



Integrated Project Delivery

Creating Added Value from Construction

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Why is IPD important?

- Potential to reduce the 30% wasted effort typically found in construction projects
- One third waste reduction could lift Australian construction output by more than \$10 billion annually

“.. value is measured not only by the creation of new physical assets but by such factors as return on investment, extra value from capital, supplier margins, quality of life factors (including health), extra services provided to end-users, improved operator morale, and lower maintenance and operating costs.”

“Projects as Wealth Creators”, Property Council of Australia, 2001



ACIF and APCC working group

- ACIF and APCC are developing a suite of tools to help clients and project teams reduce wasted effort which in turn creates added value
- The goal is to encourage wider use of IPD, by identifying and getting rid of the roadblocks to early appointment of trade contractors
- “Marriage” of IPD and BIM is seen as critical to optimising both
- Group members include contractors, trade contractors, designers, government policy executives
- They have a blend of commercial and BIM skills



Main headings

1. Critical success factors
2. Wasted effort root causes
3. Where can we reduce wasted effort?
4. Client strategic choices
5. Identifying policies impacting wasted effort

1. Critical success factors

- The greater the degree of integration of the skills and disciplines of its different members, and resulting collaboration, the more likely it is that wasted effort will be minimised.
- The greater the degree of integration of project team members including contractors, specialist contractors and key manufacturers, and use of BIM, the greater the opportunities for them to assist clients and design consultants efficiently meet a projects' functional objectives.



Client and team leadership

- The earlier that team members are integrated in to the project team, the better.
- Integration and collaboration do not just happen; they require proactive leadership by the project leadership team.
- Integration and collaboration need to be worked at throughout the project.



Collaborative project culture

- The benefits will not be achieved within the hierarchical and adversarial project structures that now typify the industry.
- The “silos” of traditional design disciplines and trades mitigate against achieving the higher performance which can be achieved in a collaborative environment.



2. Wasted effort root causes

1. Executive team leadership not being proactive; corporate policies inducing wasted effort and project culture breeding poor team relationships and ineffective communication
2. Lack of team integration along the supply chain with inadequate design management, including imperfect use of technology
3. Business case creating unrealistic expectations of time , cost and functionality with project initiation based on an inappropriate project delivery strategy



2. Wasted effort root causes cont'd

4. Inadequate project start-up and/or induction with lack of empowerment of project team to strive for continuous improvement and issue resolution
5. Traditional inefficient work practices and inadequate project control rigour

3. Where can we reduce wasted effort?

Where is the Waste?		Opportunity
1	Lack of work continuity - between designers - between designers / trades - between trades	>10%
2	Work learning curves	>5%
3	Poor planning & performance measurement / reporting	>10%
4	Design iterations to reduce cost	5-10%
5	Designing independent of manufacturers & fabricators	>20%
6	Incomplete briefs / client changes	???
7	Material availability / transport delays	>5%
8	Rework	5-12%

4. Client strategic choices

- Client strategic decision choices substantially determine the manner in which the project team is conditioned to behave.
- They determine the bounds within which later decisions regarding the nature and quality of documentation, and the project management system, are made.
- They are at the heart of whether a collaborative approach to the project is possible.

What are the critical client choices?

1. The establishment of the project environment or culture
2. Level of trust shown in the skills and behaviour of the project team (particularly the head contractor)
3. Risk appetite/tolerance of the asset owner and financiers
4. Financial management of the project;
5. Project delivery strategy selected and its appropriateness to the asset, market and site conditions

What are the choices?

6. Brief given to the client project director and the limitations it places on that person to deal equitably with other parties to the contract when solving problems.
7. Project integration between client and all team members.
8. Team member selection with their roles and responsibilities.
9. The degree of integration of design development with construction and operations & maintenance.

Mapping the choices

- Key decisions along the project journey can be “mapped” in a maturity model.
- Simulating the decisions made at each decision point or “crossroad” allows the client and project team to determine the level of performance they would like to achieve.
- Where there is a difference between the current decision state and the desired state, actions to bridge the gap can be determined.
- The next slide shows an example - mapping the decision crossroad for Project Team Integration



Mapping the choices Project Team Integration

Worst Industry Practice	Typical Industry Practice	Towards Outstanding	Outstanding Practice	Exceptional Practice
Contractors seen as 'necessary evils', given no respect & told to build what's designed.	Desirability to involve contractors in design is recognised, but nothing is done about it.	Key specialist contractors involved in design development.	Design teams of consultants & specialist contractors integrated for design development & manufacturing.	Project team integrated to deliver end-user services.

Hear

<i>"We'll sort out our documentation problems only if found & raised by contractors."</i>	<i>"We don't have time to involve contractors in design details."</i>	<i>"The contractor helped prepare a practical design."</i>	<i>"We understand the need to put aside silos & egos & work together."</i>	<i>"We look forward to our project team doing the next job together."</i>
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See

Elitist consultants	Designs 'pushed' onto contractors with many RFI's & variations.	Team members start to recognise there's a lot of wasted effort in design without early access to specialist contractors.	Co-located project team with best person for the job.	Team develops skills to understand client business & to add value to client's customer services.
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5. Identifying policies impacting wasted effort

Use the Map as an assessment tool to simulate choices.

Choices are generally dictated by corporate policies, processes and practices.

Policy Choices by the client establish:

- Overall strategy for developing and operating the facility
- Opportunities to identify and reduce wasted effort leading to business case improvements

Process Choices by the client and project leadership establish:

- Tactics for implementing the clients policy choices
- Processes to identify and reduce wasted effort

Practice Choices by the project frontline management establish:

- Performance objectives and KPIs for design and construction work, derived from the process choices
- Action plan, owned by all team members, for identifying and reducing wasted effort



Practical outcomes of the ACIF/APCC work

- An overview of what is involved in selecting and managing IPT's.
- A maturity model of the key project journey crossroads that determine project outcomes.
- A suite of individual tools needed to “bridge the gap” between current performance for each crossroad, and desired performance.
- Target date is November 2011.

