

BACKGROUND

During 1991 our section (then called Engineering Services) had engaged Consultants T W Crow Associates to develop a second edition of the RTA Project Management Guide in order to assist project teams to better manage their projects. Within the Project Management Guide the Consultants had made mention of Value Management as one of a number of techniques which could be employed during the planning stage of a project. At that time however, it was just one of many new terms and ideas being introduced to the Authority through the Guide and its real significance was not fully appreciated.

Around December 1991 Tom Crow drew to our attention the existence of a Premier's Direction that from July 1992 all Government Agencies would have to undertake formal Value Management Studies on capital works projects over \$5 million.

Copies of the relevant papers were located and at that stage we became aware of the list of Value Management Consultants accredited to facilitate Value Management Studies on NSW Government Capital Works Projects.

Expressions of interest to assist in the development of Value Management within the Authority were then sought from a number of registered consultants including Associate Prof Roy Barton who, rather than talk to us directly, referred us to a Public Works group called the Product Evaluation Unit (PEU). Following discussions with members of this unit namely Ted Smithies, Alan Butler, Cliff Barker and Roy Barton it became clear that they were in the best position to assist the Authority. In early 1992 the PEU was duly engaged to develop a Value Management Guide for the Authority, to assist in developing and conducting Value Management Familiarisation Training Workshops for Authority personnel and to conduct a number of Value Management Studies.

INTRODUCTION OF CHANGE

This whole process of introducing Value Management into the organisation had to be seen in the context of a process of change which had to be managed properly in order to maximise the chances of success. According to Nadler one of the key steps in the successful implementation of change is to develop the support of key power groups.

In other words it was seen as essential to get top management support to the introduction of Value Management in the RTA for without their support we would not succeed. Accordingly, a presentation was made to the Chief Executive and Directors by the Director General of Public Works Mr Ron Christie and members of the PEU on the benefits of Value Management and the need for change in the light of Total Asset Management being a major strand in the Government's reform of its Capital Program planning and implementation process.

The fact that the Director General involved himself in the presentation indicated very clearly the importance he placed on seeking the Authority's support in adopting Value Management and no doubt contributed greatly to the success of the presentation objectives.

Then in May 1992 a Value Management Familiarisation and Planning Workshop was conducted which involved a cross section of senior managers across the Authority. One of the aims of this Workshop, apart from familiarising participants with the process, was to use the Value Management process to develop ideas about what should go into the proposed Value Management Guide. It also identified the internal stakeholders that the Value Management Guide should target and what the purpose of the Guide should be. This provided a firm basis on what to incorporate in the Guide as it addressed the issues and concerns across the Authority.

Since then the PEU has developed the draft Value Management Guide.

VM FAMILIARISATION TRAINING WORKSHOPS

As a means of generally introducing RTA personnel to the Value Management process a one day Value Management Familiarisation Training Workshop was developed by the PEU which also conducts the Workshop.

The aim of undertaking the Value Management Familiarisation Training Workshops was:

- * To create awareness within the RTA of Value Management as a powerful means of clarifying and satisfying customer needs and providing them at the lowest possible cost to the community;
- * To give basic grounding in Value Management so that Project Managers and their clients will better understand the process and as a consequence feel confident in participating in future Value Management Studies;
- * To provide an awareness of the wide variety of applications to which Value Management lends itself;
- * To provide an awareness of techniques and tools available to assist in the successful conduct of a Value Management Study;
- * To provide a means of identifying potential candidates willing to undertake further intensive training in order that they can run Value Management Studies, with the support of qualified independent Value Management Consultants;
- * To provide a means for members of the product Evaluation Unit to discuss actual case studies they have conducted and relate first-hand lessons learnt.

Each Workshop participant receives a copy of the draft Value Management Guide. A copy of a typical Value Management Familiarisation Training Workshop Agenda is shown at ANNEX A.

To date over one hundred RTA personnel have attended a workshop. The ideal number of participants at a Workshop is about thirty. Another three Workshops which are already fully subscribed are scheduled during November and December 1993. Further Workshops are planned for February and March 1994. The feedback from the Workshops conducted so far has been very positive.

THE VALUE MANAGEMENT PROCESS

Although there are many ways to successfully conduct a Value Management Study to date I have only been exposed to the NSW Public Sector model employed by the Product Evaluation Unit.

A number of Value Management Studies have been carried out at various RTA offices around the state by approved Consultants other than the PEU. Their approach differs from that employed by the PEU but as I have not been directly involved in these studies I am unable to make any personal comment on how well they went in comparison to the Public Sector model. A list of studies held to date is shown at ANNEX B.

What I am able to say is that the Public Sector model has been very well suited to the types of studies carried out so far in the Authority. A diagram of the NSW Public Sector model is shown at ANNEX C.

This process depends upon effective team-work of those involved in a study. The Value Study Group normally consists of Authority specialists and internal stakeholders as well as external specialists and stakeholders.

These external stakeholders have, in studies to date, included people such as a High School Headmaster, a cotton farmer, representatives of Members of Parliament, Local Government representatives and community group representatives to name but a few. In addition, and most importantly, senior management supports and participates in the studies.

A feature of this approach is the way in which each member of the Value Study Group contributes towards the generation of ideas about any aspect of the project irrespective of their individual area of expertise. This requires, as a prerequisite to a successful study, that each member of the Value Study Group leaves his or her 'badge of authority' outside the room.

The process attempts to maximise the benefit of "group dynamics", recognising that the outcome of the group analysis through synergy is likely to be more effective than that of a similar analysis by the same people acting individually.

COMPOSITION AND ROLES

The principal groupings in the Value Management Study are the Value Study Team, the Value Study Workshop Facilitator and the Value Study Group. There are a variety of roles to be filled within these groups for the most efficient conduct of a Value Management Study.

The Value Study Team

The Value Study Team is composed of specially trained people. The number involved is dependent on the nature of the project, complexity of the issues, need for independent specialist input and the extent of pre-study works to be undertaken. It has normally involved about four or five people and includes members of the PEU and myself as the Value Management Co-ordinator.

Designated team members have the responsibility for the management of the entire Value Study process. In the pre-study phase this includes:

- * management of Value Study preliminaries;
- * definition of the objectives and scope;
- * preparation of the Value Study Agenda;
- * selection and marshalling of participants;
- * identification of information requirements; and
- * co-ordination of the background material.

The team, in collaboration with the Authority's representatives, identifies both internal and external personnel who are to:

- * be nominated to participate in the workshop activities as members of the Value Study Group.
- * provide background information during the pre-study phase;
- * present short papers on key aspects of the project;

During the study the Value Study Team participates in the workshop session to provide the structure and an independent level of enquiry through probing and discussion on the study topic.

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

The generation of alternative ideas is often enhanced by the injection of a new perspective which can be achieved through the inclusion of one or more independent technical specialists such as a traffic engineer or environmental consultant who has expertise in the main field of the project.

This approach has been very successful on Value Management Studies carried out so far for the Authority by the PEU.

Value Study Workshop Facilitator

A key member of the team is the Value Study Workshop Facilitator who, to lead Value Study Workshops in the NSW public sector, must be currently registered on the NSW Government's Value Management Consultant's Panel and should be experienced as a facilitator on concept and project development based studies.

This person acts as chair of the proceedings and facilitates the generation and evaluation of alternative ideas. The facilitator also participates in the preparation of the Value Study Agenda and assists in the preparation of the Value Study Report by the PEU members of the Value Study Team.

Value Study Group

Normally the study participants have been based around the group of internal individuals actually involved in the project development. It has normally included the Project Manager, Designers, Asset Managers, Valuers, Environmentalists etc. In addition an overt commitment by Executive Management such as a Regional Director has greatly enhanced the process by providing the Value Study Group with a corporate benchmark for maintaining the study focus.

It has also included external study participants who have been identified as appropriate to represent external stakeholders. Typical stakeholders have come from Councils, other government agencies such as the State Rail Authority, the Department of Conservation and Land Management and the National Parks and Wildlife Service. Stakeholders have also included Community Group representatives, School Principals, farming industry representatives, private bus company representatives, private freight interests. In certain circumstances it has been necessary to involve a representative from the relevant Minister's office or a representative of the Local Member for Parliament.

The number of participants in a Value Study Group is normally between 10 and 20. As an example the list, shown in ANNEX D, of participants in the Lead Paint Abatement Study numbered twenty one.

LESSONS LEARNT

Value Study Team

The use of a Value Study Team is of assistance during the pre-study phase in helping the client to clarify the objectives of the proposed study. Its greatest impact however, is during the study when it is able to observe the group processes in greater detail than the facilitator, particularly when the facilitator is busy with the group.

They are able to play the role of a provocateur and ask the hard questions which should not be asked by the Workshop Facilitator. This way the Workshop Facilitator can remain neutral and as a result maintain credibility as an independent Facilitator.

They are also skilful in combining syndicate groups, when required, so that there is minimal destructive conflict amongst syndicate members. This is critical in ensuring that the study flows smoothly and benefits are maximised.

Lastly, as a result of detailed note-taking during the study the team is in a much better position to produce a clear and precise report for the client.

Value Study Workshop Facilitator

The crucial point here is the importance of employing an independent, external Value Study Workshop Facilitator. This person not only needs to be objective but needs to be perceived as objective.

To use an internal facilitator, no matter how independent they may appear, there is a risk of compromising the study and the process. This is particularly critical in the light of the large representation of external stakeholders invited to participate in a Value Management Study. Also the external facilitator is able to apply a broader perspective to the problem.

Value Study Group

The Authority's first Value Management Study unfortunately did not include any external participants. Although the outcomes from the study were very good a number of important opportunities were lost because of the omission.

These lost opportunities did not become apparent until the second Value Management Study when external participants were included.

It was then clear that what we had lost was the opportunity to seek external input at an early date particularly from community representatives. What better form of initial community consultation can you get? It sends a clear signal that we are prepared to listen to community concerns about a project's impact and that every effort will be made to accommodate their concerns or provide them with something they can at least live with.

The group members leave the study knowing they had every opportunity to contribute towards the outcomes and as a result feel they have ownership and also a commitment to those outcomes. To not involve external participants in this way was another lost opportunity.

Including external participants can also have other advantages in the detail knowledge they can bring on a particular subject that can have some influence on the study outcomes.

On many occasions I have heard project managers admit that despite exhaustive efforts by all project team members to ascertain all relevant facts on a project the external participants had revealed additional facts about which that they were unaware.

One example was the input from a cotton farmer on the Value Management Study of the North Bourke bridge and approaches. This was a project which had advanced to the stage, a few years earlier, of awarding a contract for construction of the bridge and approaches but because of funding cuts the contract was abandoned. The prime purpose of the study was to determine whether the project was still viable in its present form.

During the information gathering phase the cotton farmer gave details of the local growers intentions over the next five years to increase the area growing cotton from roughly ten to fifteen thousand hectares south of the river and from roughly eighteen to twenty five thousand hectares north of the river. In any case certain wide machinery at various times during the year had to be moved from one side of the river to the other a distance of about twenty kilometres, as the crow flies. As the existing bridge was too narrow the machinery had to be transported via Louth 100 kilometres downstream.

This 200 kilometre plus round trip was adding additional overheads, to the growers' production costs, in excess of \$250,000 every year. All that was required to remove this burden was to ensure the road and bridge design provided for the function - carry farm machinery. In other words the new bridge guard-rails should be lowered enough to provide clearance for the machinery without affecting any other necessary functions such as safety of traffic.

In the process it reduced the amount of concrete required in the barrier kerbs, it reduced the cost of the barrier kerbs and it reduced the dead load on the bridge. The only cost was in minor changes to the bridge plans. Most studies seem to extract these little 'gems' with relative ease. In terms of reductions in the cost of overheads for the cotton growers it meant an improvement in the competitiveness of their cotton exported to the Asian market through the Port of Darwin.

In those studies where designs are still in the concept stage these gems and other facts tend to make a designer's life much easier as options and assumptions drop out leaving a clearer path to a desired solution. Everybody wins.

Another VM study on a project involved the redesign of a busy intersection on the Hume Highway at Chullora. The State Rail Authority was represented on the study because the rail passed under the Hume Highway between two side roads which junctioned with the Highway; Centenary Road from the north and Roberts Road from the south.

Outcomes from the study were a number of options which needed to be considered pending further studies. Since then further options have opened up as a result of the State Rail Authority being more amenable to alternatives involving geometry redesign of a rail loop adjacent to the road project. This, to my mind, is the sort of enhanced influence that participation, ownership and commitment by an external stakeholder can bring through opening up of the mind to other alternatives in a search for the best solution.

Benefits

As a result of the VM Studies considerable benefits have been achieved. These have included better value and an improved return on investment through:

- * Capital and recurrent cost savings;
- * Time savings - design, construction, approvals, project management structures and systems;
- * Considered option range;
- * Minimal wastage;
- * Forecast of risks;
- * Team-building;
- * Team consensus;
- * Concentrating expenditure on adding value;
- * Staging and phasing to ease funding constraints.

Details of the benefits on some of the studies undertaken by the PEU are shown at ANNEX E.

Venue

It is important to choose a venue, away from the place of work in order to isolate participants from their phone and other disruptions. The venue will also need to be non-threatening to external stakeholders.

It is also ideal, where the situation permits, to attempt to have all participants stay overnight with the two day study. This enhances the process of team building by uniting participants through the development of mutual respect in a more relaxed environment outside work hours.

IN CONCLUSION

What I have outlined is a brief summary of the RTA's experience with Value Management. Although many people initially perceived it as just another hurdle placed in their way they have come to realise its power in addressing problems by providing solutions which have the support and commitment of both internal and external stakeholders. As the process receives wider use throughout the Authority I am confident it will gain greater acceptance. The full potential of its uses within the Authority is still to be realised. In my view its potential is unlimited. All that is limiting its application is our imagination.

References.

New South Wales, Public Works Department, Policy Division. **Value Management.** Sydney. NSW Government, 1992.

David A. Nadler. **Managing Organizational Change: An Integrative Perspective.** The Journal of Applied Behavioural Science. Vol 17, No 2, 1981.

Roads and Traffic Authority, NSW. **Draft Value Management Guide, 1993.**

VALUE FAMILIARISATION TRAINING WORKSHOP

A training program designed to familiarise people with the techniques, concepts and applications of value management

AGENDA

Tuesday, 12 October 1993

8.30 am	<ul style="list-style-type: none"> • Welcome and introduction 	Denis Sullivan
	<ul style="list-style-type: none"> • Workshop Aims & Objectives 	Ross Prestipino
8.45 am	<ul style="list-style-type: none"> • Role of Value Management within the Roads and Traffic Authority 	Bob Morris
9.15 am	<ul style="list-style-type: none"> • Government Expectations <ul style="list-style-type: none"> - Policy - Asset Management 	Ted Smithies
9.45 am	<ul style="list-style-type: none"> • Creating Ideas <ul style="list-style-type: none"> - Group Exercise 	Roy Barton
	<ul style="list-style-type: none"> • Value Management Overview <ul style="list-style-type: none"> - Theory of Value Management - A Systems Approach - Applications of Value Management 	Roy Barton
	<ul style="list-style-type: none"> • Video 	
	<ul style="list-style-type: none"> • Discussion on VM Overview (Questions & Answers) 	
12.30 pm	Lunch	
1.30 pm	<ul style="list-style-type: none"> • Evaluation of Function, Cost & Worth <ul style="list-style-type: none"> - Group Exercise 	Roy Barton
	<ul style="list-style-type: none"> • Setting Objectives & Priorities <ul style="list-style-type: none"> - Group Exercise 	
	<ul style="list-style-type: none"> • Evaluating Performance Criteria <ul style="list-style-type: none"> - Group Exercise 	
	<ul style="list-style-type: none"> • Value Management Practice in Government <ul style="list-style-type: none"> - Timing - Return on Investment - Procedures 	Ross Prestipino
	<ul style="list-style-type: none"> • Value Management Case Study 	Roy Barton
	<ul style="list-style-type: none"> • Discussion on VM Procedures (Questions & Answers) 	
	<ul style="list-style-type: none"> • Summary 	Denis Sullivan
5.00 pm	Close	

Note: This agenda has been prepared as a guide to the structure of the Workshop. The agenda is essentially flexible and may be adjusted during the Workshop. Lunch, morning and afternoon tea will be supplied.

LIST OF STUDIES HELD TO DATE

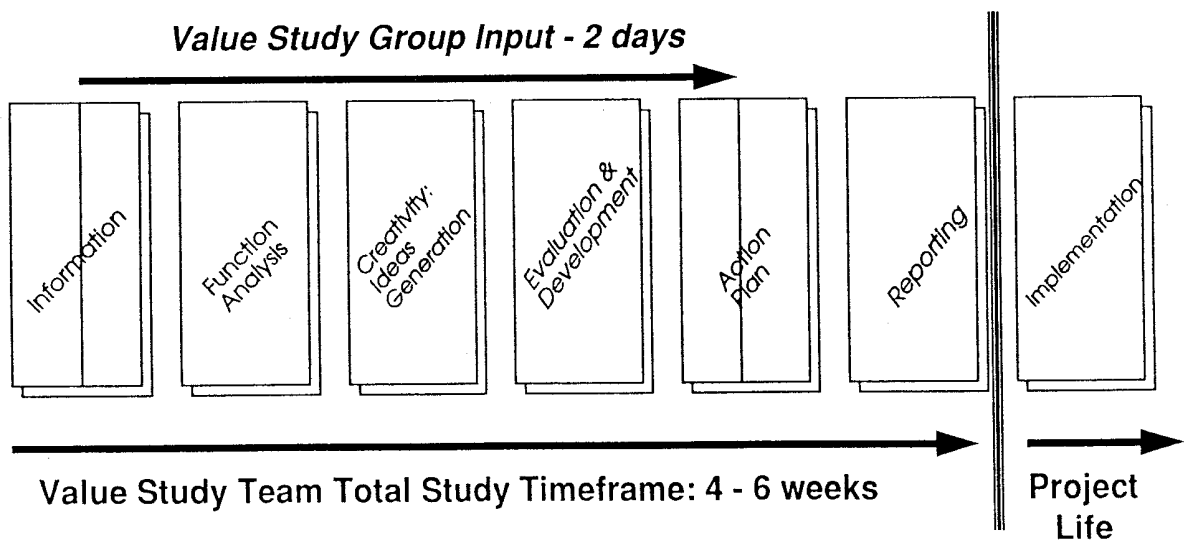
By the PEU

F6 Freeway Enhancement, Wollongong.
 Replacement of Gundy Bridge over Pages River east of Scone.
 Hume Highway/Roberts Rd/Centenary Rd, Chullora.
 Relocation of Southern Regional Office to Goulburn.
 Relocation of Northern Regional Office to Port Macquarie.
 Tamworth Zone Office Accommodation.
 Bridge over the Darling River at North Bourke.
 Gobbagumbalin Bridge over the Murrumbidgee River, Wagga Wagga.
 Princes Highway Upgrade, Dunmore to Oak Flats, North of Kiama.
 Federal Highway, Collector to Brooks Creek (Lake George).
 Lead Paint Abatement Strategy for Bridges.
 Reconstruction of Mulgoa Road, M4 to Jamison Road, Penrith.

By other Consultants

Troy Bridge at Dubbo.
 Improvements at Mooki River & Carrol Creek Floodplain, Gunnedah.
 Great Western Highway, Faulconbridge.
 Great Western Highway, Blaxland to Valley Heights.
 New England Highway, Armidale Bypass.
 New England Highway, Liverpool Range Stage 2, North of Tamworth.
 Pacific Highway, Coolongoolook to Nabiak.
 Restoration of SH 10 at Cheero Point near Mt White.
 Temporary connection of F3 to New England Highway at Beresfield.
 National Highway extension from Minmi to Branxton.
 City West Link, Stage 3.
 Study on Northern Region Major Projects Organisation.
 Pacific Highway, Billinudgel to Chinderah.
 Pacific Highway Corridor Selection at Coffs Harbour.
 Great Western Highway, Mt Lambie Realignment, West of Lithgow.

VM Process - NSW Public Sector Model



LEAD PAINT ABATEMENT STUDY PARTICIPANTS

Roads and Traffic Authority

Ray Wedgwood	Chief Bridge Engineer
Howard Morris	Project Manager
Terry McCoy	Manager, Environmental Assessments
Garric Vidler	Operations Manager, Sydney Region
Brett Eadie	Bridge Services Manager
Don Willey	Painting and Safety Facilitator, SHB
Dick Ogilvie	Occupational Health and Safety Officer
Richard Horner	Manager, Chemicals, Scientific Services

Environment Protection Authority

Colin Grant	Executive Director, Technical Services
Bill Balding	Contaminated Sites Officer

Workcover Authority of NSW

Kelvin Wooller	Occupational Physician
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Public Works Department

Kevin Williams	Chairman, Lead in Paint Working Group
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State Rail Authority

George Williams	Heavy Duty Coatings Chemist
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Sydney Water Board

Greg Cain	Manager, Asset Management Program
Ed Urbaczewski	Projects Manager

KTA Environment Consultants

Ken Trimber	USA Consultants on Lead Paint Management
Dan Adley	USA Consultants on Lead Paint Management

Community Representative

Fred Salome	LEAD Group
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Environmental and Earth Sciences

Philip Mulvey	Consultant
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Blast Cleaning and Coating Association

Phil Harrison	Consultant
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Australian Paint Manufacturers Federation

Ivan Baxter	Corporate Projects Manager
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Value Study Team

Roy Barton	Value Study Facilitator
Alan Butler	Value Manager, PEU
Ross Prestipino	Value Analyst, PEU
Frank Sofo	Value Analyst, PEU
Denis Sullivan	RTA VM Co-ordinator

BENEFITS**F6 Freeway Enhancement, Wollongong**

- * Agreement that major construction option (up to \$42 million) was not supportable.
- * Endorsement of a new strategy combining traffic management and phased capital works.
- * Identification of commercial opportunities for RTA assets.
- * Community impacts minimised by deferred bridge reconstruction.

Bridge over the Darling River at North Bourke

- * Highlighted current bridge deficiencies.
- * Assessed the preferred option as a new high level two lane bridge.
- * Agreed the crossing should be considered in its wider road network context.
- * Agreed to pursue VM ideas identified for project inclusion.
- * Enhanced community and Council appreciation of issues concerning the project.

BENEFITS**Gobbagumbalin Bridge over the Murrumbidgee River, Wagga Wagga**

- * Highlighted needs as against perceived functions.
- * Agreed that:
 - Road should have urban characteristics.
 - Lower design levels on northern approach possible (saving \$3.2M).
 - Junction treatments to be reviewed (potential saving \$1M).
 - Phasing and staging priorities dependent on funding levels.
- * Provided for stakeholders:
 - An appreciation of issues.
 - Avenue for consultation.
 - Ownership of outcomes.

Hume Highway, Roberts Road, Centenary Road, Chullora

- * Established broad consensus to undertake immediate action to improve traffic flow and safety.
- * Identified safety proposals which could predate major works.
- * Agreed that:
 - immediate action should not compromise long term solution.
 - strategic issues need to be addressed before concept phase completed.
- * Enhanced SRA, Council and community awareness of the issues involved.

BENEFITS**Princes Highway Upgrade, Dunmore to Oak Flats**

- * Agreed the project should be viewed with a long term southern corridor route in mind to determine scope and scale.
- * Agreed project to be extended to North Kiama By-Pass.
- * Highlighted issues requiring further clarification prior to a second VM Study.
- * Agreed on the performance criteria that the project must satisfy.

Federal Highway, Collector to Brooks Creek (Lake George)

- * Agreed that the scope of the project should be the total section of the Federal Highway between Collector and Brooks Creek.
- * Recommended an internal review of the previous EIS and an REF along the preferred foreshore route.
- * Recommended that the preferred cross-section for the formation be two 3.5 metre lanes in each direction plus shoulders (a reduction of 14 metres from the initial concept cross-section).
- * Agreed that the minimum road levels along the lake foreshore be set at 680.3 metres AHD to address flooding/inundation issues. (finished surface level 1.7 metres lower than initial concept level).
- * Recommended that the proposed alignment be generally maintained but modified where benefits warrant it. (optimise total earthworks, minimise environmental impacts).