Best Practice Value Management in Australia: Key Principles, Practices and Case Studies.



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AGENDA

- Context
- Alignment
- Key Principles & Practices
- **VFM-Labs**
- Case Studies
- Key Takeaways



CONTEXT

• VM in Australia

Best Practice Value Management (IVMA)



CONTEXT: OUTLINE OF HISTORY OF VM IN AUSTRALIA



CONTEXT: USE

VM Studies:

- Australia, New Zealand
- New Guinea, Kiribati, New Caledonia
- Singapore, Hong Kong
- UAE, Saudi Arabia, Yemen
- Mauritius
- USA, Argentina, Guyana

VM Training:

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- Australia, New Zealand
- Singapore, Malaysia, Hong Kong
- Canada, USA, Chile, Argentina



ALIGNMENT

- National Value Associations
- Standards Principles
- Standards Process



ALIGNMENT – NATIONAL VALUE ASSOCIATIONS' OBJECTIVES & FOCUS

The Institute of Value Management Australia (IVMA) is Australia's peak body for the definition of value & achievement of best value for money

Purpose:

- To help everyone achieve best value for money
- To apply and protect the Australian Standard for the application of Value Management
- To promote the benefits of the Value Management process in pursuing best value for money
- To support & foster an accredited group of professional VM practitioners working to AS4183: 2007

Key Activities:

- Improving understanding and application of VM, including managing the IVMA website, issuing 'Value Times' magazine 4 times a year and conducting webinars
- Accredits VM Facilitators, Value Analysts and VM Trainers*
- Accredits VM training courses (principles and facilitation)*

(*as an NCO, rather than an NVA)

The Society of Valuemanagers (SoV) represents a Value Community and promotes best practise in Value Management

Mission:

- Promote the Application of Value Management in Austria and worldwide for the Benefit of Governments, Industry, Practitioners and Society
- Develop further applications in the field of Value Engineering and Cost Engineering VA/VE

Key Activities:

- Run the Austrian NVA and cooperate with the NCO on Value Management EN12973, namely IITR
- Produce publications
- Develop the standards under Value Management
- Organise the annual Valuemanagers Summit conference
- Operate the SoV website
- Training
- Support and provide advice
- Co-operate with other national value associations (NVAs)



ALIGNMENT - PRINCIPLES

Guiding Principles AS4183:2007*

- Separate The Value from The Money
- Define Value using the Value Factors
- Functions expressed as active verbs & measurable nouns
- Value for Money = Value / Total Cost
- Value Management Brief required
- VMS Team mix/knowledge is critical
- VMS as early in life cycle as practicable
- Facilitation strategy required for VMSs
- Follow structured Work Plan
- Assumptions need to be stated and tested
- Recognise and capture multiple stakeholder perceptions
- Consider entity within broader system
- Record in auditable and measurable way
- Group learning is key

*Paraphrased in part

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EN 12973: 2020 Value Management Approach

Applying Value Management Principles

- Strengthen Value Orientation
- Apply Function Thinking
- Apply a structured holistic approach
- Managing complexity, risk & uncertainty

Value Drivers (Levers)

- Collaborative style of managing fundamentals
- Motivate positive human dynamics
- Consider both internal and external environment
- Apply proven methods and tools

Value Culture

ALIGNMENT - PROCESS

EN 12973:2020 - VA / VE Work Plan (Annex A, A.1.2.2)

AS4183:2007 VMS Work Plan

Save International VM Job Plan



Stage I

PRE-WORKSHOP PLANNING

- Planning
- Preparation including

Pre-meeting with Sponsor(s)

Stage 2

WORKSHOP PHASES/ACTIVITIES

Building Shared Knowledge & Understanding:

- Objectives & Scope
- Value Statement
- Givens & Assumptions
- Project context/information
- Function Analysis

Idea Creation & Evaluation:

- Create & Capture Ideas
- Evaluation (Filtering)

Alternative Solutions Development:

- Theming and/or Development of Alternative Proposals
- Presentation & Assessment

Stage 3

POST-WORKSHOP

- Further development, if required
- Reporting conclusions and recommendations (VFM judgements) and associated Action Plan

KEY PRINCIPLES & PRACTICES

DEFINITION OF VALUE AND VFM

BUILDING SHARED KNOWLEDGE & UNDERSTANDING

KEY PRINCIPLES & PRACTICES: VALUE

- Separate The Value from The Money
- Define Value in terms of the Value Factors

Ref: Dr Roy Barton, Value Times, Winter Edition, 2021

KEY PRINCIPLES & PRACTICES: VALUE-FOR-MONEY

Definitions of Value-for-Money (VFM)

"A measure used for comparing alternatives based on the relationship between value and total cost"

"Value-for-Money denotes, broadly, a net measure where the required benefits (including quality levels, performance standards, and other policy objectives such as social and environmental impacts) are balanced and judged against the cost (price and risk exposure) of achieving those benefits. Generally, Value-for-Money is assessed on a 'whole-of-life' or 'total-cost-of ownership' basis..."

Achieving best Value for Money requires balancing of the 4E's: Effectiveness ('spending wisely'), Efficiency ('spending well'), Economy ('spending less') and Equity ('spending fairly') Contracting Guidelines: Note 4 – "Reporting Value-for-Money Outcomes", Australian Government Department of Infrastructure and Regional Development, September 2015

AS 4183: 2007

National Alliance

UK FCDO 4E Framework (formerly UK Department for International Development, or 'DFID')

KEY PRINCIPLES & PRACTICES: BUILDING SHARED KNOWLEDGE & UNDERSTANDING

Cultural:

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- Safe space/Group Learning
- Leadership Opportunity: Visible corporate leadership and ownership

Steps/Activities which contribute:

- Objectives & Scope: Alignment
- Value Statement: Concise (Strategic) Definition of Value [Next Slide]
- Givens & Assumptions
- Context Constraints, Battery Limits, Basis of Design
- Issues/Priority Focus Areas
- Function Analysis/Function Thinking

THE VALUE STATEMENT

- Based on the Value Factors:
 - Useful/Primary Purpose
 - Beneficial Outcomes
 - Important Features
- Examples:
 - De-identified Pumped Hydro Project
 - WestConnex, Sydney

VALUE STATEMENT EXAMPLE: DE-IDENTIFIED PUMPED HYDRO PROJECT

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VALUE STATEMENT (DRAFT)

The purpose of this Value Statement is to define Value for the **statement** as an operational facility, i.e. it provides a high-level strategic vision of the entity after implementation – its use, benefits and important features. This does not relate to implementation per se. Rather, it provides:

- A concise, high level and transparent guide to decision making during the remainder of project development and delivery; and
- A basis for Benefits Management

PURPOSE

To support the energy transition in Australia by providing additional energy storage in the energy network.

BENEFICIAL OUTCOMES

The following beneficial outcomes will be evident if the project implementation achieves the above purpose:

- Ability to more fully capture and utilise renewable energy captured from solar and wind sources at the required times
- 2. Reduced reliance on fossil fuels
- 3. Reduced Greenhouse Gas Emissions to mitigate climate change impacts
- 4. Broader environmental benefits
- 5. Broader economic benefits

IMPORTANT FEATURES

The *Important Features* for the **career** (as a completed project) have been categorised into the following three priority levels:

- 'MUST HAVE' the Important Feature must be included/satisfied in the implemented solution/facility
- 'SHOULD HAVE' the Important Feature is a high priority need/requirement that should be included in the implemented solution/facility, but only if budget and time permit
- 'COULD HAVE' the Important Feature is considered desirable, but not absolutely necessary, i.e. it could be included in the implemented solution/facility if there is no material adverse cost or time impact during development and delivery and/or operation and maintenance, or if the feature is able to self-fund

VALUE STATEMENT EXAMPLE: DE-IDENTIFIED PUMPED HYDRO PROJECT (continued)

Important Features: Must Have

Feature Ref	Feature Category	Important Feature	
1	Capacity/Duration	generating capacity/duration	
2	Safe to operate and maintain	 The facility is inherently safe to operate and maintain as far as reasonably practicable 	
3	Quality/Longevity/Durability	 The facility is of a quality consistent with the long term design life requirements (e.g., 100 years for civil/structural aspects) 	
4	Environmental Impact	 No surface infrastructure in No uncontrolled releases of contaminated/high sediment content water during operation 	
5	Visual Amenity - General	 Any above ground infrastructure outside must not have an adverse impact on visual amenity No above ground power transmission lines to the north, east or south of the facility 	
6	Public Roads	 Connectivity maintained to at least pre-project levels of service/standards 	

Important Features: Should Have

Feature Ref	Feature Category	Important Feature	
1	Upgrade pathways	 Access, clearances and isolation arrangements to facilitate zero or minimal disruption to operations and maintenance 	
2	Visual Amenity – Tidal zone	 Treatment and/or screening to minimise the visual impact of the tidal zone 	

Important Features: Could Have

Feature Ref	Feature Category	Important Feature	
1	Observation Points/Decks	 Observation platforms over storages with satisfactory security arrangements 	
2	Visitor Centre	 Visitor centre with satisfactory security arrangements and entrance fees to cover CAPEX and OPEX 	

VALUE STATEMENT – ANOTHER EXAMPLE

VALUE STATEMENT: WESTCONNEX, SYDNEY

Useful purpose Westconnex Beneficial outcomes Useful purpose

The **PRIMARY PURPOSES** of WestConnex are to...

- I. Connect global economic corridor of Sydney and western Sydney gets Sydney moving
- 2. Provide high-level connections to the international gateways of Sydney airports and shipping ports with industry and people through the M4 & M5 corridors
- 3. Enable safe, efficient (% to be defined), healthy and reliable movement of road traffic people, services and goods good clear direct routes to major destinations
- 4. Transform surface travel separating through and local traffic
- 5. Enable renewal, growth and change of land use in Sydney in line with Metro plan
- 6. Accommodate future growth and the evolution of the transport network

BENEFICIAL OUTCOMES: By fulfilling these primary purposes,

we are able to...

- I. Better-use land to promote better urban outcomes
- 2. Support the Government's City of Cities strategy
- 3. Reduce congestion
- 4. Improve liveability along the corridors
- 5. Connect people to commercial opportunities and social activities
- 6. Connect goods / services to markets
- 7. Stimulate and sustain economic growth
- 8. Improve accessibility
- 9. Improve air quality
- 10. Reduce surface noise
- II. Improve local and north-south connectivity across Parramatta Road
- 12. Improve travel experiences by road users reliability, comfort, safety, congestion, mobility etc.
- 13. Reduce traffic on Parramatta Road
- 14. Improve incident management and road network maintenance / renewal by having alternative routes for road users
- 15. Create opportunities for a long-term western CBD by-pass
- 16. Enable mass-transit system along the Parramatta corridor
- 17. Connect (sufficient and convenient) local areas to the motorways network
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IMPORTANT FEATURES: Important features and characteristics of WestConnex include...

- I. Fixing the current problems
- 2. Detangling the airport precinct
- 3. Distributing traffic effectively across the network
- 4. Being fast, reliable, consistent and non-turbulent flows a journey with fewer traffic lights
- 5. Optimising land use
- 6. Improving connectivity & journey legibility especially 'the last mile' issues / challenges to users
- 7. Providing for high quality travel for long distance through trips
- 8. Delivering something that finds favour with drivers
- 9. Having a tunnel length acceptable to users (not being all underground)
- 10. Having no congestion in the tunnel
- II. Enabling better bus travel on and off WestConnex
- 12. Making the motorway a useful facility by having frequent interchanges
- 13. Being nearly full most of the time that it is well-used
- 14. Delivering a scheme that as a whole is fit for purpose
- 15. Being affordable to government and users
- 16. Optimising revenue
- 17. Aligning the envelope and connectors network provision to suit the High Productivity Vehicles

IMPORTANT FEATURES: Important features and characteristics of WestConnex include...

- 18. Taking a strategic perspective something that can be extended into the future (adaptable to the evolution of the future transport network) futureproofing for the next 80 years ease of expansion whilst in-use consistent strategic context as transport needs evolve avoiding building excessive capacity
- 19. Managing the motorways
- 20. Being easy to operate and maintain
- 21. Having effective incident response mechanisms Planned and Unplanned
- 22. Minimising energy usage
- 23. Improving movements and opportunities to move along and across Parramatta Road
- 24. Enhancing the natural and cultural characteristics of the corridor
- 25. Providing liveability of the Parramatta Road corridor
- 26. Making a positive contribution to the urban landscape
- 27. Achieving a peaceful co-existence with neighbours
- 28. Providing traffic calming on Parramatta Road
- 29. Managing visual Impacts
- 30. Managing air quality
- 31. Reducing noise levels along the roadway and motorway
- 32. Something the community supports

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VFM LABS

GUIDELINE: VALUE FOR MONEY LABS

Ensuring better value for money

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VFM LABS

- 2021: IVMA Working Group developed
- 2021: Endorsed by the IVMA Board
- A mix of synchronous and asynchronous work, i.e., a series of short interventions (workshops)
- Some work between short interventions can be required

Example VFM Labs			
Pre-meet with Sponsor(s)	 Scope of VMS Value Definition (Value Statement) 		
VFM Lab	FramingGivens and Assumptions		
VFM Lab	Priority Focus Areas		
VFM Lab	Context – scope, design basis, procurement strategy, etc		
VFM Lab	Function Analysis		
VFM Lab	Ideation		
VFM Lab	Exploration & Filtering		
VFM Lab	Theming and/orDevelop alt. proposals		
VFM Lab	Presentation and Assessment of proposals		

KEY BENEFITS

- Encourages attendance by Executives
- Enables attendance by remote Subject Matter
 Experts without associated travel costs
- Improved on-line engagement (short duration workshops)

KEY DISBENEFITS

- Notwithstanding the above, Facilitation is more difficult than face to face workshops
- Don't harness full group talent for sub-team work outside workshop modules
- Time for recaps & subteam de-briefings

CASE STUDIES

- (A) HEALTH/BUILDINGS: Herston Hospital
- (B) TRANSPORT:
 WestConnex, Sydney
- (C) BUILDINGS: Sydney Olympics
- (D) ENERGY: Pumped Hydro Energy Storage*
- (E) WATER: New Water
 Disinfection Plant*

* Client has requested de-identification, to maintain confidentiality whilst enabling knowledge sharing

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MacLeamy Curve (after Boyd Paulson)

CASE STUDY A

HEALTH: Herston Hospital Campus, Brisbane

THE CHALLENGE

Redevelop the campus to realise operational cost savings.

Initially proposed to stage upgrade works over a decade.

The campus was occupied by several hospitals and facilities dating back some 150 years:

- A Royal Brisbane (or general) Hospital
- A Royal Women's Hospital
- A Royal Children's Hospital.
- A research facility
- An energy plant supplying steam to all hospitals

(A) HERSTON HOSPITAL CAMPUS, BRISBANE

Herston Hospitals Campus – Brisbane Australia

(A) HERSTON HOSPITAL CAMPUS, BRISBANE (HEALTH SECTOR)

APPROACH

• 2 day VE-Workshop

OUTCOMES

- Addition of 2 extra floors on each of the 2 main hospitals (at +\$35m CAPEX)
- Saving of \$10m p.a. OPEX (for up to 5 years)
- I2 month saving in program providing earlier access to improved facilities for thousands of patients

Herston Redevelopment Site at the Herston Health Precinct

CASE STUDY B

TRANSPORT: WestConnex

(B) WEST CONNEX (TRANSPORT SECTOR)

BACKGROUND

- Client: Transport for NSW
- Client had engaged with industry
- Generated 90 options to link Sydney's west and south-west with the city and airport in a motorway, completely free of traffic lights
- Most options included a north and south corridor (a mix of surface freeways & tunnels)
- Target Budget: \$10BN (Year 2012 \$)

(B) WEST CONNEX

THE CHALLENGE

- To reduce the 90 options to determine a Reference Design
 - \rightarrow finalise Business Case

 \rightarrow provide a basis for the Request for Tenders

APPROACH

4 No.VE Review Symposia (over 6 week period, Mar/Apr 2013)

OUTCOMES

- Reduced to 5 No. options (but budget estimate still > \$10BN
- With exclusions, I No. option below \$10BN
- The project was delivered as a Public-Private Partnership, in stages, with overall completion this year, 2024

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Cost Estimates for Core Scheme (All costs exclude access to CBD and Foreshore Road)

Northern Corridor: Southern Corridor:	NI / N2	NI / N2 and exclusions
SI	\$12.4 BN	\$11.1 BN
S2	\$12.8 BN	\$11.5 BN
S4	\$11.8 BN	\$10.4 BN
S6	\$12.3 BN	\$10.9 BN
Airport Lite	\$10.9 BN	\$9.6 BN

CASE STUDY C

BUILDINGS: Sydney Olympics [Olympic Park]

(C) SYDNEY OLYMPICS(TRANSPORT &BUILDINGS SECTORS)

VM studies were used during preparations for the 2000 Sydney Olympic Games, including:

- Strategic level → transport strategy
- At the brief and concept design stages for all sporting facilities
- On operational procedures and safety processes for the management of people flows

The VM studies often resulted in dramatic adjustments – affecting form, function, capital and life-cycle costs.

(C) SYDNEY OLYMPICS (BUILDINGS SECTOR)

BACKGROUND

 The Velodrome was originally planned as a significant element within Sydney's Olympic Park

APPROACH

• A 2-day VM Workshop was held after completion of planning, but prior to design and construction

OUTCOMES

- The VM study identified major requirements that could not be fully accommodated at the park
- The Velodrome had to be relocated away from the main Olympic Park campus (10 km)

Interior of the Dunc Gray Velodrome, Bass Hill, Sydney (ref: IVMA Value Times, Spring 2021)

CASE STUDY D

ENERGY: Pumped Hydro Energy Storage*

* Client has requested de-identification, to maintain confidentiality whilst enabling knowledge sharing

SCOPE OF WORK:

- Dams (including saddle dams), spillways, outlet works, fishways, diversions and appurtenant structures
- Reservoirs
- Access and service tunnels and associated underground works
- Upper and lower intakes, power waterways and required surge facilities
- Power station complex civil works, including lining and support work design
- Underground works support and lining requirements
- Power station electro-mechanical works
- Switchyard/cable yard (Transmission interface point)
- Fire, ventilation and life safety
- Auxiliary mechanical and electrical systems
- Access roads, highway realignment
- Construction material sources, quarry areas and disposal (spoil) areas
- Permanent and Temporary Surface works

* Client has requested de-identification, to maintain confidentiality whilst enabling knowledge sharing

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THE CHALLENGE

- Contribute to Australia's energy transition, but with improved Value-for-Money
- Capital cost estimates for the project during FEED, indicated a higher cost/GWh than similar size schemes, casting doubt on feasibility/funding

UPPER RESERVIO.R

The Pumped Hydro Energy Storage Concept Sketch by Mark Cordell, Market Leader Dams & Hydropower, Stantec Australia © Stantec Australia Pty Ltd

(D) PUMPED HYDRO ENERGY STORAGE* (ENERGY SECTOR)

THE APPROACH

- Briefing meeting with client executive
- 3-day workshop
- 33 participants (all face-to-face)
- Workplan to AS4183: 2007

* Client has requested de-identification, to maintain confidentiality whilst enabling knowledge sharing

OUTCOMES

- 196 No. unique 'Value Ideas' were generated
- Value Ideas filtered to produce a short list of 51 No. for follow-up:
 - o I2 No. within one month
 - o 36 No. within 3 months
 - 3 No. to be added to the Opportunities Register for consideration during future Detailed Design
- As at the date of writing, a 15% cost saving can be achieved via adoption of the 12 No. Value Ideas; work is progressing

EXAMPLES OF VALUE IDEAS

- Adopt a single ECVT (Emergency, Cable, & Ventilation Tunnel)
- Eliminate one of the Main Access Tunnels
- Combine four tailrace tunnels into two
- One machine hall
- Increase the size of the pump-turbine units
- Eliminate unitised cables and transformers
- Reduce the crest width of dams
- Adopt an inclined pressure shaft in lieu of vertical
- Reduce concrete lining thickness on low pressure waterways

CASE STUDY E

WATER: New Water Disinfection Plant*

* Client has requested de-identification, to maintain confidentiality whilst enabling knowledge sharing

(E) NEW WATER DISINFECTION PLANT

THE CHALLENGE

- Tendered prices were double the budget
- Cost savings had to be found and/or the design validated

THE APPROACH

- VFM Labs 6 short on-line sessions (November 2022)
- Preferred tenderer participated
- 'Last chance' to make any substantial changes to reduce cost without loss of core functionality

(E) NEW WATER DISINFECTION PLANT

OUTPUTS

- Value Statement
- Givens & Assumptions Lists
- Simplified FAST Diagrams for 16 Key Focus Areas
- Value Register
- Budget pricing & qualitative risk assessment
- Report

OUTCOMES

- Generated 126 No.Value Ideas
- Evaluated down to a short list of 35 No.Value Ideas
- A capital cost saving of > 10% could be realised if all unique 'Value Ideas' adopted

Potential Cost/Risk* Changes for Shortlisted 'Value Ideas'

KEY TAKEAWAYS

- Separating 'The Value' from 'The Money' improved clarity
- Building of shared knowledge and understanding provides:
 - Improved alignment/breaking down of silos
 - A safe space to gain consensus/reconcile differing priorities and/or to make any desirable trade-offs
 - Development of a shared definition of Value using a Value
 Statement based on the Value Factors (and testing 'givens' and 'assumptions') provides clarity, focus and alignment
 - (With large groups) faster team understanding and alignment, more effective identification of the best ideas & greater buy-in
- **Effective facilitation** remains the key it is critical to avoiding group-think and to deal with complexity there is 'no algorithm' (yet!)
- A mix of synchronous and asynchronous work via short interventions ('VFM Labs') has been developed and tested, and has pros and cons relative to traditional multi-day workshops

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