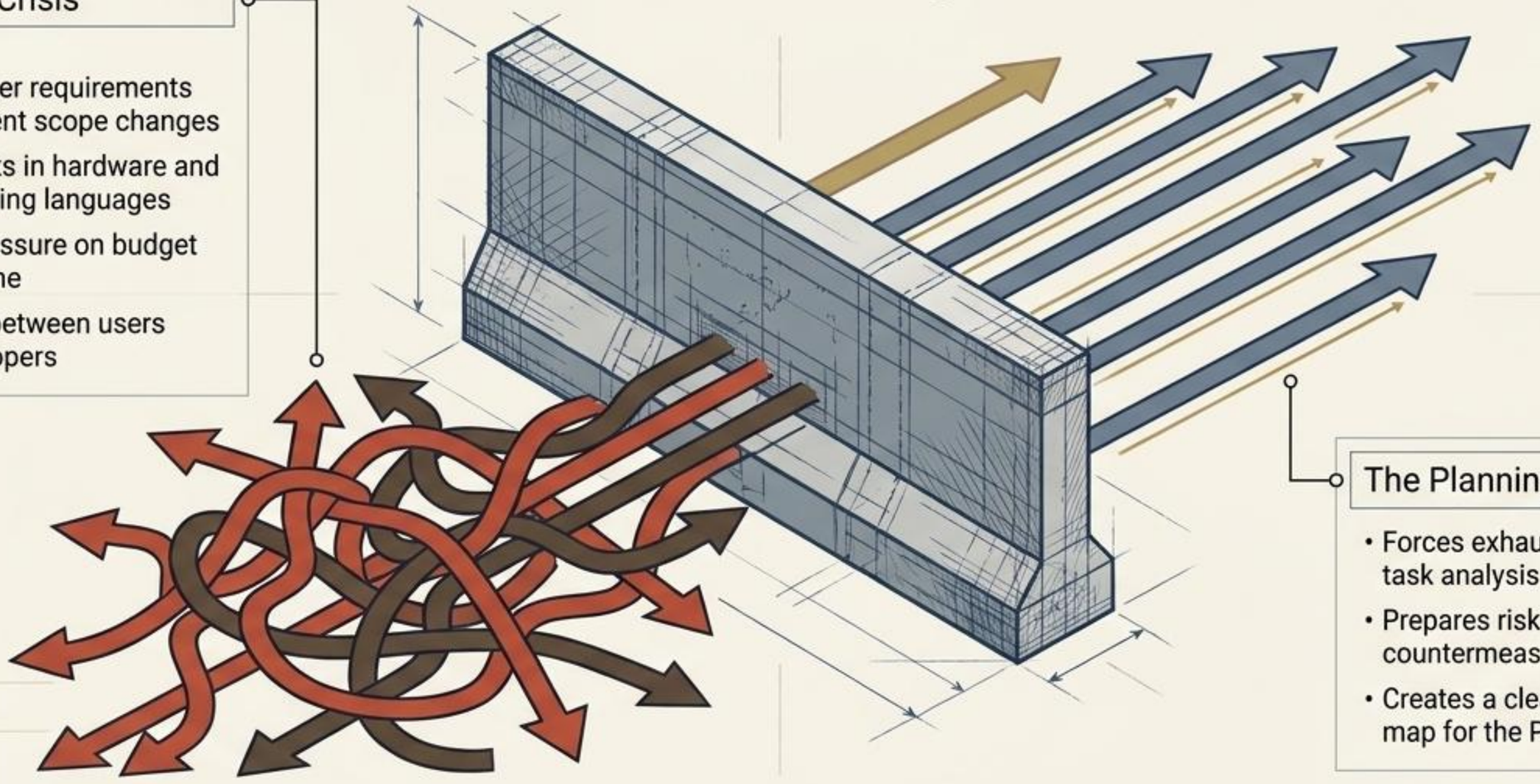
The IT Project Crisis and the Heart of Planning

The Core Crisis

- Volatile user requirements and frequent scope changes
- Rapid shifts in hardware and programming languages
- Severe pressure on budget and timeline
- Conflicts between users and developers

Obstacle vs. Bridge



The Planning Solution

- Forces exhaustive goal and task analysis
- Prepares risk countermeasures in advance
- Creates a clear navigational map for the Project Manager

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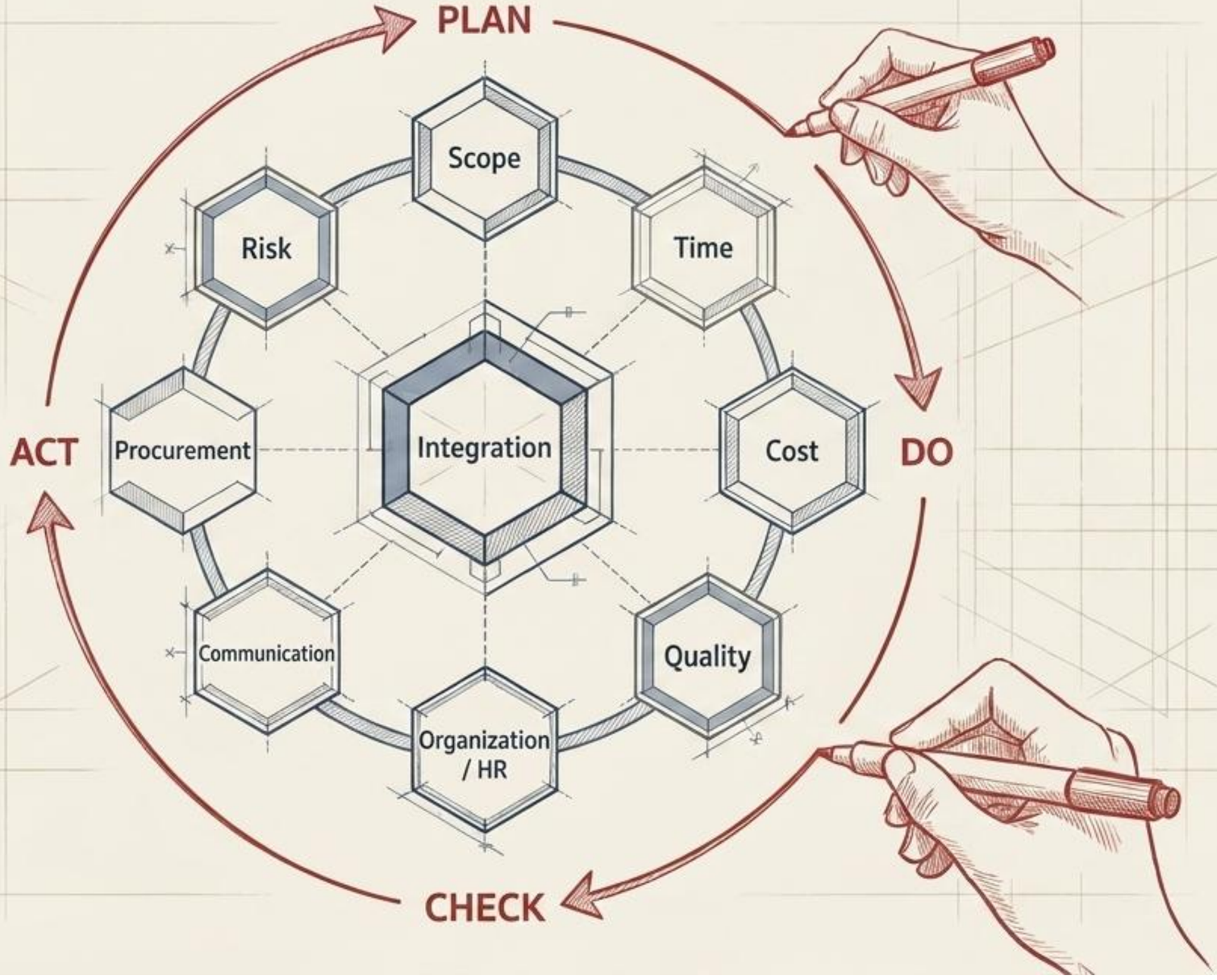
The Project Manager’s Compass: The 9 Knowledge Areas



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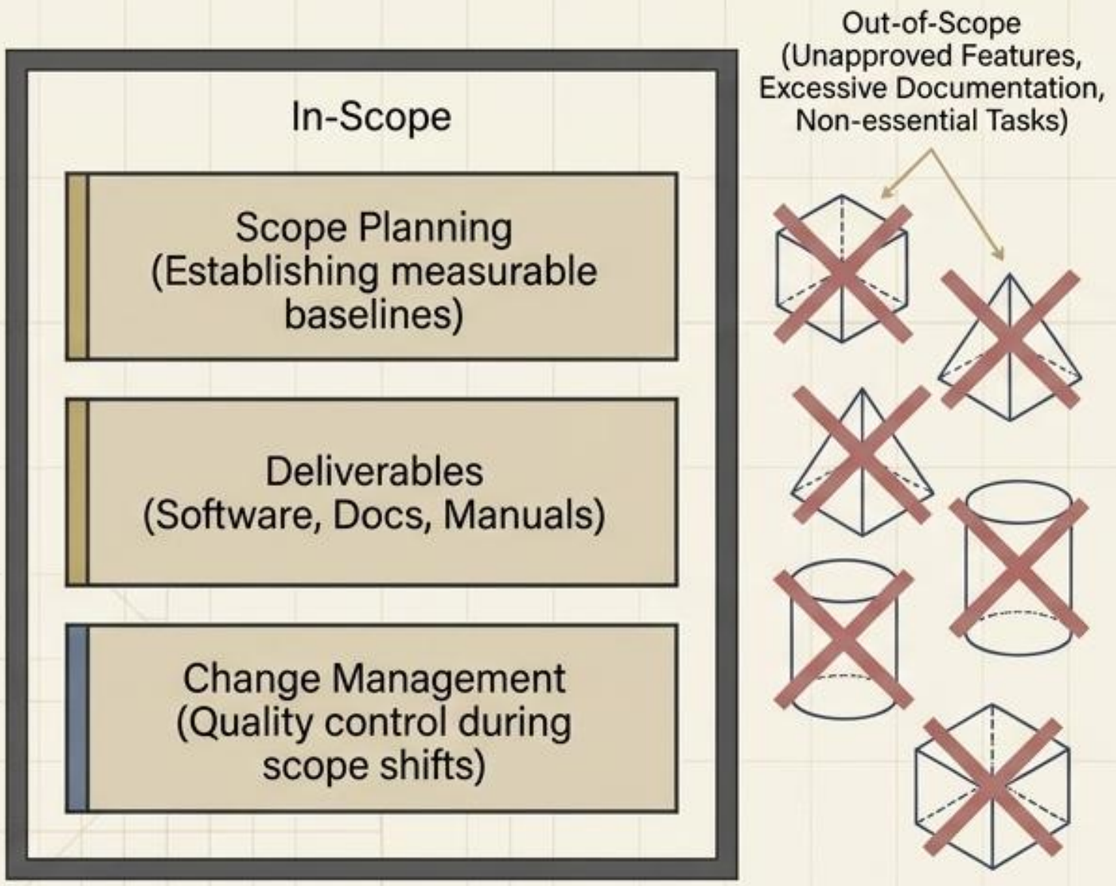
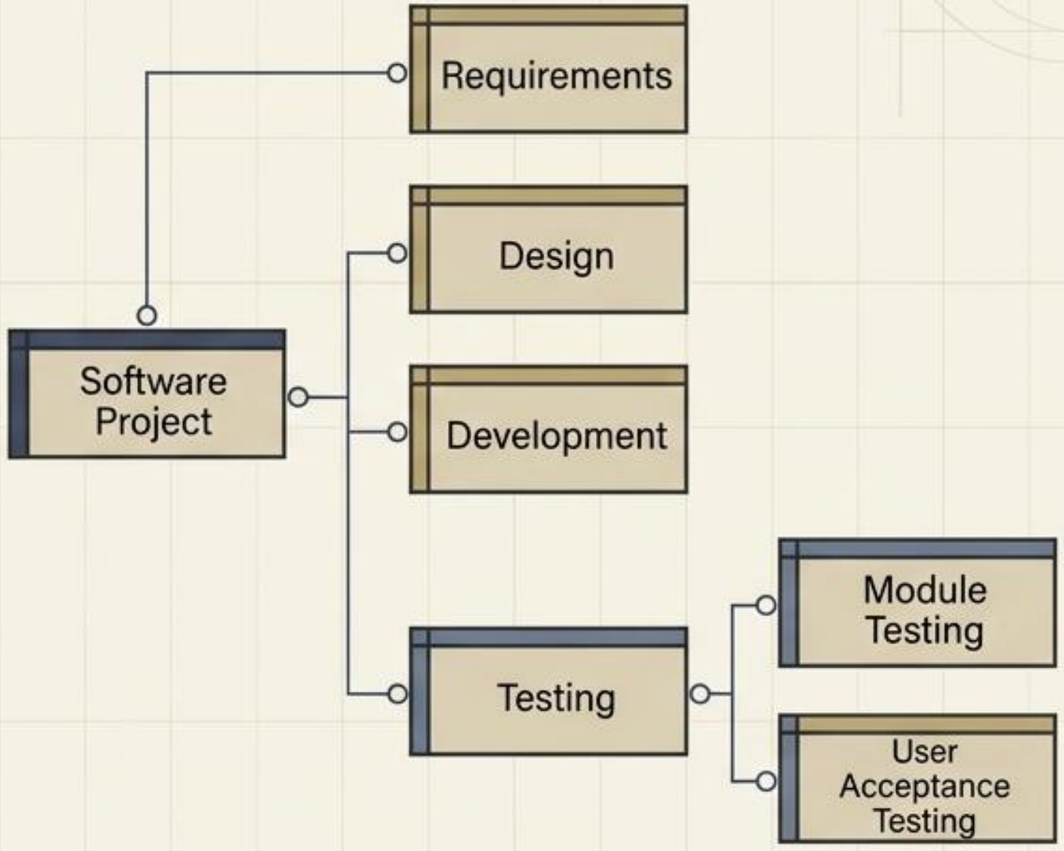
Defining and Breaking Down the Work Structure

Scope Management



Work Breakdown Structure (WBS)



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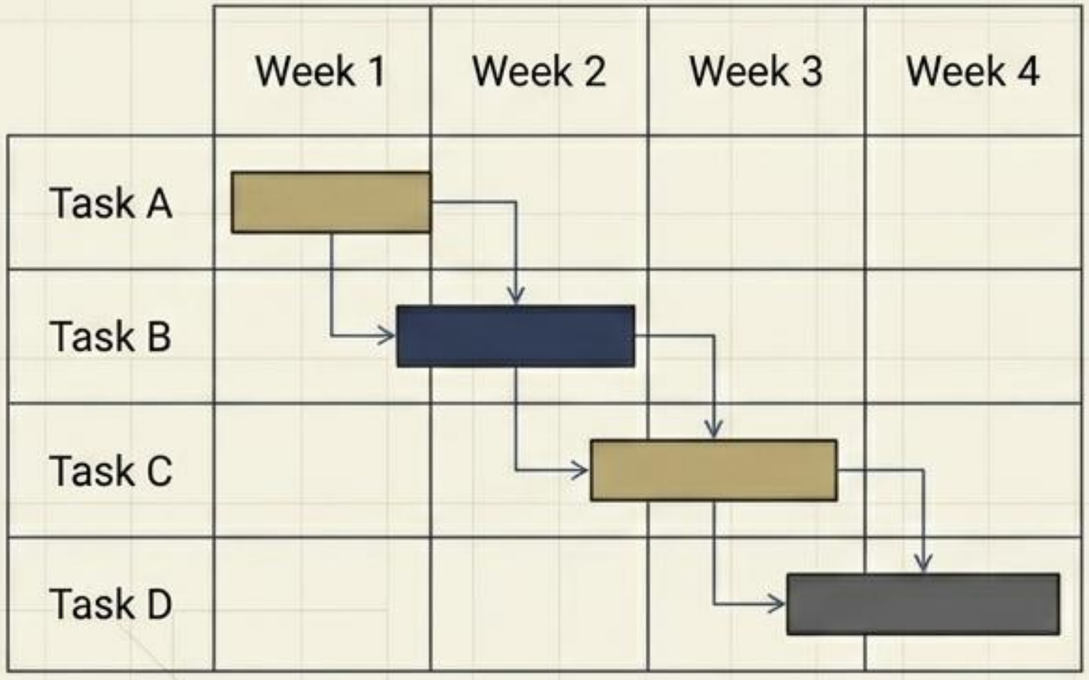
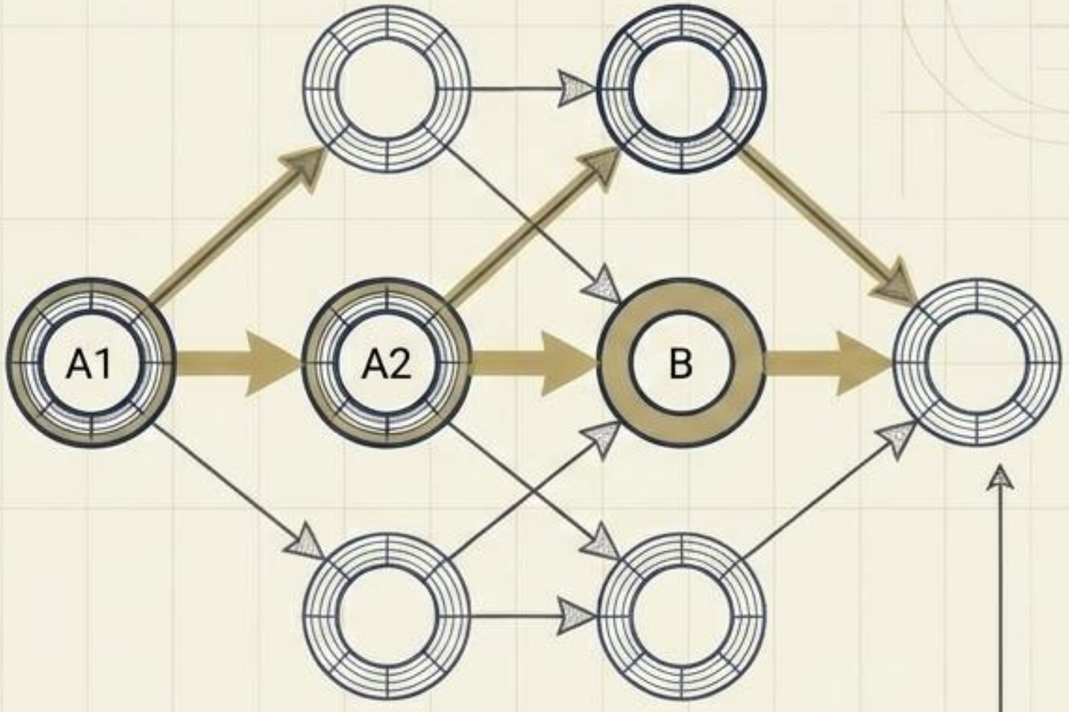
Schedule Management: Plotting Timelines with Gantt and PERT



Gantt Chart: Calendar-based overview showing start/end dates. Best for tracking overall progress.



PERT Diagram: Relationship and sequence mapping. Highlights the 'Critical Path' and complex task dependencies.

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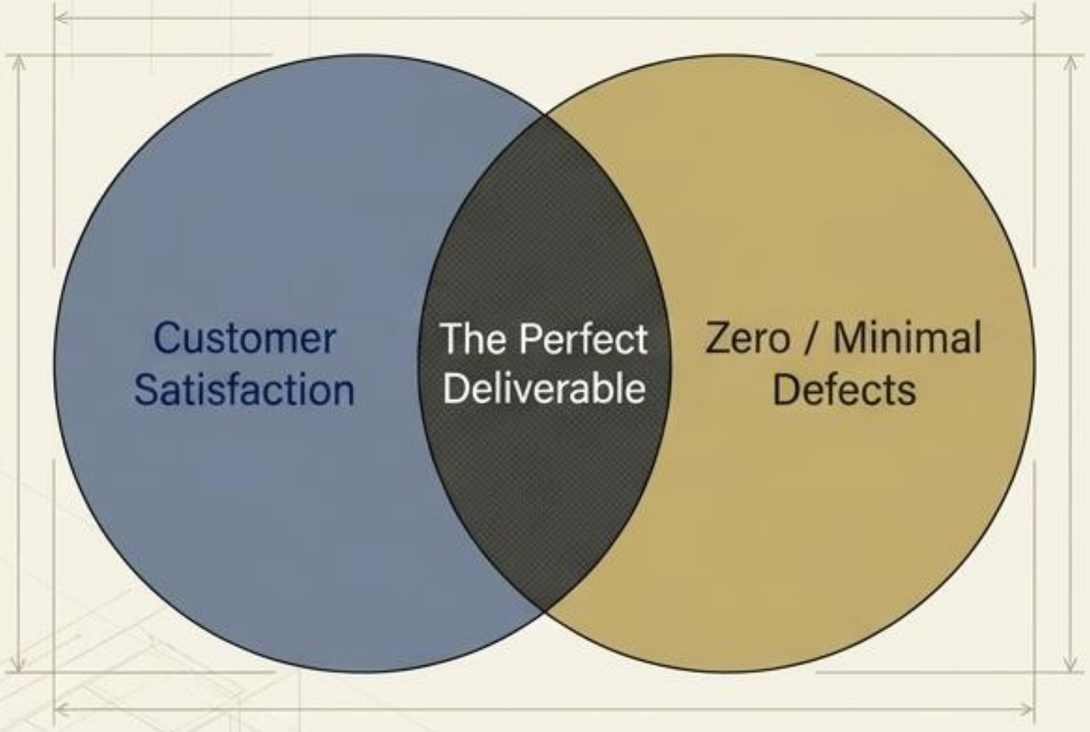
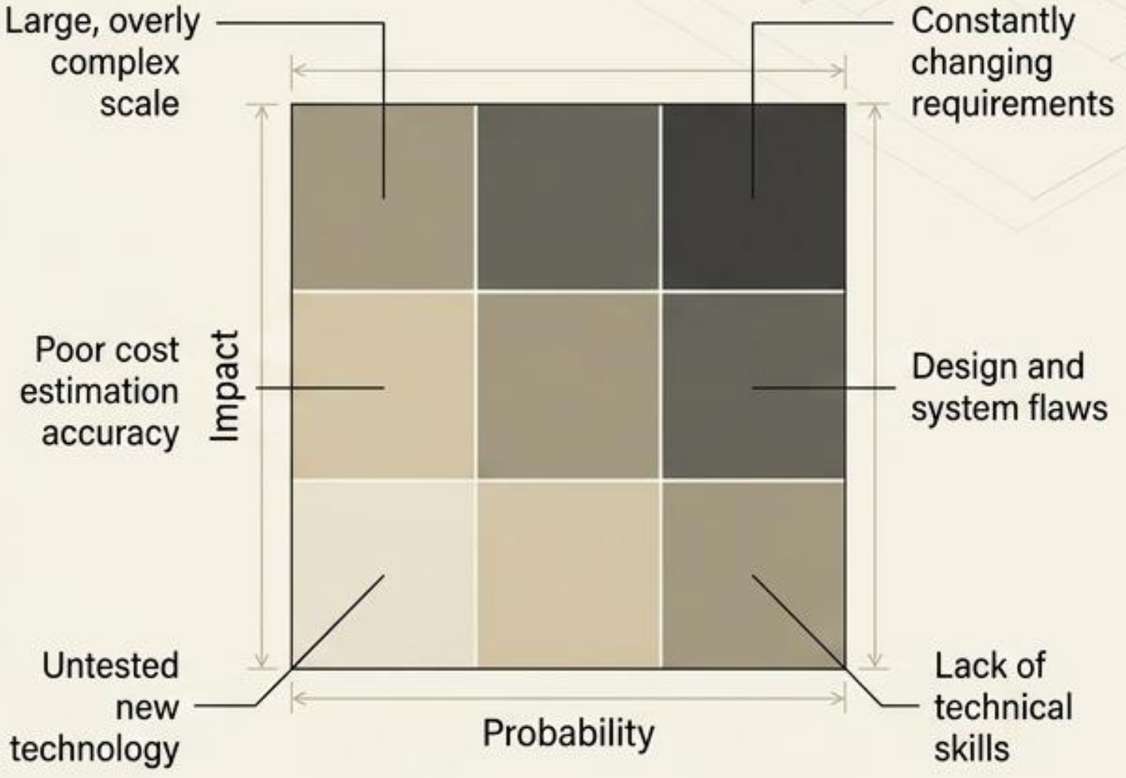
Safeguarding the Deliverable: Quality and Risk Frameworks

The Quality Target



Quality Planning must precede Quality Assurance.

The Risk Matrix



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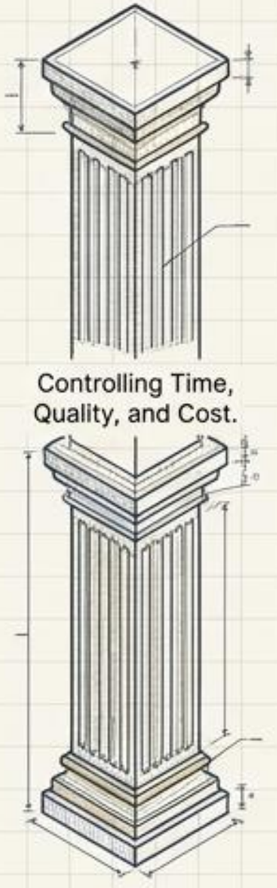
Assembling the Architecture: People, Communication, and Procurement

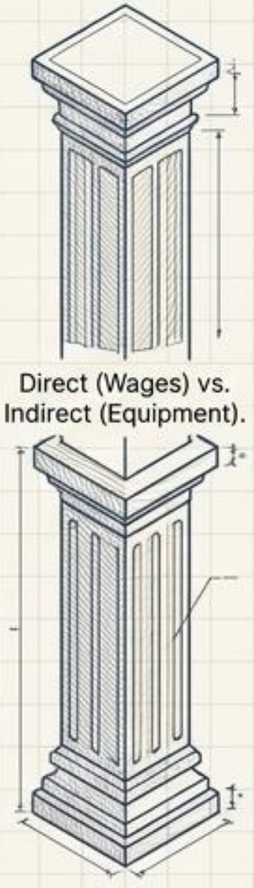
The Communication Hub

Sub-contracting



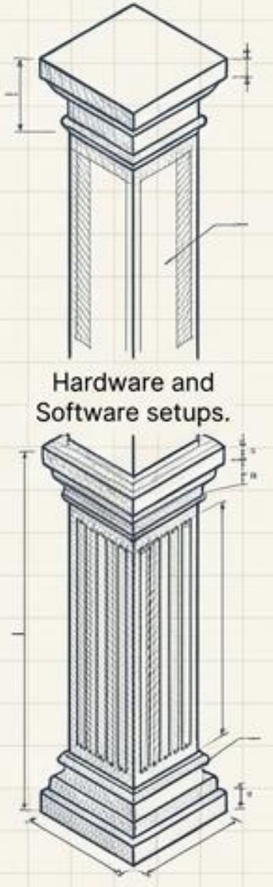
Controlling Time, Quality, and Cost.

Cost Structure



Direct (Wages) vs. Indirect (Equipment).

Environment



Hardware and Software setups.

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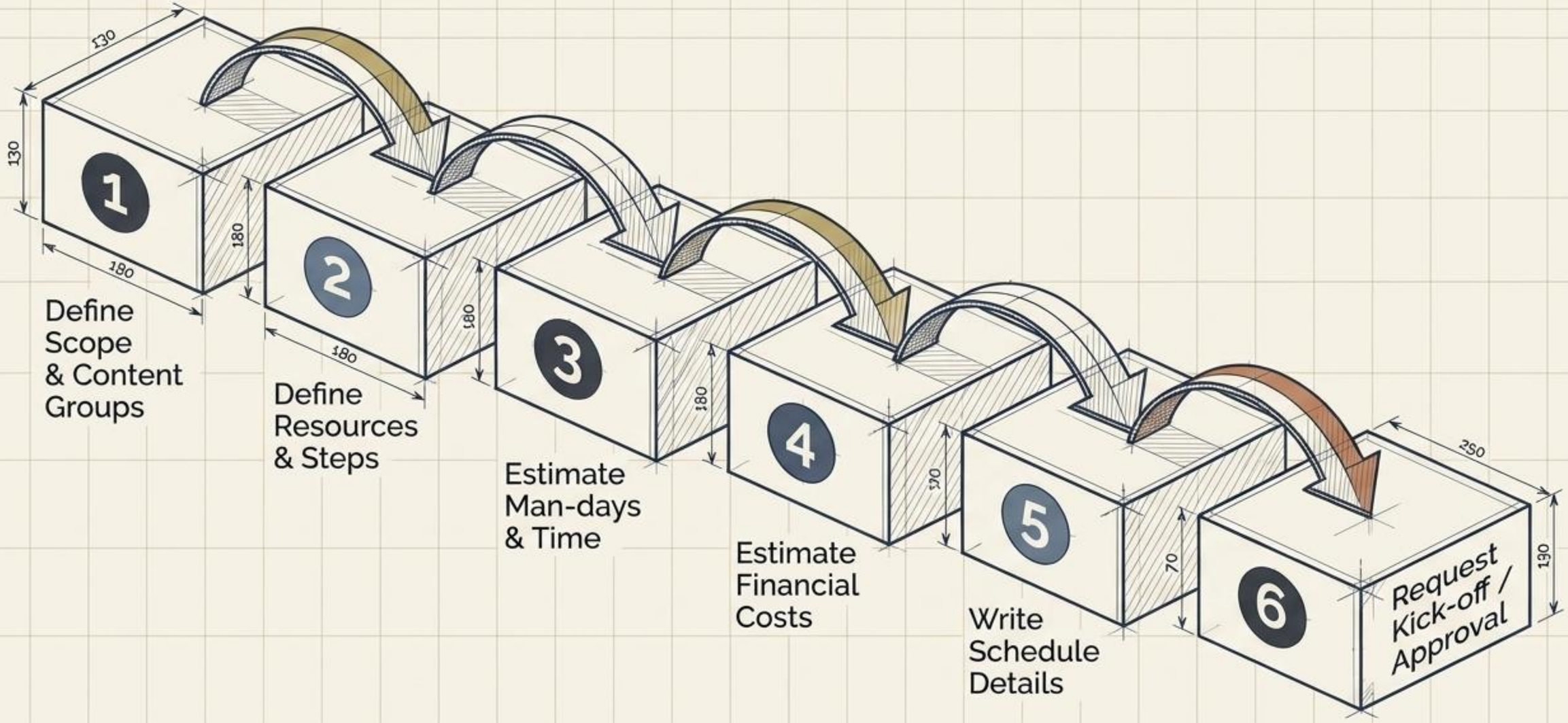
The 6 Standard Steps of Project Writing



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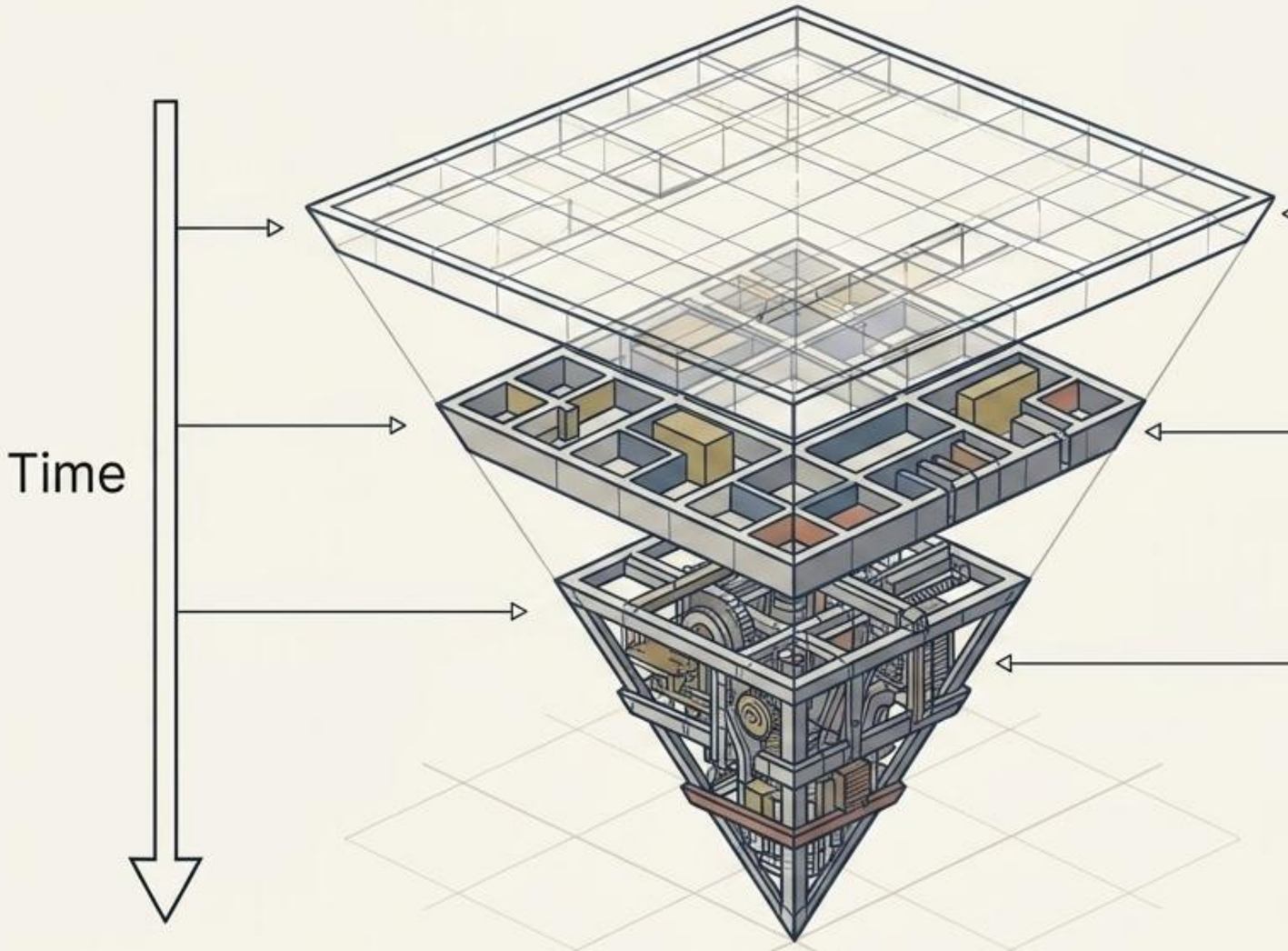
Progressive Elaboration: Plans Evolve with Clarity



Phase 1: Master Plan
A rough draft required for initial project approval.

Phase 2: Action Plan
A detailed team-level breakdown generated post-approval.

Phase 3: Refinement
Final micro-adjustments made once system architecture is entirely clear.

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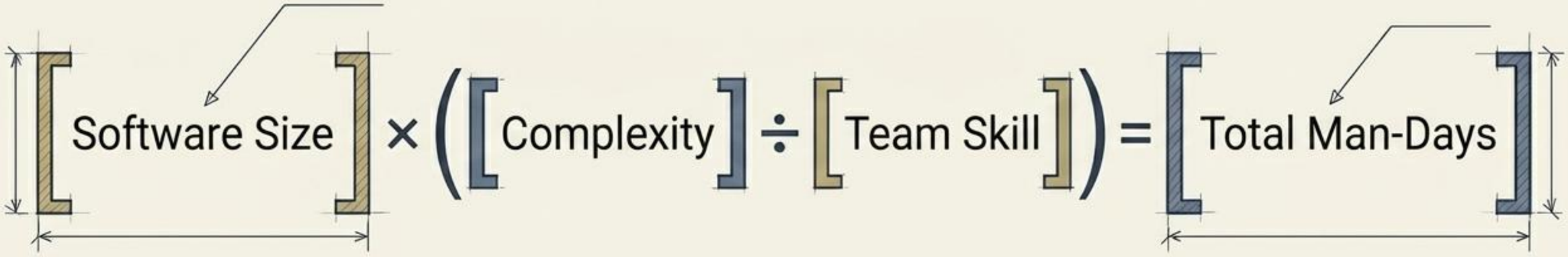
The Foundation of Cost Estimation: The Man-Days Concept



Man-days: Estimating the intersection of 'headcount' and 'time'. It relies equally on data (science) and experience (art).

1	Impact Variables
	Programming Languages & Tools Utilized

2	Impact Variables
	Complexity of the Underlying Business Process

3	Impact Variables
	Efficiency and Experience of the Development Team

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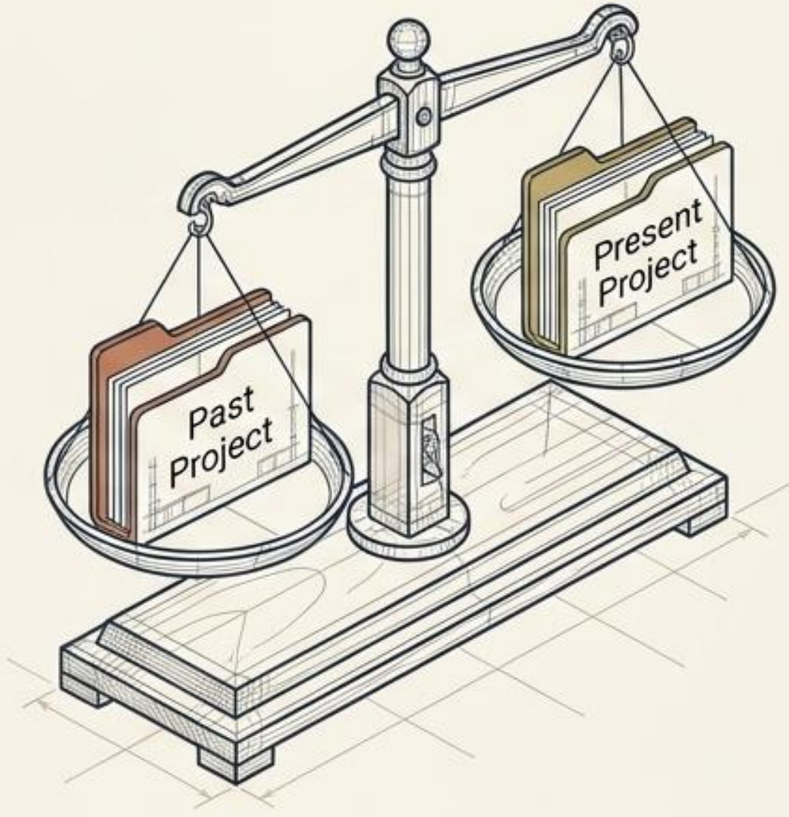
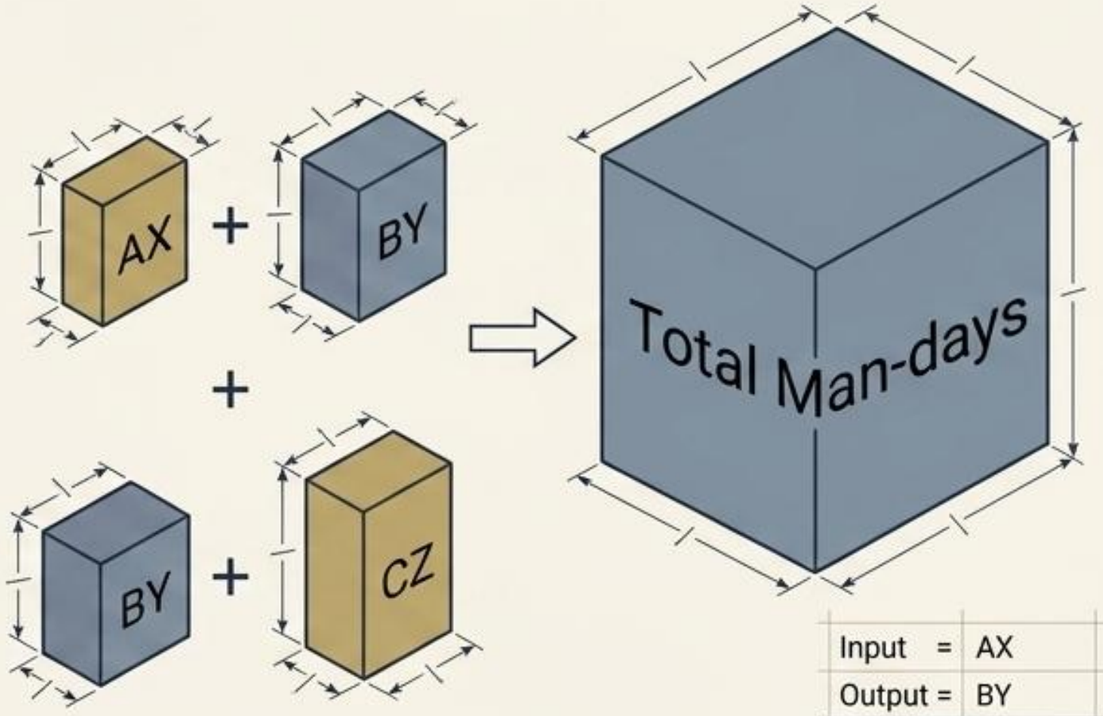
Baseline Estimation: Comparative vs. WBS Methodologies

Comparative Estimation



Strengths: Fastest speed, lowest cost.
Weaknesses: Low accuracy, strictly for early phases.

WBS Summation



Input	=	AX
Output	=	BY
Total	=	AX + BY

Break development down to the lowest node, estimate each, and sum. High accuracy, but requires high time/cost to produce.

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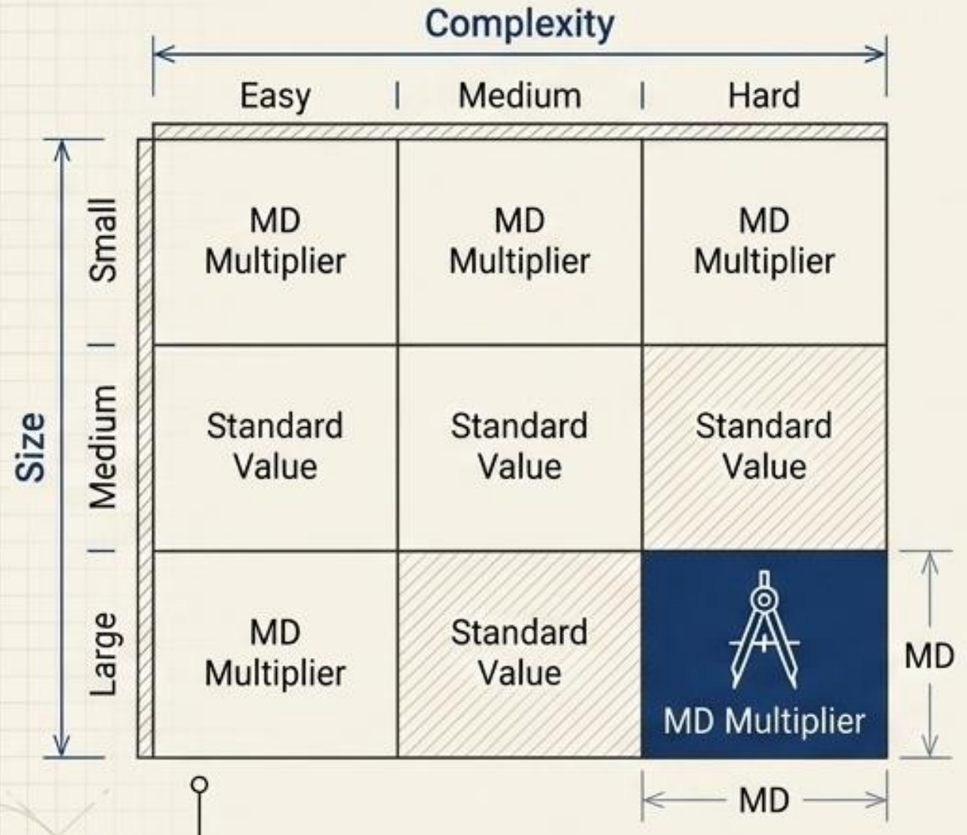
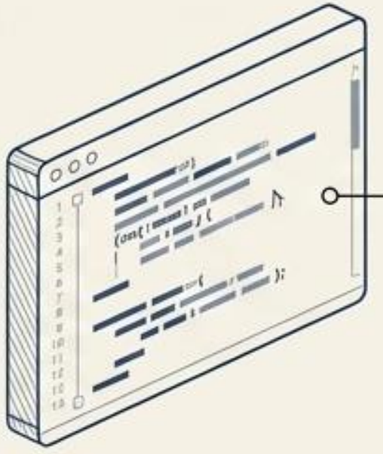
Advanced Estimation: Standard Tasks and Algorithmic Models

Standard Tasks

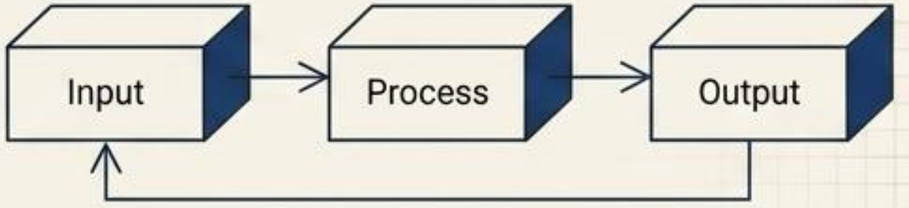


Organizations match sub-tasks to predefined matrices based on historical internal statistics.

Advanced Models



COCOMO evaluates Lines of Code (LOC); optimal for massive, traditional waterfall projects.



Function Point (FP) evaluates process complexity. Highly valuable because it does not rely on specific programming languages.

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Cost Estimation Synthesis Matrix

Technique	Details	Caution
Comparative	Lowest cost Optimal for early phases	⚠ Low overall accuracy
WBS	High accuracy Highly detailed breakdown	⚠ Requires significant time and money to estimate
Standard Tasks	Standardized system Easy calculation	⚠ Organization statistics must be continually updated
COCOMO	Highly scientific For massive codebases	⚠ Difficult to apply if not using Waterfall methodologies
Function Point	Tech-agnostic User-function focused	⚠ Points must still be mathematically converted into actionable Man-days

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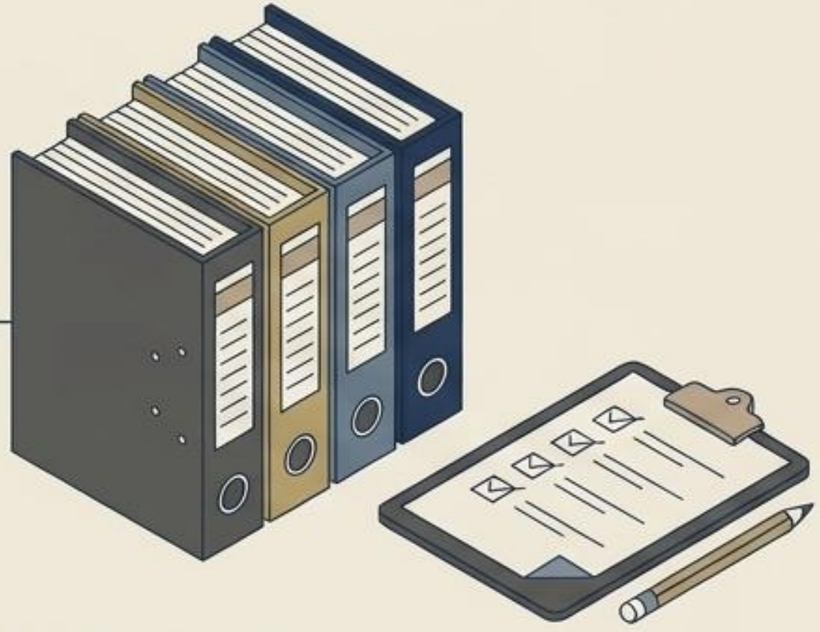
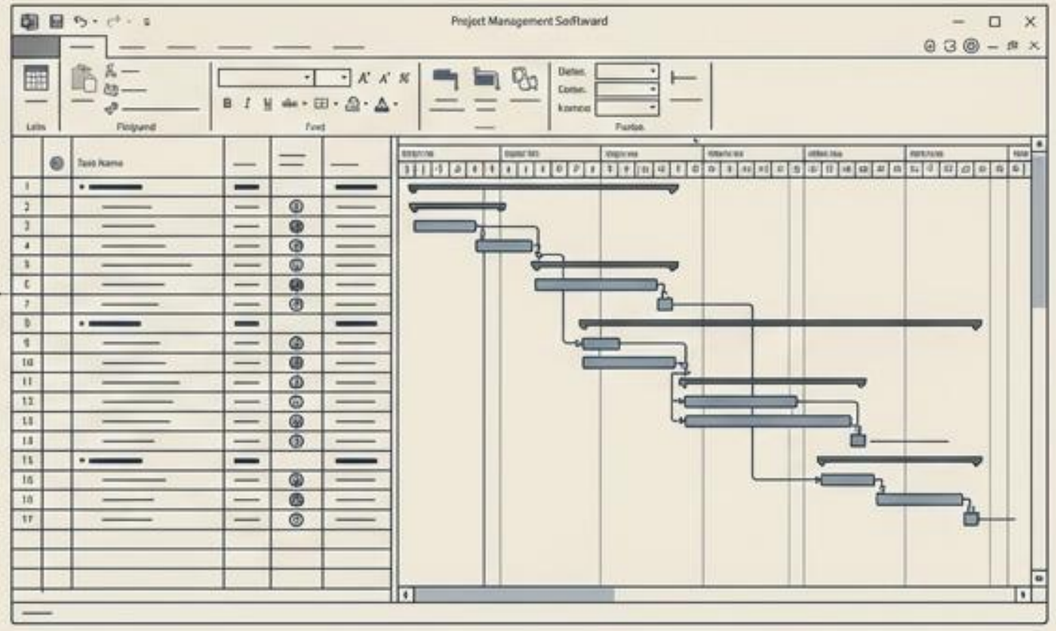
Execution and Handover: Making the Blueprint a Reality



Key Documents:

- Project Management Plan
- Deliverables Plan
- WBS and Scope Documentation
- Procurement and Cost Plans



Management Software:
Utilizing tools like MS Project to automatically link Gantt and PERT charts, providing a unified, real-time view of progress for all stakeholders.

"A vision without a plan is just a dream—IT Project Management is about making blueprints a reality."

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