

THE 3DM MODEL

A DELIVERY METHOD SELECTION METHODOLOGY

EDITORS

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1.1 GENERAL BACKGROUND

Governments play a significant role in the water industry in Australia. Government agencies purchase the great majority of the goods and services in the Australian market, and also supply a major portion of the market for services through various authorities and business enterprises.

With the impact of National Competition Policy and other government reform agendas, the way in which government monopoly agencies affect the market is changing - as has been the case overseas in other mature economies - and a greater depth in the private sector infrastructure and services delivery market is appearing.

Parallelling this change in the public infrastructure market has been the emergence of a number of alternatives to the more traditional methods for infrastructure and service delivery. Within the water industry, the 1990's saw an increasing number of competitors willing to offer alternative contract packages. Tender outcomes across the country during the 1990's indicated that there is now a fully competitive marketplace for all forms of delivery at most contract values.

The emergence of these alternative delivery models, in the context of a competitive marketplace, offers Water Agencies (Corporations, Authorities and Local Governments) a useful opportunity to re-evaluate the effectiveness of their current practices. The opportunity exists to reassess how to achieve best-value-for-money in expenditure for infrastructure development and ongoing service delivery. In the mid 2000's, another factor has emerged to influence decisions on government procurement strategies - the severe shortage of construction engineering and trades personnel, particularly in Queensland and Western Australia.

The **3DM Model** is a decision making tool that assists in the selection of the best-fit delivery method (form of contract) for a particular project in order to achieve best-value-for-money. The **3DM** is specifically developed to:

- be soundly *principles-based* in its approach,
- be acknowledged by the public sector and the industry as rational and unbiased,
- be reasonably simple in its implementation, and
- produce consistent and repeatable results in each application.

A brief history of the development of the 3DM Model is provided in the following Section 1.2. The history provides a perspective on the means by which the **3DM Model** came to be developed as an independent decision-making tool, and some of the background reasoning to the particular techniques and approaches adopted.

1.2 DEVELOPMENT OF THE 3DM MODEL

During the period 1994-96, the Environment Management Industry Association of Australia (EMIAA) and the Environmental Industry Development Network (EIDN) investigated current outsourcing practices in Australia for the water and wastewater sectors. EIDN was an industry body set up by the Australian Government and federally funded to foster and promote the water industry.

It was found that, although a growing number of water industry agencies had used Design & Construct contracts as a useful delivery strategy in particular circumstances, there was a continuing reluctance by many water businesses and local governments to evaluate and adopt some of the other available delivery solutions. There were often a number of reasons for such an outcome; and some agencies may need to consider that there may be some internal factors working against the acceptance of alternatives. For example:

A Segmented Decision Making Process:

There is a natural reluctance within purchasing agencies for one division of the agency to propose an unfamiliar project delivery model without having obtained beforehand some broad-based backing for the proposal or a perceived mandate for its planned course of action. This issue often surfaces as the *"Lack of Authority"* position. For example, the service provider arms of the agency typically see the instigation of novel decisions such as using new delivery models to be a purely political decision that can only be made by the Agency's Board or CEO. However, the reverse position from Board members may be that its role is primarily to review the recommendations of its senior managers.

Urgent Pressures for Infrastructure Delivery:

The agency may not hold sufficient in-house knowledge of the various delivery models to be able to evaluate quickly and rationally the best choice of model for a particular project. When this lack of knowledge coincides with a pressing urgency to develop infrastructure so as to meet growing demand, the *"We don't have time for this"* situation may arise, and the decision is usually taken to implement the traditional project delivery model in order to meet service delivery needs.

Resistance to Change:

In making major purchasing decisions, there is a natural human tendency to persevere with the tried and proven delivery techniques rather than *"pioneer"* a new alternative, ie the *"Devil you Know"*.

Corporate Agendas:

Sometimes the agency can find that its willingness to pursue any potential gains offered by alternative delivery models is tempered by the need to observe overriding corporate

agendas, agendas which are usually not core to the project outcomes, eg. a desire to retain hands-on control of service delivery, a desire to avoid disruptions in staff employment security, or a desire to avoid notoriety for introducing “privatisation” contracts (the “*Not In My Term Of Office*” position), and other such issues.

Many organisations also argued strongly during the original consultation program for the Model development that vested interest groups promote particular project delivery methods that suit their own particular interests - be that design work, financing opportunities, convincing clients to hand over operations, or keeping work in-house. Equally, however, where an Agency does not formulate a balanced view of its own detailed objectives in delivering a project, the choice of delivery method may readily reduce to a political or bureaucratic decision. Such a decision may be one that is driven by the dominant personalities or by forceful arguments from proponents concerned with peripheral agendas.

Plainly, change should not happen for change's sake; it should occur only when there are clear and substantial benefits to be gained by pursuing the change, and where any downside risks can be effectively managed. This viewpoint should not preclude, however, the thorough evaluation of all marketplace opportunities and the adoption of the most appropriate solution.

From follow-up workshops with a number of water agencies, it was identified that assistance in selecting the most appropriate method of project delivery was one of the most important areas for additional work. This **3DM Model**, a decision-making tool for delivery method selection, responds to that industry finding. Since the original model development, local governments and other government water businesses in Queensland, NSW and Victoria have contributed to the refinement of the model; now represented in this Version 3.2

Editor’s Note:

Version 3.2 of the 3DM was especially produced to accompany the Queensland Department of Local Government’s *Review of Infrastructure Delivery Options and Decision Making Processes*, published in 2001. In that respect, much of the usual content in Section 3 - Generic Models has been omitted as it is repeated in the *Review*.

This version 4.0D of the model is written with a view to current market procurement practices in the mid 2000’s; and with a particular modification of the specific risk allocations to suit consideration of a dam building or upgrading project.

2.1 PRINCIPLES OF THE 3DM MODEL

The **3DM** Model is a decision-making tool that provides a clear, rational, repeatable process useable by both executive and elected officers of a government agency to determine the most suitable form of contract, or delivery method, for a given project or facility development.

As well, it resolves the hurdles to effective decision making that were described in the Introduction, viz.

- The “Lack of Authority” perspective, which typically arises from the segmented recommendation-and-approval business cycle of most agencies, is neutralised by a decision methodology which fosters collaborative decision-making rather than the usual hierarchical process.
- The “We don’t have time for this” perspective, which typically forces ongoing continuation of the status quo due to a lack of knowledge on how to otherwise proceed, is addressed in part by this Model. By providing a new management tool that comprises both a broad overview of the various alternatives as well as a rational method of evaluating their likely suitability for the Agency’s project, the time restraints become less significant.
- The information provided also assists in the resolution of the “Devil you know” concerns; clarifying the various delivery models offered by service providers, and enabling them to be competently applied to new projects. The information provided on alternative delivery models in the *Review of Infrastructure Delivery Methods and Decision Making Processes* also addresses this concern.
- The “Corporate Agenda” positions that typically arise from an incomplete appreciation of the key project issues are neutralised by a process that gives equal consideration to all issues before establishing the critical decision making issues. This approach allows all issues to be considered holistically, with no issue placing an untoward or inappropriate emphasis in the choice of delivery model.

2.2 AN OBJECTIVES - BASED TECHNIQUE

The **3DM Model** is fundamentally structured about selection of a preferred delivery method based on targeting the achievement of project objectives.

This approach recognises that the best outcome for an agency will logically be achieved by focusing on the desired outcomes for a project rather than the immediate issues surrounding it. Such a 'project objectives' methodology allows all relevant project-specific issues as well as numerous corporate agendas to be considered with equal intensity in the decision-making process.

That is, rather than seeking to allocate responsibilities between purchaser and provider on the basis of which party is best able to bear them, the approach taken is to evaluate what the purchaser hopes to achieve by the purchase, both in the delivery of the project and as its final outcomes, and to assess in a holistic fashion how each alternative delivery method might be likely to ensure those objectives are achieved. This approach is essentially one of comparison; a method that identifies what is wanted, then compares all the available alternatives to assess which one provides the best solution.

This approach is particularly suited to any project likely to be subject to a wide range of corporate pressures for non-technical outcomes; which would typically include most larger projects.

The **3DM** approach emulates the classical business management approach to achieving desired goals; selecting the most appropriate delivery strategy *only* when the purchasing objectives for the project are thoroughly understood. When the purchaser clearly understands these needs, then a rational decision is able to be made as to the form of delivery model most likely to ensure the water agency's needs are achieved. In effect, the **3DM Model**:

- ⌘ seeks to establish the needs of the purchaser, then
- ⌘ establishes the core issues driving the decision-making process, and then
- ⌘ compares how each of the available delivery models is likely to fit the purchaser's needs.

As simple as the above explanation may seem, identifying (through application of the Model) the real balance of corporate and project drivers behind the project purchasing criteria has proven, in all applications of the Model through to the release of this Version 4, to be the real feature of the process.

The diagram overleaf shows how the **3DM** methodology mimics these established business management principles.

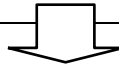
PROJECT GOALS	The common link between the Agency and the project
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ISSUES AND OBJECTIVES WEIGHTING ALLOCATION SHEET

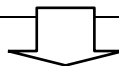
Project Goals are the primary reasons for proceeding with a project, and should strongly correlate with the Agency's Corporate Goals. Typical project goals may include:

"the provision of water purification (or reclamation) services of sufficient capacity to meet the needs of the community" or

"the cost effective provision of services in a manner consistent with ecologically sustainable development", etc.

**PROJECT OBJECTIVES****The specific outcomes required of the project**

Project Objectives are the specific targets by which the Project Goals are identified as measurable target outcomes eg.; *to provide a water treatment facility to a nominated capacity and to nominated performance standards by a required in-service date.* They also typically include a range of corporate business objectives that are not specifically related to the project, eg. *to remain below an identified borrowings level, etc.*

**PROJECT STRATEGIES****The methods by which project objectives will be achieved**

Project Strategies encapsulate the specific methods by which it is planned to undertake the project, and include strategies on the project delivery model, contractual packaging, and the like. These strategies are focussed on devising the means of delivery that will *maximise the likelihood of project success and minimise the possibility of failure.*

This is the area of emphasis for the **3DM** decision making methodology, as it focuses on evaluating which delivery strategy is most likely to produce the outcomes (ie goals and objectives) desired by the agency.

**PROJECT TACTICS****Specific devices to enhance the likelihood of project success**

Project Tactics focus on fortifying the likelihood of project success by devising specific tactical measures that will strengthen the generic form of the selected delivery strategy. Project tactics typically include devices such as purpose written "Special Conditions of Contract" and the like.