

Integrated Project Delivery...

in a changing
global and
economic market
place



Project Delivery Models- Overview and Roles and Responsibilities

- What is the professional services providers role? How is it changing with evolving delivery methods and why should this matter to you?
- How do you need to relate to others in the construction industry and how is this changing?
- What are the roles of others and how have they changed?
- How does all of this come into play on complex projects and integrated project delivery?

Project Delivery Models- Overview and Roles and Responsibilities

- 1) Design Tender Build- Traditional
- 2) Construction Management Methodology
- 3) Design-Build or EPC
- 4) Alternate procurement and P3
- 5) Integrated Project Delivery

Lessons Learned- Case Studies

From Master Builder to Master of Many Forms of Project Delivery...and our Roles & Rules

➤ The “Client”

- Owner, end user, government body
- Professional project manager
- Concessionaire

➤ The Consultants

- A/S/M/E, Interior Design
- Cost, code
- geotechnical, survey
- Specialist (LEED, Envelope)

From Master Builder to Master of Many Forms of Project Delivery...and our Roles & Rules

➤ The Contractor / Builder

- General contractor
- Sub-contractor, specialist sub-trade
- Construction Manager

➤ The End User

- Tenants, stakeholders
- Public

➤ The Financiers

- The Banks and other lending institutions

Project Delivery Models: Tried and True

➤ Design – Tender – Build

- Conceive: Client has determined needs and program, vision, budget, site
- Design: the consultants work to suit end client program
- Tender: Design is offered to market place and competitively bid
- Build: the contractor builds to the consultants documents
- Independent qualifications and track record

Benefits, Pitfalls & Challenges

➤ Design – Tender – Build

- Long sequential process
- No involvement by Contractor early on
- Cost defined after design complete
- + Clear definition of roles and risks
- + Clear response to Owners needs

➤ *Clear communications*



Design-Tender-Build
Example

Hamilton Transit Centre,
Richmond, BC



Design-Tender-Build
Example

Mount Pleasant Substation,
Vancouver, BC

Project Delivery Models: Tried and True

➤ Construction Management

- Constructor added as part of the team early on and starts to partner with Client and consultants
- Constructability and major cost and scheduling issues are addressed early
- Usually cost plus scenario, standard contracts
- CM as team member with “design assist” philosophy to consultants
- Team work methodology begins- CM as trusted advisor to owner and consultant team

Benefits, Pitfalls & Challenges

➤ Construction Management

- No defined price (unless GMP) until complete: working to a budget
- + Contractor involved earlier for strategic delivery especially with Design Assist
- + Value Engineering early on
- + Great for messy projects with undefined edges

➤ *More integrated communications*



Construction Management

Example

Avida Sportsplex,
Kitchener, ON

Project Delivery Models: Tried and True

- Design – Build or EPC (Engineer Procure Construct)
 - Designer partnered with builder are team to Client, Builder is consultants client
 - Client has determined program but not always prescribed (this can be a source of problems)
 - Responsibilities between parties shift
 - CM leads the team, team working relationship key
 - Variation between CM and D-B is Design Assist to GMAX or GMP
 - Hopefully standard CCDC 14 and 15 agreements

Benefits, Pitfalls & Challenges

➤ Design – Build or EPC

- Changes to suit clients needs
- Consultants a step removed from end client and their needs
- Liability for errors and omissions changing
- + Schedule control early on
- + Set price from Day 1

➤ *Non-traditional communicating*

Latest and greatest (with Risk Transfer in mind to suit client...)

➤ Alternate procurement or AFP, P3, DFBOM

- Turn key delivery of large complex projects
- Client may have detailed requirements
- Complex long term agreements
- Large multi-disciplinary teams
- Long lead time, long construction windows and long operational life
- Often multiple roles for consultants
- Involves key senior staff, resume critical

Benefits, Pitfalls & Challenges

➤ Alternate procurement or AFP, P3, DFBOM

- Complex legal agreements
- Cost to prepare and submit (Client and proponent)
- Client far removed from consultants
- + Comprehensive way of procuring large infrastructure projects
- + Risk transfer advantageous to Client (cost, schedule, performance)

➤ ***Complex communicating***

New and improved (limiting Client risk transfer)

➤ Integrated Project Delivery or IPD

- A project delivery method that contractually requires collaboration among the primary parties – owner, designer, and builder – so that the risk, responsibility and liability for project delivery are collectively managed and appropriately shared
- The entire project team is equally incentivized to achieve the same set of goals

New and improved (limiting Client risk transfer)

➤ Integrated Project Delivery or IPD

- Newest concept with total collaboration to meet common goals: on time, on budget, no litigation!
- Secondary goals: cost savings, faster, innovation!
- Basic premise is risk/reward sharing
- Involves owners and operators, consultants, contractors and sub-contractors and financiers
- Particularly successful for complex projects involving multiple parties and stakeholders (hospitals)

New and improved (limiting Client risk transfer)

➤ Integrated Project Delivery or IPD

Challenges

- Contracts and legal implications in their infancy (AIA format) and law to be tested
- Requires an unusual level of transparency from all parties which may be culturally difficult
- Current examples and case studies are American. First IPD underway in Canada on Moosejaw Hospital
- Clients are suspicious

New and improved (limiting Client risk transfer)

➤ Integrated Project Delivery or IPD

- Team is critical as trust is mandatory
- Past collaboration, partnering and successful project completion must be illustrated
- The right personnel with the right attitudes on all levels are key ingredient
- Owners team may include stakeholders and operators, fairness monitors, mediators
- Consultants and sub-consultants, contractors and sub-contractors all bring their team members to the table

New and improved (limiting Client risk transfer)

➤ Integrated Project Delivery or IPD

■ Three tools for success:

- 1) A facilitator...and sometimes a mediator
- 2) Lean Construction type process
- 3) BIM and 3-d modeling

- 1) The team leader with top notch communication and orchestration skills.
 - Trusted and respected by owner, consultants and contractors;
 - Understands “the big picture”.

New and improved (limiting Client risk transfer)

➤ Integrated Project Delivery or IPD

2) Lean construction methodology including:

- Focus on early integration of everyone's requirements
- Pull planning and look ahead scheduling
- Understanding of up stream work
- Collaborative determination of and scheduling of critical path activities
- Innovative methods and means for design and construction

New and improved (limiting Client risk transfer)

➤ Integrated Project Delivery or IPD

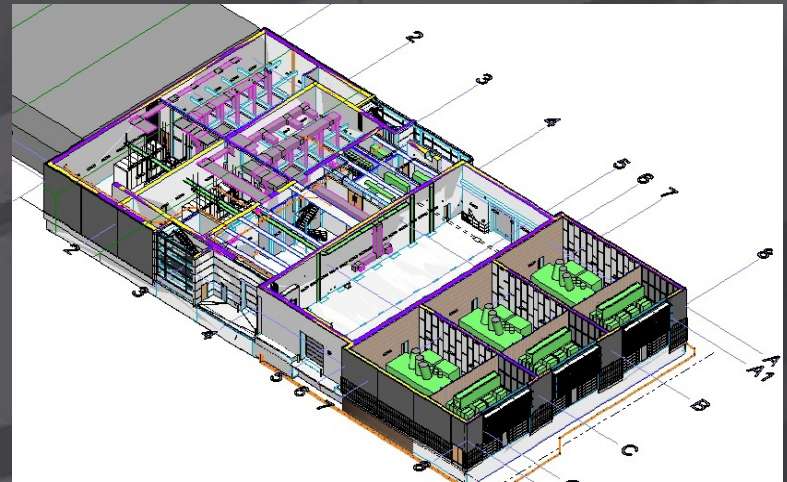
3) Virtual construction scenario with BIM as communication and visualization tool

- Integrated model creation between designers and contractors;
- Clash and interference detection;
- Collaborative “on paper” virtual problem solving rather than in the field;
- Dramatic reduction of RFI’s and improved schedule and quality control

Benefits, Pitfalls & Challenges

➤ IPD

- + Usually with BIM
- + Less construction conflicts
- + Early involvement of all parties
- + Extensive buy-in by all parties
- Needs good common liability coverage
- Can be complicated role & risk definition



BIM Model Example

Mount Pleasant Substation,
Vancouver, BC

➤ ***Extensive Communications***

IPD Survival Strategies

- Understand “who’s who”
- Involve everyone, regardless of status
- Communicate and create collaborative processes!
- Remember we all make mistakes
- Listen (hear!) and involve the “other side”
- Direct with thought, insight and common sense
- Your resume and your past matters
- Continue to attend networking functions.....

IPD Survival Strategies

- Do good work
- Have a little fun
- Make a little money
- No one gets hurt

Thank-you

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