

DELIVERY MODEL FOR “FUTURE” INFRASTRUCTURE DEVELOPMENT

(Making the case for greater involvement of the ‘Public’ Sector in PPP
Infrastructure Delivery)

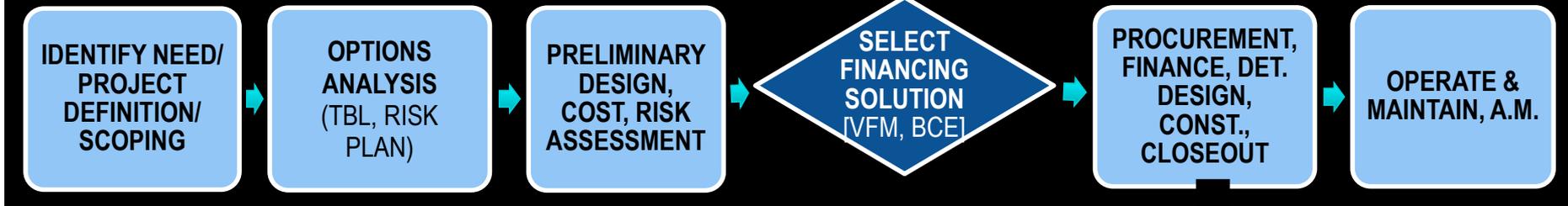
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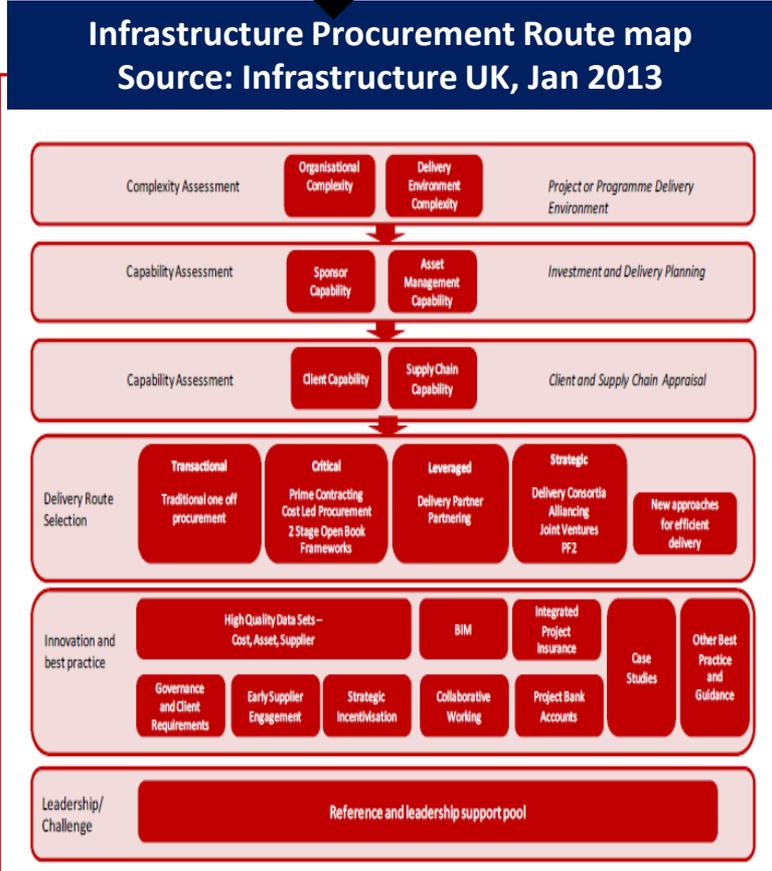
Outline

- Define Delivery Model
- Identify drivers for ***Future*** Infrastructure Delivery
- Recognize need for PPP Financing and establish criteria for selection of projects for private investment
- Greater public involvement - forms participation
 - *Equity Participation*
 - *Enabling Organizations/ Exchanges* – (PBC, WCX, MAX.....)
- Critical Success Factors.

INFRASTRUCTURE DELIVERY MODEL

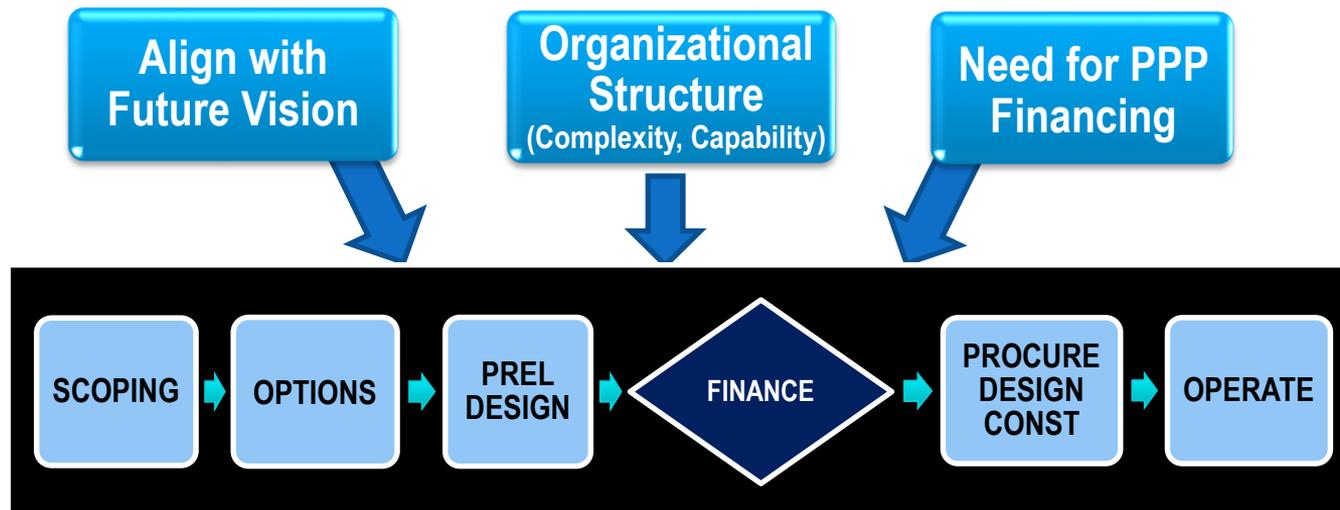


- Strategy for project delivery spanning across life cycle from ‘Definition/ Scoping’ to ‘O & M’ – broader than the Procurement Route map defn.
- Each step weighs in scope, L.C. costs, complexity, and level of private participation from none (“Traditional”) to significant ‘Partnership’ (PPP)
- Preliminary Design, Cost, and Risk Assessment provide input for **Financial Analysis, Value for Money (VfM) and Business Case Evaluation (BCE) – necessary for selecting the Financing solution.**
- The selected Financing solution drives all subsequent decisions on the Procurement method (*DBB, GCCM, DBFO, DP, Alliancing*), extent of Detailed Design, Construction/ Construction oversight.

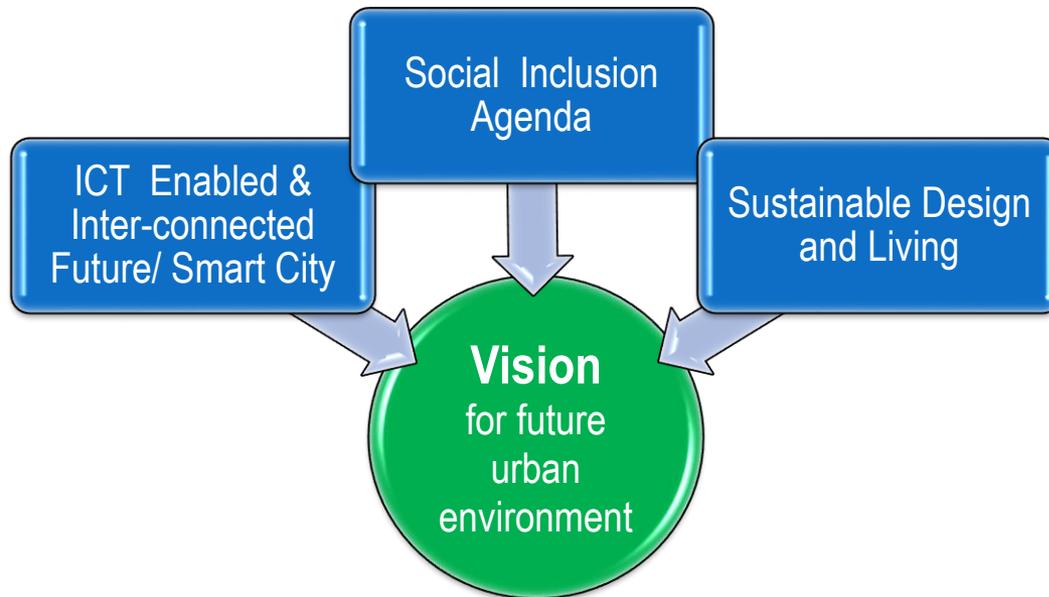


'Future' Infrastructure Delivery Presents New Challenges

- Constraints on public financing has created need for P3.
 - Past failures of P3 suggest that this paradigm needs re-thinking.
- Delivery Model and Organizational Structure are closely interlinked; org structures are evolving to meet delivery needs:
 - Need for continuity of services through life cycle – integrated services org.
 - Integration (ICT or physical - waste to energy) - MUSCo lowers barriers on system integration.
 - Alignment of project complexity with capability [DECA Profile]
- Evolving vision of 'future' urban development (*to be smart, sustainable and socially inclusive*) presents new challenges.



Perspectives on 'Future' Development

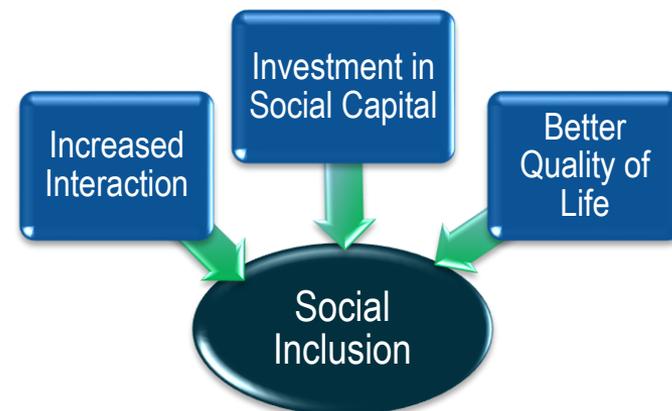


- **ICT community** - believes in a future where the infrastructure services are interconnected - Internet of Things.
- **Sociologists** - want a people centric view of the future.
- **Environmentalists** – consider sustainability goals, critical to the future of our planet.

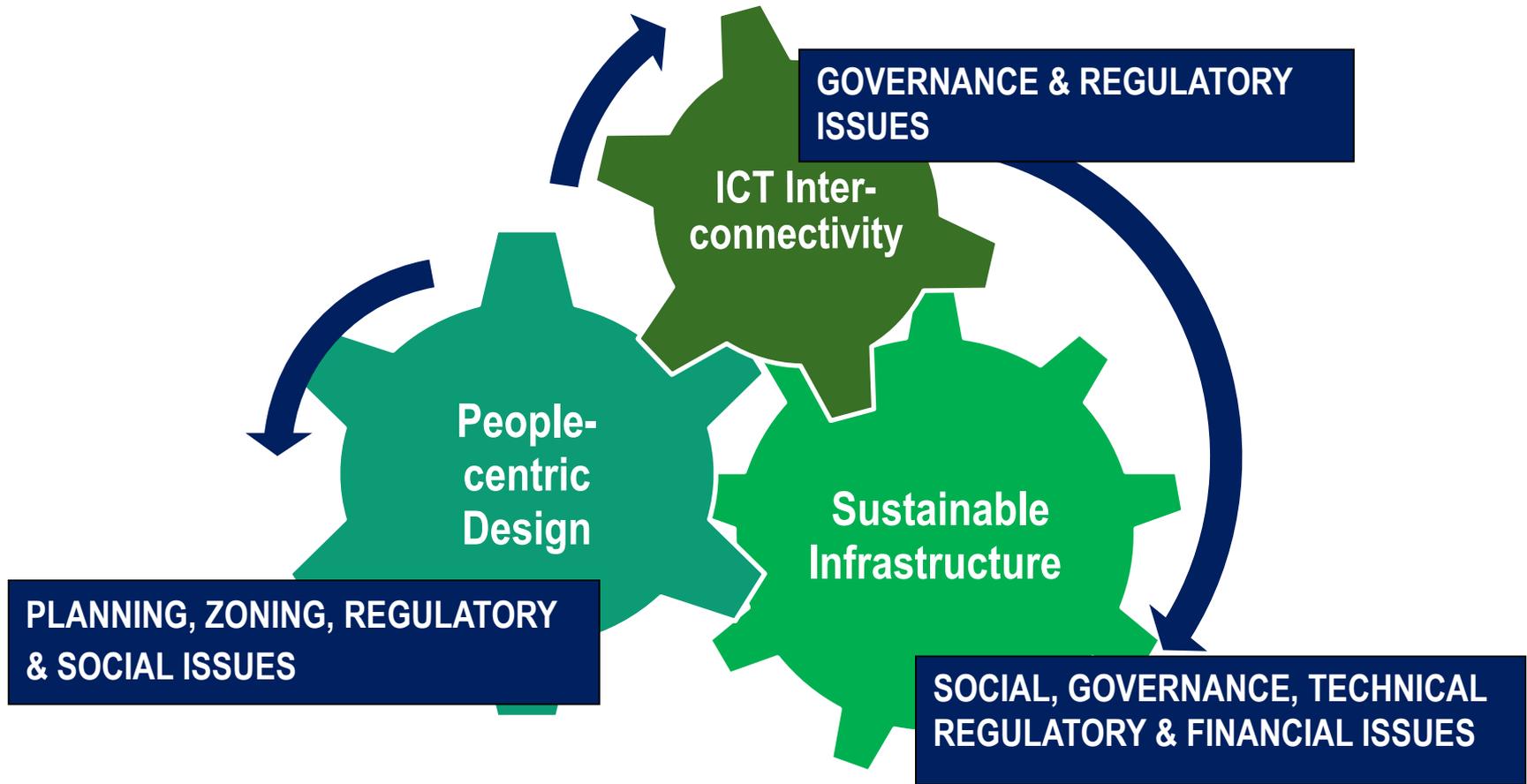
- *These perspectives are not mutually exclusive - interdependent - share common goals. Each necessary but none on its own sufficient.*
- *They open up a host of overlapping technical, regulatory, social and political issues that also apply to P3 financing.*

Inter-relationship of Smart, Sustainable and Socially Inclusive Development

- ICT enables data for system optimization. But large data raises **governance & regulatory** concerns of privacy, complexity and catastrophic failures.
- Future focused on ICT - incomplete if not underpinned by goals of sustainability and social inclusion.
- S.D. in turn must **leverage ICT** for optimization and **advances in technology** for reuse and recycling
- Both Sustainability & Social Inclusiveness:
 - Imply **social/behavior change** to reduce demand, conserve resources, increase interaction.
 - Address **planning & zoning** issues of sprawl, urban regeneration, public transport and reuse regulations.



FUTURE DELIVERY MODEL MUST ADDRESS THE COSTS AND RISKS ASSOCIATED WITH SUSTAINABILITY, SOCIAL INCLUSION & INTER-CONNECTIVITY

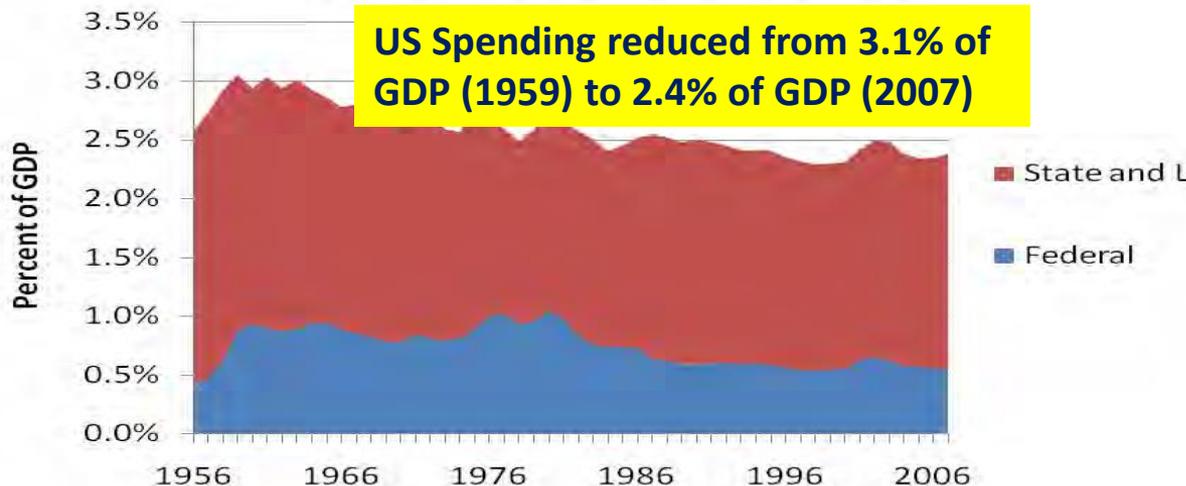


**The optimal DM accounts for these in the various Life Cycle Phases:
SSS is built in Planning, Design Construction; Selection of Options uses TBL Analysis;
Supply Chain Analysis and selection of materials during Construction.**

Infrastructure Financing

- Infrastructure requires large investment -long payback periods.
- Traditionally funded by public sector.
- Municipal Bonds are still the least expensive way to raise capital but constrained by debt-coverage limits & credit rating.
- Public funding is declining at a time when need for repair and reconstruction of infrastructure is increasing [ASCE 2009 Infrastructure Report, CCPPP report,...]

Transportation and Water Infrastructure Spending as a Share of GDP



- ASCE 2009: \$2.2T needed for infrastructure over 5 yrs with a deficit of \$1.17T even with ARRA contribution.
- 2000-2019 spending gap: Clean water \$21B; Drinking water \$45B [EPA].
- Fed Hwy Trust Fund to run out in 2014.

Alternative Financing

■ US Specific Actions

- Private Activity (tax exempt) Bonds; attract foreign investment
- Expand TIFIA to fund 33% of project. [Carew, D., Public Policy Inst. Memo May 2014.]

■ Private Public Partnerships (P3)

- A cooperative venture between public & private sectors built on the expertise of each partner that best meets clearly defined public needs through **appropriate allocation of resources, risks and rewards.**
Source: CCPPP
- Forms
- Advantages (Reduce borrowing, risk sharing, improved innovation).
- Need P3 enabling legislation - 26 US States do not have laws.
- Many past P3 projects have failed or renegotiated.
- **While PPP solutions must be context specific – the path forward must be based on lessons learned from the success and failures of past PPP projects.**

■ Pension Funds – present mutually beneficial opportunities

- Need to improve returns, need reliable cash flow, longer payback, and diversification.

Pension Fund Investment Trends

- Overall infrastructure investment by Pensions Funds still very low.
- Only 18% of infrastructure investment from Public Pension Reserve Fund (PPRFs).
Source: Preqin Infrastructure Online database 2012.
- Canada and Australia lead with 5% PPRF invested in infrastructure – global average is 1% (excluding ownership of listed stocks).
- The \$2.7T U.S. S.S Trust and \$25.3B Belgium Zilverfonds, Russia prefer traditional investments.

Name of Pension Fund	Size of Fund in Bil	Infra. Invest. in Bil
Org. of Municipal Employees Retirement Scheme (OMERS), Canada	C\$ 61.5	C\$ 14.3
CPP Investment Board	C\$ 64.5	C\$ 9.2
Ontario Teachers Pension Plan, Canada	C\$ 129.5	C\$ 7.8
TIAA-CREF – US	NA	US\$ 6.5
ABP, Netherland	NA	US\$ 6
Australia Future Fund	US \$73	US\$ 3.6
ATP Lifelong – Denmark	NA	US\$ 2.6
Public Sector Pension Investment Board, Canada	C\$ 183.3	C\$ 3.6
Sweden AP 2, 3, 4	US\$ 113	NA
California Public Employees Retirement Scheme CalPERS	NA	US\$ 1.7

Measures to Attract Pension Fund Investment in Infrastructure

Objective and transparent screening of projects to demonstrate technical and financial viability

- Establish standard, consistent and transparent criteria and tools

Projects matched with investment opportunities

- Create databases

Offer investments with greater **liquidity for PPRFs**

- Use of open-end investment funds; pooled funds.
- Infrastructure Inv. Bank similar to Ex-imp USA or European Invest. Bank.
- Pension Infra Platform (UK 2012) – National Association of Pension Funds (NAPF) and Pension Protection Fund (PPF) UK – GBP 120B.

Projects are **stable, not subject to political /regulatory uncertainties**

- Not opposed by public and labor unions.
- Generating revenue (low tech., fin., const., operations & regulations risks).
- Performance can be benchmarked.
[Selling established assets to finance new ones]

Consistent /Transparent Tools

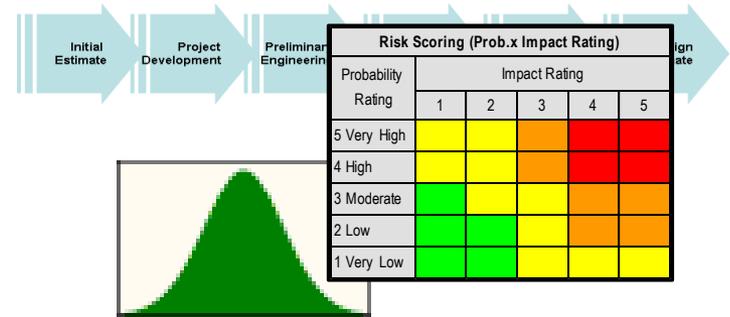
■ Cost Estimation Guidelines (AACE, FACET) :

- *LC Costs i/c Sustainability, Social Inclusion Costs*
- *Risk Costs & sensitivity, MC Simulation, Reserves*
- *Tools for political & regulatory uncertainties (Vulnerability indices; continuous de-risking)*

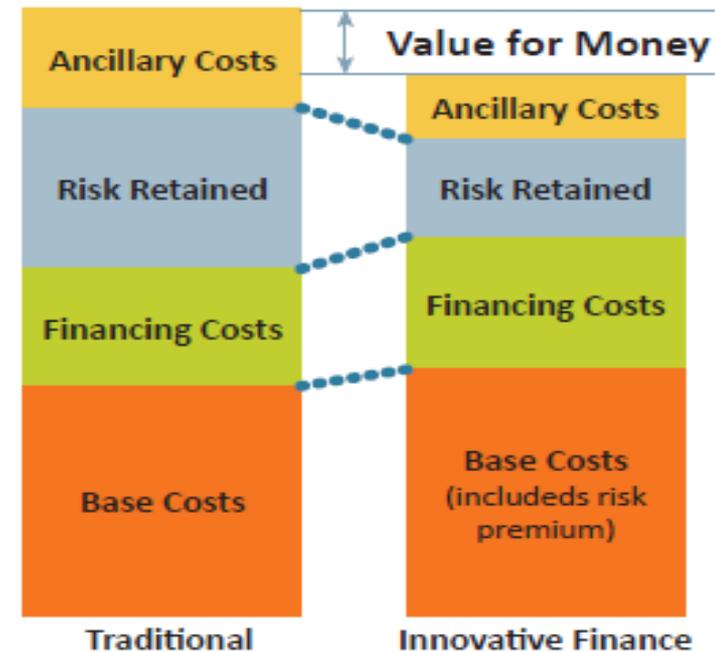
■ Robust TBL for Options Analysis

■ Financial Analysis, Risk Assessment and VfM for Cost and Value Comparison.

- **VfM** compares the risk adjusted life cycle cost of P3 with the Traditional financing option or Public Sector Comparator (PSC)
- **BCE** uses the above to support investment decisions by providing the framework for comparison of procurement options and financing solutions.
- Existing BCE Tools and Methods.
 - **ProjectSelect™** By CH2M HILL in association with CWS Oregon.
 - **Partnership BC Framework**
- **Procurement Methods: PAS91, PF2, LEAN SoPs, P3M3, ECI.**



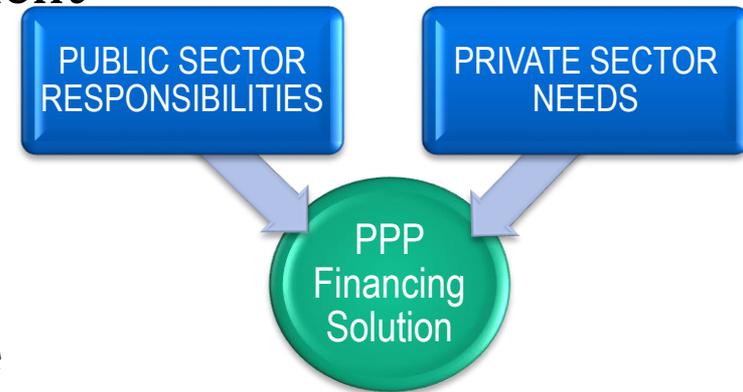
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Source: Adapted in CH2M HILL WCX Report from: "Benefits of Private Investment in Infrastructure", Kearsarge Global Advisors, March 2010

Public Sector Responsibilities & Private Sector Needs

- Private investors are driven by profit, want protection from regulatory risks, government subsidies and ability to set tariffs.
- While public policy makers must mobilize private finance to meet shortfall in public spending they are obligated to safeguard public interest - cannot be oblivious to the 'social' and 'economic' costs and benefits.
- Public sector has a responsibility to ensure:
 - Sustainable Dev.; improve QoL and social inclusion.
 - Transparent Procurement, diligent contract enforcement /oversight.
 - Equitable sharing of risks and gains.
 - Learning from the cost effectiveness /technical expertise of the Private Sector.
 - 'Gaps' between economic and financial returns which imply subsidies (fraught with complexities) are balanced.



Balance Competing Public and Private Interests

The challenge is to find the optimal solution that allows Public and Private sectors to coexist to the advantage of end users meeting the goals that are at the heart of the future urban development vision.

THIS CANNOT HAPPEN WITHOUT A MEANINGFUL ROLE OF THE PUBLIC SECTOR

Public Sector should be an Informed and Proactive Partner in P3

Sharing risks and rewards -

Not limited to oversight, guarantees, subsidies and incentives.

- Typical approach to securing Private Investment:
 - Public sector invites a proposal (often with insufficient design development and financial analysis placing itself in a weak negotiating position)
 - Or responds to an unsolicited private proposal (raising immediate concerns about transparency).
 - Invariably the Implementation Agreement (IA) involves subsidies, incentives, revenue guarantees, tax exemptions, lands and permits from the government.
 - Once the (IA) is signed there is limited public sector contract oversight (not a true partnership).

Forms of Increased Public Sector Participation

- **Equity in a Joint Public-Private owned Company**
 - *Provides the 'co-existential vehicle' where public sector responsibilities can be nurtured without denying sufficient rewards to the private sector.*
 - *Leverages strength of each sector*
 - *Allows equal opportunity to learn and share*
- **Government sponsored non-profits or PPP Enabling Organizations** to facilitate private investment in public projects.

Role of PPP 'Enabling' Organizations

- Establish consistent, standard project selection criteria (Use defined BCE framework)
- Equity Funding & Guarantee
- Expertise & support from RFP to Financial Close.
- Match projects with Private Investors/Pension Funds
- Examples
 - **CCPPP, Partnership BC, WCX, MAX, CIT, PV**

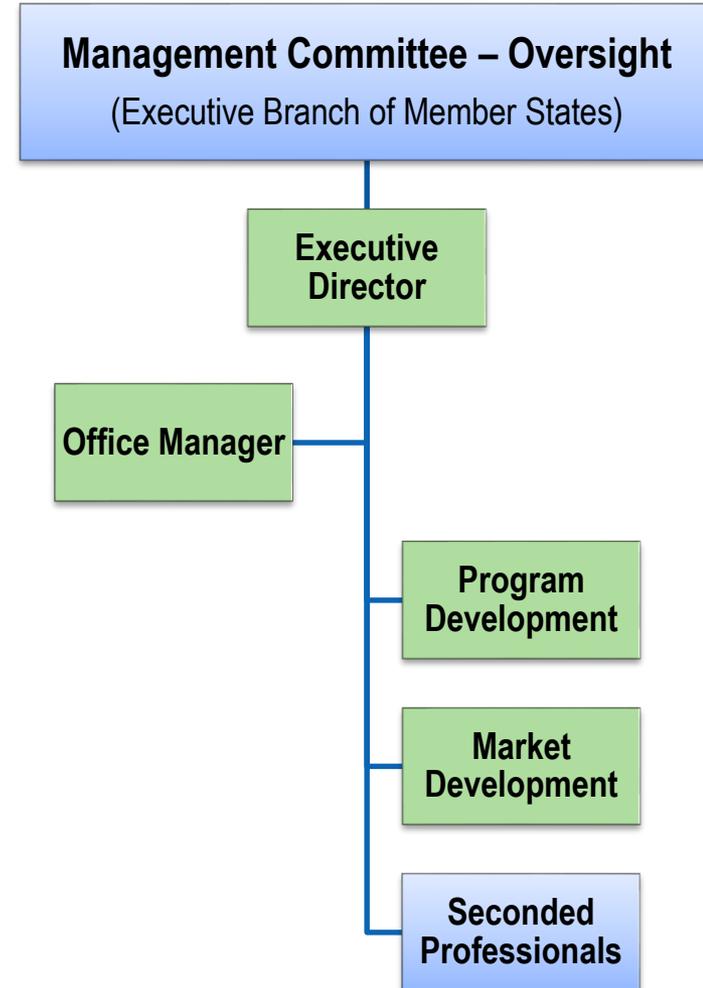
West Coast Infrastructure Exchange (WCIE)

(To deal with funding backlog of the West Coast States of \$1.1T)

- **A non-profit organization of West Coast states – California, Oregon, Washington and British Columbia Canada.**

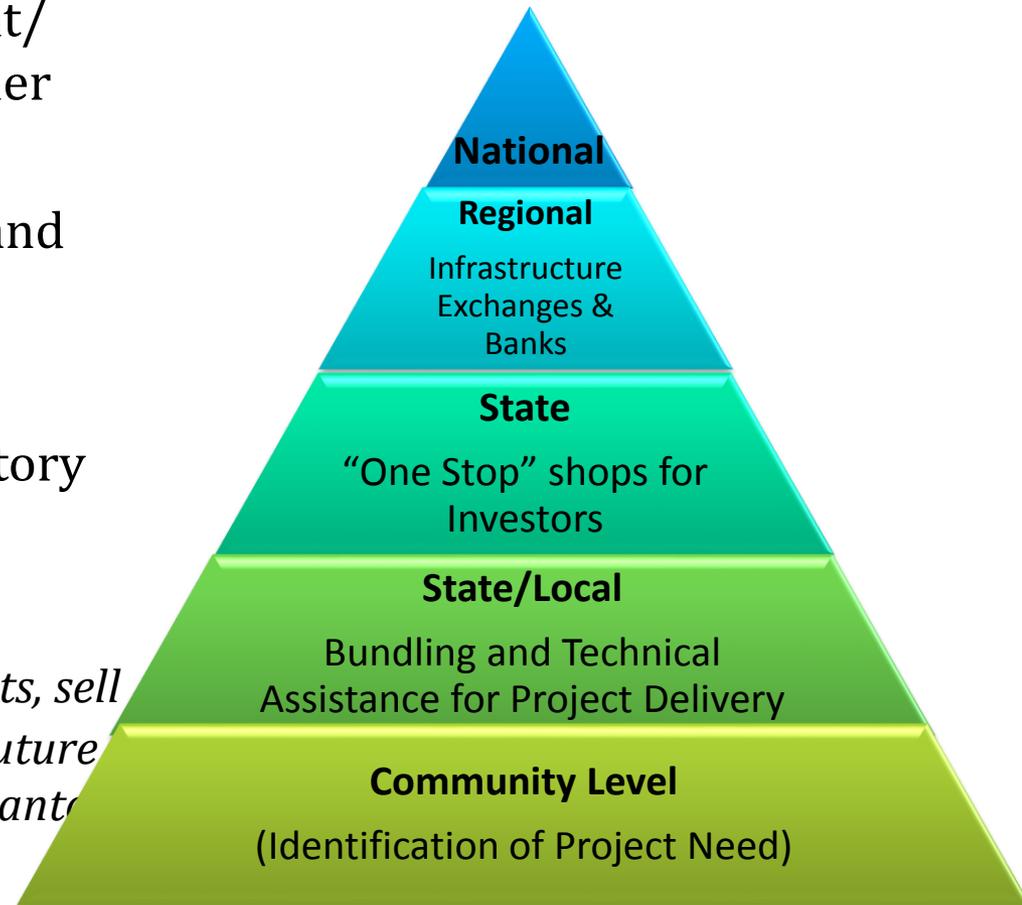
Framework Agreement

- **Center of Expertise to advance PPP and attract private investment** at local and state levels.
- **Management Oversight Committee.**
- **Advisory Board** and 4 staff members.
- **Funding:** Grants & annual member fees.
- **Governance Principles:** Transparency, Public Accountability



WCIE Mission and Goals

- Establish consistent/ transparent/ scalable project evaluation/ lender certification tools.
- Identify database of technically and financially viable projects.
- Attract Private/Pension Funds.
- Provide expertise and set regulatory polices.
- Identify Alternative methods for revenue generation [*Reuse products, sell services, Air rights, borrow against future revenue as in the Atlantic Station, Atlanta*]
- Grow regional and national infrastructure markets in the multi-layered Project Delivery system starting at community level.



WCIE Implementation Plan

- Engaged CH2M HILL in 2012 to:
 - Compare WCIE's vision against international experience.
 - Identify investment needs and difficulties in deploying private capital.
 - Recommend Governance models.
 - Continuing with Rockefeller Grant.

- CH2M HILL report /recommendations:
 - Partner with PBC and CIT.
 - Develop guidance & tools for Risk Analysis, BCE & ranking.
 - Review Pension Fund Investment Guidelines.
 - Move from traditional bond financing and target sources such as CalPERS and CaLSTRS >\$150M
 - Set policies for performance-based contracting.

- Success Factors:
 - Authority, capacity and resources.
 - Dispel fears of the private sector about public sector bureaucracy.
 - Develop consistent tools to evaluate projects.

Enabling Organizations

Canadian Council for PPP (1993)

- Sponsored by public & private members.
- Facilitates adoption of international Best Practices.
- Provide expertise & advise to municipalities without legislation for PPP.
- Educate Stakeholders on benefits
- Strategic Research, conferences and national P3 database.
- Oversee \$1.2 Billion P3 Canada Fund for Infrastructure; funds up to 25% of P3 projects.
- Screening of Projects > \$50 Mil
- Assess Procurement Approach for Federal Projects

Partnership British Columbia (PBC)

- Provincial org; 7 member Board, 2 committees for Risk and HR.
- Initiated the “Performance-based” evaluation framework to provide consistency and standardization across the region.
- Recommended Quantitative Analysis methods for Investment, Procurement and Affordability Decisions (Multi-criteria Analysis, Monte Carlo, Financial Analysis)
- Provides expertise/advice from RFP to evaluation, negotiations and Fin Close.
- Supports Design and Construction oversight.
- Budget \$9 Mil/yr; participated in over projects worth \$17B; charges fee for services.
- Collaborates with Federal CCPPP.

Enabling Organizations

Infrastructure Ontario

- Regional org; provides consistency and standardization across region.
- Advise government on P3 infrastructure through project life cycle /assistance in negotiations.
- Staffed with tech & fin. experts.
- 1000 projects - \$6Bil

Chicago Infrastructure Trust (CIT) - 2012

- Non-profit created by City of Chicago.
- 5 voting & 6 non-voting members
- Capitalized by City Council for \$2.7M and capital from investors
- Assists in attracting private investment for qualified projects.
- Coordinates sharing of resources between public agencies.

Council of Great Lakes Region (CGLR) 2011

- Modernize infrastructure using P3s.
- Improve integration between industry, public, private sectors and academia on infrastructure issues.
- Study policies and laws on P3s in the US and Canada to identify best practices in legislation, financing, design and construction.

Office of Transportation Public - private Partnerships (OTP3) – Commonwealth of Virginia

- Works with VDOT; coordinates projects implemented under the Public-private Transportation Act (PPTA) 1995.
- Services include:
 - Project Identification & Development
 - Procurement & Contract Management

Enabling Organizations

Mid Atlantic Infrastructure Exchange (MAX) – June 2014

- Part of the Clinton Global Initiative (CGI) to access to pension investments and private capital.

European PPP Expertise Center

- Set up jointly by the European Investment Bank, European Commission for public sector members.
- Exec. Director; 18 international members, and Steering Committee of senior EIB and EC staff.
- Share expertise, experience and best practices amongst members (Has a Help Desk)

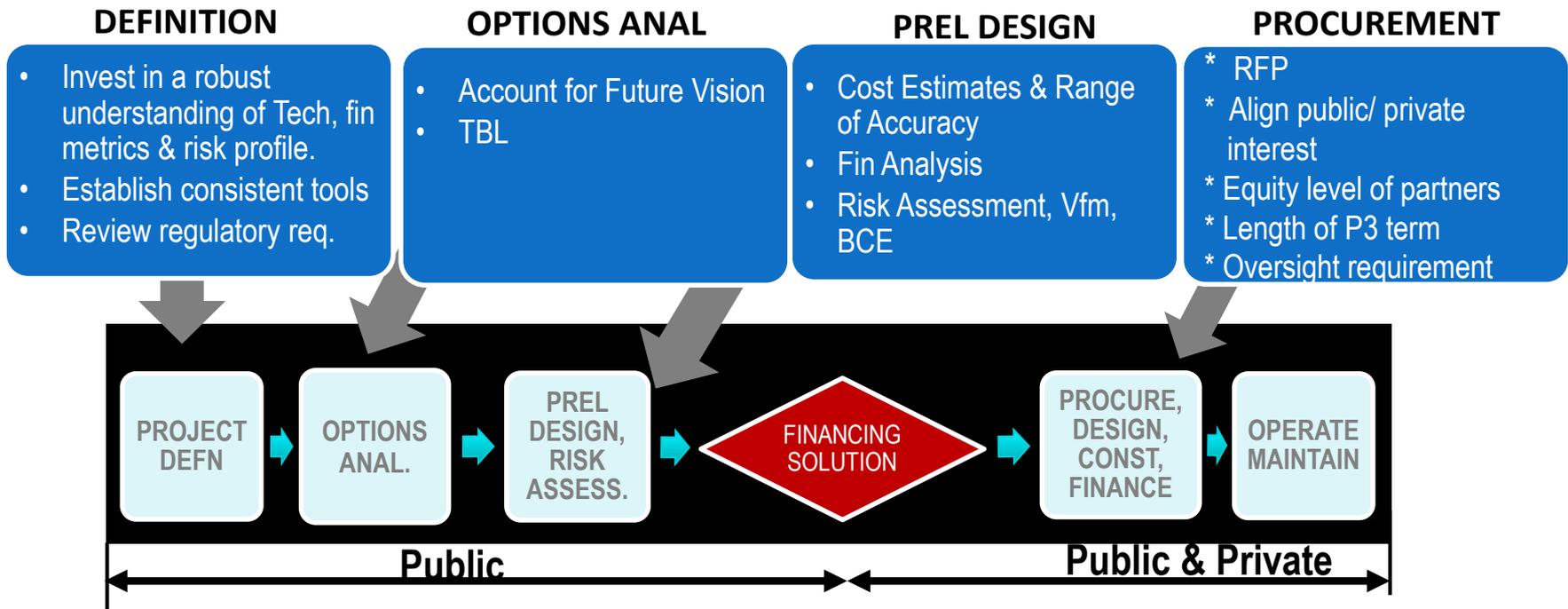
Partnership Victoria (Australia)

- PV is a PPP policy prescribed by the Department of Treasury & Finance, Victoria.
- PV provides a framework for screening projects using PSC & VfM.

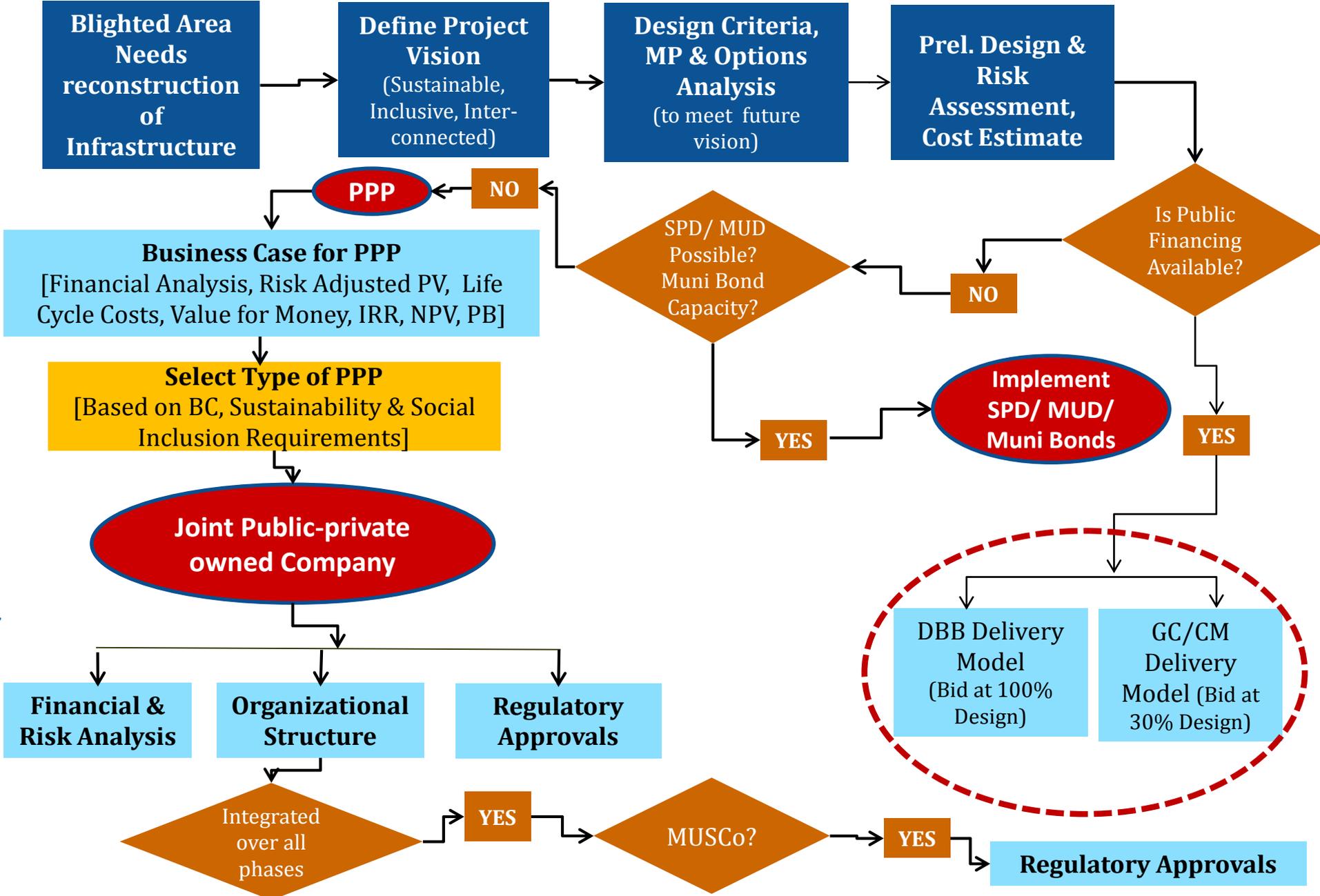
West Coast Infrastructure Exchange (WCIE/ WCX)

Key Messages

- Alternative/ private financing necessary but government must remain a proactive partner to safeguard public interests, ensure that delivery is aligned with future vision, and establish consistent, transparent tools for project evaluation.
- Delivery Model and strategy is much broader than selection of the Financing Solution and Procurement; it spans across project life cycle. Actions in each phase impact the success and effectiveness of the project.
- Important for public sector to invest in developing a robust understanding of the tech & financial metrics and risk profile of project, select financing sol and procurement process.



INFRASTRUCTURE DELIVERY MODEL – WORKFLOW (JOINT PRIVATE-PUBLIC COMPANY)



QUESTIONS?