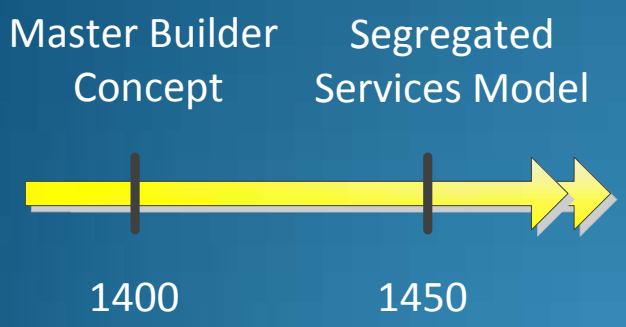
# Western State Water Resources Infrastructure Needs and Strategies
# Construction Innovations: Better, Faster & Smarter

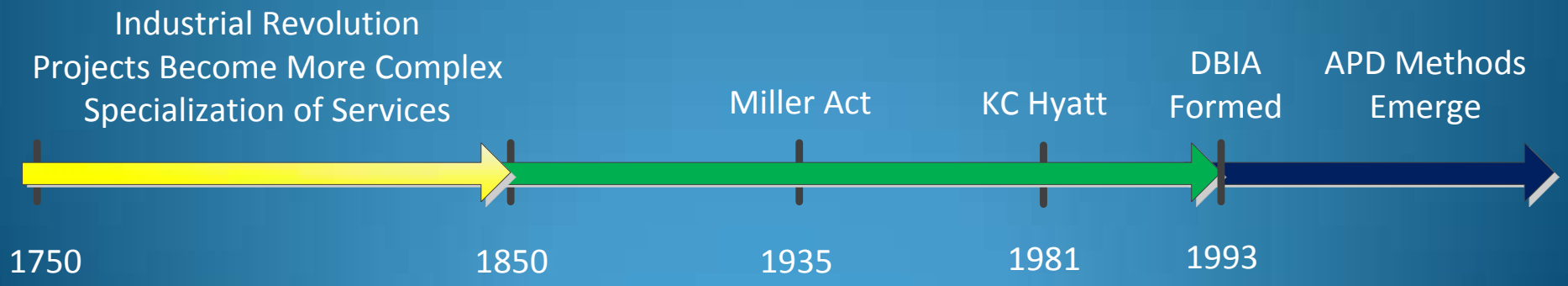
Chitra Foster PE / CDM Smith
John Awezec PE, LEED AP / HDR

# Agenda

- Brief History of Conventional Delivery (DBB)
- Evolution of Alternative Project Delivery
- Western States Legislation
- Prevalent Alternative Delivery models for W/WW Infrastructure
- Procurement Methods

# Brief History of Conventional Project Delivery



# Why Are Owners increasingly Turning to Alternative Project Delivery?

- Desire to play greater role in selection & projects
- Previous problems with DBB
  - Conflicts, delays, change orders, etc.
- Schedule
  - Consent decree, development pressure, etc.
- Organizations under-staffed for capital project delivery
- Lack of interested or qualified bidders

# Why Are Owners Increasingly Turning to Alternative Project Delivery?

- Risk shifting and alignment
- Market conditions
- Financial constraints
- Increasing track record of successful projects

# Why Are Owners Increasingly Turning to Alternative Project Delivery?

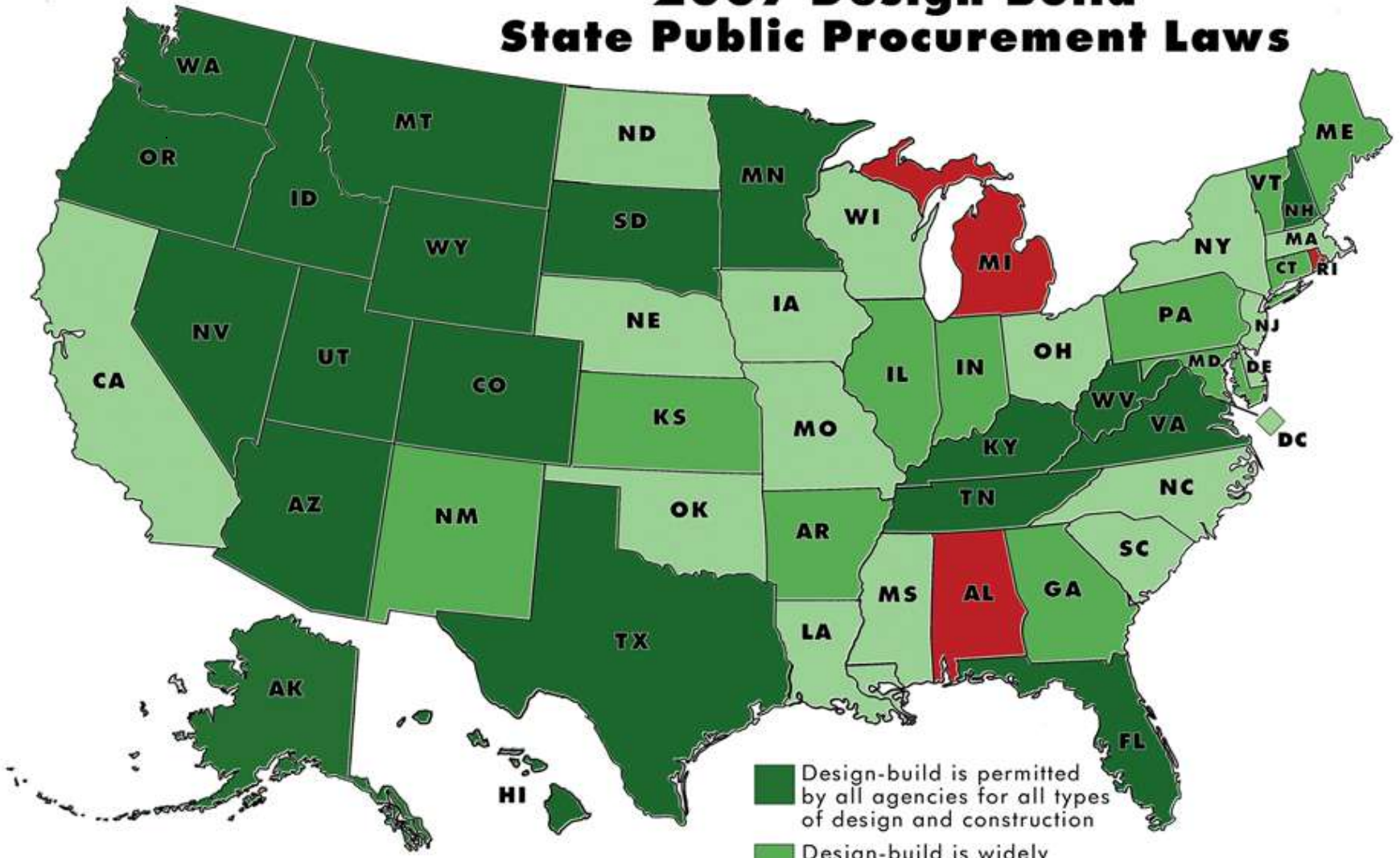

Source: Water-Design Build Council, 2008

# Comparison of Project Delivery Methods

(Construction Industry Institute/Penn State Study RS165-1, 2001)

| Metric | DB vs. DBB | CM@R vs. DBB |
|---|---|---|
| Unit Cost | 6.1% lower | 1.6% lower |
| Construction Speed | 12% faster | 5.8% faster |
| Delivery Speed | 33.5% faster | 13.3% faster |
| Schedule Growth | 11.4% less | 9.2% less |

# 2007 Design-Build State Public Procurement Laws

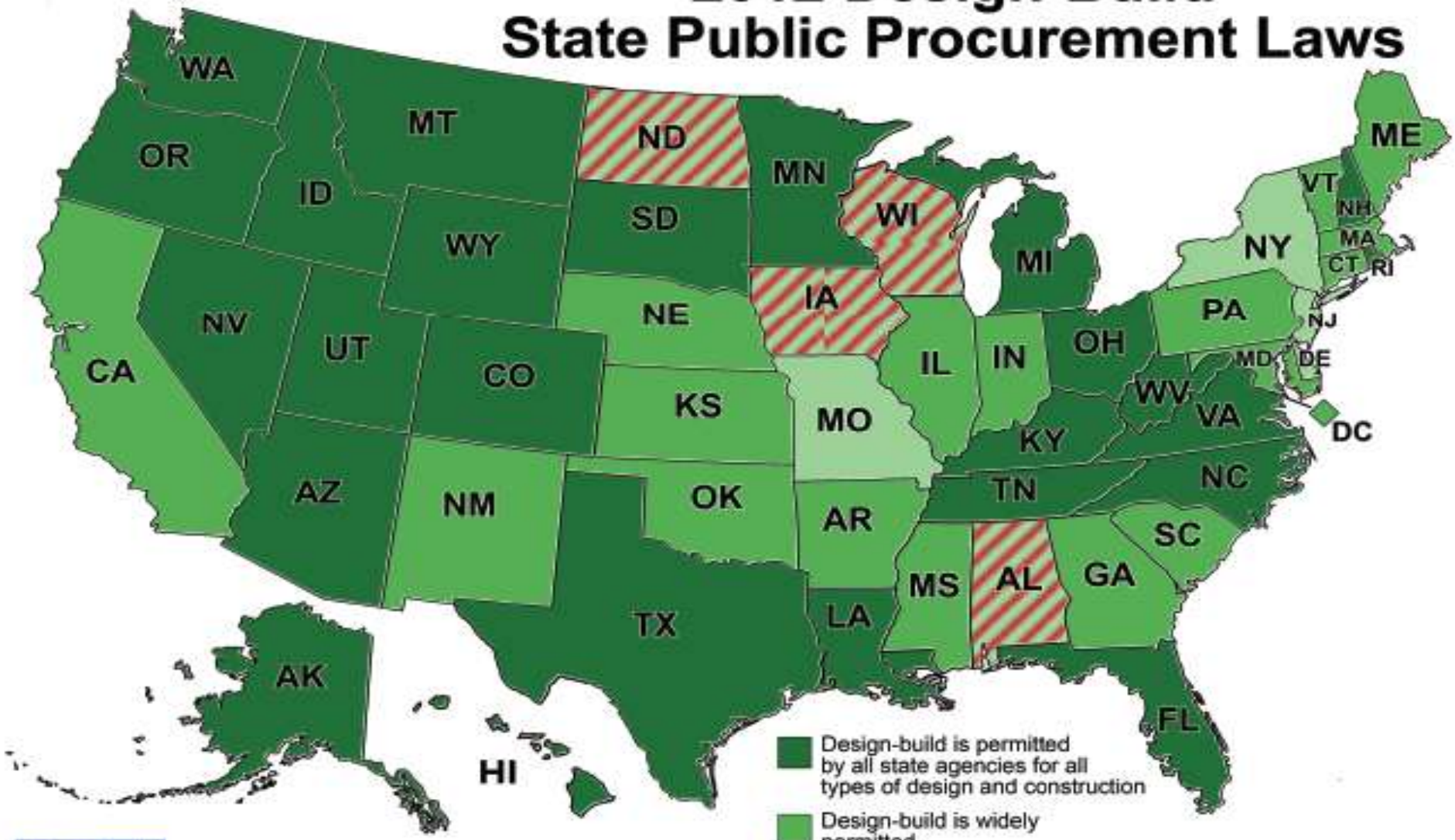



* Certain states allow design-build procurement by case law.

DBIA
DESIGN-BUILD INSTITUTE OF AMERICA

Updated October 2007

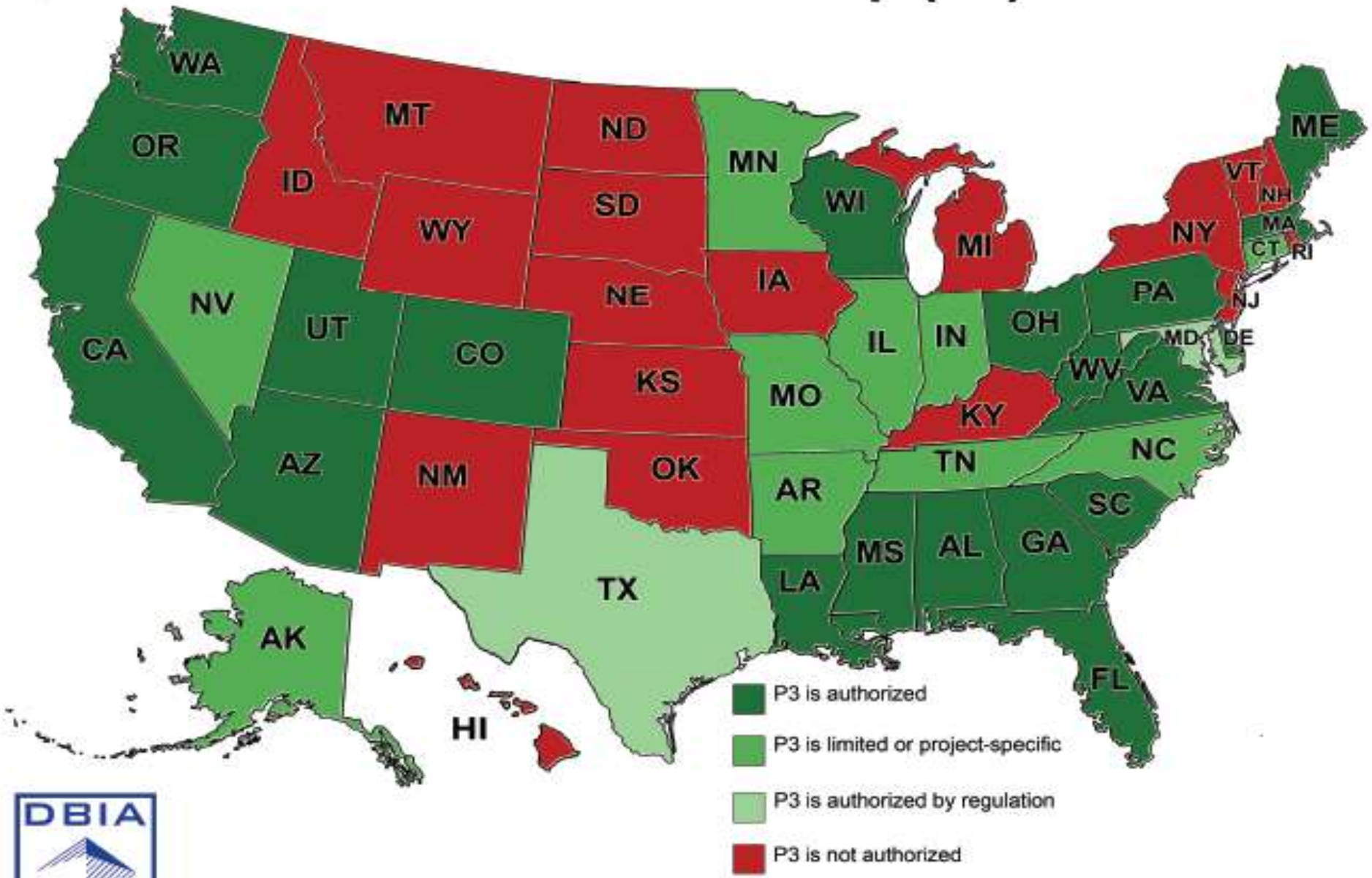
# 2012 Design-Build State Public Procurement Laws




DBIA

Updated March 2012

# 2012 Public-Private Partnership (P3) State Laws

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Updated September 2012

# Western States Summary

- AK - DB is authorized for all state agencies
- AZ - DB is authorized for Public Projects and by AZ Board of Regents
- CA - Very fractured, based on individual entity
- CO - State agencies authorized; Local agencies for WW
- ID - Director of the department of administration can authorize DB
- KS - Kansas Alternative Delivery Building Construction Procurement Act authorized with some exceptions
- MT - AD authorized for sewer districts
- NE - Not allowed for W/WW

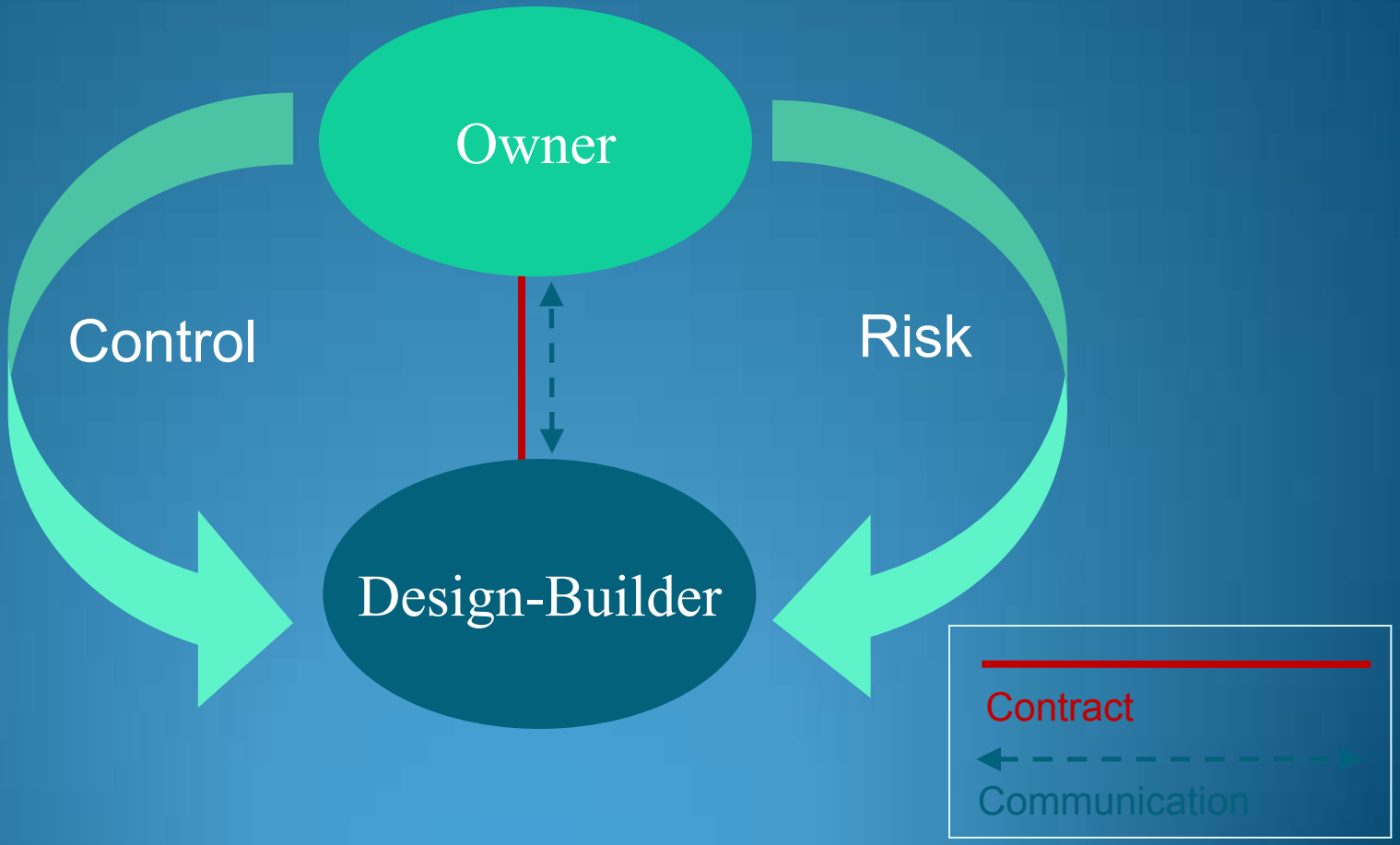
# Western States Summary

- NV - Not authorized for W/WW
- NM - Allowed for projects over $10M
- ND - Limited use
- OK - CMAR allowed, not DB
- OR - DB allowed for public projects
- SD - DB authorized for all public agencies.
- TX - Mostly CMAR, DB allowed for large populations
- UT - Not authorized for W/WW
- WA - CMAR allowed, DB allowed for projects over $10M if agency approved
- WY - DB allowed for public projects

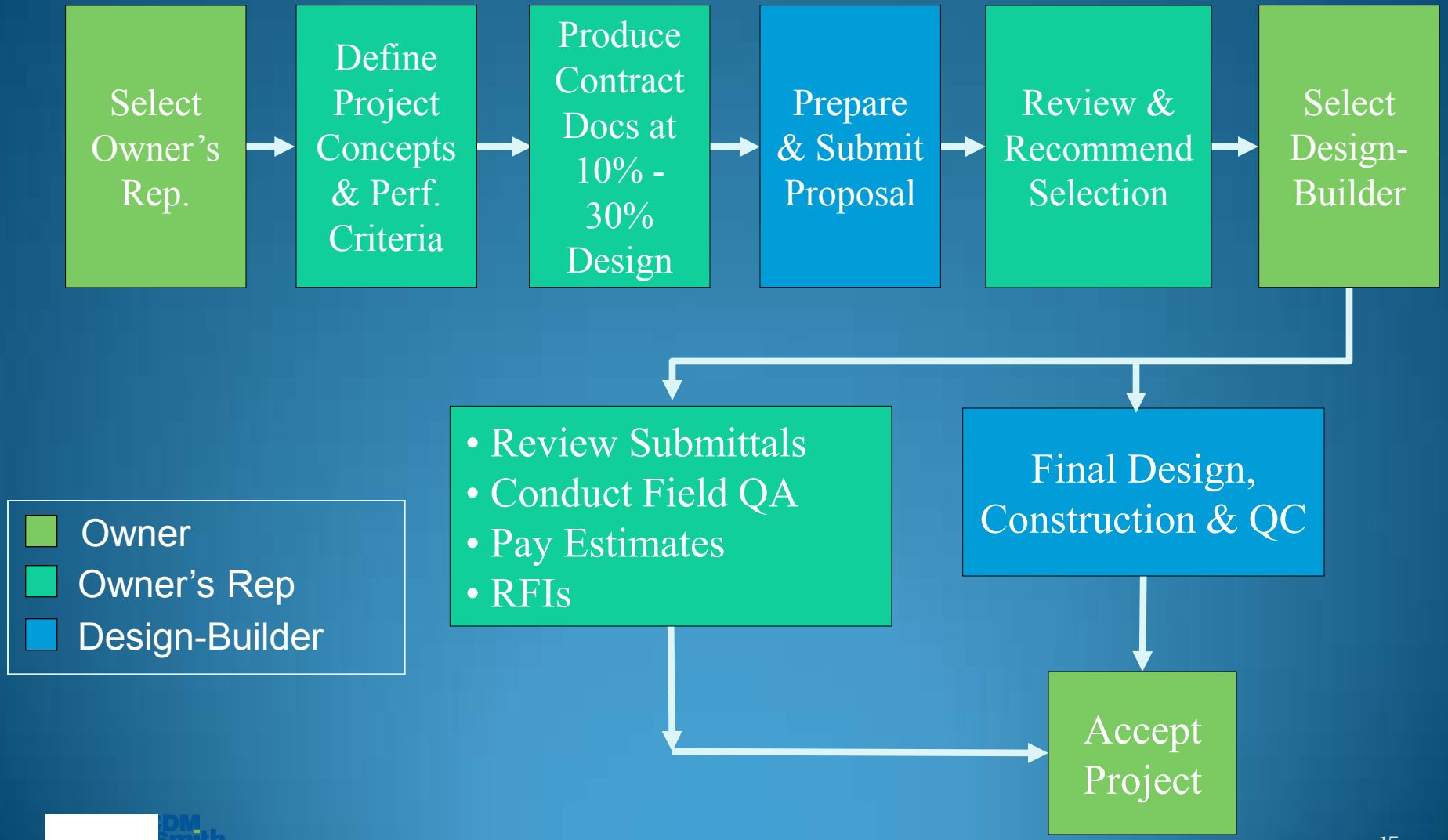
# Prevalent Alternative Delivery Models for W/WW Infrastructure

- Design-Build
  - "Traditional" Design-Build (Hard Bid)
  - Progressive Design-Build
- Design/CM-at-Risk (GC/CM, CM/GC)
- Public-Private Partnerships (P3)

# Traditional DB
## Contract and Communications Lines

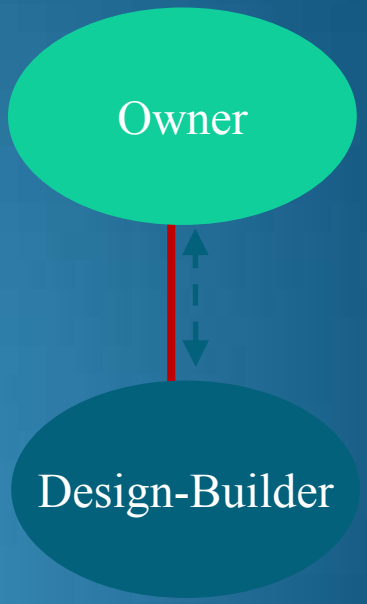


# Traditional DB Approach



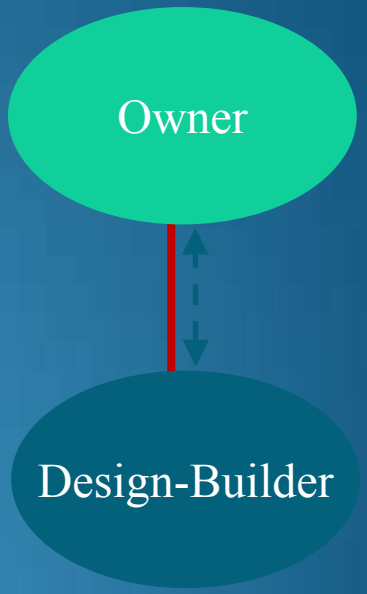
# Design-Build Best Applications

- Existing conditions, project scope & desired outcomes are well understood and defined
- Owner does not want direct involvement in detailed design & construction
- Operational and aesthetic issues are well defined
- Conventional, well-understood technology
- Owner has experience with alternative project delivery

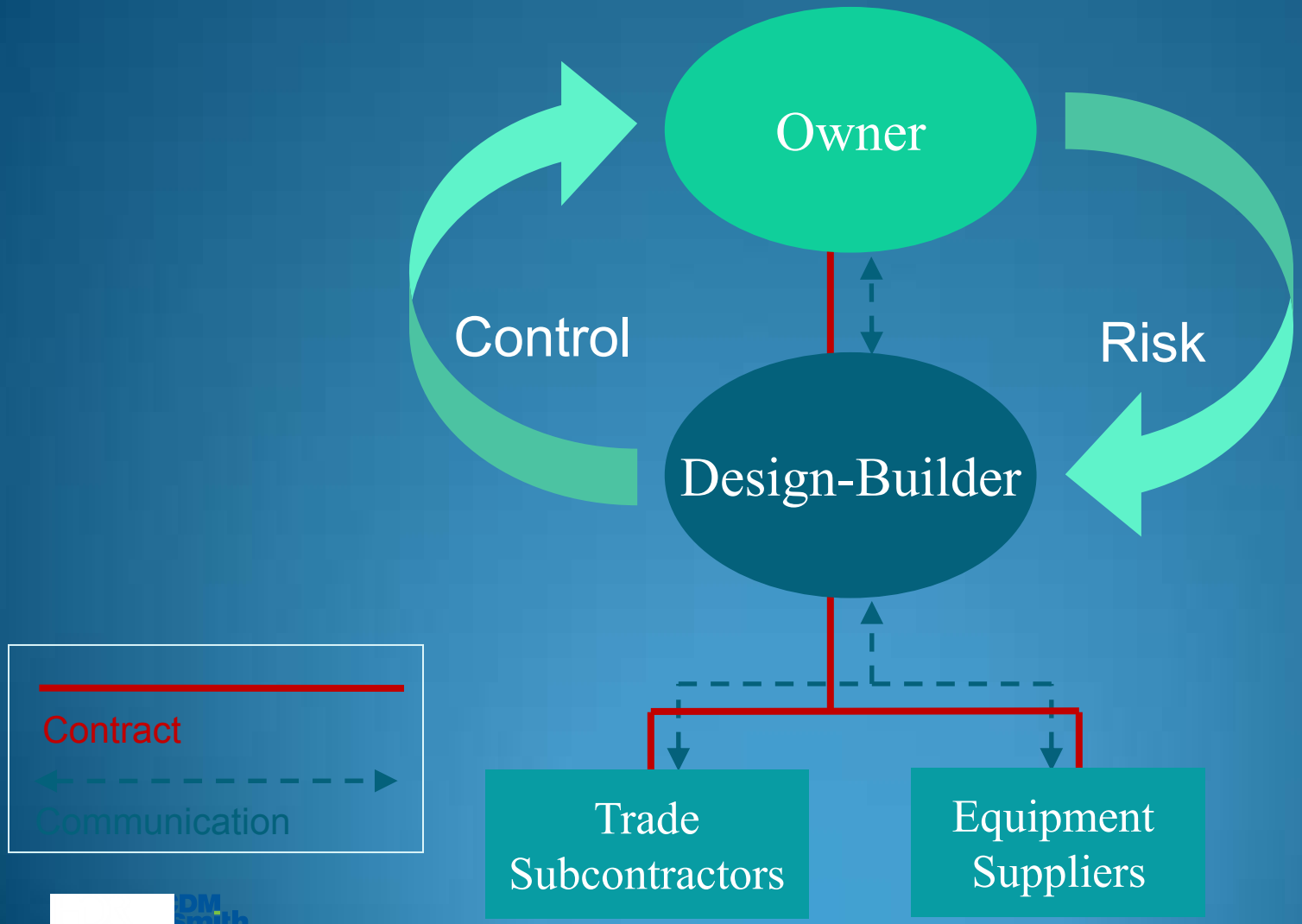


# Design Build Disadvantages

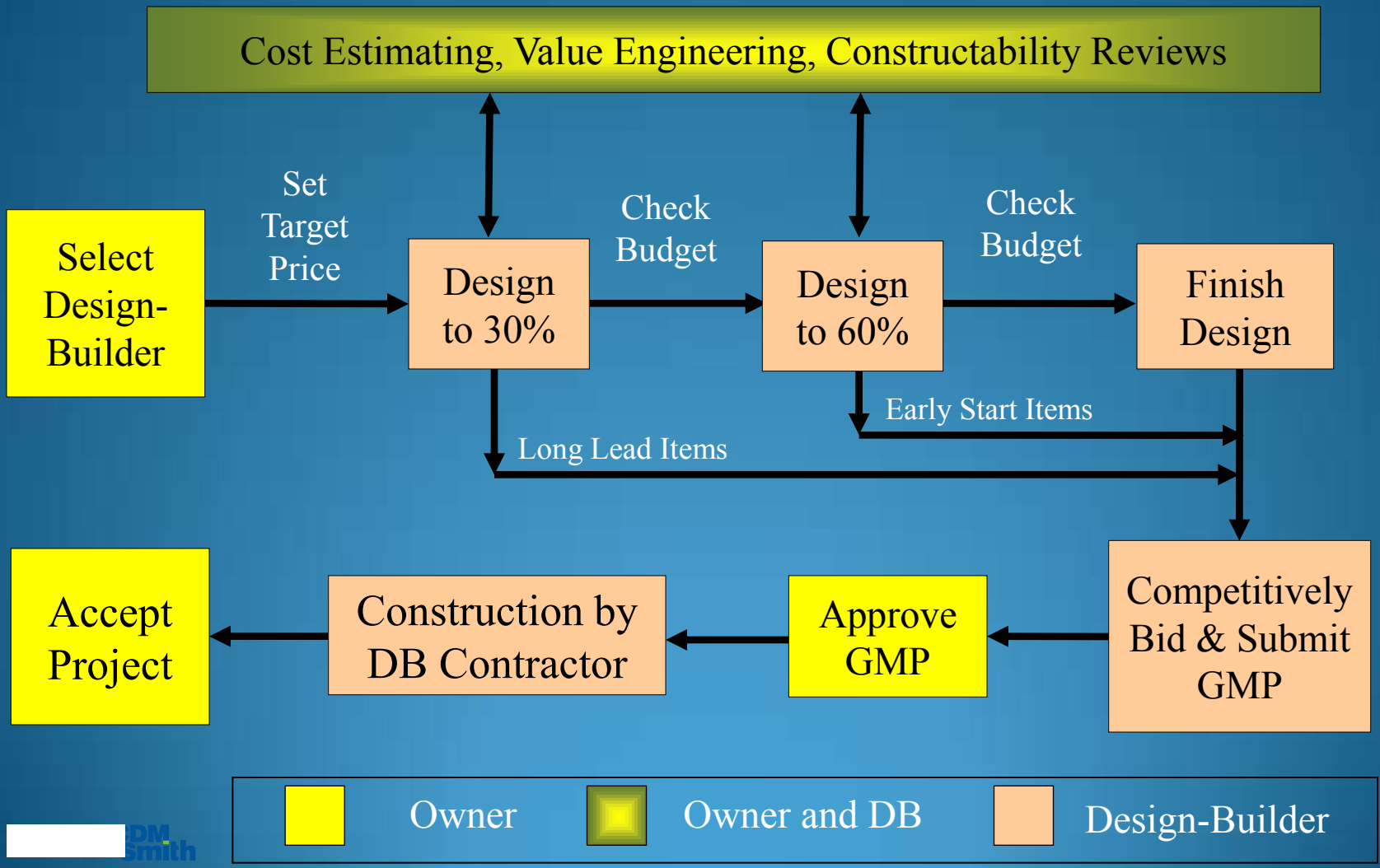
- Lump Sum price may not reflect final project cost
- Owner involvement limited once price is established
- Design is less detailed during bidding
- Increased potential for change orders or claims if owner wants changes after pricing
- Lengthy and costly process to develop prescriptive D-B procurement



# Progressive Design Build
## Contract and Communication Lines

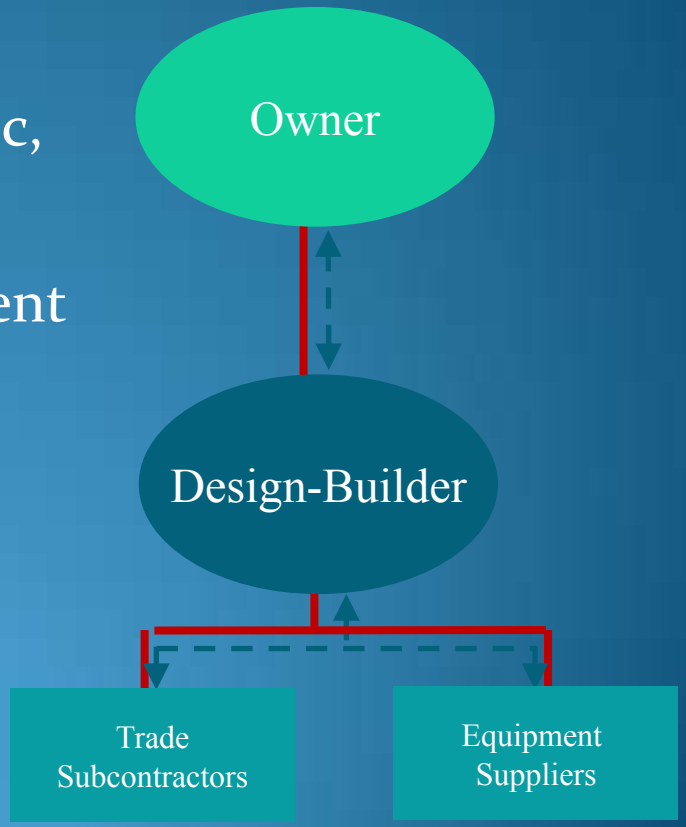


# Progressive DB Approach



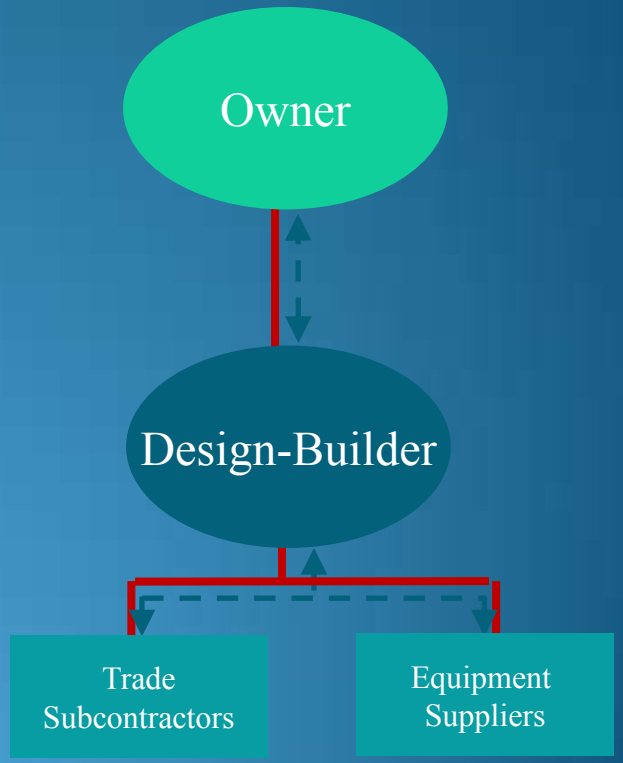
# Progressive Design-Build Best Applications

- Time is critical
- Owner has specific technology, aesthetic, and equipment preferences
- Owner desires high degree of involvement during design, preconstruction & construction
- Owner desires a single point of responsibility
- Project is more complex and scope is uncertain

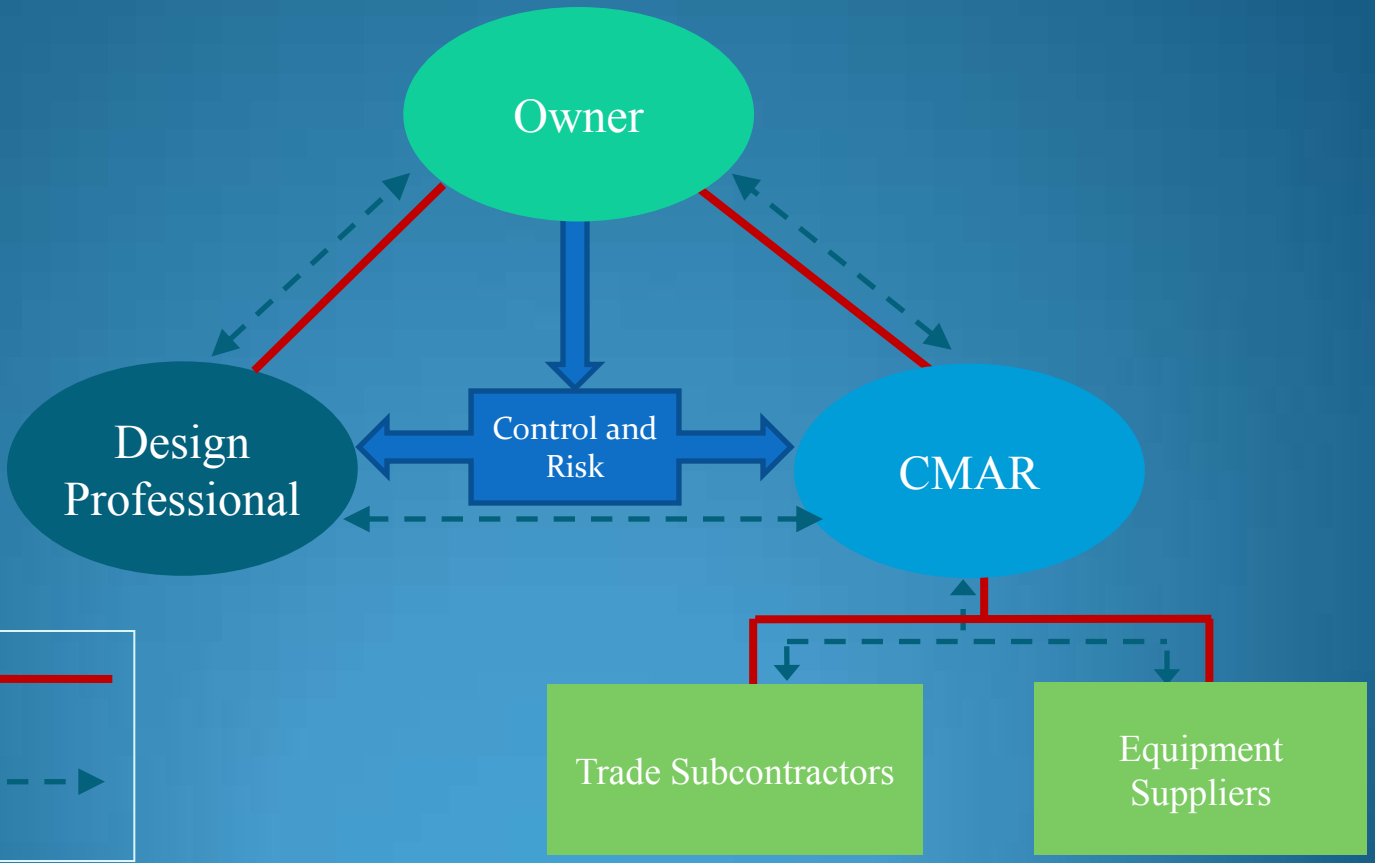


# Progressive Design-Build Disadvantages

- More up-front design effort than with Lump Sum Design-Build
- Firm price is set later than with Lump Sum Design-Build

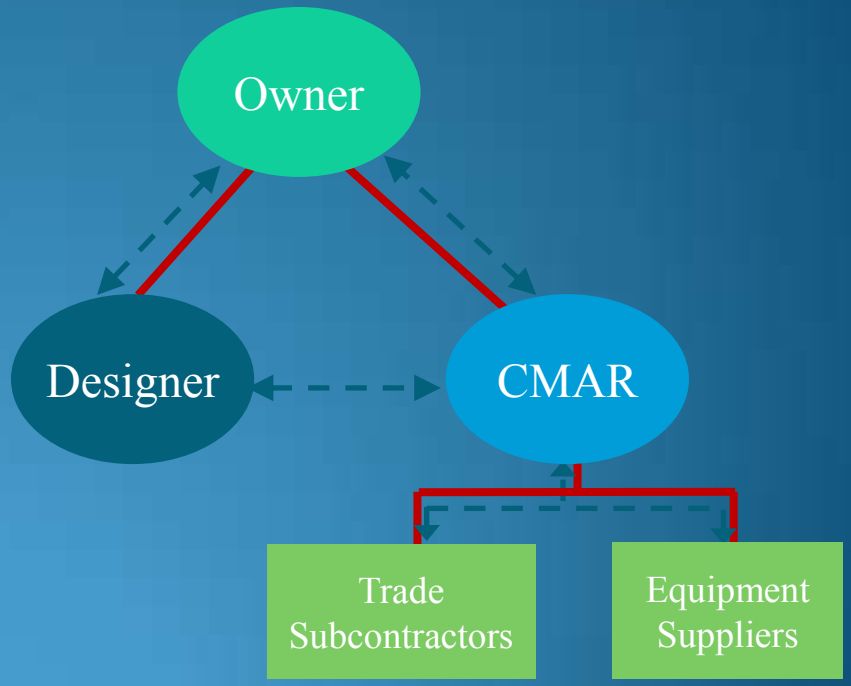


# Construction Management At-Risk (CMAR, CM/GC, GC/CM)



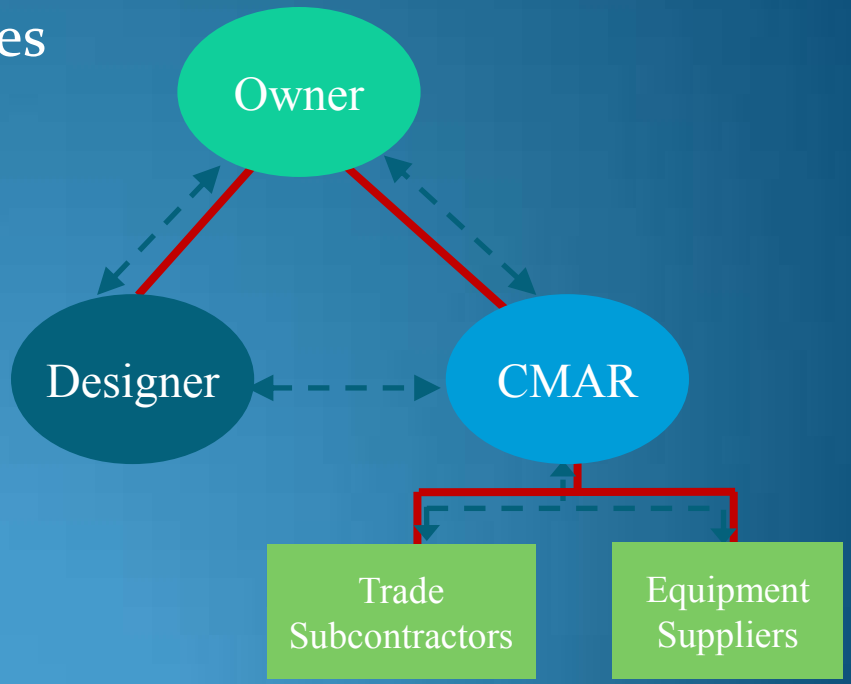
# Design/CM-At-Risk Best Applications

- Owner desires high degree of involvement & control
- Owner desires more construction input into design
- Owner desires less construction risk
- Schedule is a priority
- Project is complex or scope is uncertain
- Ensures maximum local subcontractor participation



# Design/CM-At-Risk Disadvantages

- Split Design & Build responsibilities
- May cost more if not structured efficiently
- Multiple contracts for owner to manage



# Design/CM-At-Risk Delivery
# The "Plus" During Preconstruction

**Design Phase**

**Construction Phase**

**Preconstruction Phase Services**

| | | |
|---|---|---|
| Budget Conformance | Scope Conformance | Schedule Conformance |
| Design Reviews | Design Workshops | MOPO Development |
| Value Engineering | Constructability Reviews | Phasing Plans |
| Bid Gap Analysis | Subcontractor Qualification | Early out Packaging |

***Design Professional and CMAR create best value with minimal claims or litigation***

| Comparison Criteria | Design/Bid /Build | Lump Sum DB | Progressive DB | CMAR |
|---|---|---|---|---|
| Selection Criteria | Price based | Price based | Qualifications based with price considerations | Qualifications based with price considerations |
| Owner Involvement & Flexibility | Good through detailed design. Minimal after construction contract is awarded | Good through preliminary design. Minimal after DB contract is awarded | Good throughout entire design and construction phases | Good throughout entire design and construction phases |
| Schedule | Slowest | Faster | Fastest | Faster |
| Number of Owner Contracts to Manage | 2, 3 or more | 2 or more | 1 or 2 | 2 or more |
| Potential to Deliver "Least Cost" | Very Good (in favorable market conditions with good design) | Good | Very Good to Great | Good to Very Good |
| Cost Control | Reduced control once construction contract is awarded | Early cost identification. Least control after preliminary design is completed | Later cost identification. Most control throughout entire project | Later cost identification. More control throughout entire project |
| Potential for Change Orders & Claims | Higher | Higher | Lowest | Lower |

# Public-Private-Partnerships (P3)

# Alternative Project Delivery Procurement Methods

- One-phase – either pre-selected shortlist or fully open
  - Pros: reduce procurement paperwork, shorter duration
  - Cons: Fully open might limit bidders' interest, or may get apples/oranges proposals
- Two-phase – RFQ – shortlist - RFP
- Selection criteria based on best value (weight technical approach and price – many formulas exist)

# Alternative Project Delivery Summary

- Owner must spend time understanding what they truly value and what ultimate performance goals needs to be met
- Bottom line is agreeing to the principle that designer and builder will work collaboratively and concurrently
- The rest are procurement details:
  - What will local legislation allow
  - What are market conditions for bidders
  - How involved does Owner want to be
  - Balance appetite for risk versus desire to maximize value

# Alternative Project Delivery Summary

- Not a solution to world hunger
- Powerful, flexible tool that must be well-managed
- Methodology has gained favor with many Owners across the industry
- Trend will continue in foreseeable future

# Q & A

# P3 – Something New?

- Colonial Legislatures granted toll road (turnpike) franchises—many survived for a number of years
- Railroad development was fueled by land grants and direct grants in-aid for construction at both the federal and state level
- Currently there are dozens of private toll bridges in the U.S.
- George Washington was President of the Potomac Canal Company a Public-Private Partnership with the state of Virginia

# A Shared Vision is Needed for Success

- Public Sector– Provide W/WW Services Economically and Efficiently
- Private Sector – Return on Investment

# So Why P3?

- Federal Funding
  - Opposition to raising taxes
- State Funding
  - Opposition to  raising taxes
- Local Funding
  - Locally dedicated

# Risk and Reward Perspectives: Public Sector

- Responsibility to protect the public interest
- Provide adequate levels of service
- Assure economical delivery of services
- Assure long-term asset
- Project Acceptability
- Affordable cost to Public
- Risk to elected official

# Risk and Reward Perspectives: Private Sector

- Return on investment
- Cash flow and rate setting
- Predictability of outcomes
- Life cycle  and O&M costs
- Construction period risk
- Market timing
- Risk of titigation
- Political risks

# Deal Types
## (Tailored to fit the Project)

- Concession Agreements
- Project Leases
- Availability Payments
- Acceleration of Capital Plane
- D-B-F
- DBOMF
- DBOM

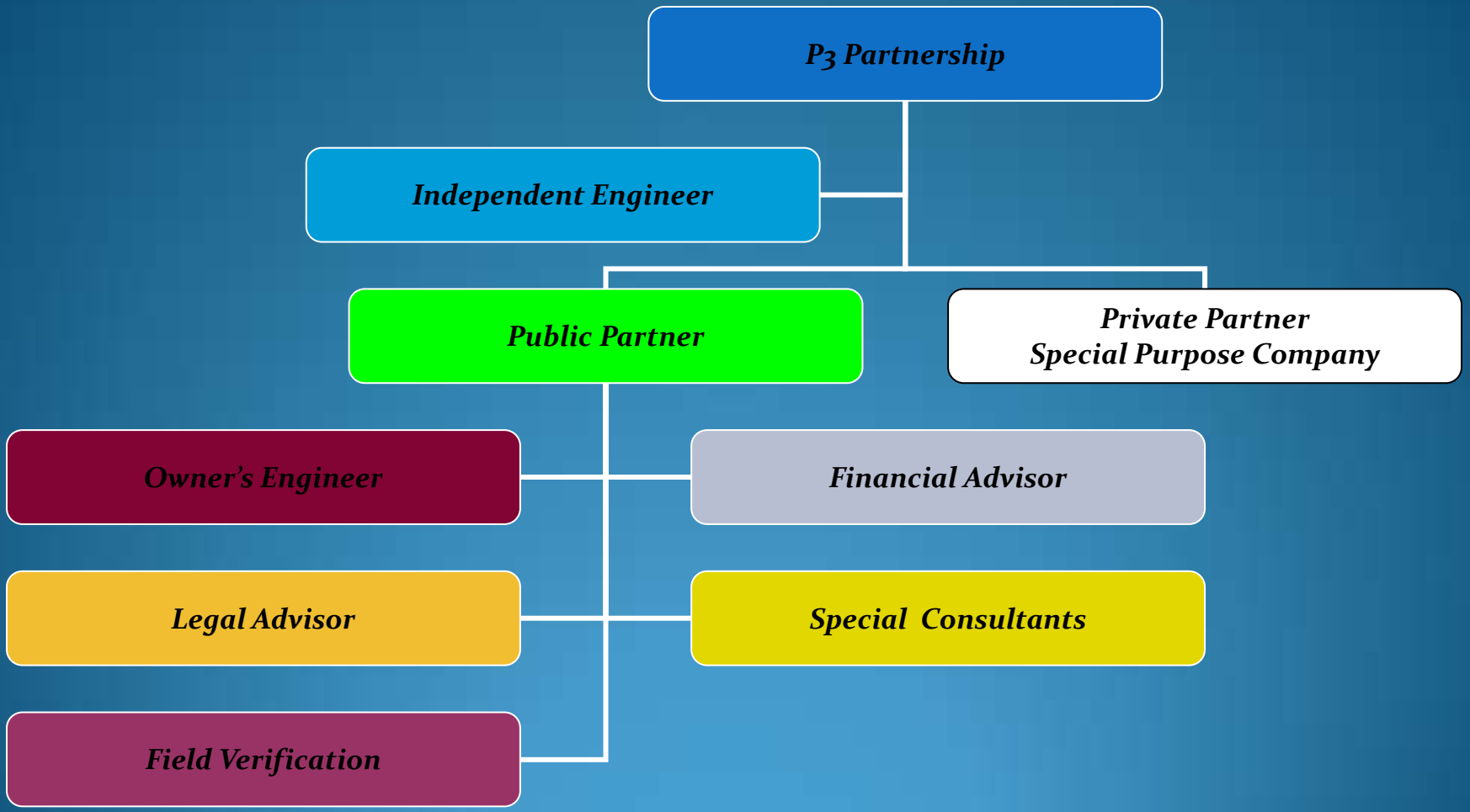
# Drivers for Private Sector

- Favorable economic conditions in U.S.
- Lower long-term revenue risks
- Relatively safe haven for international investment
- Low political and economic risks

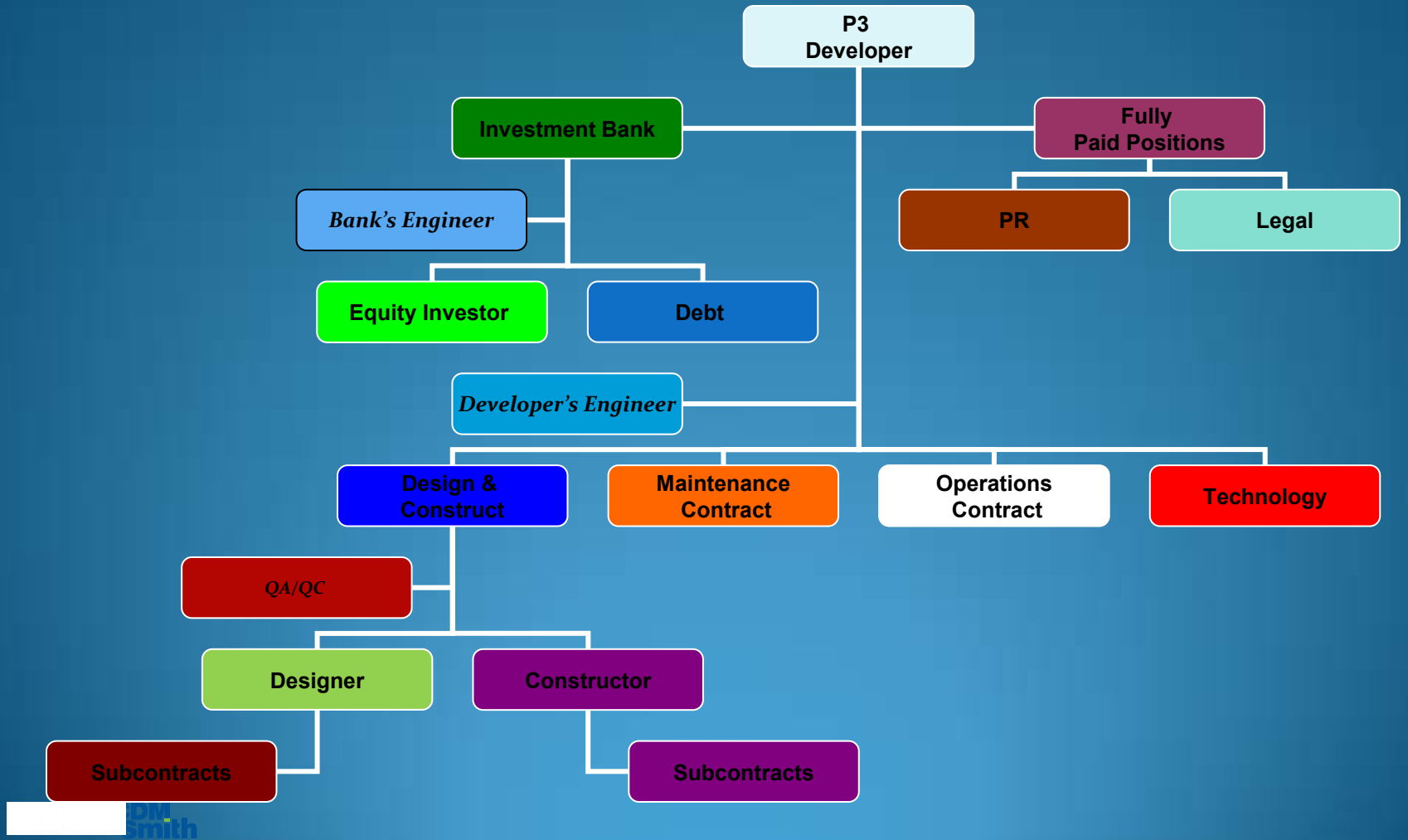
# Drivers for Public Sector

- Heavily industrialized states in the northeast with extensive W/WW infrastructure lack funds for rehab/replacement
- Expanding states in the south and southwest with rapidly growing populations
- Western states, providing water where it is needed to support major population centers

# P3 Structure—Public Side



# Developer Side Organization
## Initial Phase



# P3 Organization, Post Construction