



2019 Legal Affairs Spring Conference

Construction Contracting Structures /Integrated Project Delivery

Integrated Project Delivery

The Progressive Design Build Model

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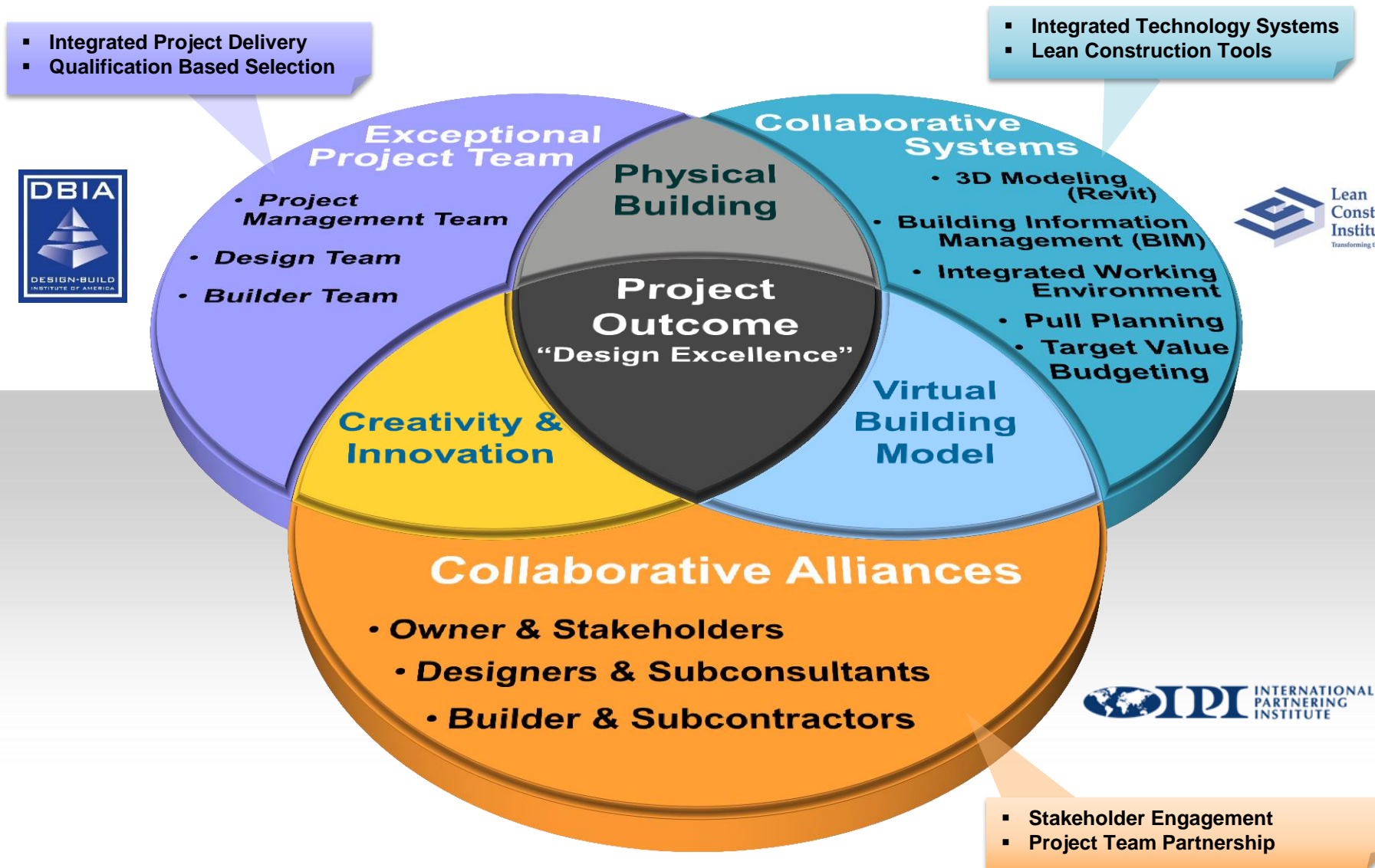
Chief Development Officer

San Francisco International Airport



Integrated Project Delivery

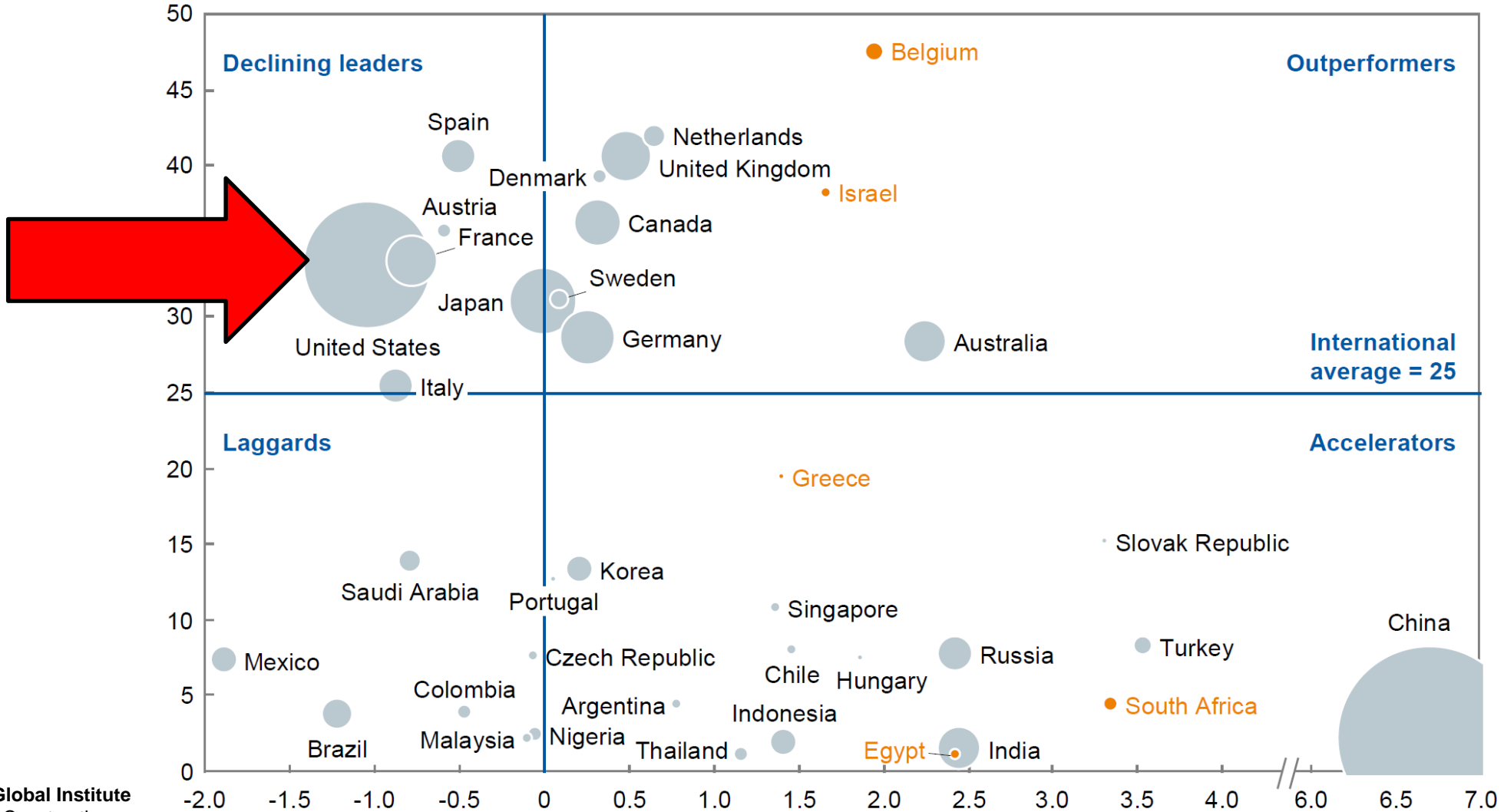
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Why Integrated Project Delivery

Construction labor productivity, 2015¹

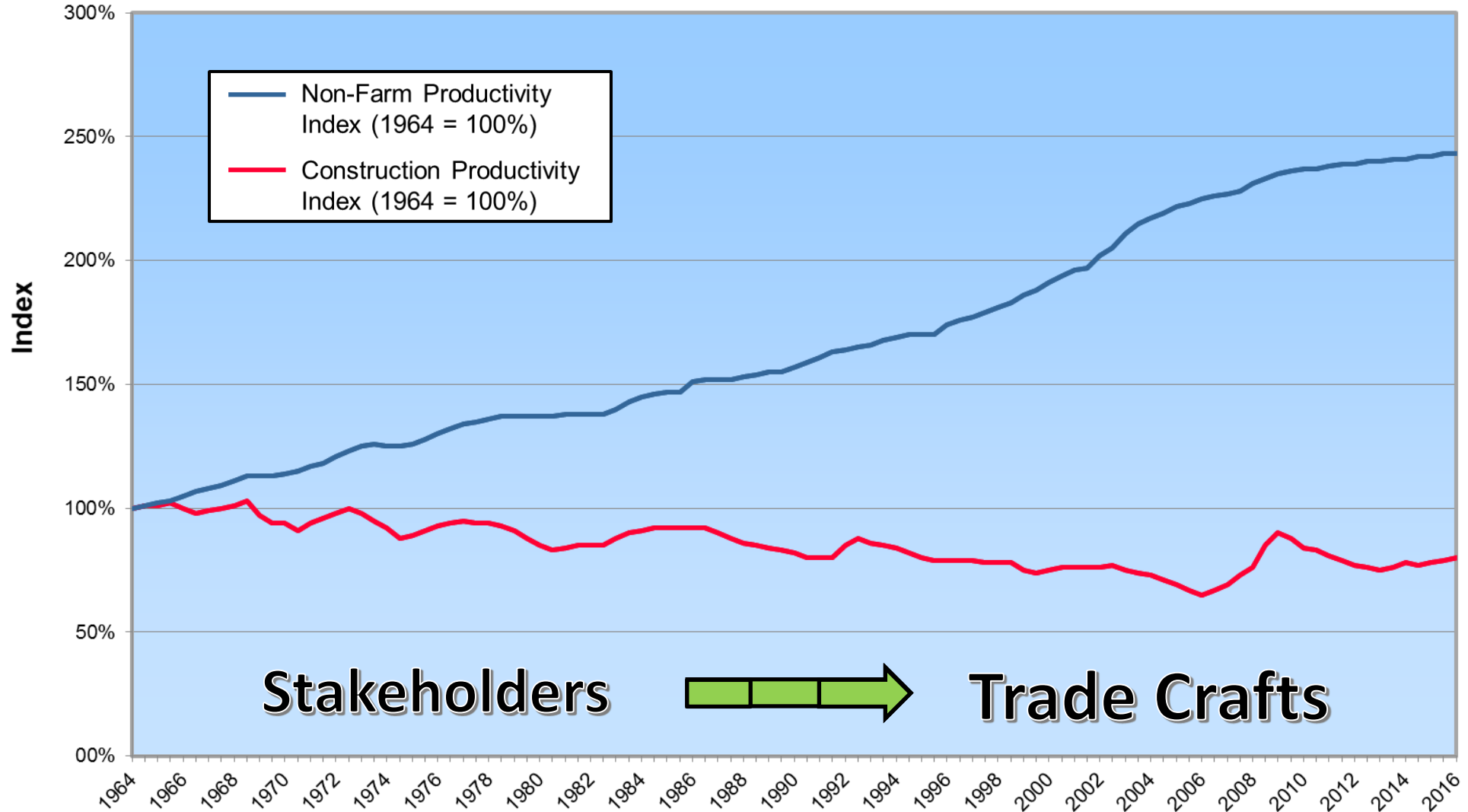
2005 \$ per hour worked by persons employed, not adjusted for purchasing power parity²



Why Integrated Project Delivery

Construction & Non Farm Labor Productivity Index (1964-2016)

Constant Dollars of Contracts / Workhours of Hourly Workers
Sources: US Department of Commerce, Bureau of Labor Statistics



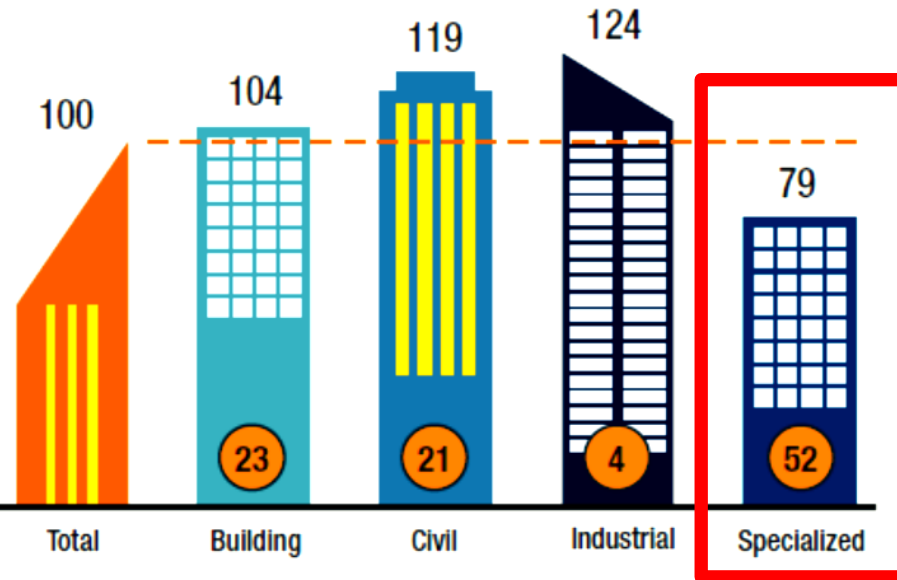
Why Integrated Project Delivery

Construction is a sector of two halves

Fragmented specialized trades drag down the productivity of the sector as a whole

Construction productivity by subsector
Value added per employee, indexed total sector=100, 2013

● % of construction value added



Key Trades



**Action in seven areas
can boost sector
productivity by
50–60%**

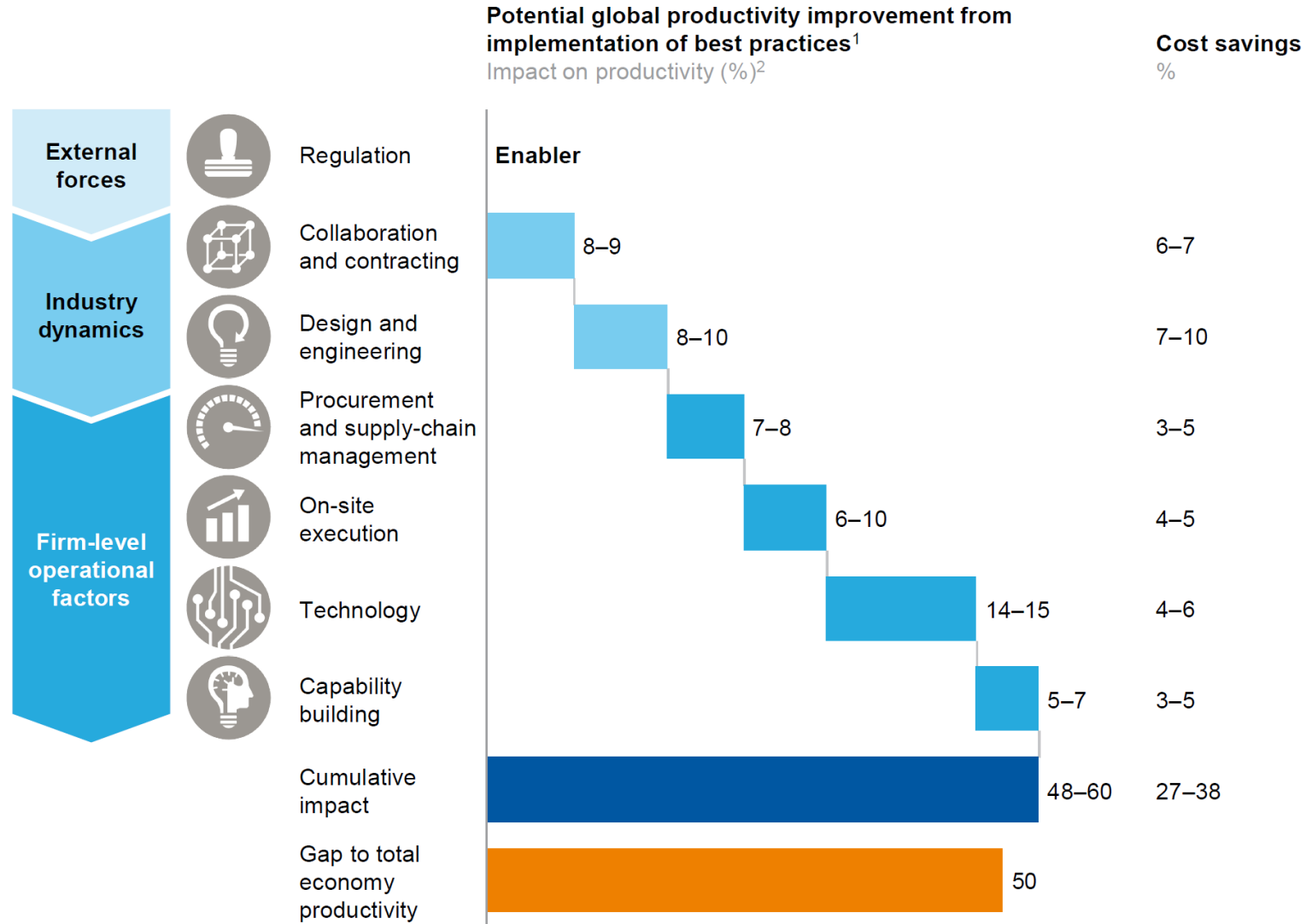
- Reshape regulation
- Rewire contracts
- Rethink design
- Improve procurement and supply chain
- Improve onsite execution
- Infuse technology and innovation
- Reskill workers

Progressive Design Build

LEAN Construction

Why Integrated Project Delivery

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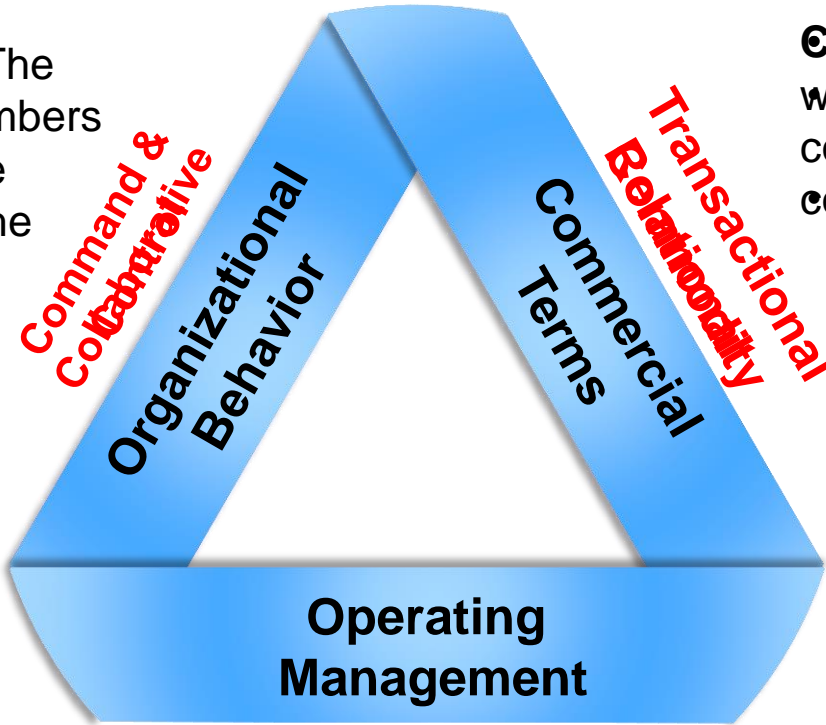
¹ The impact numbers have been scaled down from a best case project number to reflect current levels of adoption and applicability across projects, based on respondents to the MGI Construction Productivity Survey who responded “agree” or “strongly agree” to the questions around implementation of the solutions.
² Range reflects expected difference in impact between emerging and developed markets.

Integrated Contract Framework

Rewire the contractual framework. There is a need to move away from the hostile contracting environment that characterizes many construction projects to a system focused on collaboration and problem solving. To achieve this, tendering processes can be based on best value and past performance rather than cost alone, and public processes streamlined. Establishing a “single source of truth” on projects for monitoring progress early, potentially supported by collaborative technology, helps to minimize misalignments and enable joint corrective action. The data already exist to fundamentally improve the accuracy of cost and schedule estimates. **Where players continue to use traditional contracts, they should introduce incentives that significantly improve performance and alignment not at a trade or package level, but at the project outcome level.** To move toward best practices, appropriate alternative contracting models such as integrated project delivery (IPD) help build long-term collaborative relationships. **Relational contracts will need to become more prevalent than transactional contracts.** Sufficient investments in up-front planning incorporating all parties’ input have been shown to raise productivity substantially.

Domains of Project Delivery

Organizational Behavior is the study of how individuals, groups, and organizations behave in organizations. It is concerned with the factors that influence behavior in organizations, such as the organization's structure, culture, and environment. It is a multidisciplinary field that draws on psychology, sociology, and anthropology.



Commercial Terms are the terms and conditions that govern the relationship between a project manager and a client. They are typically defined in a contract and cover a wide range of issues, including the project's scope, schedule, budget, and risk management. Commercial terms are essential for ensuring that both parties have a clear understanding of the project's goals and expectations.

Managed Requirements

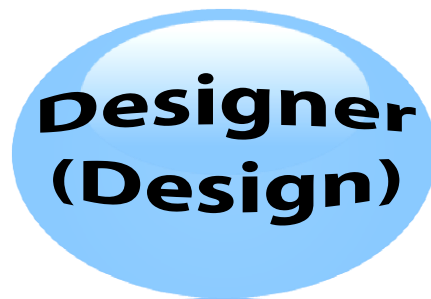
Operating Management is the process of managing the day-to-day operations of a project. It involves planning, organizing, and controlling the project's resources, including personnel, equipment, and materials. Operating management is essential for ensuring that the project is completed on time, within budget, and to the satisfaction of the client.

Risk that need to be Aligned

Risk Will Always Stay With the Organization that can best manage it

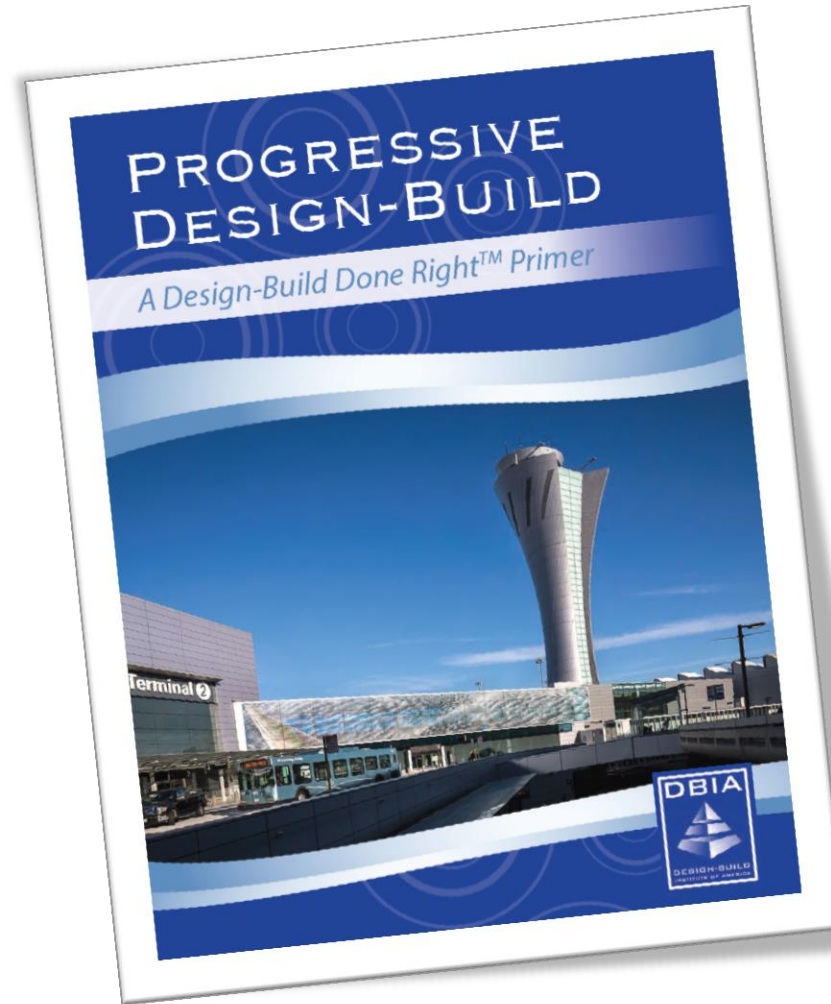
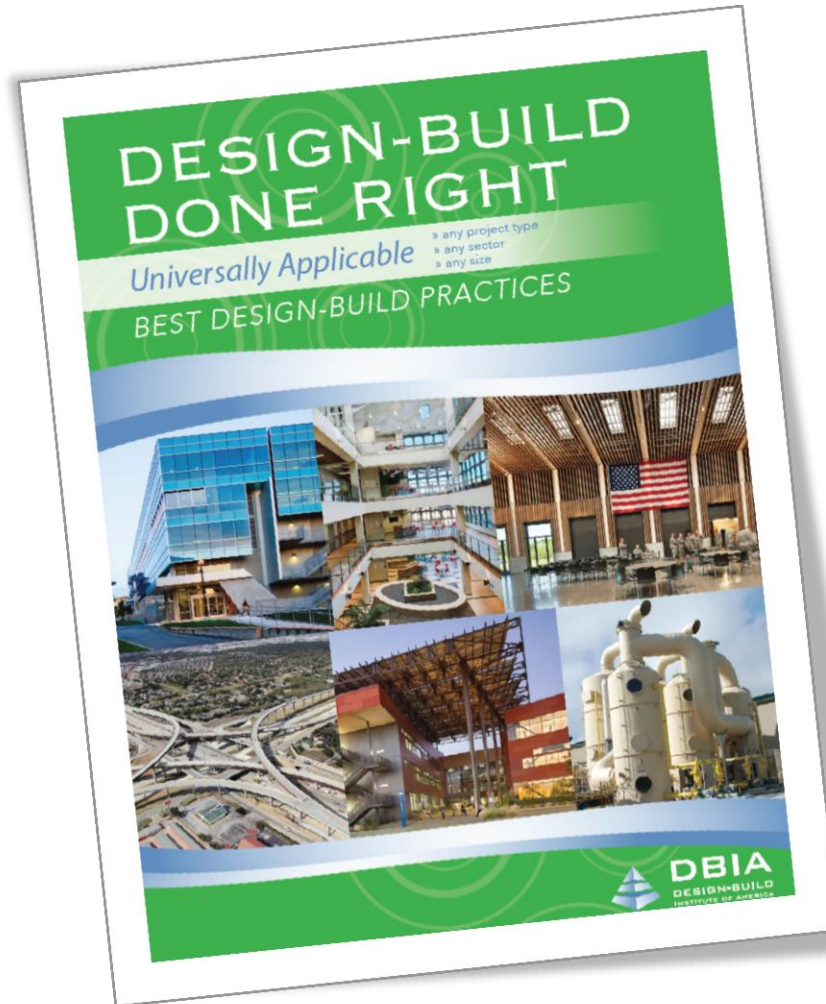
Vision Risk	Design Risk	Construction Risk
<ul style="list-style-type: none">• Budget expectations• Funding expectations• Schedule expectations• Scope expectations• Project outcome expectations• Sharing vision with team	<ul style="list-style-type: none">• Interpret vision• Develop Project Program• Develop project specifications	<ul style="list-style-type: none">• Build project in accordance with• Build project within approved budget• Build project within approved schedule

**Focus On Aligning Expectations
Then assigning to the best organization
to manage the risk**



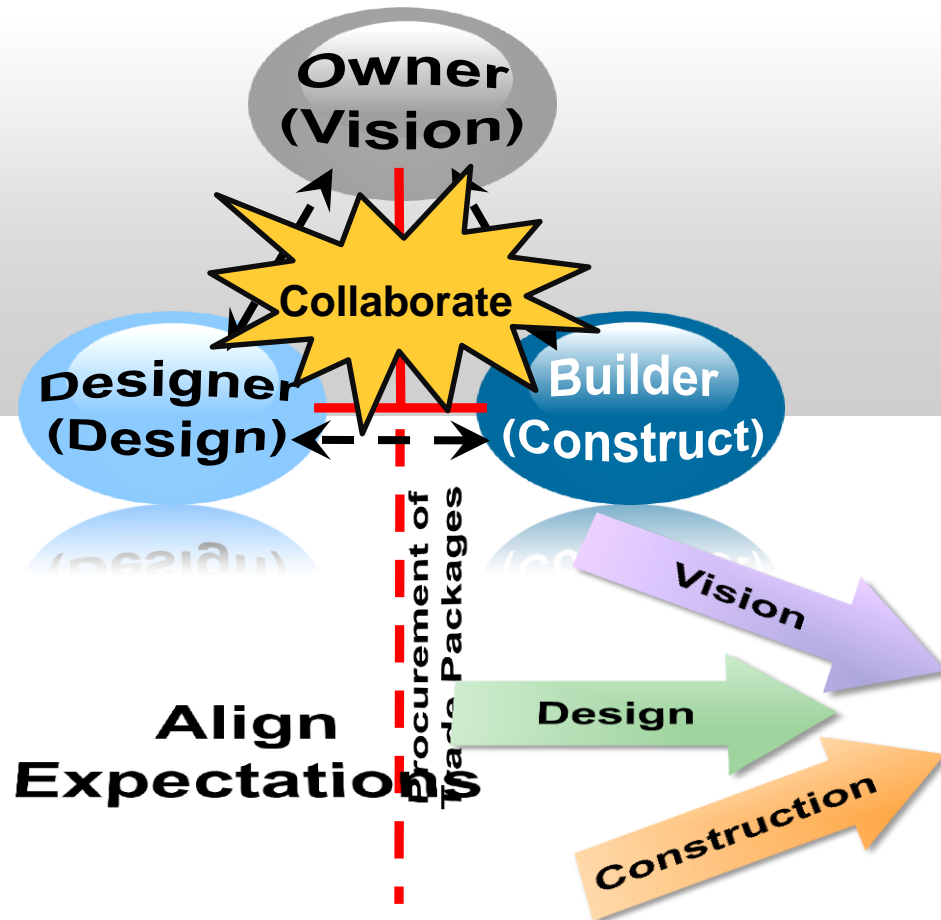
Design Build Done Right

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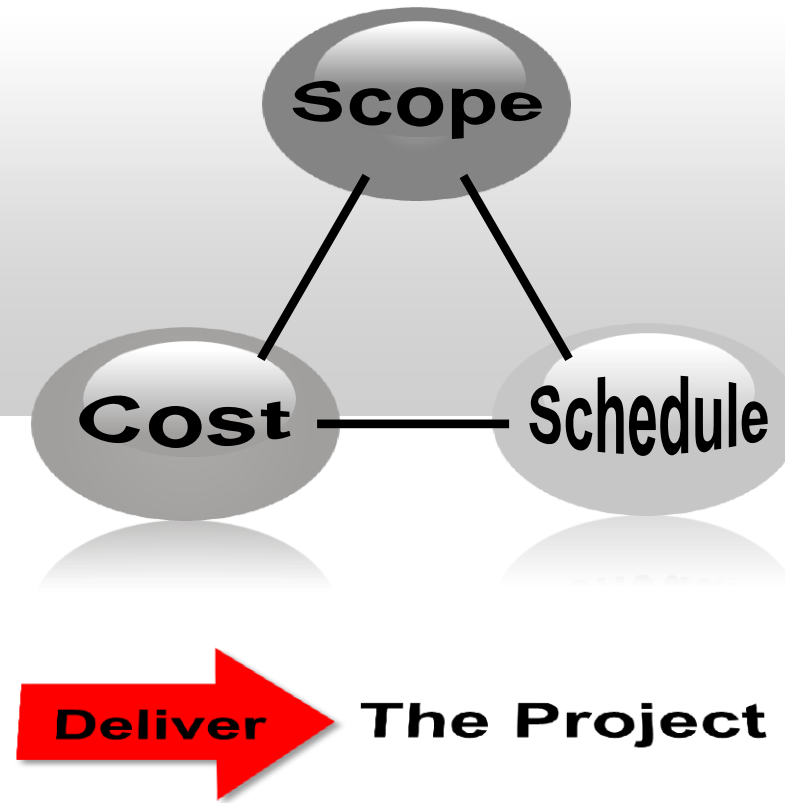


↔ Lines of Communication
— Contractual Relationship

The Project Team

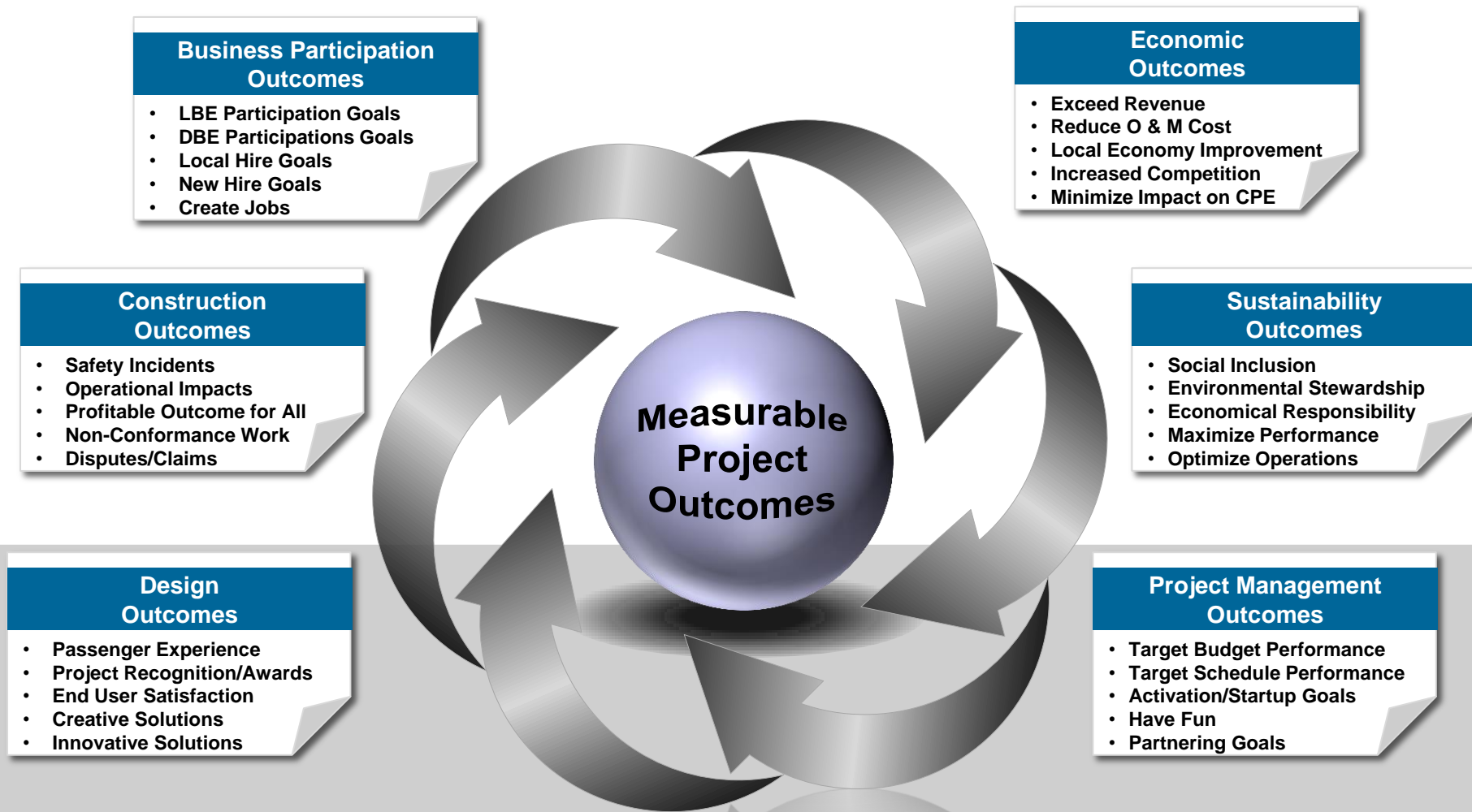


The Project



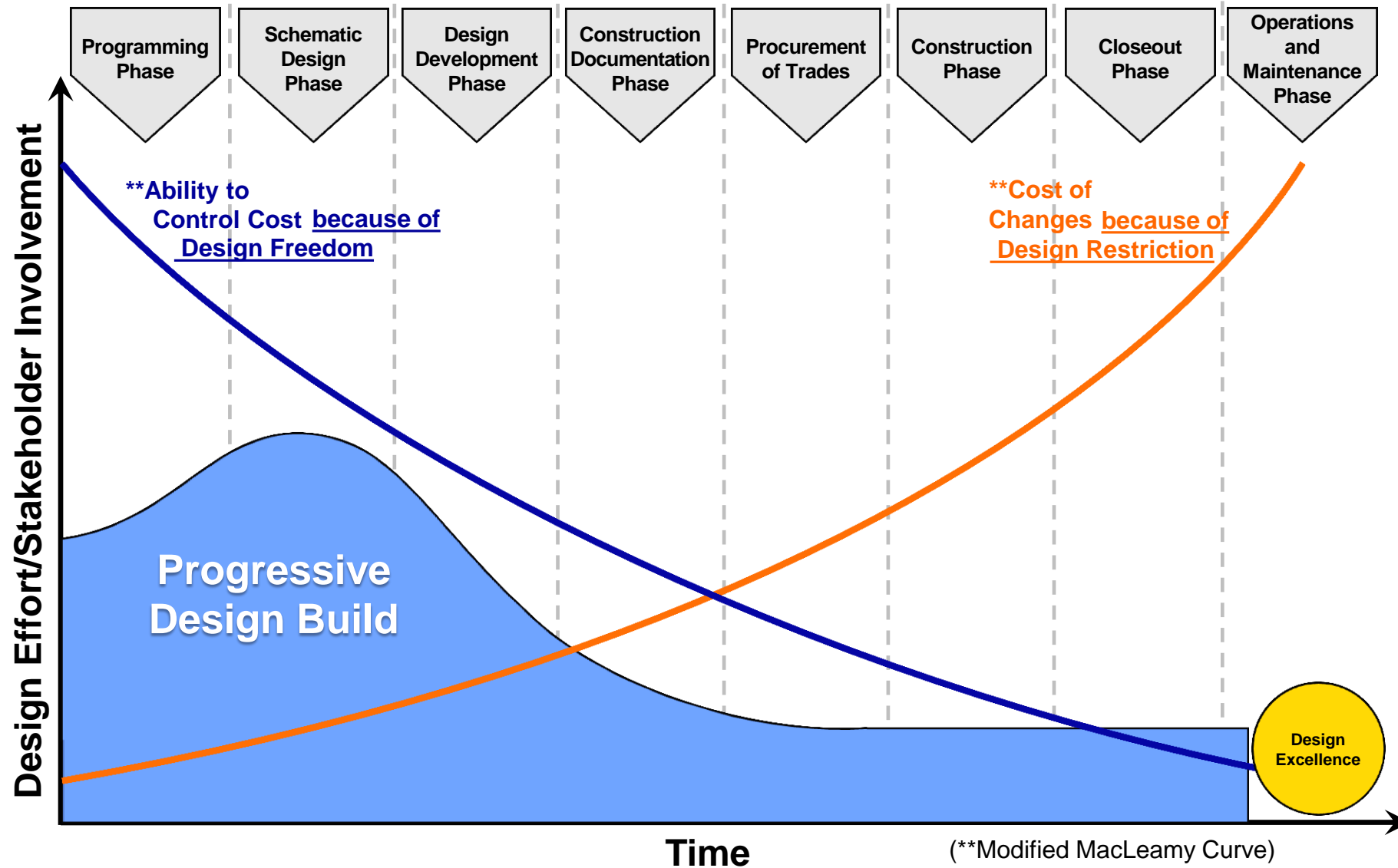
Project Outcomes

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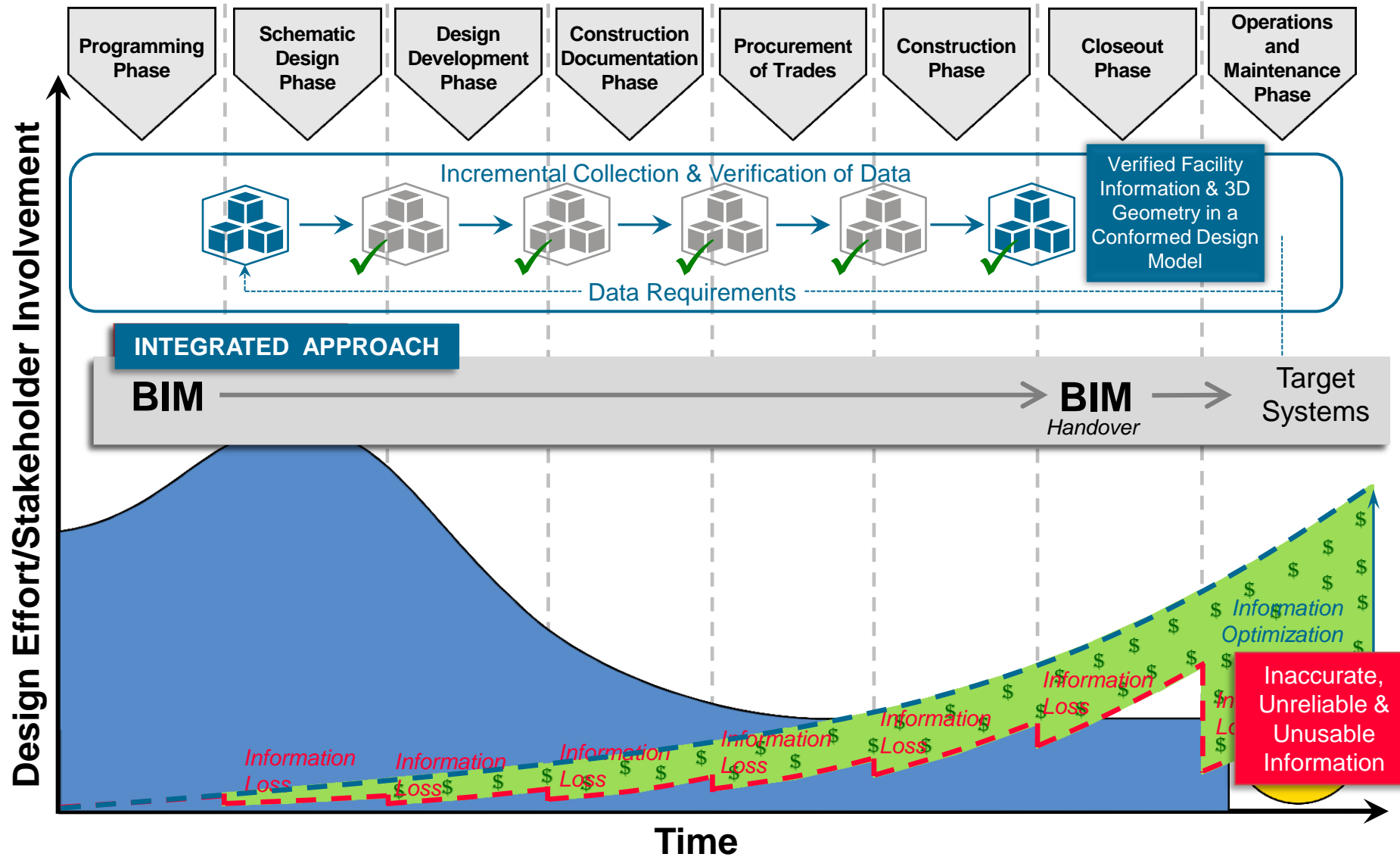
Progressive Design Build

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Progressive Design Build

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Selection of Design Builder

- Shortlist Based on Written Technical & Qualifications Submission Only
- Oral Interview occur after Short List
- Qualifications evaluation scored based on:
 - Written Technical & Qualifications
 - ✓ Team Qualifications
 - ✓ Key Personnel Experience
 - ✓ Previous Similar Project Experience
 - ✓ Design Management Approach (Engagement of Stakeholders, Design Excellence)
 - ✓ Project Management Approach (Collaboration, Last Planner, Target Budget Design)
 - Oral Interviews (Scenario based interview)
- Cost evaluation scored based on:
 - Programming Services (Lump Sum)
 - Design Builder Management Cost (Lump Sum)
 - Bond Fee (Lump Sum)
 - Overhead and Profit Fee (Percentage of Trade Packages Bid)

EXAMPLE COST CALCULATION

Assume 200 Points Awarded for Cost

Provided in Proposal by Design Builder at part of the Original Award	D/B Team 1	D/B Team 2
Programming Service (Lump Sum)	\$1,000,000	\$1,500,000
Design Builder Management Services (Lump Sum)	\$12,000,000	\$15,000,000
Bond Fee (Lump Sum)	\$5,800,000	\$5,325,000
Overhead & Profit Fee (Percentage of Trade Packages)	5%	7%

Estimated by Owner for Calculation & Evaluation Purposes. These cost are progressed when there is alignment.

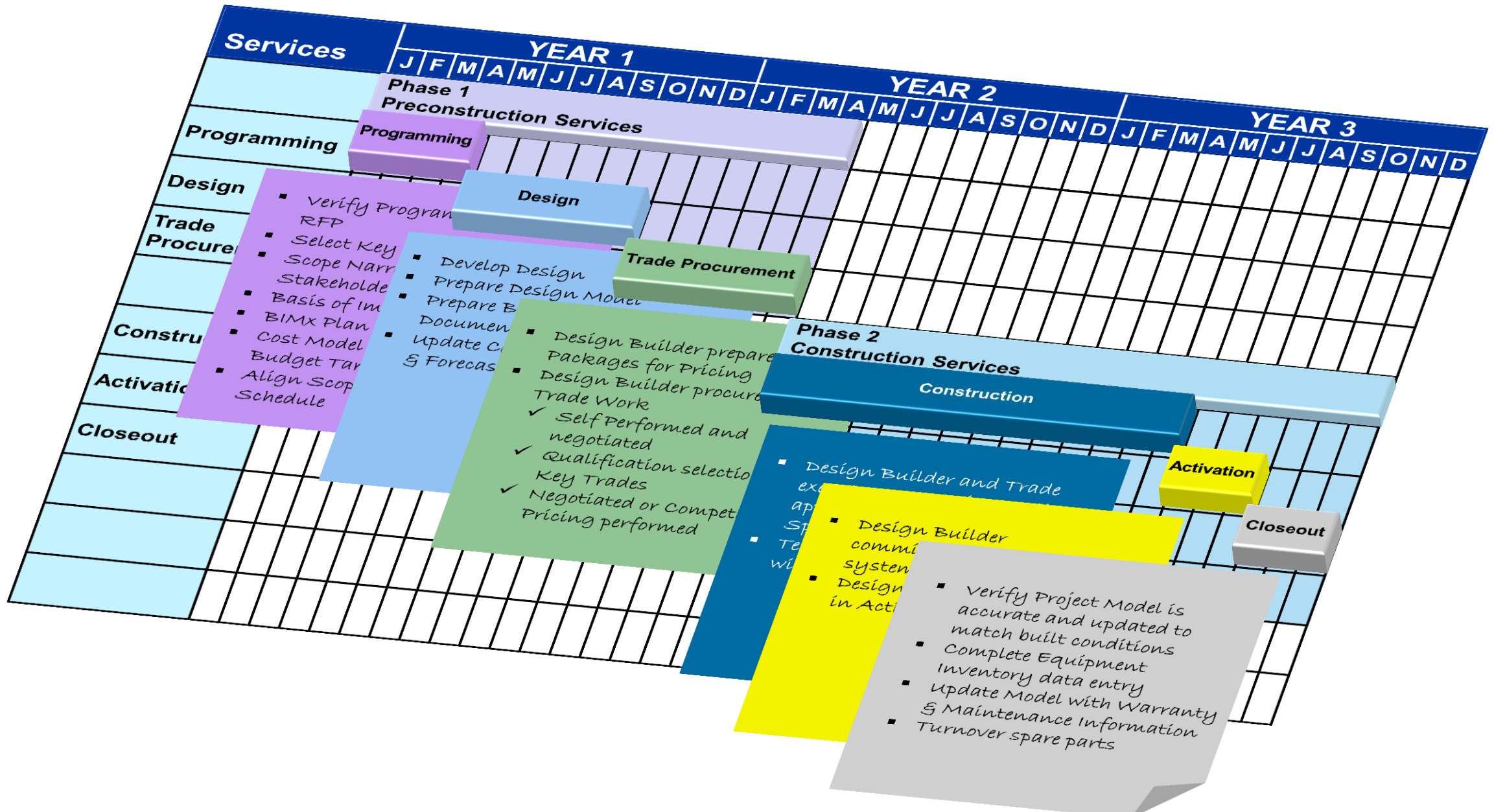
Estimated Trade Package Value (Lump Sum)	\$300,000,000	\$300,000,000
Budget for Design Services (Lump Sum)	\$10,000,000	\$10,000,000

Calculated Overhead & Profit based on fee included at award but progressed with the trade buyout process.

Overhead & Profit Calculated (Lump Sum)	\$15,000,000	\$21,000,000
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Total Evaluation Cost (Lump Sum)	\$343,800,000	\$352,825,000
Percent Difference		2.63% Higher
Percent of Points to be Awarded	100%	97.37%
Point Awarded base on Evaluation	200	194.75

Phases of a PDB Contract

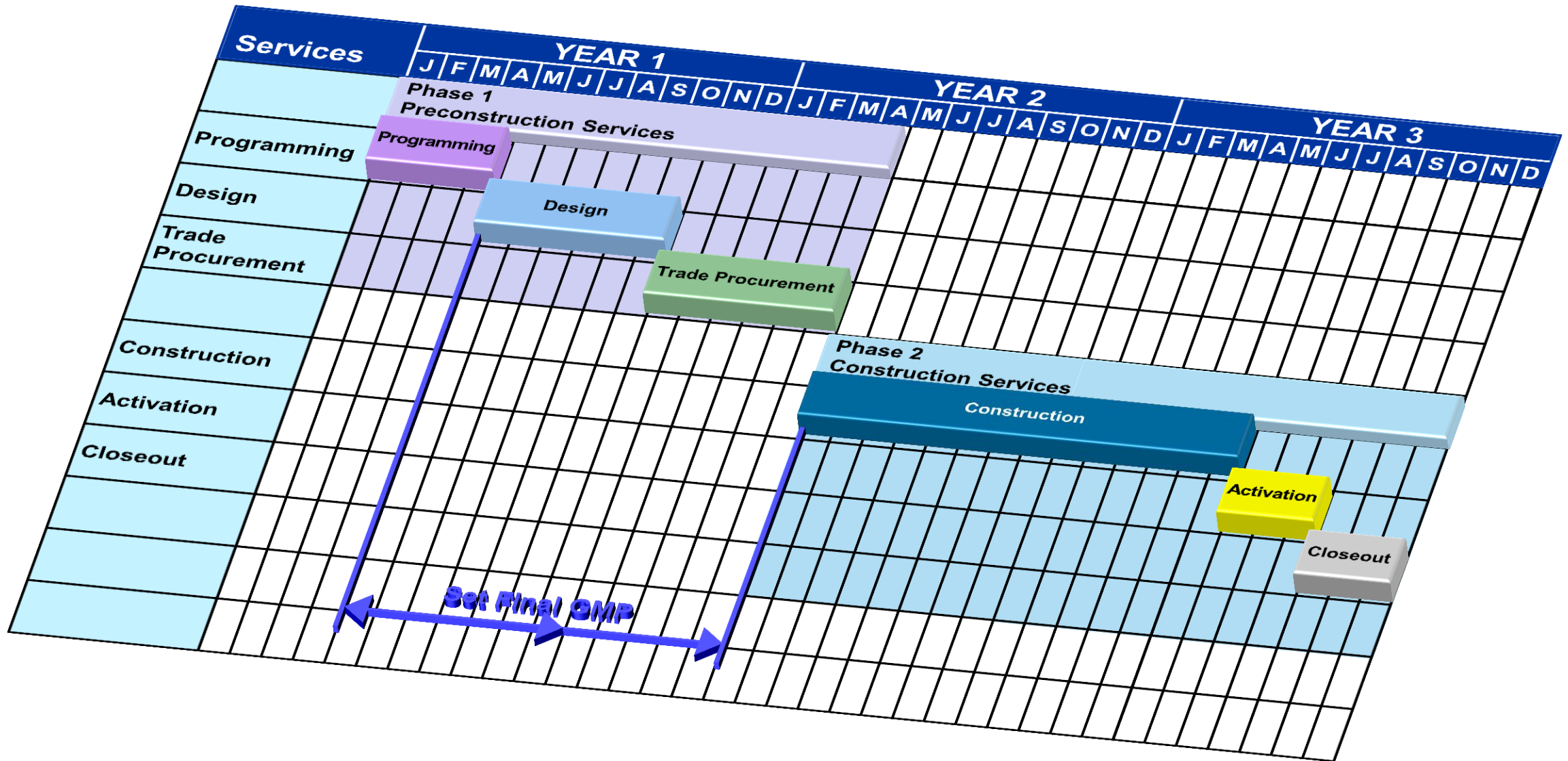


- Verify Program RFP
- Select Key Stakeholders
- Scope Narr
- Basis of Im
- BIMX Plan
- Cost Model
- Budget Tar
- Align Scop Schedule

- Develop Design
- Prepare Design Model
- Prepare B
- Documen
- Update C
- \$ Forecas
- Design Builder prepare Packages for Pricing
- Design Builder procure Trade Work
- Self performed and negotiated
- Qualification selectio
- Key Trades
- Negotiated or Compet Pricing performed

- Design Builder and Trade
- Design Builder commi
- system
- Design in Act
- Verify Project Model is accurate and updated to match built conditions
- Complete Equipment Inventory data entry
- Update Model with Warranty & Maintenance Information
- Turnover spare parts

Phases of a PDB Contract



Guaranteed Maximum Price

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Components of the GMP

AWARD OF CONTRACT

Programming Fee

Builder Management Fee

Bond Cost

Progressive Award of Design Services

Design Service Fee

Progressive Award of Construction Services

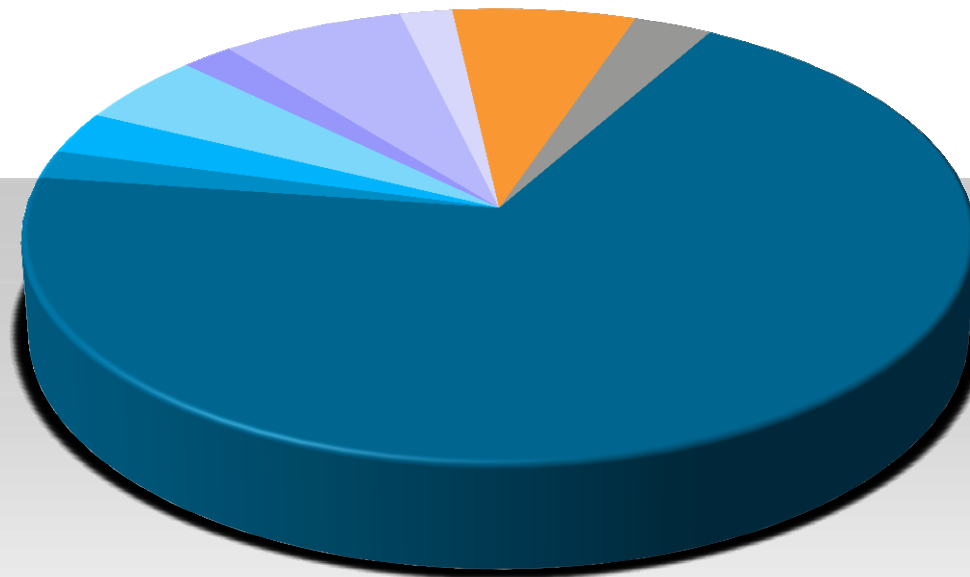
Pre GMP Modifications

Trade Package Base

Trade Package Allowances

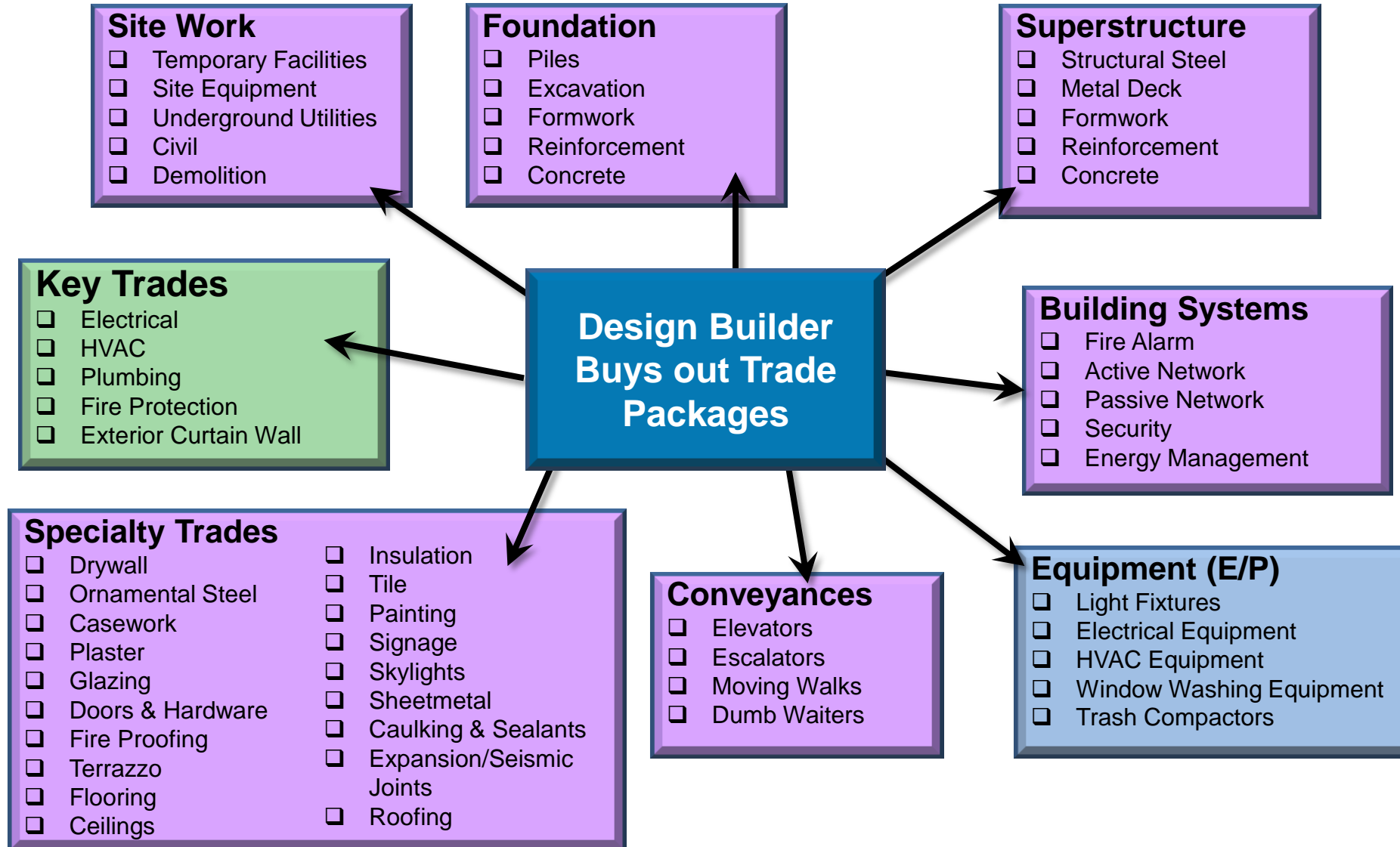
Trade Package Reserves

Trade Package O/H & Profit



The GMP is an open book process and transparent to the Owner

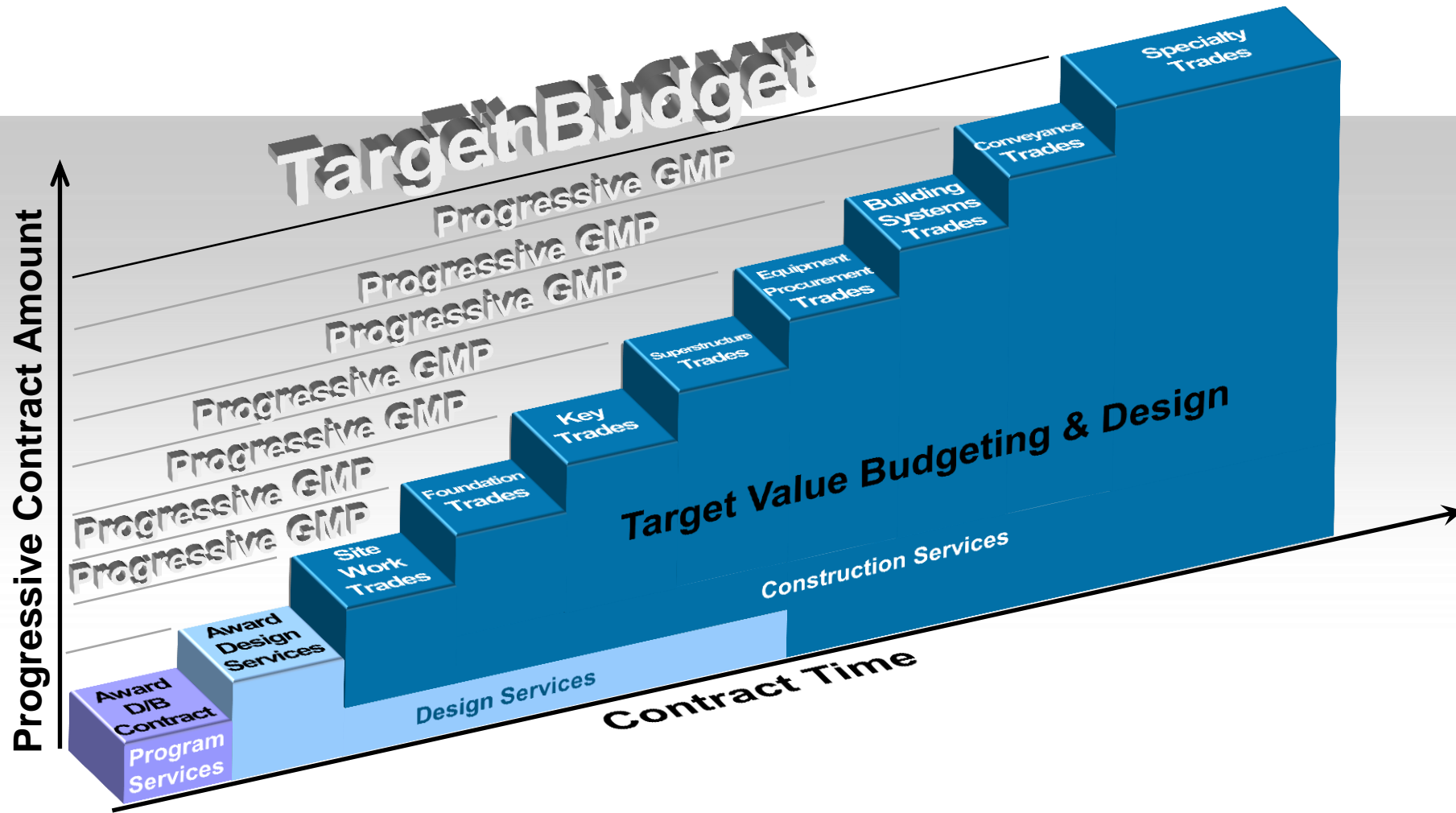
Trade Package Sets



Design Builder Buys out Trade Packages

Self Performed Work	Subcontracted Work	
Design Build	Build Only	Design Build
<input type="checkbox"/> Negotiated Price <input type="checkbox"/> Based on Design Documents	<input type="checkbox"/> Negotiated Price <input type="checkbox"/> Based on Design Documents	<input type="checkbox"/> Negotiated Price <input type="checkbox"/> Selection based on Qualifications
	<input type="checkbox"/> Competitive Bid <input type="checkbox"/> Based on Design Documents	<input type="checkbox"/> Competitive Bid <input type="checkbox"/> Based on Performance Criteria

Putting it all Together



Thank You

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