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TOTAL ASSET MANAGEMENT

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VALUE MANAGEMENT GUIDELINE

1 Introduction

1.1 What is Value Management?

Value Management may be described as a structured, analytical process for developing innovative, holistic solutions to complex problems.

Value Management has the following key characteristics:

- a specific methodology
- based upon a creative problem solving approach
- involves key stakeholders in a managed team approach
- focuses on function ie. what it must do, not what it is
- focuses on achieving value-added solutions
- based upon on integration
- focuses on project learning

The greatest gains of Value Management have been shown when it is directed towards obtaining maximum value from a total system. The examination of function remains fundamental, however this occurs within the system wide context. It is the systematic analysis of functions, which sets Value Management apart from other approaches to improving value.

Value Management studies should be scheduled at optimal points in the project lifecycle and structured to meet the objectives relevant to the particular stage of the project.

Applications of Value Management to government projects include but are not restricted to:

- establishing and verifying project objective analysing project briefs
- optimising design solutions
- resolving conflicts and improving communication and
- creating and analysing a range of options for executive consideration.

1.2 Purpose of the Value Management guideline

The Value Management Guideline clarifies Government policy and outlines the Value Management process to assist Government agencies in its use and application.

The Value Management Guideline is also recommended for the use of members of the building and construction industry and other professionals so that they may better understand their role in the conduct of studies, timing, costs and benefits.

This document aims to foster an appreciation of the process, to show the possible extent of its use, and to draw up procedures for implementing value studies.

1.3 Linkages with Total Asset Management

TAM reflects priorities for service planning, whole-of-life asset management, extended planning requirements for new works, and new relationships between services planning and asset procurement activities.

Provision for Value Management study at each step of the TAM process will ensure that the best value is obtained.

For a major project/program, several Value Management studies may be needed, for example at the service planning stage, the concept development stage, at the construction stage, at the operation and maintenance stage and, ultimately, at disposal.

2 Value Management policy

2.1 Value Management perspective

Value Management and Economic Appraisal are companion tools for program and project development. Value Management addresses the technical and functional dimension while Economic Appraisal addresses the resource allocation perspective.

2.2 Value Management assessments

Using Value Management throughout the development of a project is a requirement for all Government agencies. This requirement applies particularly to the early development stages including:

- establishing project objectives
- Preparing project brief, and
- Considering concept and design options.

The application of Value Management to the concept stage will particularly assist in defining project objectives, needs and scope, focusing attention upon issues to be examined in the Economic Appraisal.

With the increasing involvement of the private sector eg, Build, Own, Operate and Transfer (BOOT) schemes etc, the clear definition of objectives, performance criteria and scope is of fundamental importance. These projects should have been subjected to a concept Value Management Study prior to any involvement in the market place.

Value Management reporting requirements parallel those for Economic Appraisal. These procedures are as follows:

Projects less than \$5 million

No formal requirements exist in terms of project submissions to Treasury. However, Value Management techniques should be applied, particularly in establishing the project rationale and considering options.

Projects of \$5 million and over

Formal Value Management Studies are required and submissions to Treasury require a summary of the Value Management Study outcomes, copies of the Value Management Study reports, and the agency's preferred direction and implementation strategy.

Designated projects

Due to the importance and/or sensitivity of certain projects, Treasury may attach specific Value Management assessment and reporting requirements.

2.3 Roles and responsibilities

Responsibilities of the respective agencies and sectors are outlined as follows:

NSW Treasury

In reviewing the agency's Asset Strategic Plans and budget submissions, some questions that NSW Treasury will consider include:

- is the proposed program or project linked to the agency's service delivery strategy and capital investment strategic plan?

-
- is proposed work justified by detailed analysis?
 - does the proposal raise any particular policy issues?
 - is the information in the proposal in a form suitable for Budget Committee consideration?

Value Management is a powerful means of achieving compliance with such requirements as well as achieving stakeholder buy-in to the planning and approvals processes.

Premier's Department

In reviewing the agency's Asset Strategic Plans and budget submissions, some questions that will be considered include:

- has the proposed work included detailed analysis of regional and other agency initiatives?
- are there opportunities for shared infrastructure or shared service provision

Department of Public Works and Services

The Department of Public Works and Services (DPWS) reviews the asset plans of both budget dependent and non-budget dependent agencies as part of the review of their asset management strategies. The review looks for consistency with their service strategies and for effective linkages with their Capital Investment, Maintenance and Asset Disposal plans.

DPWS will also check the agency's asset planning and decision making process for robustness and look for evidence of the appropriate application of tools such as Value Management.

Service Agencies

Agencies responsible for the delivery of services on behalf of Government are responsible for the effective management of their assets to a standard that is appropriate for effective achievement of its corporate goals.

As part of the budget process agencies are required to develop Total Asset Management strategies involving three interlinked planning processes, namely:

- Capital Investment Strategic Planning
- Asset Disposal Planning
- Asset Maintenance Planning

Each of these plans and their resulting programs projects must be based on sound principles of analysis and planning. Value Management is an appropriate tool that can be used to develop and implement these plans.

Every agency is expected to:

- have in place an effective planning process for when and how Value Management will be used
- demonstrate compliance with government's policy in relation to the use of Value Management when applying for the funding of significant projects.

Private sector

The Government requirements for the use of Value Management apply to the procurement of all public infrastructure, including that undertaken by the private sector.

This applies equally to the single consultancy commission (eg. design development) as it does to projects autonomously managed by the private sector.

The former involves the private sector's participation in the Value Management process while the latter will require its management of the process.

3 Concept and application

3.1 Value Management concept

Value Management is a structured, systematic and analytical process that seeks to achieve all the necessary functions at the lowest total cost consistent with required levels of quality and performance.

Underlying the Value Management theory is the principle that there is always more than one way to achieve project objectives and that examination of the alternatives will produce the most acceptable conclusion.

At the core of the Value Management process is the analysis of functions from the point of view of the system as a whole (including the relationship or cost impact of design decisions on the project and/or scheme operation). This aspect distinguishes Value Management from other methods of improving value.

Function analysis involves identifying what things actually do or perhaps more importantly, what they must do to achieve the objectives.

Through the analysis of functions, wastage, duplication and unnecessary expenditure can be identified giving opportunity for value to be improved.

The functional analysis perspective not only enables Value Management to explore the project and/or program brief but also to test the assumptions and needs perceived by the author(s) of the brief.

Taking a system wide view has particular relevance to the construction industry which generally has a compartmentalised approach to the design of facilities.

As a result each specialist group within the industry is responsible for issuing, reviewing and updating the criteria and requirements of its own field. This emphasises the performance and costs of the part without due consideration of performance and costs of the whole.

The concept of value as used in Value Management distinguishes this method from conventional methods of cost review. It achieves this by considering the relationship between function, cost, and worth.

Value Management is not a review process, but a means to assist in the better management of the procurement process.

Value Management essentially aims to produce solutions creatively and economically by:

- identifying unnecessary expenditure
- challenging assumptions
- generating alternative ideas
- promoting innovation
- optimising resources
- saving time, money and energy
- simplifying methods and procedures
- eliminating redundant items
- updating standards, criteria and objectives.

3.2 Application of Value Management in Total Asset Management

The system based functional analysis of Value Management allows consideration of complex interrelationships. Consequently, Value Management has a broad range of applications throughout the strategic planning and procurement processes. It is particularly useful in focussing or distilling objectives and priorities, and in generating alternative solutions.

The application of Value Management varies in intent and outcome depending on the timing within the delivery or resolution process.

In the strategic planning process, Value Management is especially useful in analysing service strategies and in generating alternate and innovative options for meeting service needs. This includes identifying options that do not require additional capital investment for physical assets.

At the strategic planning level Value Management can be used to:

- test and validate planning assumptions
- identify and confirm stakeholder values
- create a shared vision or agreed direction
- develop alignment to Corporate directions
- establish Master Planning principles and objectives, and
- define key challenges and strategies

At the project level it can be used to:

- resolve a problem
- clarify needs versus wants and set priorities
- challenge the robustness of the business case for the project
- generate stakeholder commitment
- share information and clarify expectations
- review/establish performance requirements
- review design solutions
- set/agree project objectives
- review scope/functions to be provided
- create/confirm options for detailed analysis
- create/select alternatives to achieve agreed functions
- select a preferred option for detailed planning or development
- clarify whole of life cycle costs
- clarify stakeholder values that must be addressed
- review/develop the project brief
- align the project functions to resources, and
- create/review action plan to progress the project

At the project level Value Management should be planned on an integrated basis. For most projects best Value Management results are achieved by scheduling a Value Study for both the concept and early documentation (say 35%) stages.

This application program provides a framework to identify the most appropriate concept and final design solution that reflects best value for money including:

- program and project activity stages, and
- anticipated Value Study outcomes for corresponding program or project stages.

3.3 Value Management benefits

Benefits of a Value Management Study are:

- a better understanding of needs and the functions necessary to meet those needs
- a better definition of program or project objectives
- a better definition of quality and performance standards
- clearer briefs
- reduced wastage of resources
- capital funds savings
- improved operational efficiencies
- team building and strategies which
 - create a climate of shared understanding
 - reduce conflict and risks
 - foster joint ownership of problems and solutions
 - create new ideas for improved outcomes
 - enhance the skills of the participants
 - save on project development time and ultimate service delivery to the community

As a direct result of involvement in the structured workshop process, participants generally achieve a better overall understanding of the project. In many cases there can be a major transformation of perceptions.

Communication and networking can be enhanced through the workshop process. This, in turn, can have a significant impact throughout the program planning and project development processes.

Specific Value Management study outcomes are demonstrated in the case studies included in the Appendices. These case studies have been selected to demonstrate outcomes for various stages in the procurement process.

3.4 Value Management investment return

The results of project based Design Value Studies undertaken on budget sector projects in NSW have exceeded expectations based on international experience. Value Studies completed at the Concept Stage have exceeded those results by an even wider margin.

When considering the return on investment, the earlier that Value Management is introduced in the procurement process, the greater the possible improvement in value.

This is illustrated in the return on investment diagram below for the procurement phases of concept, design and documentation.

The graph of “Cost impact of making changes over time” below illustrates the inverse relationship between the cost of making changes and the potential for making savings. It illustrates the importance of scheduling the Value Management Study at the earliest stage of the project lifecycle to optimise potential value improvements.

Figure 1 Return on investment

Ratio of accrued savings to cost of value study

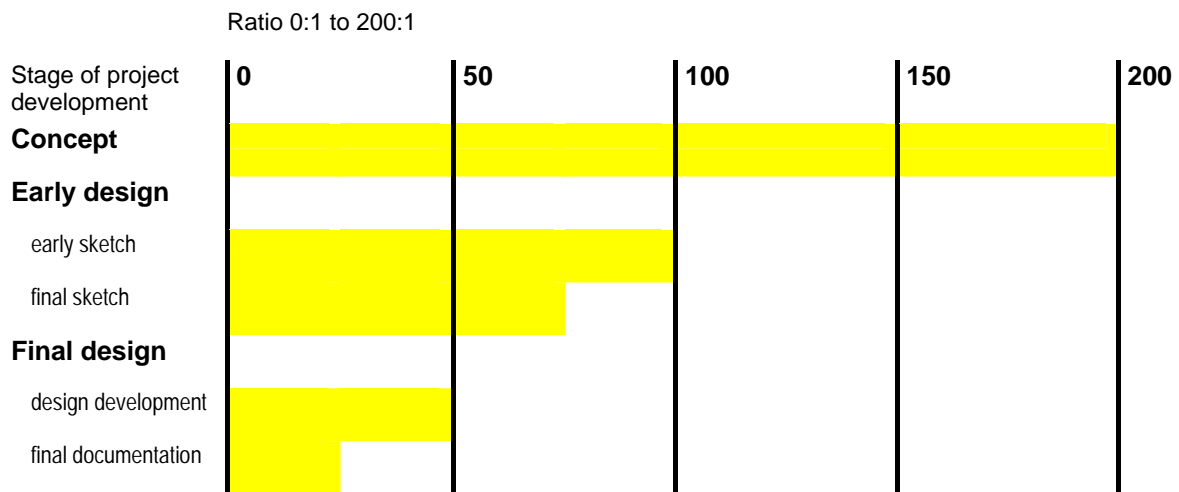
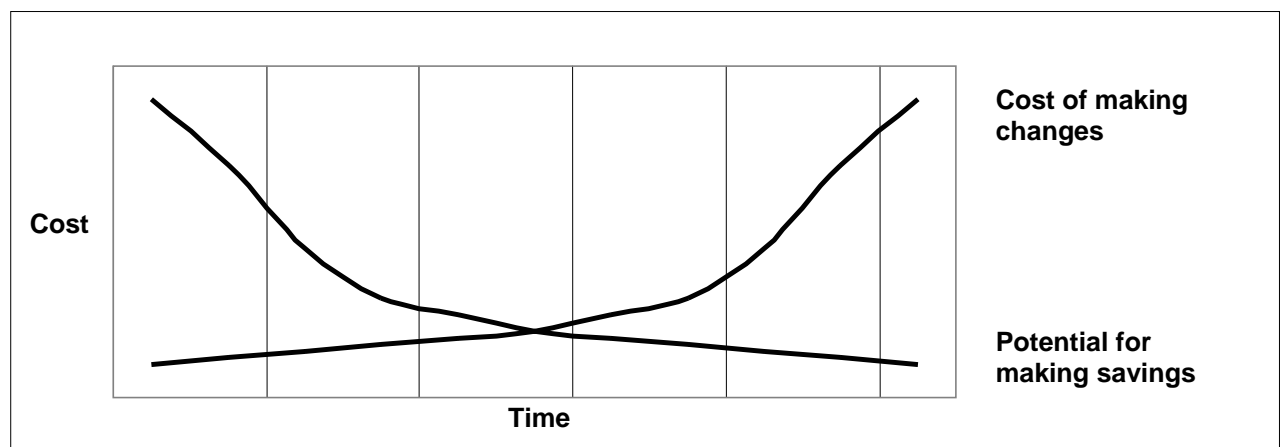


Figure 2 Cost impact of making changes over time



4 Value Management process

4.1 NSW public sector model

This section provides an overview of the Value Management process, which has been specifically tailored to NSW public sector needs, ie. a process capable of analysis at the earliest concept stage, with multi stakeholder participation.

The model maintains the elements of the traditional value management process, also known as the “job plan”, and is outlined in the following steps of a Value Study:

Information

Identification and testing of program or project rationale from the perspective of stakeholders' positions eg. alignment with Corporate Objectives and/or Service Strategies.

Function analysis

Identification and ranking of primary and secondary functions and their associated cost and worth relationship.

Ideas generation

Generation of value improvement options through innovation and alternate means of achieving the required function.

Evaluation

Sorting and prioritising value improvement options to identify viable alternatives. Evaluation of options may continue beyond the Value Management Study.

Action plan

Identification of actions/strategy required to achieve Value Study outcomes and to provide ongoing management framework for project progression.

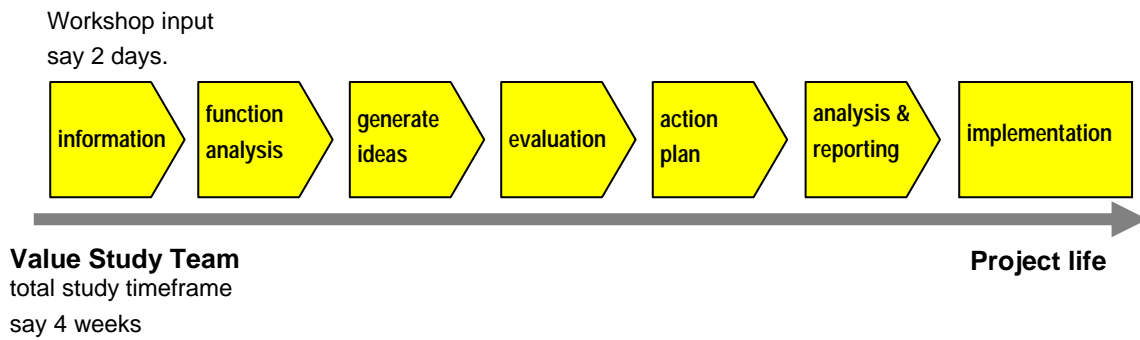
Analysis and reporting

Final reporting includes a description of outcomes and documentation of rationale to ensure appropriate focus is maintained through the project development stages.

Although the core of the traditional approach is maintained the NSW Public Sector Model for Value Management differs in terms of timing, workshop duration, structure, and Study Group composition.

The diagram below illustrates the model, its timeframe and the commitment expected of the key participants.

Figure 3 Value study group



4.2 Value study duration

Concerning duration, allocate sufficient time to ensure all phases are appropriately addressed. It might be quite appropriate to complete a Value Study in a matter of days where either the scope of work, the range of issues or the stakeholder group is small.

The Value Management process may be integrated into the overall program or project management strategy and be used as a long-term management strand.

The timeframe typically adopted is four to six weeks which allows sufficient time for the necessary preparatory work, workshop, analysis and reporting (for further details refer to section 5).

4.3 Value study workshop

The Value Study Workshop forms the pivotal element of the total process with all phases of the “job plan” being addressed either whole or in part.

The workshop provides the vehicle for bringing the key stakeholders together in a forum which:

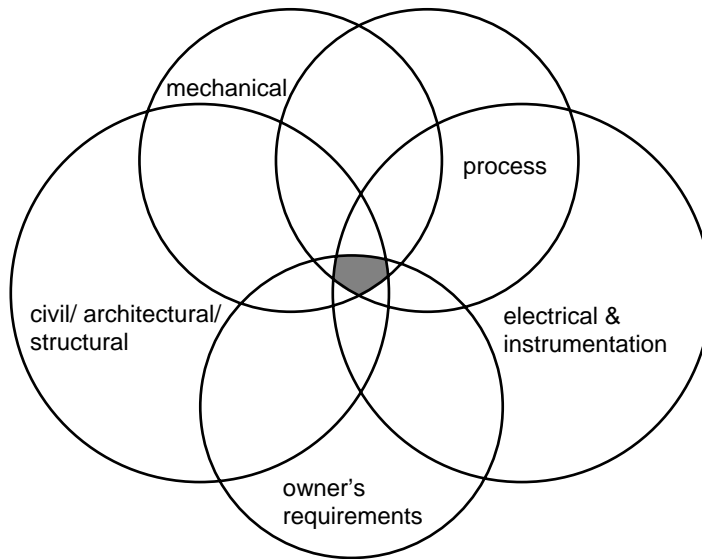
- maximises their contribution
- draws on their combined knowledge
- maximises the benefits of group dynamics rather than the same people acting in isolation, and
- ensures the most cost effective use is made of participants’ time by concentrating their contribution into a short duration workshop.

The Workshop reinforces the need to achieve a time commitment from key participants for the full workshop session.

The Workshop process capitalises on the opportunity to explore the overlapping areas of knowledge and experience between the various disciplines and interests groups.

Figure 4 reflects the benefits of the participation and knowledge/expertise overlap obtained through the Value Management process, rather than the filtering which often occurs in the traditional procurement approach.

Figure 4 Constructive overlap



4.4 Value Study Group

The Value Study Group generally comprises a disparate group of people representing the various stakeholders and others associated with the program or project together with a specialist Value Study Team. The composition and selection of the Value Study Group is of fundamental importance to the success of the process.

To gain the appropriate multi stakeholder and multi disciplinary representation on major government projects the Value Study Group size typically averages 17 people. For practical reasons the number of participants in Workshop Sessions should be restricted.

Executive Management

An overt commitment by Executive Management greatly enhances the Value Management process by providing the Value Study Team with a corporate benchmark for maintaining the study focus. Consequently, Executive Management are advised to attend the initial Value Study Workshop sessions.

It may be appropriate to involve a representative from the relevant Minister's office, particularly to new initiatives and/or high profile projects.

Program agency representatives

The Program Agency representatives should allow a full span of issues to be addressed ranging from program rationale through to detailed project function requirements. Participation of a senior executive of the agency is essential objectives and rationale are being examined (usually the first half day of a workshop). In program or project concept studies, usually the relevant Agency Program Manager participates in the whole workshop session.

Service providers and/or user representative

These representatives should advise on functional requirements from an operational perspective and should contribute to the generation of alternative ideas.

Design team and project consultants

In project studies key players in the design process should participate. To provide background data on the project evolution from their specialist standpoints, key issues or concerns, and identification of assumptions that have influenced design decisions. Based on their detailed knowledge, this group will provide essential participation in the generation and evaluation of alternative ideas and options for value improvement.

Contribution

The various participants contribution will vary, ranging from one or two members of the Value Study team (outlined in section 4.5) being virtually fully committed, to stakeholder participation of one or two days for the actual workshop.

4.5 Value Study Team

The NSW model developed the benefits of an external team of specialists in the Value Management process, where members take varying roles and levels of management throughout the Value Management phases.

The Value Study Team participates in the Workshop Session to provide the structure and independent level of enquiry, probing and discussion on the study topic.

Typical roles of the Value Study Team members include facilitation, organisation, reporting, and technical independence.

Independent technical specialists

In some cases it will be beneficial and/or essential to include a person with technical or other specialist expertise pertaining to a particular study topic in the Value Study Team. This gives the Value Study Team an extra dimension and enhances the level of incisive review and analysis in the Value Management process.

5 Value Management procedures

This section provides an overview of the specific elements of the Value Management procedure. This assists potential participants gain an appreciation of the extent of effort required in a Value Management Study.

5.1 Information phase:

Pre-workshop

As Value Management is often looked to as a means of resolving emerging problems or providing direction, sometimes this phase is rushed to complete the Value Study.

This should be resisted because the ultimate success of the Value Study depends on thoroughly covering the activities contained in this phase. These activities fall into two categories - scope and logistics.

Scope

Activities under this category are all associated with establishing the focus and bounds of the Value Management Study. The information that is gathered, assessed, and consolidated, forms the foundation for all subsequent analysis.

Key activities are:

- Canvass issues and concerns
- Establish Value Management Study objectives. The objectives form the basis for maintenance of Value Study focus, particularly during the workshop ie. they form an ongoing benchmark. Frame objectives to evaluate outcomes in terms of their consistency with corporate or service strategies.
- Identify and prepare background material.
The assembled background material should represent a précis of the topic and perspectives of the stakeholders and participants. It immediately identifies key issues, areas of conflict, assumptions by various parties, etc.

It also begins the process of identifying functional requirements of the program or project.

Logistics

This concerns all matters required to make the Value Study happen. For example, if the workshop exercise is concentrated in a two-day framework it is vital that everything is in place prior to the event. Essential activities include:

- formation of Value Study Team including technical specialists
- establish study timetable
- identify and gain commitment of stakeholders
- nominate, invite and brief participants
- arrange venue
- brief presenters for workshop component of the Information Phase
- distribute consolidated background material.

Workshop

The information phase of the actual Value Study Workshop includes:

- confirmation of Value Study objectives
- scheme and project overview
- project assumptions
- project imperatives in terms of cost and funding
- project imperatives in terms of time and other criteria
- key issues and concerns.

The workshop starts with key participants presenting information. This provides an overview from the stakeholder's own perspective. It is an opportunity to quickly appreciate value judgements, and the rationale, underpinning the proposal(s) being considered.

The background information gathered during the pre-workshop phase is tabled. This includes relevant data concerning the client's corporate, regional, area and project objectives.

The information phase provides the opportunity to explore the total project rationale, questioned from a functional viewpoint, with the intent of searching for alternative solutions to provide the client with best value for money.

This is the part of the information phase to identify assumptions that have been made in the project development from all stakeholders' points of view.

5.2 Function analysis phase:

Workshop

In this phase of a Value Study functions are identified and analysed. A Value Study concentrates upon function, and the cost and worth of those functions.

Certain key questions are asked during the analysis of functions, namely:

- what does it do?
- what must it do?
- what does the function cost?
- what is the function worth?

Techniques developed to identify and analyse functions include Functional Hierarchies and the use of *Function Analysis System Technique* (FAST).

These techniques commence with the more global functions of the total system and then extend to specific functions of individual components. They can also be completed in the reverse order.

They provide the basis upon which alternatives may be generated and evaluated to eliminate or combine functions, and to ensure compatibility between functions within the whole system.

The hierarchy shown in the diagram below was developed to demonstrate the logical relationship between the functions. The function definition is expressed in active verb and measurable noun terms. This extremely rapid method of analysis involves the Value Study Group taking a system wide view of the project.

Table 1 Example of a functional hierarchy diagram.

Hierarchy levels

		Level 1	Level 2	Level 3	Level 4
Functions	Management strand	<ul style="list-style-type: none"> Control pollution Protect public health 	<ul style="list-style-type: none"> Provide money 		<ul style="list-style-type: none"> Collect rates Manage facility
	Infrastructure strand	<ul style="list-style-type: none"> Provide sewerage service Enhance quality of life Accommodate growth 	<ul style="list-style-type: none"> Collect and remove waste Reduce water pollution Re-use water 	<ul style="list-style-type: none"> Pump sewerage Transport Sewerage Treat sewerage Discharge effluent Irrigate land 	<ul style="list-style-type: none"> Monitor activities Maintain system

The resulting diagram is not as detailed as a traditional FAST diagram, however it may be sufficient to identify functions and assign order of costs. When performing a FAST diagram, the relativities and linkages between the functions are established in detail.

The functional examination from a system perspective is fundamental and involves an analysis of the combination of interrelated, interdependent, or interacting elements forming a collective entity and serving a common set of objectives.

If the subject project is a building, it is, of itself, a system comprising many parts serving a common function. Within the building there are many sub-systems such as the air-conditioning, transportation, etc.

Taking a wider view of a system, if the subject building is a hospital it forms part of the health system; a bus depot forms part of the transportation system; and a dam forms part of the water supply system.

5.3 Ideas/options phase:

Workshop

One outcome of a value study is a “shopping list” of alternative ideas to achieve value improvement. Lateral thinking is encouraged during this phase to produce as many ideas as possible, even those ideas that may seem unworkable or unreasonable. Generating ideas and options is encouraged by asking the following questions:

- how else may the required function be performed?
- what else will perform the required function?
- what will the alternatives cost?

There are several ways to structure the study to facilitate idea generation. The method depends upon the number of people in the study and the nature of the project. In project terms various parts of the project will need to be specifically targeted for idea generation (eg. use of space within buildings, security systems, etc). If it is a single product that is being considered, then the product will need to be analysed component-by-component or aspect-by-aspect.

Where there are more than seven or eight people in the study, it is useful to generate ideas in small groups and then hold plenary sessions in which all ideas generated are identified and discussed.

5.4 Evaluation phase:

Workshop

Option evaluation: criteria and ranking

Each idea/option generated needs to be carefully considered by the group as a whole and decisions taken on which ideas should be evaluated in detail.

Ideas are evaluated in terms of the advantages and disadvantages they offer to the project with respect to value improvement. This includes those ideas that, in spite of additional capital cost, could lead to a better return on investment.

There is a tendency at this stage to discard ideas that might lead to additional re-design or to a disruption of the program. In a project where time is crucial, it may be too late in the development process to implement change but in other cases such changes can be incorporated within an acceptable time frame.

Usually the majority of the ideas/options are retained for detailed evaluation.

There is a range of evaluation tools to assist this process, appropriate to the situation. For example, Evaluation Matrices may be used to determine the relative priorities of a list of objectives or project criteria.

The process works by considering one pair of criteria at a time and taking decisions as to the relative priority of each criterion.

These matrices are especially beneficial when considering issues and/or objectives at the earliest stages of project development. However, they may also be employed to rank detailed design criteria, for example the functional requirement of a floor finish.

Option development

Those ideas with most potential are developed to a stage to show if they are workable. This may include preparing detailed drawings and cost estimates. Part of this process may continue after the Value Study is over.

The extent to which option development occurs depends on the workshop duration, for example, a three-day workshop may allow the Value Study Group to make final decisions on option adoption. Alternatively, a one-day workshop may rely upon the Action Plan resolution period for evaluation. Some options may require advice beyond either the expertise and/or authority of those present at the Value Study. For example a system wide option which might negate or defer the need for work. This would normally then require further corporate direction.

5.5 Action plan:

Workshop

The final action in a Workshop is the preparation of the Action Plan, which encapsulates the outcomes and provides a framework for subsequent tasks/evaluation/ decision-making. It represents the consensus of views of the Value Study Workshop participants and highlights ideas that show greatest potential for value improvement.

Ideally, the workshop outcomes and the Action Plan should be made the subject of a presentation to the client (including senior representatives of Management), at which the entire Value Study Group attends.

The Plan identifies target dates for each item and nominates people to take responsibility for the pursuit of those items and any reporting.

The ultimate success is dependent upon the effort with which the Action Plan is pursued. Action Plan Co-ordinators should be nominated at the conclusion of the workshop to ensure the appropriate effort is applied and Action Plan Nominees have a common point of reference.

Elements to include are:

- list all activities to be undertaken
- identify people responsible for each activity
- indicate time frame (for each activity) for further evaluation and decision(s), and
- specify finalisation date.

It is especially important to involve the client in the co-ordination activities.

Ideally, **follow-up sessions** are scheduled for Action Plan Nominees approximately one month after the Value Study Workshop. At that time the implementation schedule is examined to ensure that all value improvement opportunities are being pursued fully and to determine further actions.

This is an extremely useful approach as it gives the Action Plan Nominees a clear focus and promotes positive action.

5.6 Analysis and reporting:

Post-workshop

Reporting principles

Reporting requirements for Value Studies vary considerably according to the project stage at which the Value Study is undertaken. The earlier a Value Study is undertaken the more substantial the reporting requirements.

The reasons for this are best illustrated by examining the two most common phases at which project based Value Management Studies are undertaken.

Strategic or concept studies

Such Value Studies invariably deal with a multiplicity of factors and/or issues. As these studies are used to establish/confirm the project framework, rationale and direction, the reporting needs to document all relevant issues dealt with during the study.

The period of relevance of these reports/findings, equates to a benchmark from which to continually monitor the project's achievement of the project's objectives.

30% - 35% design development

These Value Studies are primarily concerned with design performance. The Value Study identifies a range of options to meet the functional requirements.

Decisions on design options will normally be taken within weeks rather than months.

Strategic or concept stage

Value Study reporting

In many cases integrating a formal follow-up reporting session by Action Plan nominees into the reporting phase is beneficial to:

- maintain the ongoing focus of the Value Study
- continue the high level of commitment which Value Management invariably generates, and
- consolidate and better define outcome reporting.

The reporting framework that best suits this approach follows. However, the reporting scope (Interim Report and Final Report) defined below should be addressed in the Value Study Report irrespective of whether or not a follow-up session is undertaken.

Interim report

The Value Study Team should provide an interim report approximately two weeks after the Value Study Workshop to provide Action Plan nominees with a rationale of key issues. This assists with the resolution of Action Plan issues. The report content should include:

- value Study findings
- project rationale and objectives
- précis of the project scope
- précis of the Value Study scope
- summary outline of key functions, with “system” implications
- description of value improvement options, together with a description of rationale and/or implications
- outline of the Action Plan
- appendices incorporating papers presented to the Value Study by participants and others.

Final report

The interim report forms the basis for the final report. After the follow-up meeting the final report should provide Project Management and the Client with a detailed record, commentary and distillation of rationale.

It should present the outcomes of the follow-up meeting and executive summary of the Value Management Study as a whole. In Concept Studies this provides a benchmark from which to monitor project development in terms of ensuring:

- alignment with agency corporate goals
- design development reflects concept philosophy.

Design stage

Value Study reporting

In Design Stage Value Studies a report is primarily a set of minutes of the workshop. As design decisions are invariably taken within weeks of completion of the Value Study Workshop the relativity of Design Stage Value Study Report is substantially shorter.

In cases where a major shift in option emphasis occurs, the reporting requirements will equate to those prepared covering a Concept Stage Value Study.

The Value Study Report must document the impact (advantages and disadvantages) of the various ideas/options with regard to program and project goals.

Appendix A Evaluation matrices

This appendix contains two techniques commonly used in value studies – priority setting matrices and weighted evaluation matrices.

A1 Priority setting matrices

These matrices are used to determine the relative priorities of a list of objectives or project criteria. The process works by considering one pair of criteria at a time and deciding on the relative priority of each criterion.

These matrices are especially beneficial when considering issues and/or objectives at the earliest stages of project development. They may also be employed to rank detailed design criteria, for example the functional requirements of a floor finish.

functional objectives	total score	weighted score
A		
B		
C		
D		
E		
F		
G		
H		
I		

	B	C	D	E	F	G	H	I
A								
B								
C								
D								
E								
F								
G								
H								
I								

A2 Weighted evaluation matrices

These matrices are used to evaluate a range of solutions to a particular problem. Their most common use is in the selection of project strategies (for example, design and siting) or in the selection of a particular building element (for example, facades).

The process works by considering each solution or proposal, evaluating them against a pre-determined set of criteria which have been ranked in order of importance using the prioritising matrix. This system allows quite subjective data to be analysed on an objective basis.

Weighted evaluation matrix

functional objectives



weighted score of functional objectives						
potential solutions						total
1 performance rating						
weighted rating						
2 performance rating						
weighted rating						

Appendix B Case Studies

B1 A Strategic Health Program

Brief Description	<p>To prepare a comprehensive Strategic Services and Asset Management Plan addressing both models of health care and associated recurrent costs as well as capital costs for the re-alignment of assets (57 different facilities), over a seven-year program, to better accommodate and support future service delivery requirements.</p> <p>Area Health servicing a population of 500,000 people with a changing profile of health care needs. It had a budget scope of \$279M (June 96 \$) that had increased to \$326M (June 97).</p> <p>Government to fund approx. 70% with the Area to contribute balance from mixture of asset disposals and recurrent savings.</p> <p>The Program had reached the stage of Project Definition Plan (PDP).</p>
Objectives	<p>Review the Draft Project Definition Plan and ensure it was appropriate as the basis for proceeding with detailed development and implementation of the program.</p>
Stakeholders	<ul style="list-style-type: none"> • Health Department including: Information & Asset Services; Financial Management & Planning; Capital & Asset Management; Services Development; Mental Health • Area Health Service including: CEO & Executive Management Team; Health Services; Capital Works; Mental Health; Primary Health; Cardiovascular; Oncology; Hospitals Managers; Nursing Services • Department of Public Works & Services; Government Architect • Project Director & Manager – Capital Insight
Method	<p>A two-day workshop following the Value Management Job Plan. The Key Themes given to the sub-groups for the final Development Phase were:</p> <ul style="list-style-type: none"> • Program Scope/Variations/Cash Flows and Funding • Program Inter-relationships/Dependencies/Services Sequencing and Integration • Program Transition/Flexibility – of 2 major facilities in the program • Program Benefits and Risks
Summary of Outcomes	<ul style="list-style-type: none"> • Confirmed the robustness of the Model of Care and program strategy as the most appropriate way to provide future services • Identified variations and the importance of presenting a comprehensive business case for their inclusion in the program • Noted the need to assess the costs of not doing the program as part of the Business Case • Confirmed a set of values which were agreed as being collectively important for the program and identified the key principles upon which the program should proceed • Noted the critical importance of resolving an agreed funding strategy with the Government and highlighted potential funding options • Confirmed the givens and major constraints for the Program • Identified and challenged a range of assumptions for the program's planning • Noted the need to review expected recurrent savings especially in the light of potential further changes in inter-Area flow patterns • Identified the major risks to the Program and developed some initial strategies to manage these risks
Further Information	<p>NSW Health Department</p>

B2 Exhibition Facility

Brief Description	<p>The new Sydney Showground Facilities are located in the Homebush Bay Olympic Park precinct. The facilities were planned to be ready to stage the Sydney Royal Easter Show in early 1998 and to be used during the Sydney 2000 Olympics.</p> <p>Facilities comprised the complete replacement of the former Showground.</p> <p>At the time of the Value Management Study, the project was at Schematic design Stage. Design was assigned in three packages to three design consortia – one of which was responsible for overall site integration. The project budget was \$258M. The Cost Plan showed potential overrun of \$70M. The Study Workshop took place over three days in April 1997.</p>
Objectives	<p>Refine the design proposals against brief, budget and program for the showground and exhibition facilities, which will comprise the new Sydney Showground at Homebush Bay.</p>
Stakeholder Participants	<ul style="list-style-type: none"> • Olympic Co-ordination Authority • Sydney Organising Committee for the Olympic Games • Royal Agricultural Society • The design consortia • The Project Manager
Method	<p>A three-day workshop. The three design “zones” were dealt with separately, one each day. The facilitation strategy centred on “reconciling” the design response proposals:</p> <ul style="list-style-type: none"> • To the original design brief • The cost plan of the design responses to the budgeted funds • Functional requirements of the facilities in “show” mode, non-show mode, Olympic and Paralympic modes and as integrated elements of the whole Olympic Park
Summary of Outcomes	<ul style="list-style-type: none"> • The essence of the design proposals as presented were embraced by the stakeholders, with directions able to be given for the design development to be further advanced • Agreed variations and identified opportunities for further design adjustments which reduce the estimated cost plan to within the approved budget • The identification of opportunities for staging and sequencing of the development, both permanent and temporary, which can optimise funds effectiveness whilst facilitating operational objectives
Further Information	<p>Royal Agricultural Society</p>

B3 Infrastructure Project

Brief Description	<p>Motorway development to replace a section of the Pacific Highway that has a poor accident record and has been the subject of community concern regarding tourist traffic delays and safety. Traffic volumes have grown at a faster rate than improvements to the existing highway have been able to cope with.</p> <p>The investigation corridor passes through a region that requires consideration of a number of issues including environmental, agricultural, economic, road engineering and social concerns.</p> <p>It was at the stage of identifying a preferred route within the investigation corridor in order to prepare an Environmental Impact Study (EIS).</p>
Objectives	<p>Review the work undertaken on the upgrade project to date to ensure it meets the project objectives and to recommend a preferred route, if appropriate, to progress the project to the next stage of development.</p>
Stakeholders	<ul style="list-style-type: none"> • Roads & Traffic Authority • Local Government – Councillors & Executive Management • Dept Urban Affairs & Planning • Dept of Land & Water Conservation • NSW Agriculture • National Parks & Wildlife Service • Koala Carers Caldera Environment Centre • Conservation of North Ocean Shores • Residents Associations • Australian Cane Farmers Association • NSW Cane Growers' Association • NSW Sugar Milling Co-operative • Consultant Specialists in Traffic, Transport, Road Design, Hydrology & Agriculture • The Project Manager
Method	<p>A two-day workshop following the Value Management job plan. Key presentations were required to outline site investigations, environmental and engineering issues and community concerns. Early establishment of the values of the stakeholders was critical to achieve a shared appreciation as well as active involvement in setting parameters against which route selection options could be tested and aligned. Sub-groups were established to assess the route options in sections enabling localised focus and sensitive analysis.</p>
Summary of Outcomes	<ul style="list-style-type: none"> • Agreed on a suggested route to be further refined and developed by the project team in progressing the project to the next stage • Identified the values important to the participants which the project must reflect, and in doing so recognised the environmental sensitivities, the agricultural viability and community/social dimensions of the project • For each section where route options were identified, the sub-groups suggested an option for further development and refinement together with a rationale, and in some cases, qualifications to progress the project
Further Information	<p>NSW Roads & Traffic Authority</p>