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Moving Toward a Comprehensive Project Delivery Toolbox

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Outline and References

Topics

- The status of project delivery in the US
- Major models for delivering projects and trend of adoption
- Final Remarks

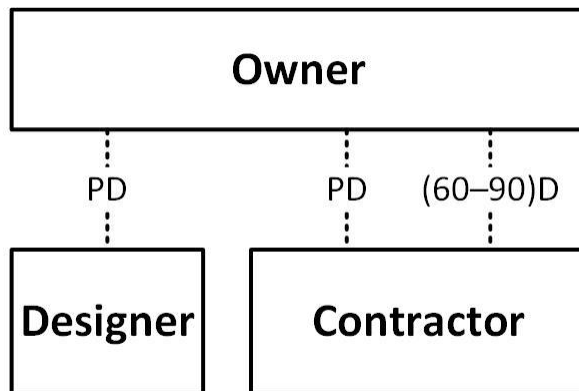
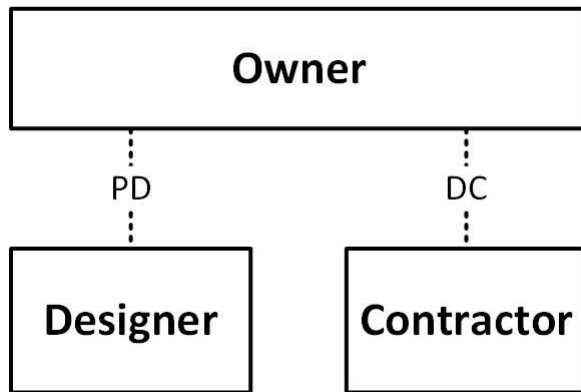
References

- More info on CERC: www.cerc.be.uw.edu
- Migliaccio, G. C. and Holm, L.A. (2018). *Introduction to Construction Project Engineering*, Routledge, Chapters 4 & 5.
- Minchin, E., Migliaccio, G.C., et al. (2014). *Design Management Guide for Design-Build and Construction Manager/General Contractor Projects*, NCHRP Report 787. Washington, DC: TRB.

Project Delivery

- Built environment projects
 - Similar lifecycle
 - Same types of participants
- Phases may overlap and participants may interact differently depending on the owner's approach to deliver a project.
- Main features of project delivery
 - Project delivery method (PDM)
 - Procurement (e.g., Low Bid, Best Value, etc.)
 - Contracting (e.g. Lump sum, Cost plus w/wo GMP, etc.)

Delivery vs. Procurement vs. Contracting



- Delivery Method
 - ▣ Define framework geometry and timing of relationships
- Procurement
 - ▣ Define how the owner will decide which entity will assume duties
- Contracting
 - ▣ Define what the selected entity will be doing, how will be paid, etc.

The Status of Project Delivery in the US

- Approaches used for delivering capital projects have significantly proliferated worldwide
- Both private organizations and public agencies have added several project delivery methods to their project delivery toolbox, such as
 - Construction Management at Risk,
 - Design-Build, and
 - Integrated Project Delivery.
- Market share of each method widely varies geographically, by owner type and across industry sectors

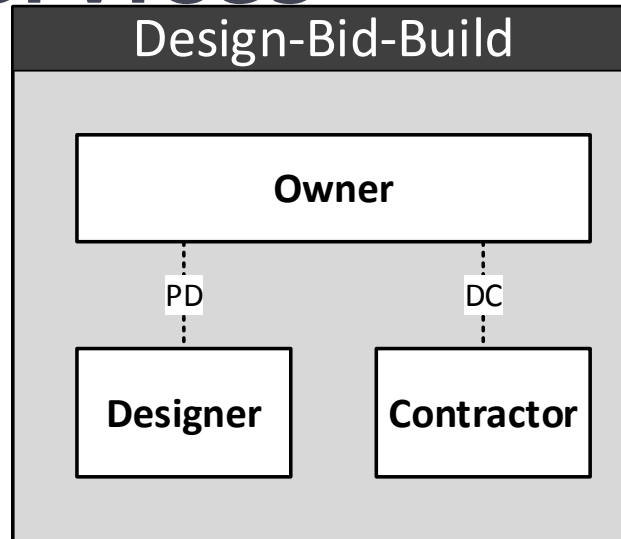
The Status of Project Delivery in the US

- There is **not a one-size-fits all method**
 - ▣ i.e. No single method exists that allows sophisticated owners to optimally achieve their project objectives
- **A comprehensive project delivery toolbox provides for options** necessary to match a project' s objectives and constraints to the right delivery method

PDM Classification

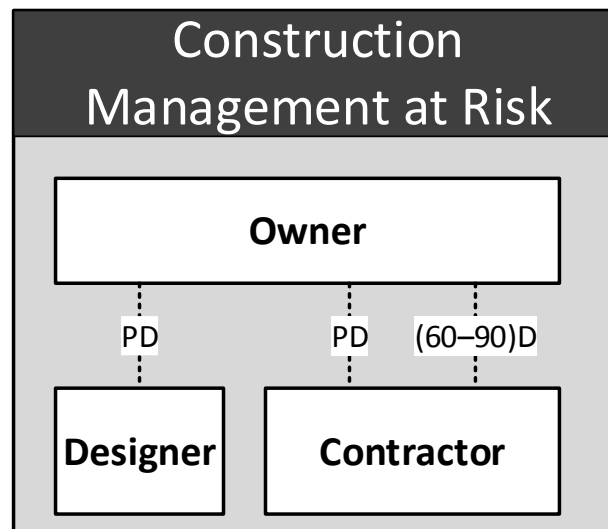
- **Separated Contracting of Design and Construction Services**
 - ▣ Design-bid-build (DBB)
 - ▣ Construction Management at Risk (CMR)
- **Combined Contracting of Design and Construction Services**
 - ▣ Design-build (DB)
 - ▣ Integrated Project Delivery (IPD)
- **Beyond Design and Construction**
 - ▣ Design-build-maintain
 - ▣ Design-build-operate-transfer
 - ▣ Design-build-finance-operate

Separated Contracting of Design and Construction Services



LEGEND

- PD = Contract is usually awarded **before** any or much design is complete.
- DC = Contract is usually awarded **after** design is complete.

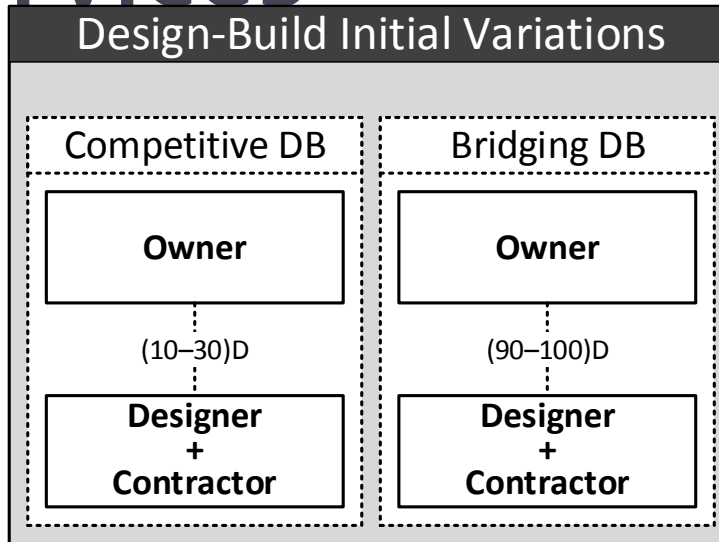


LEGEND

- PD = Contract is usually awarded **before** any or much design is complete.
- (60-90) D = Contract is usually awarded when 60% to 90% of design is complete.

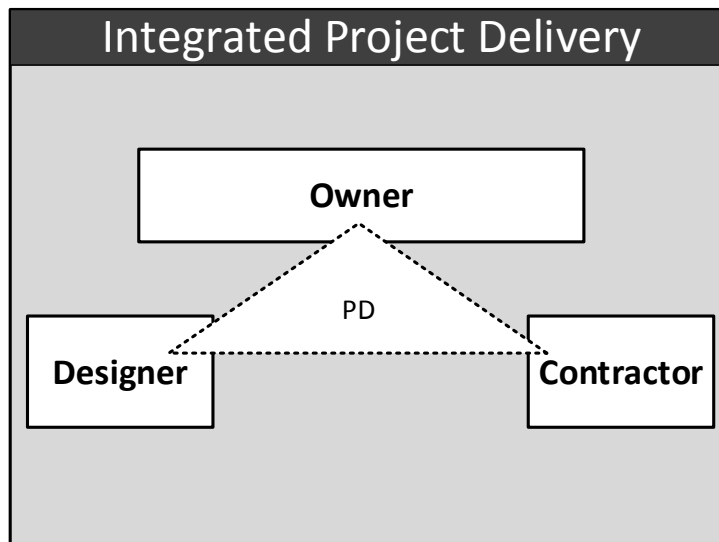
Note: Sometimes, there are not two contracts, but an amendment to the initial contract to set price, and allocate other risks.

Combined Contracting of Design and Construction Services



LEGEND

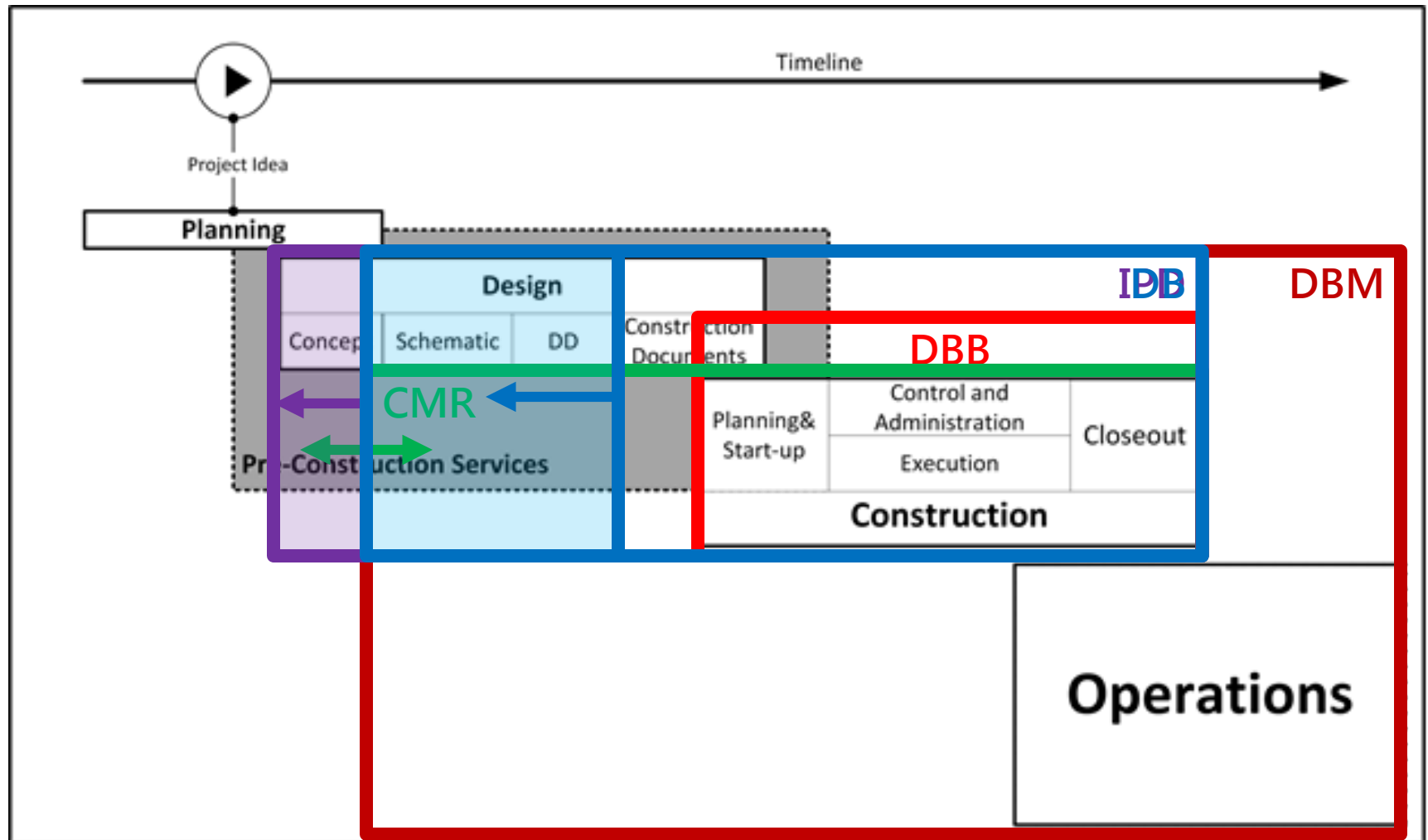
- PD = Contract is usually awarded **before** any or much design is complete.
- (10-30) D = Contract is usually awarded when 10% to 30% of design is complete.
- (90-100) D = Contract is usually awarded when design is nearly complete.



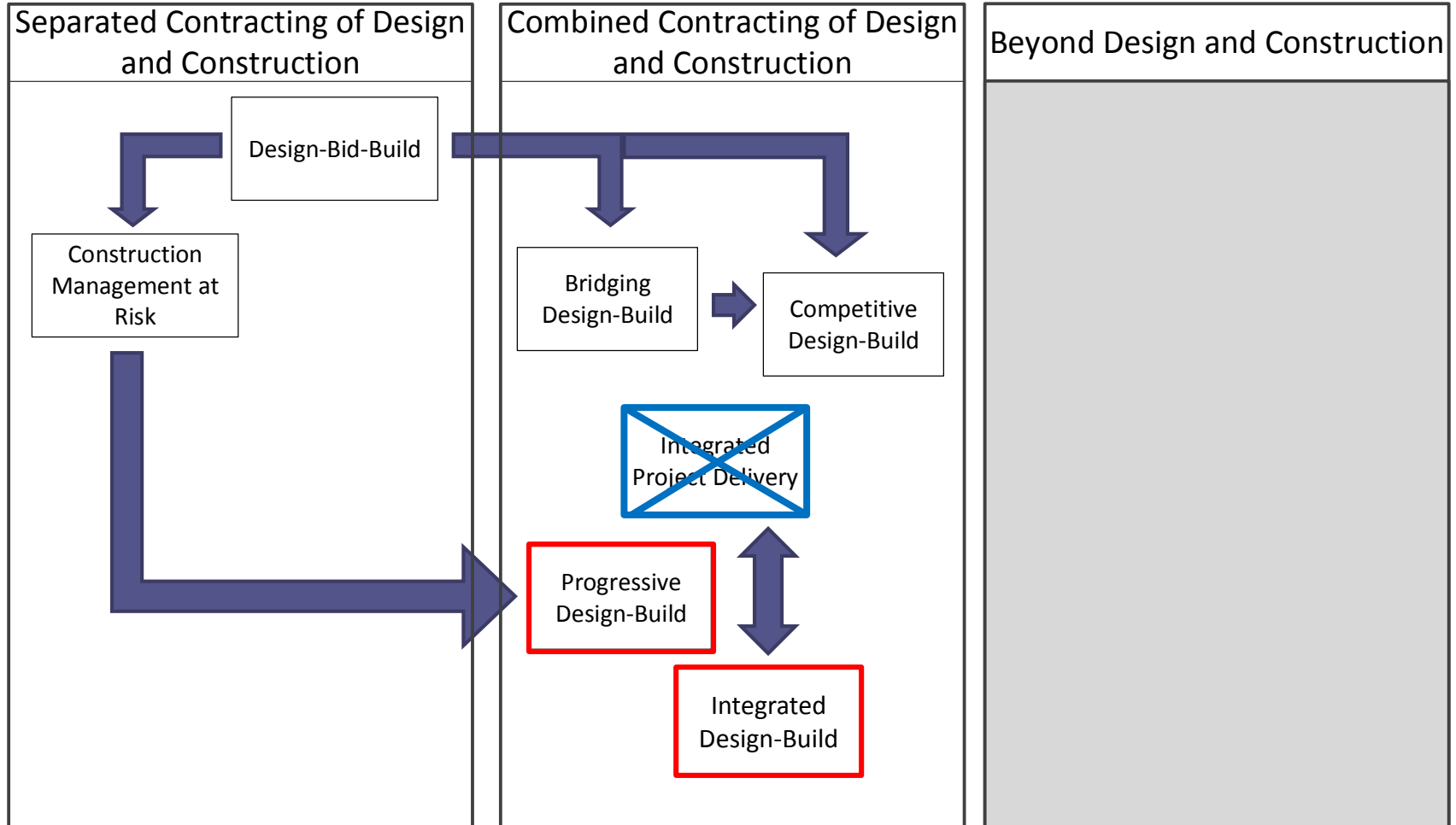
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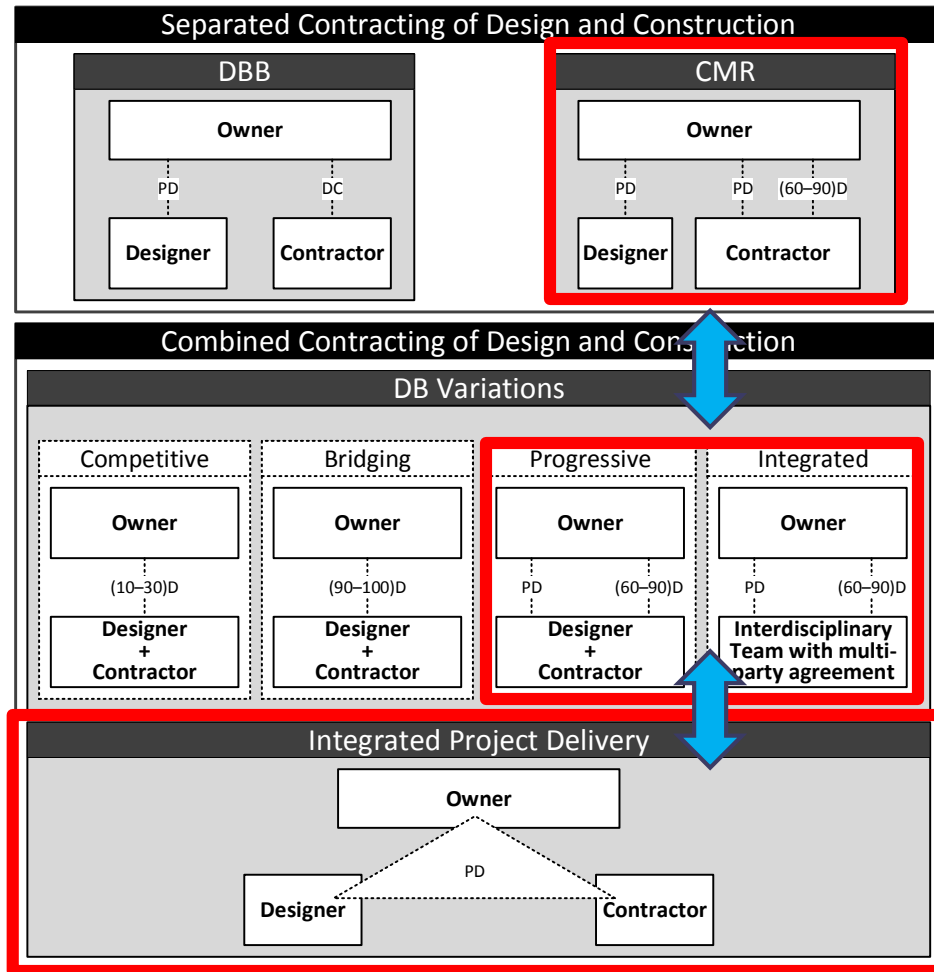
Contractor's Involvement by PDM



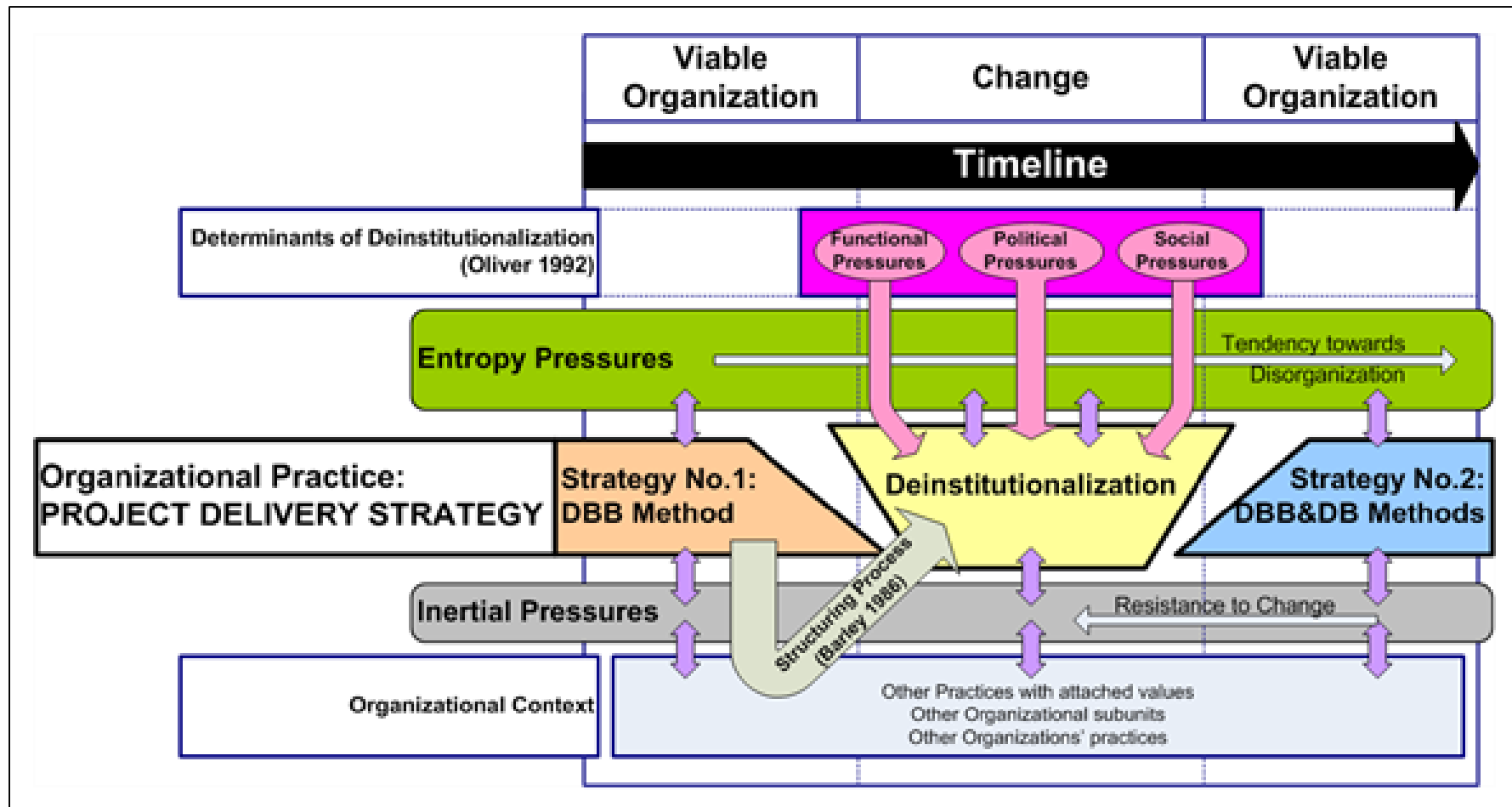
Comprehensive Project Delivery Toolbox



The PDM Family is growing.

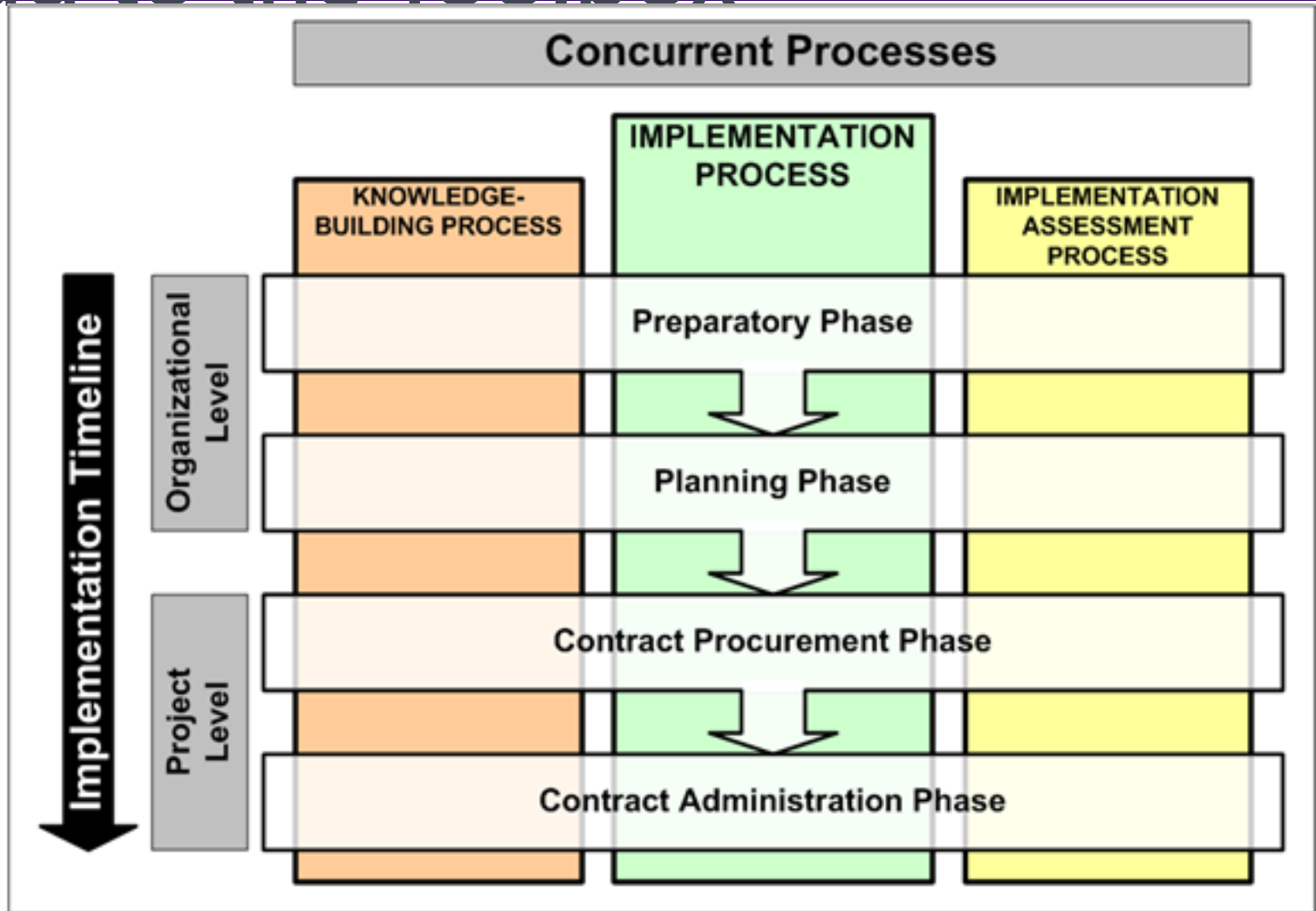


Changing Project Delivery Strategy: Add to the Toolbox



Migliaccio, G. C., (2007). *Planning for Strategic Change in the Project Delivery Strategy* (Doctoral Dissertation, University of Texas at Austin).
<http://repositories.lib.utexas.edu/bitstream/handle/2152/3370/migliacciod14325.pdf?sequence=2>.

Changing Project Delivery Strategy: Add to the Toolbox



Migliaccio, G.C., Gibson, G.E., and O'Connor J.T., (2008). Changing Project Delivery Strategy: An Implementation Framework. *SAGE Journal of Public Works: Management and Policy*, 12(3), 483-502.

Final Remarks

- No single method can allow sophisticated owners to optimally achieve their project objectives for all their projects
- A comprehensive project delivery toolbox is usually necessary to match a project' s objectives and constraints to the right delivery method
- Adopting a new approach to delivery projects requires significant organizational changes
 - ▣ Modifications to work processes
 - ▣ Revision of existing organizational structures.
- This process of adaptation encompass many different aspects of the organization' s interests and require significant efforts.

Final Remarks

- CMR/PDB/CDB/IPD mutate an organization' s delivery DNA by
 - ▣ Changing cultural setting toward **collaboration**
 - ▣ Educating parties to achieve **flexibility**
 - ▣ Encouraging and facilitating **innovation**
 - ▣ Acting as a necessary building block toward a level of maturity in project delivery
 - ▣ Opening the door to other approaches that rely on **collaboration**, **flexibility** and **innovation**



Questions?

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