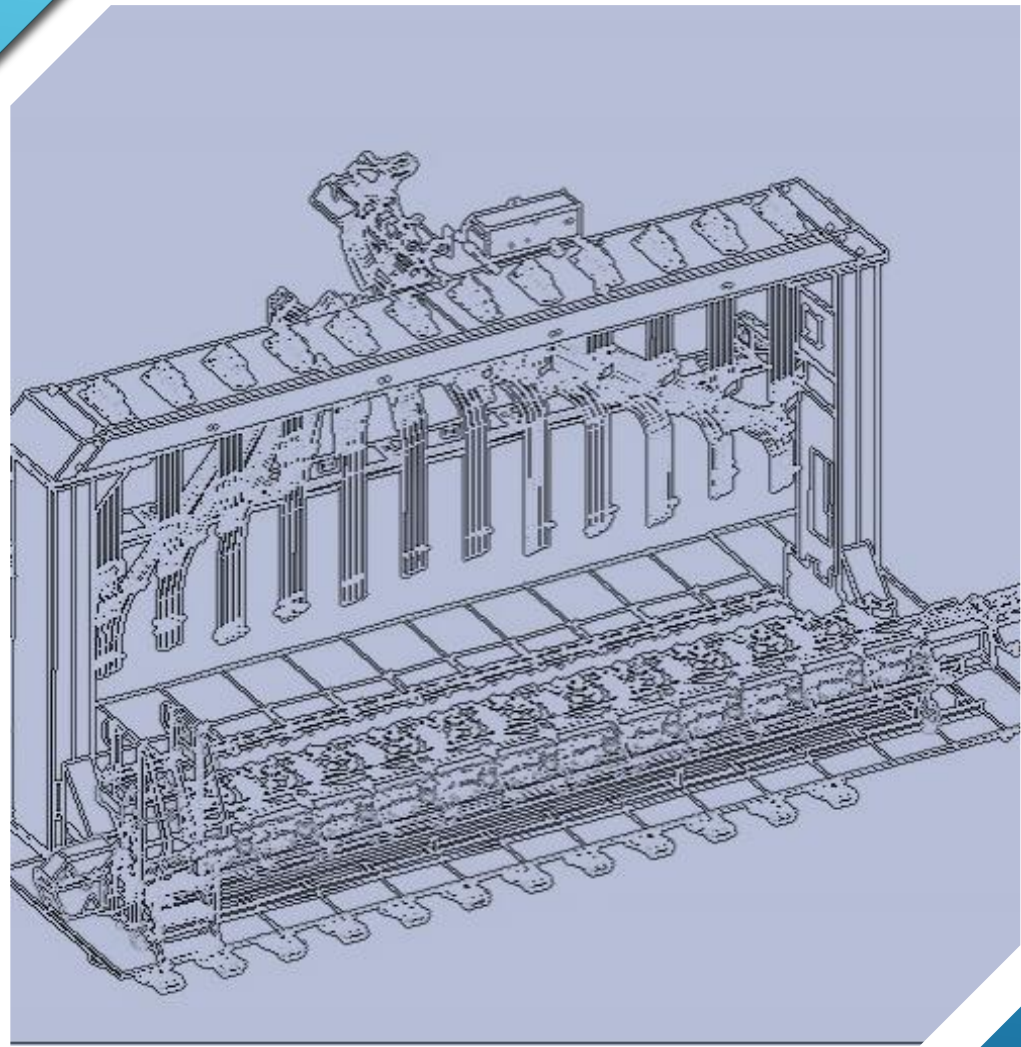


# STAGE GATE PROJECT AND RISK MANAGEMENT

The Glass Container Advisory LLC



- ▶ Provide assessment of project performance at predefined stages (phases)
- ▶ Requires formal approval before committing resources to the next stage
- ▶ Allows an opportunity for business leadership to intervene if conditions change
- ▶ Focuses limited resources on the most valuable projects
- ▶ Facilitates communication and change management
- ▶ Not a substitute for competent project execution

## WHY USE PROJECT STAGE GATES

- ▶ Depends on project size, complexity and business impact
- ▶ Evaluators must have the technical and business knowledge to evaluate stage readiness and project relevance
- ▶ At a minimum it requires the project sponsor with senior technical and financial support
- ▶ Readiness includes completion of this project stage and the capability to complete the subsequent stages at acceptable cost and schedule
- ▶ Relevance includes the project's value in light of current business needs

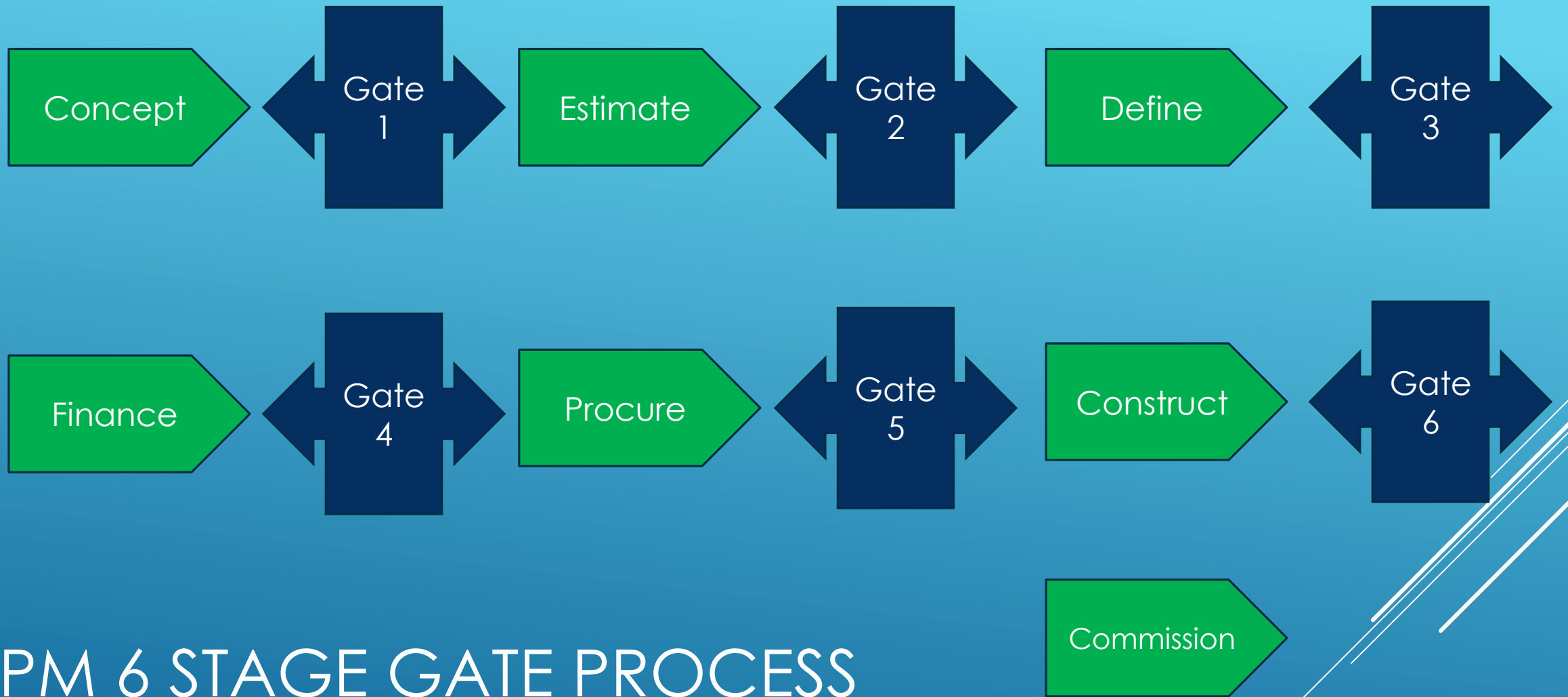
## WHO EVALUATES STAGE READINESS

- ▶ Go forward
- ▶ Go forward with additional constraints (conditional Go)
- ▶ Rework the project to meet revised objectives
- ▶ Hold pending further review
- ▶ Kill the project

## OUTCOMES

- ▶ Commercial risk is high
  - ▶ Significant investment
  - ▶ High customer expectations
  - ▶ Tight regulatory requirements
  - ▶ Business climate is uncertain
  - ▶ Technology is new or unproven
  - ▶ Implementation is lengthy or complex
  - ▶ Scope continues to evolve

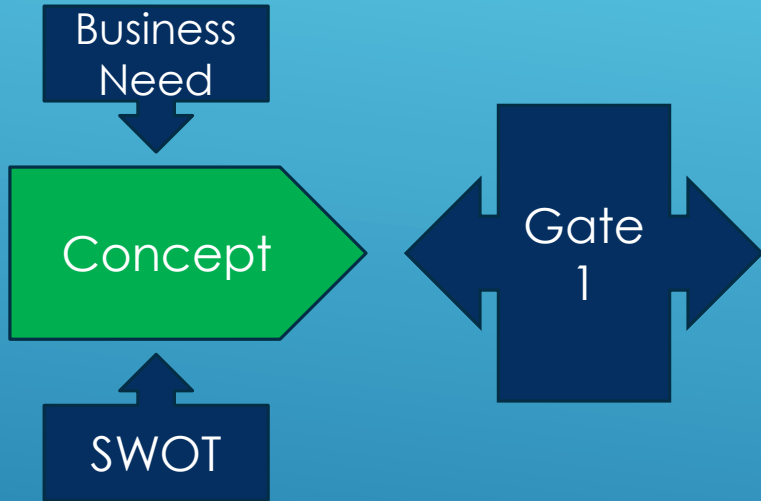
SIX GATES ARE RECOMMENDED WHEN



# PM 6 STAGE GATE PROCESS



5%

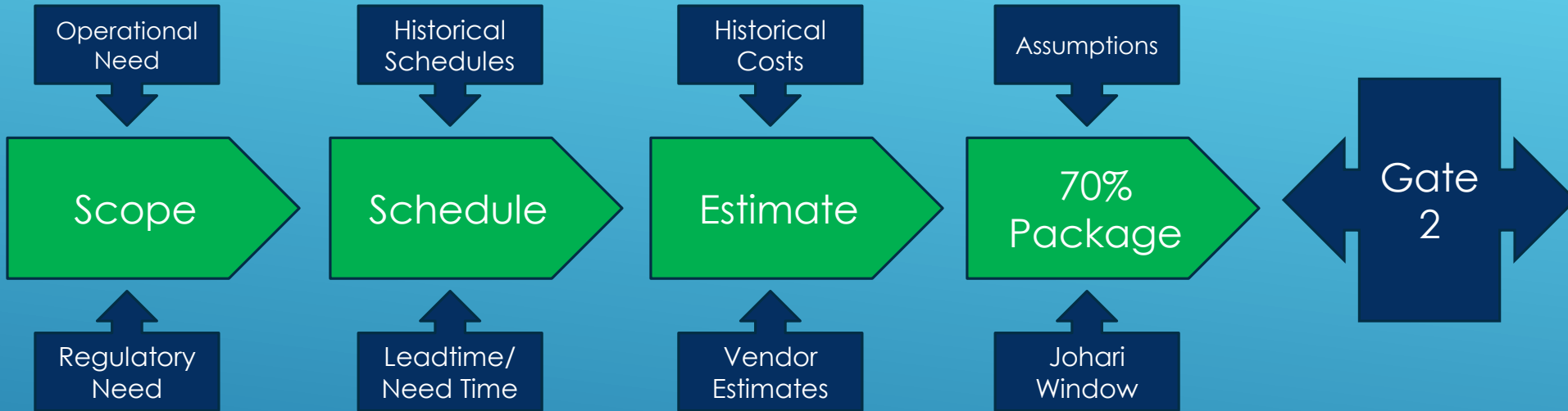


Evaluate project deliverables against business needs and resources. Do the deliverables enhance Strengths, overcome Weaknesses, provide Opportunities or mitigate Threats?

# PM STAGE GATE 1



15%



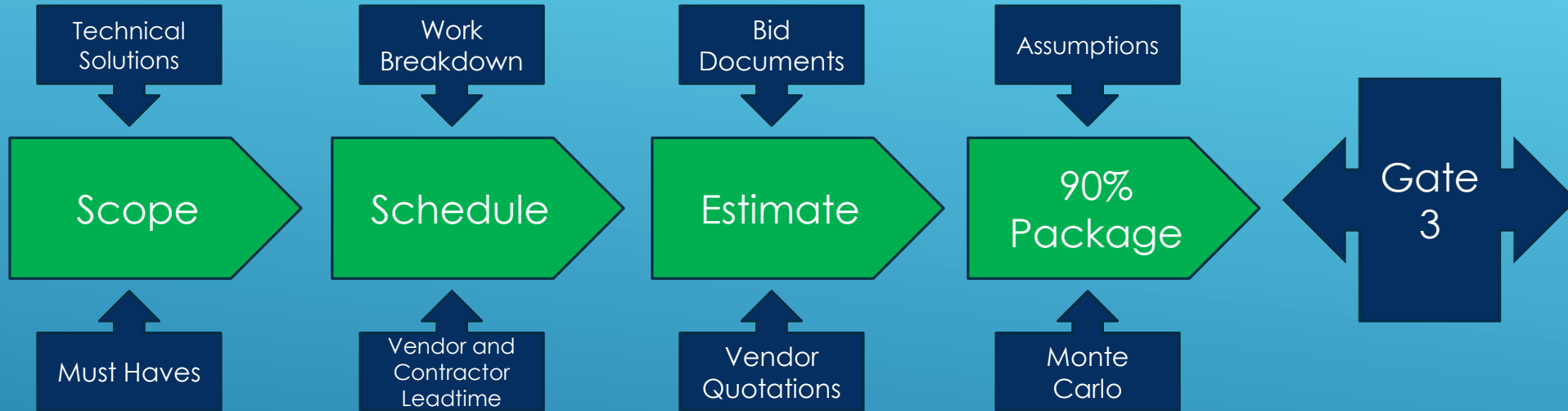
# PM STAGE GATE 2

Develop a 70% project feasibility study and risk review. Retest assumptions and evaluate the deliverables against the business needs and risk tolerance.





40%



# PM STAGE GATE 3

Develop an 90% project feasibility study and risk review. Evaluate the deliverables against the business needs and risk tolerance.

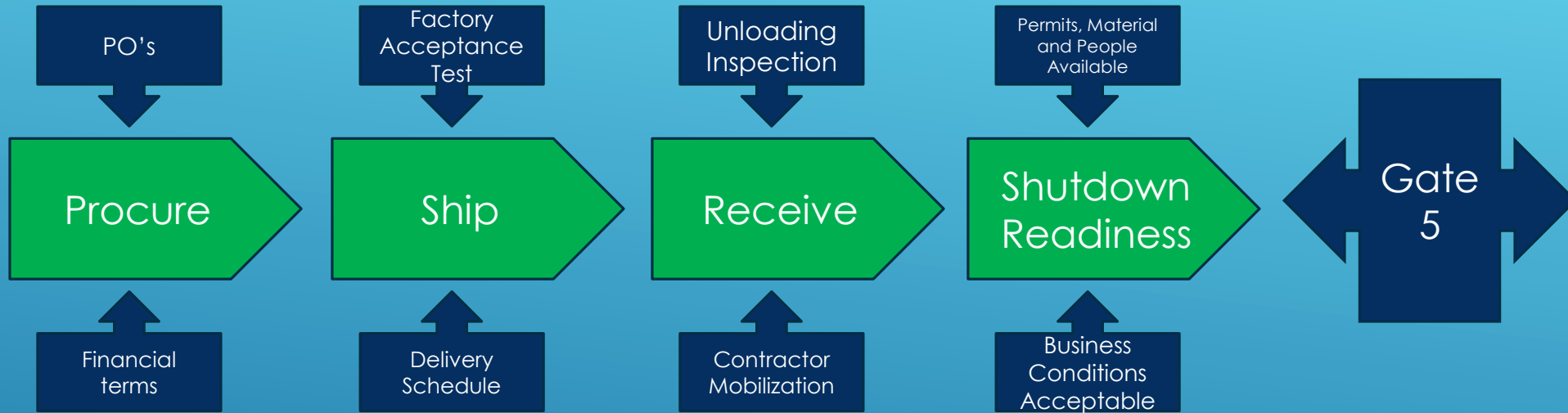


50%



# PM STAGE GATE 4

Develop a final scope, schedule and budget.  
Complete a sensitivity analysis.  
Present for financial approval.

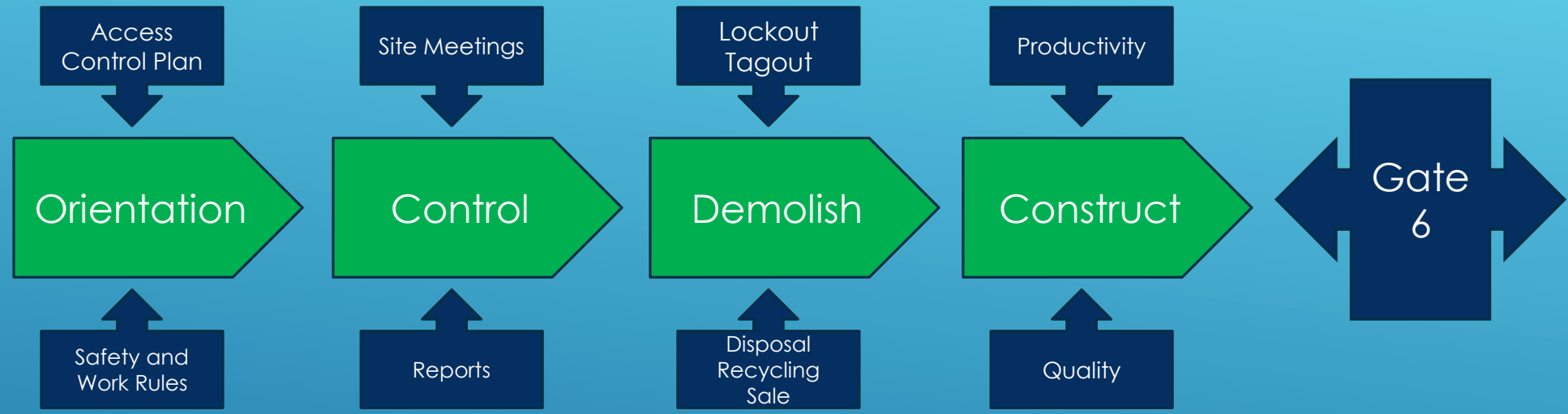


# PM STAGE GATE 5

Procure, inspect, receive and store materials. Mobilize and orient contractors.



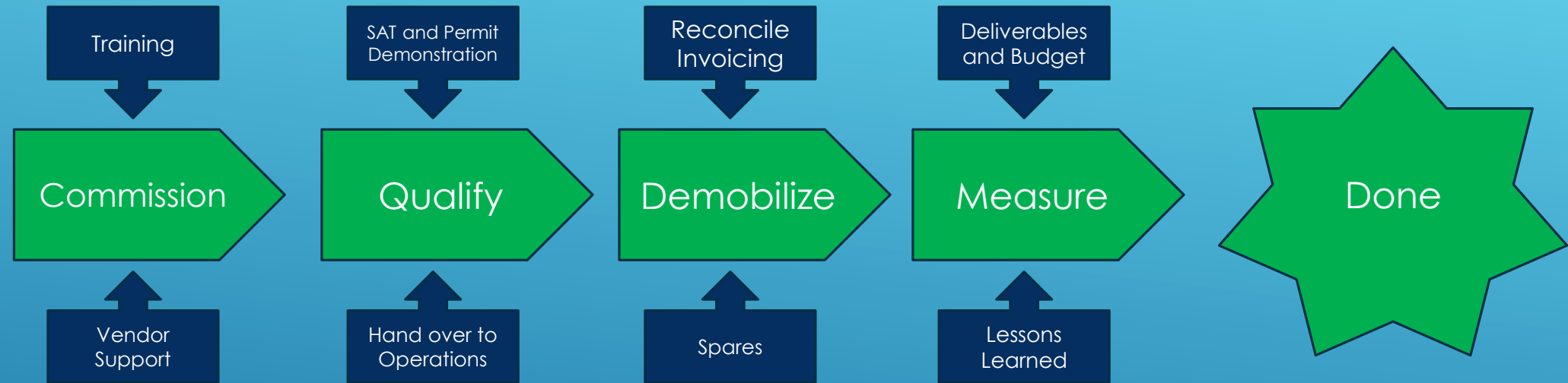
95%



# PM STAGE GATE 6

Orient contractors to site safety needs, work rules, and access procedures. Establish meeting and reporting schedules. Implement lockout/tagout and demolish. Manage productivity and quality during construction. Confirm project is ready for commissioning.

100%



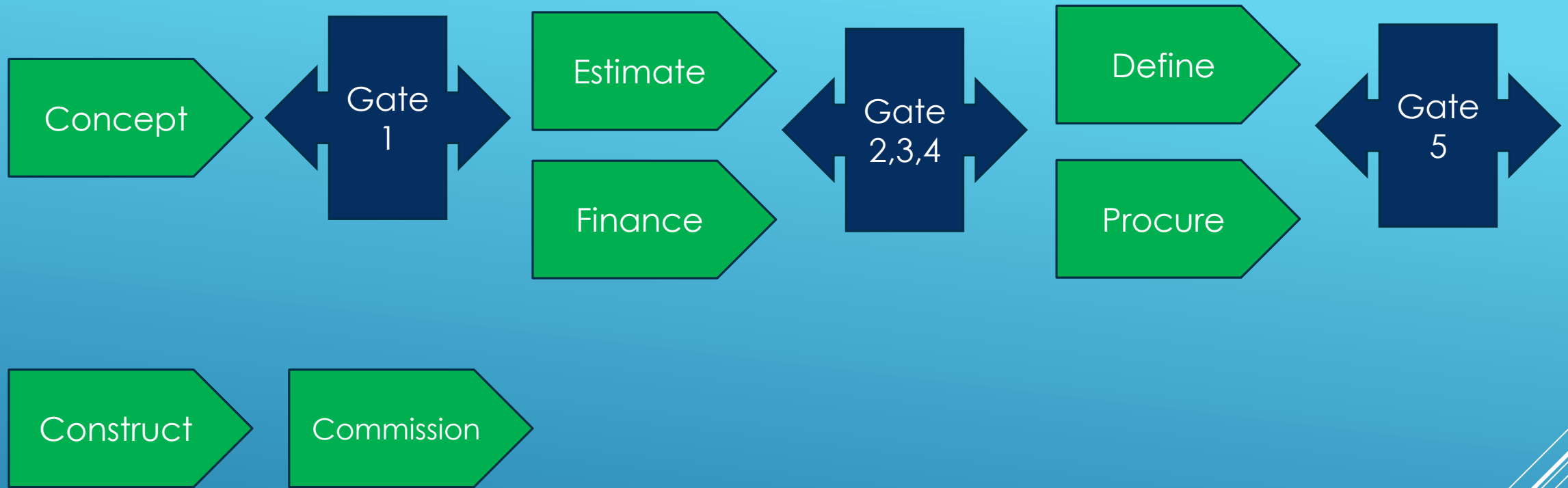
# COMMISSION AND DEMOBILIZE

Complete training and startup equipment with vendor assistance. Transition operation to plant personnel. Complete regulatory permit testing and equipment site acceptance tests. Transfer to operations. Reconcile invoices with vendors and contractors. Inventory spare parts. Measure project performance and capture lessons learned.

## ▶ Commercial risk is moderate

- ▶ Moderate investment
- ▶ Modest customer expectations
- ▶ Achievable regulatory requirements
- ▶ Non-threatening business climate
- ▶ Proven technology
- ▶ Implementation is not complex
- ▶ Changes in scope are modest.

THREE GATES ARE RECOMMENDED WHEN

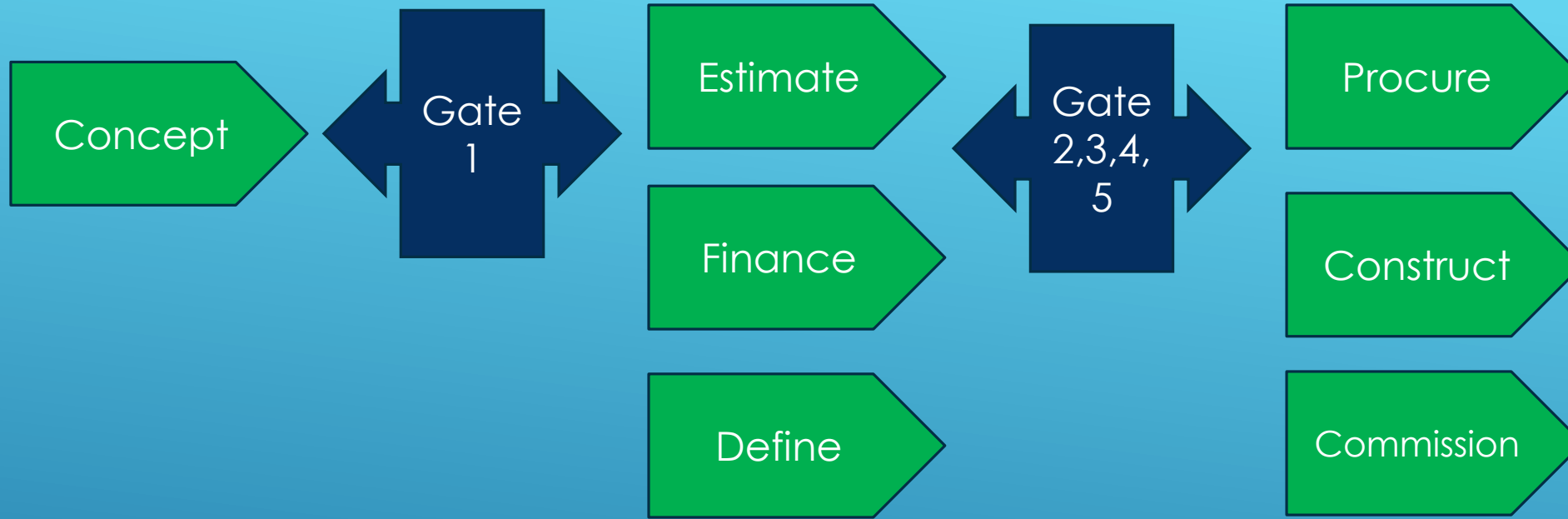


# PM 3 STAGE GATE PROCESS

- ▶ Commercial risk is low and lead times are tight
  - ▶ Replacement investment
  - ▶ Modest customer expectations
  - ▶ Achievable regulatory requirements
  - ▶ Welcoming business climate
  - ▶ Known technology
  - ▶ Implementation is neither lengthy or complex
  - ▶ Scope is fixed

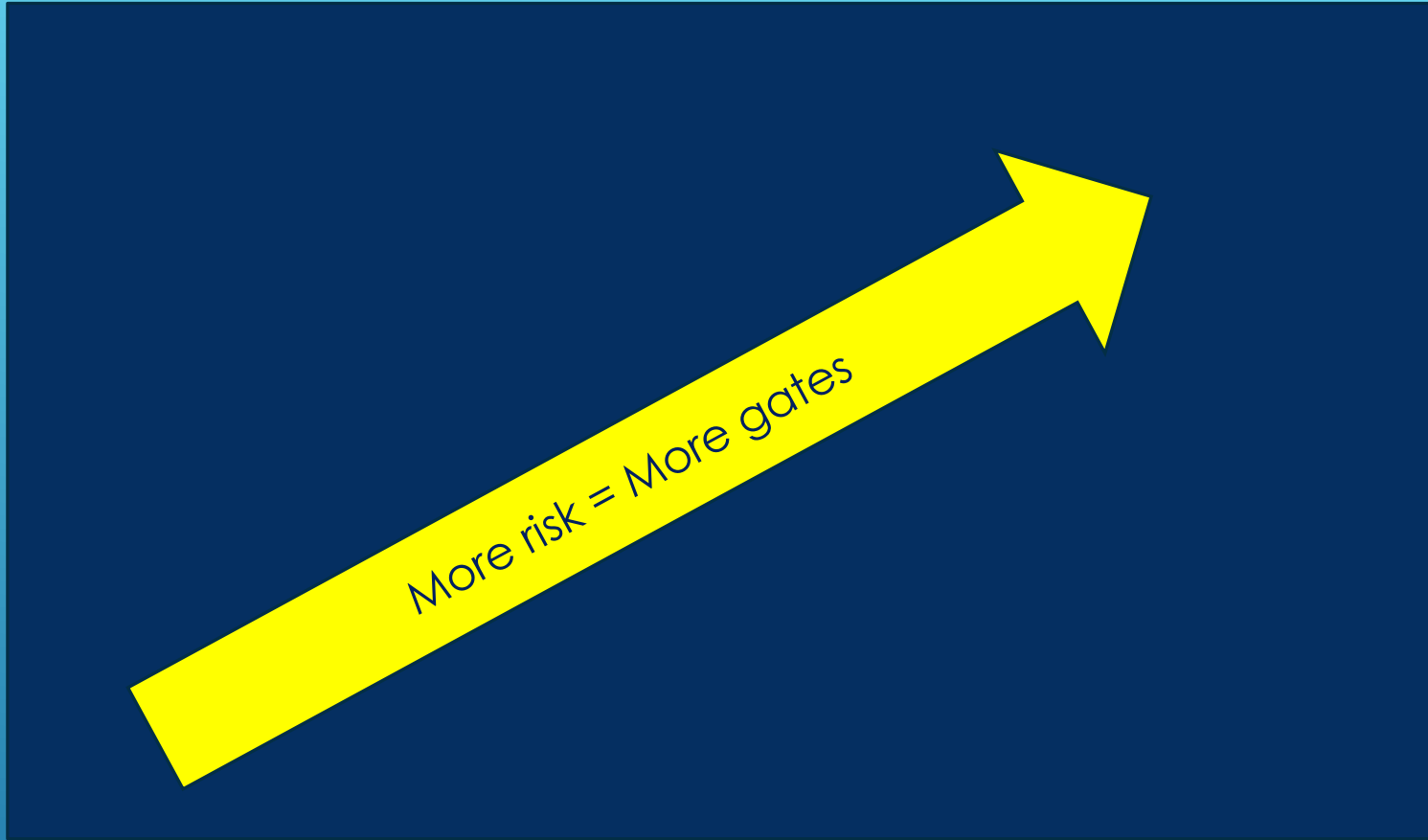
TWO GATES ARE RECOMMENDED WHEN





# PM 2 STAGE GATE PROCESS

Number of Gates

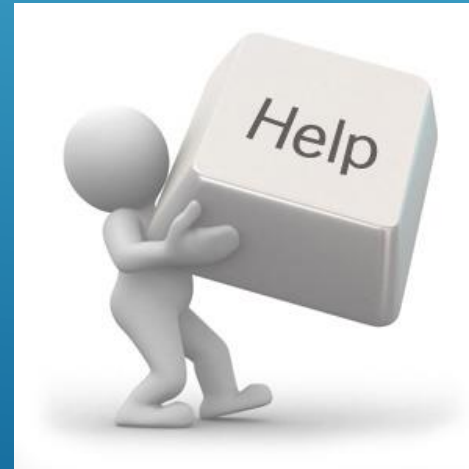


Commercial Risk

# SUMMARY

- ▶ Avoids unnecessary capital spending
- ▶ Anticipates project risks
- ▶ Formalize executive oversight
- ▶ Aligns project goals

## HOW STAGE GATE HELPS



- ▶ Stage gate training
- ▶ Project risk evaluation
- ▶ Project estimating tool
- ▶ Project management
- ▶ Construction advisory
- ▶ Procurement specifications
- ▶ Work breakdown structure
- ▶ Schedule development

	Basic	Advanced	State of the art
Land, services buildings, amenities	\$14,397,000	\$18,063,800	\$25,404,000
Batch storage, weighing, delivery	\$4,403,854	\$6,588,592	\$8,749,699
Furnace refractories, steel, control	\$14,587,326	\$18,393,667	\$22,105,535
Working end and forehearth	\$1,764,228	\$2,640,380	\$4,047,683
Forming machines and services	\$21,582,000	\$21,582,000	\$21,582,000
Hot end automation and controls	\$733,880	\$3,926,145	\$6,500,449
Lehrs and sprays	\$3,337,500	\$3,337,500	\$3,337,500
Cold end ware handling and inspection	\$14,460,268	\$14,760,743	\$15,204,687
Carton forming and packing	\$1,422,900	\$1,422,900	\$1,422,900
Bulk palletizing and wrapping	\$2,952,600	\$4,410,000	\$5,295,150
Warehousing	\$14,710,000	\$19,717,000	\$25,325,000
Regulatory	\$6,994,157	\$9,484,518	\$24,244,750
<b>Sub Total</b>	<b>\$101,345,713</b>	<b>\$124,327,245</b>	<b>\$163,219,355</b>
	\$0	\$0	\$0
	\$0	\$0	\$0
	\$0	\$0	\$0
Shipping, duty and taxes	\$3,532,261	\$4,386,702	\$5,573,248
Engineering and Construction	\$10,134,571	\$12,432,724	\$16,321,935
Training and support	\$5,067,286	\$6,216,362	\$8,160,968
<b>Sub Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Labor adjustment	\$0	\$0	\$0
	\$0	\$0	\$0
<b>Total</b>	<b>\$120,079,831</b>	<b>\$147,363,033</b>	<b>\$193,275,506</b>
	\$0	\$0	\$0
<b>\$/MM bottles</b>	<b>\$138,981</b>	<b>\$170,559</b>	<b>\$223,699</b>
	\$0	\$0	\$0

## HOW WE CAN HELP

Bookings for late 2019 still available as of 02/21/19

**THE GLASS CONTAINER ADVISORY LLC**

Advisors to glass container manufacturing leadership

**OBJECTIVE ADVICE**

**PROVEN METHODS**

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