The Strategic Management of Projects
to enhance Value for Money for BAA plc
Volume II

by
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This thesis is submitted in fulfillment of
the degree of Doctor of Philosophy,
Heriot-Watt University

Department of Building Engineering and Surveying
Heriot Watt University

September 1994

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Appendix A
Pilot study

Results from "Value" Questionnaire
I. Questionnaire
II. Summary results
This questionnaire has been prepared for BAA plc to assess the current perception of Value Management within the organisation. This will form the basis of further research for BAA in the strategic procurement of Construction projects.

SECTION 1

1.1 Please indicate whether you have heard of any of the following: (Please ✔ as appropriate)

- Value Analysis
- Value Chain
- Value Management
- Value Engineering

If you have not heard of any of these terms - Please go to Section 2

1.2 Do you think there is a difference between any of the above terms?

- Yes (Please specify):

- No
- Don't know

1.3 Please define in your own words the meaning of 'Value Management' as you understand it.


1.4 Do you agree the following to be a true statement: 'Value Management reduces the fragmentation of the Construction Industry by bringing together the client, designers and the contractors.' (Please ✔ as appropriate)

- Yes
- No
- Don't know

1.5 Have you received any training for Value Management? (Please ✔ as appropriate)

- Internal BAA
- External one week
- External one day
- None
- Other (Please specify):


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1.6 Do you think Value Management team members need prior knowledge of Value Management before participating in an exercise? (Please ✔ as appropriate)

Yes ☐  No ☐  Don't know ☐

1.7 Which of the following terms would you associate with the aims of Value Management (VM) and Value Engineering (VE)? (If there is no difference simply tick one column). (Please ✔ as appropriate)

<table>
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<th>VE</th>
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<td>Eliminate all design features</td>
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<td>Independent review of the project</td>
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<td>Establish the project objectives</td>
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<td>Change components for cheaper alternatives</td>
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<td>Identify the functions of the project</td>
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<td>A team building exercise</td>
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<td>Allow project to proceed to CAPEX approval</td>
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<td>Drive costs out of project</td>
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<td>Bring project within budget</td>
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<td>Remove all unnecessary costs</td>
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<td>Improve quality of finished project</td>
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1.8 Have you been involved in a BAA Value Management exercise? (Please ✔ as appropriate)

One ☐  Go to 1.11  Expect to be Never ☐  Go straight to Question 1.14

If 'More than One', how many: ____________________________
1.9 Please indicate what role you filled in each of these exercises. Fill in the box according to the number of times you have filled that particular role. *(The sum of the numbers should equal the total number of Value Management exercises that you have attended).*

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1.10 Have the BAA Value Management exercises that you have been involved in followed the same format? *(Please ✓ as appropriate)*

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<th>Don't know</th>
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1.11 In general, how would you grade the leadership qualities of the facilitator in the BAA Value Management exercises in which you were involved? *(Please ✓ as appropriate)*

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1.12 Which of the following have resulted from any of the BAA Value Management exercises in which you have been involved? *(Please ✓ as appropriate)*

- Substantial savings (> 20% project cost)
- Cost savings (between 0 and 20% project cost)
- An increase to the project cost
- Don't know
- Significant design changes
- Identification of project issues
- Changes to the concept
- Other (Please specify):

1.13 Please indicate which of the following have occurred in the BAA VM exercises in which you have been involved? *(Please ✓ as appropriate)*

- Presentation of project information
- Ranking of client objectives
- Presentation of recommendations to client
- Functional analysis
- Job plan
- Brainstorming
- Cost analysis
- None of these
1.14 Do you enjoy Value Management exercises? (Please explain your preferences in the space below):

______________________________________________________________________________

1.15 What do you consider to be the role of the 'Facilitator'? (Please as appropriate)

A person familiar with the project who motivates the team

An independent person with no prior knowledge of the project who motivates the team

An active member of the VM team who records proceedings for a report issued following the exercise

A person who has no input to the VM exercise but sits away from the group recording proceedings

Don't know

Other (Please specify):

______________________________________________________________________________

1.16 Do you believe the client representative should: (Please as appropriate)

Present the information then leave

Present information, leave and return at the end

Present information and then join VM team

Present information and then join VM team

Have no involvement

Other (Please specify):

______________________________________________________________________________

1.17 At what stage(s) do you consider a VM study should take place?

Pre design

Concept design

Scheme design

Detail design

Construction phase

Other (Please specify):

______________________________________________________________________________

1.18 Please describe what you understand by the term 'Functional Analysis'?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

365
1.19 What do you consider the problems to be when implementing Value Management?

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

1.20 Do you think Value Management is beneficial to the building process?

Yes   [ ]   No   [ ]   Don't know   [ ]

1.21 Do you think Value Management could be usefully applied to any other areas of the organisation?

Yes   [ ]   No   [ ]   Don't know   [ ]

*If 'Yes', please specify: ____________________________________________________________

____________________________________________________________________________

1.22 Do you have any further comments you would like to make regarding the implementation of Value Management within BAA plc?

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
SECTION 2

Thank you for taking the time to respond to this questionnaire. In order to correctly represent the information that you have supplied, could you please answer these further questions.

2.1 To which of the following categories do you belong? *(Please ✔ as appropriate)*

<table>
<thead>
<tr>
<th>Category</th>
<th>✔</th>
<th>✔</th>
<th>✔</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design/Architecture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity Surveying</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other *(Please specify):*  

2.2 In which band of management do you belong? *(Please ✔ as appropriate)*

<table>
<thead>
<tr>
<th>Band</th>
<th>✔</th>
<th>✔</th>
<th>✔</th>
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<tr>
<td>Band 4 or equivalent</td>
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<td></td>
</tr>
<tr>
<td>ASM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Band 3 or equivalent</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>CSM</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.3 Please indicate for which airport/location you work? *(Please write in):*

________________________________________________________

If you have indicated any queries in this questionnaire, it would be useful to contact you at a later date. If this is acceptable, please sign below.

Name:  

Signature:  

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Questionnaire analysis
Graph 1

Heathrow 47%
TSD 12%
Scottish Airports 22%
Gatwick 14%
Stansted Airport 5%

Breakdown of sample into locations
Aims of VM/VE
Graph 2

40 respondents

- a Eliminate all design features
- b Independent review of project
- c Establish the project objectives
- d Change components for cheaper alternatives
- e Identify the functions of the project
- f A team building exercise
- g Allow project to proceed to CAPEX
- h Drive costs within budget
- i Remove all unnecessary costs
- j Improve quality of finished product
Type of participation in VM exercise
Graph 3

<table>
<thead>
<tr>
<th>Role</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitator</td>
<td>0</td>
</tr>
<tr>
<td>Team member</td>
<td>30</td>
</tr>
<tr>
<td>Presentation team</td>
<td>25</td>
</tr>
<tr>
<td>Client rep</td>
<td>0</td>
</tr>
</tbody>
</table>
Results of VM exercises
Graph 4

Cost savings (0-20%)
Cost savings (>20%)
Increased project cost
Identify project issue
Design changes
Changes to concept

21 respondents
Contents of VM exercise
Graph 5
Role of the facilitator
Graph 6

42 respondents

a  Person familiar with the project who motivates the team
b  Independent person, no prior knowledge, motivates team
c  Active independent member, no prior knowledge, motivates the team
d  Active member who records proceedings for a report
e  No input to the VM team, sits away and records proceedings
f  Don't know
g  Other
Involvement of client representative

Graph 7

40 respondents

a  Present information, leave and return at end
b  Present information then join VM team
c  Have no involvement
d  Present the information then leave
Nature of further comments
Graph 9

Comments grouped according to common themes
Appendix B
Pilot study

Results from Pilot Interviews
I. List of interviewees
II. Main comments from interviews
## Schedule of interviews conducted during the pilot study

<table>
<thead>
<tr>
<th>INTERVIEWEE</th>
<th>ROLE AND COMPANY</th>
<th>DATE</th>
<th>INTERVIEW CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mike Roberts</td>
<td>MD Heathrow Airport Ltd.</td>
<td>2/11/92</td>
<td>BAA plc culture shift</td>
</tr>
<tr>
<td>Anonymous</td>
<td>Senior Project Managers, HAL</td>
<td>2/11/92</td>
<td>Investigation into VM on T1 concept project</td>
</tr>
<tr>
<td>Ron Paternoster</td>
<td>Ops Director, Stansted Airport Ltd.</td>
<td>9/11/92</td>
<td>The stansted culture shift</td>
</tr>
<tr>
<td>Chris Rust D'Eye</td>
<td>Head of Engineering HAL</td>
<td>9/11/92</td>
<td>Central Projects Group at LHR, development of procurement</td>
</tr>
<tr>
<td>Sir John Egan</td>
<td>Chief Executive, BAA plc</td>
<td>4/12/92</td>
<td>Culture change, vision and future for projects department</td>
</tr>
<tr>
<td>Anonymous</td>
<td>Construction Manager</td>
<td>11/11/92</td>
<td>Contractor's perception of BAA as a client</td>
</tr>
<tr>
<td>John Reckie</td>
<td>Senior Project Manager, HAL</td>
<td>16/11/92</td>
<td>Investigation into Value for Money of Victor Pier, HAL</td>
</tr>
<tr>
<td>Graham Matthews</td>
<td>Project Director, Lynton</td>
<td>21/12/92</td>
<td>Lynton method of building and Value chains</td>
</tr>
<tr>
<td>Anonymous</td>
<td>Construction Manager</td>
<td>22/12/92</td>
<td>BAA as a building client, definition of value</td>
</tr>
<tr>
<td>Anonymous</td>
<td>Construction Manager</td>
<td>22/12/92</td>
<td>BAA as a building client, definition of value</td>
</tr>
<tr>
<td>Senior Managers</td>
<td>Procurement seminar</td>
<td>15/1/93</td>
<td>Current procurement issues and BAA plc</td>
</tr>
<tr>
<td>Michael Maine</td>
<td>Technical Director, BAA plc</td>
<td>18/1/93</td>
<td>Confirmation of research methodology</td>
</tr>
<tr>
<td>Donal Dowds</td>
<td>MD, Glasgow Airport Ltd.</td>
<td>29/1/93</td>
<td>Introduction to research issues, request for workshop</td>
</tr>
<tr>
<td>Ron Paternoster</td>
<td>Ops Director, Stansted Airport Ltd.</td>
<td>2/2/93</td>
<td>The Stansted Concept, request for workshop</td>
</tr>
<tr>
<td>Roger Cato</td>
<td>Ops Director, HAL</td>
<td>3/2/93</td>
<td>Request for workshop</td>
</tr>
<tr>
<td>Andrew Dryland</td>
<td>Planning Director, HAL</td>
<td>3/2/93</td>
<td>Planning and projects at LHR</td>
</tr>
<tr>
<td>Guy Sutherland</td>
<td>Capital accountant, HAL</td>
<td>4/2/93</td>
<td>Nature of project approvals process</td>
</tr>
<tr>
<td>Richard Moore</td>
<td>Head of Value Management</td>
<td>4/2/93</td>
<td>VM implementation within BAA plc</td>
</tr>
<tr>
<td>Rodney Watts</td>
<td>Senior PM, BOVIS</td>
<td>9/2/93</td>
<td>Bovis study into US/UK comparison</td>
</tr>
<tr>
<td>David Brown</td>
<td>Architect, BAA plc</td>
<td>10/2/93</td>
<td>US commercial project management, request for workshop</td>
</tr>
<tr>
<td>Martin Plimmer</td>
<td>Contracts Manager, GAL</td>
<td>10/2/93</td>
<td>GAL project management, request for workshop</td>
</tr>
<tr>
<td>Naomi Garnett</td>
<td>Research Fellow, Reading</td>
<td>12/2/93</td>
<td>Research conducted at Reading for BAA</td>
</tr>
<tr>
<td>Henri Pageot</td>
<td>Planning Director, BAA plc</td>
<td>11/3/93</td>
<td>Future of airports and BAA in 2 hrs!</td>
</tr>
<tr>
<td>Barry Lucas</td>
<td>Development Director, BAA plc</td>
<td>30/3/93</td>
<td>Progress in BAA since research commenced</td>
</tr>
</tbody>
</table>
Objective of interview:
To understand the nature of the culture at Heathrow Airport and to investigate the culture shift that had taken place at Heathrow.

Main points from interview:

1. HAL's values reflect directly those of Sir John Egan, previously HAL were so far behind the rest of the group culturally and contained many dinosaurs caught in a circle of elitism.
2. Recent culture shift forced by Sir John Egan due to the need to become more customer oriented and increase investment opportunity.
3. The new culture is easy to pick up with simple messages. Sir John constantly repeats the organisation's values in an attempt to filter them through the organisation.
4. The change process was hard but Heathrow has responded well. The middle management level are the sad sandwich as their change takes the longest and they are required to adapt the most.
5. HAL are not good at fitting round pegs into round holes.
6. The corporate strategy was considered too complicated, but now concentrates on the core business.
7. New initiatives now are linked into the corporate strategy whereas they used to be independent to HAL.
8. The change process is now in its evolution stage presenting different threats and opportunities.
9. BAA is now a networked organisation encouraged to share information internally and externally. "Who do I need to consult today?" philosophy.

Implications for model: Presence of Subcultures
Model must be designed to facilitate implementation and in sympathy with the change processes required.

Actions resulting from interview: Meeting with Sir John Egan.
Objective of interview:
To investigate the progress, relationships and problems of a major project at Heathrow.

Main points from interview:

1. The large development is considered as three separate projects each with its own sub project manager, the whole development being managed by the Senior project manager.
2. Integration between the three projects is minimal relying on informal discussion by the sub project managers.
3. One of these projects has taken 2 years to reach feasibility stage.
4. Recommendations from the VM exercise have been actioned and could save up to £5/6m.
5. The relationship with the CM is going well but the formal lines of communication were abandoned after 2 days, due to a problem with senior staff making decisions over the head of the PM, leading to confusion and embarrassment at project level.
6. Due to the number of unresolved issues and politics the project team do not feel in control of their project – this may improve when a number of key decisions have been made.
7. It was considered that the project boards are not that effective and could do more. They should be there to solve the political problems and let the PM get on with his job, not to hound the PM and hinder his progress.

Implications for model:
Clearly the model must minimise the political influences on the progress of the project but cannot ignore them.
A strategic view of projects will facilitate better integration.
Empowerment of the project manager must be balanced with the senior management input.

Actions resulting from interview: Investigate the function of the project board Speak with the CM to understand his interpretation of the clients decision making process.
Name: Ron Paternoster  Date: 9 November 1992

Job Title: Operations Director
Company: Stansted Airport Limited

Objective of interview:
To investigate the culture shift required upon the opening of a new International Terminal at Stansted, altering it from a "tin shed to a cathedral". To learn from the management of change that took place during this huge change program.

Main points from interview:

1. Prior to the opening of the new terminal, a modest operation ran a modest facility.
2. No one had involved the staff in the changes, they saw it being built in isolation.
3. When, nine months before the move, the staff were consulted they did not resist the change, but were simply gob smacked.
4. They embarked on an intensive personal induction training for each member of staff to allay their fears and build a new culture.
5. The old culture was thrown away, what has developed is a group of business minded professionals, totally involved in the business. All the staff go home and actively market Stansted as they identify with the struggle it is experiencing.
6. Now staff suggestions are flowing unprompted, there is an integrated service level with the airlines, BAA, train drivers, cleaners all projecting the Stansted culture. The whole chain is involved in the culture.
7. The challenge was to be open with the staff and encourage them all to buy into the change.
8. "Scratch my back and I'll scratch yours" philosophy leads to everyone working together to sort out problems, involving all areas of the value chain.

Implications for model:
- Involve all in the change process and encourage openness
- Time is required for implementing change
- Subcultures within BAA are strong, therefore implementation across the whole group must recognise this

Actions resulting from interview:
Objective of interview:
To understand the philosophy leading to the centralisation of the projects group, the perception of Value Management and trends in project delivery methods at Heathrow.

Main points from interview:

1. The central projects group was formed to ensure the best use of resources, efficiency and to ensure that the project managers talk and share information. The central projects group also allows project managers to learn from each other and thus be able to pick up each others projects if necessary.
2. Each terminal has a different culture so they have allocated project managers to each terminal.
3. For large important projects, project managers are selected according to their experience, for those smaller, the project managers are selected according to the resource capability.
4. Project boards are there to help PM through difficulties and to clear brick walls, however they have got a little large and do not have the chairmen with sufficient autocracy to make decisions.
5. The Heathrow culture is one of hard work, performance led, slightly aggressive and business oriented. It has also picked up on the Sir John Egan ethos of continuous improvement.
6. Procurement has gone through a number of fads depending on the favoured procurement route of the most influential person within the organisation at the time.
7. 7/8 years ago we were only using traditional procurement, T4 used MC, Gatwick North terminal used a combination of traditional and CM, Stansted was full CM; now Chris is encouraging real innovation in project delivery methods in order to meet the time cost quality parameters in the most suitable way.
8. Procurement routes are chosen to place risk (on others?)

Implications for model: Importance of senior management involvement in a controlled manner. Procurement options must be fully investigated and the choice made according to defined criteria. Project learning forms an important part of the process.

Actions resulting from interview:
Objective of interview:
To understand the CMs perception of BAA as a client of the building process; to investigate how the CM interprets the needs of the client and the definition of value for money.

Main points from interview:

1. HAL tend to treat this X as contractors not as a professional management team.
2. BAA is considered as a bureaucratic organisation which is slow to respond and caught up in political wrangling.
3. X is there to offer advice to the client – but the client will not listen.
4. The standard of briefing document received from HAL were varied, some comprehensive others non existent.
5. X believe you can only understand the client by working with them, so they have members of X staff permanently seconded to HAL. However they cannot slot into the HAL culture as it is too complex.
6. BAA is not prepared to manage their projects, it off-loads all risk onto the contracting organisations.
7. HAL only thinks short term and won't think strategically. They think project by project and therefore conflicts occur across various projects.
8. Soft costs have doubled due to the risk shoving and the desire for quality without the money to pay for it.
9. It may be necessary to employ an independent person to interrelate with BAA members who holds no political strings.

Implications for model: The model should facilitate full communication between the CM and the project team, emphasis should be placed on this open relationship with joint ownership. It appears that more formal methods for management of projects within BAA would be beneficial to the decision making process.

Actions resulting from interview:
Objective of interview:
To understand Sir John future vision for BAA and how he perceives the change process taking place. To seek his view of value for money and how projects can achieve this for BAA in the context of the corporate strategy.
Main points from interview:

1. JE stated his vision for BAA project management: *To build to world class standards within BAA benchmarks to our needs.*
2. Procurement is at the centre of the issue and solving it will be a cultural problem.
3. He discussed BAA's procurement problems by referring to his experience of the car industry. He compared the new product development procurement of Toyota with the likes of GM and Jaguar. (Refer to figure A1 and A2). JE stated that the procurement practices of BAA reflect those of GM.
4. We could learn from Toyota in their use of Quality Function Deployment (QFD), whereby they fully test the market, to find the ultimate components to meet the customer needs. Once the least cost highest quality alternative components are found they work with the vendors, suppliers etc to generate them. Two drawbacks: Must have a family of known suppliers and no new technology is allowed.
5. JE does not think the board should get too involved in the project decision making process as this has been the source of many project failures in the past. Problems with the Stansted project are partly due to corporate ego and partly to the architect being given a free hand in the project design. It is for this reason that Bovis and Richard Rogers are being rigorously tested for T5 now.
6. BAA has not always built in line with its strategy, partly due to wrongly perceived need and partly to corporate ego.
7. In the past BAA has moved into wider areas, even into terminal chair design. This should be left to the specialists with whom we should be building relationships. M&S use a core of suppliers.
8. The strategic issues of the board are finding a middle line between the opportunities and threats that could arise in the future. (See figure A3).
9. The key issues are procurement, processes and what to build?
10. "We must adapt some of what we have now and reduce it to be what we want, add the future and create a business that meets the needs of the environment".
11. Having briefly explained my model to Sir John he drew his idea of the project process required (See figure A5). He emphasised the importance of our value criteria stemming from the customer.
12. "Hurry up and come back, you look like you could save us lots of money".
13. JE told me to visit American and United Airlines in the US and M&S and McDonalds in the UK.

Implications for model:

- Emphasis on needs assessment in the early stages of the process.
- Simultaneous engineering techniques
- Long term relationships with suppliers and designers

Actions resulting from interview:

- Investigate QFD
- Arrange contacts with AA, UA, McDonalds, M&S.
The procurement process of GM for example would competitively tender for suppliers, during this process they would produce numerous prototypes and test and change. Once launched problems would arise which would then be rectified reactively. Toyota however spend time researching the model to test the customer needs. They utilise simultaneous engineering so that the production line and the new car are fully suited leading to value for money. Not only do they launch sooner but they also launch a car suited to the customer needs.
The three largest threats to BAA's business are:
1) Planning falls through for Terminal 5 – We need to grow at Heathrow because that is where people wish to fly from.
2) The regulator leaves us in a position where we can not afford to build and grow.
3) The country never comes out of recession whereby the future need we are growing toward never arrives and the demand is not realised leaving redundancy in the system.
Figure A5  The project process as perceived by Sir John Egan

Research
Bring in all knowledge about what we want: forecasts, QSM, Environment, past successes.

Design
Bring in Architect, possibly in parallel with CM, vendors to put together complete design.

Productivity schedule
Materials, machines, staff - whole process needs to be planned to improve on 25%

Construction
Objective of interview:
To understand Lynton's part within the BAA plc organisation, how they manage their projects to ensure value for money. Also Graham has recently completed an MBA in which his dissertation was on Value Chain analysis within the property industry, It is intended that the major conclusions from this will be discussed.

Main points from interview:

1. Lynton was bought 3/4 years ago by BAA plc, its core business was property and retail employing approximately 60 people. They now look after the airport property.
2. The joining of BAA and Lynton required a culture shift from both sides: Lynton had to get used to the bureaucracy, BAA to the commercial environment of Lynton.
3. Lyntons take a systems view that the sum of the whole is better than the sum of the individual parts.
4. The largest problem within BAA is the weak links present between the project management tribes and also between the individual airports: there is no organisational learning occurring.
5. In procuring projects Lyntons relate the project to the business need: hence realising real value, BAA is still in the engineering, technical, safety paradigm.
6. Value relates to cost effectiveness, creating added value and environment. This must include an assessment of lifecycle costs, currently not conducted within BAA plc.
7. Procurement within BAA has in the past been subject to faddism and systematically uses the procurement route in fashion at the time. The procurement system is not thought through. The political framework has driven them to build white elephants.
8. Lyntons work in a team and use a small number of consultants with whom they build up relationships and learning. They use team building techniques with the works contractors to ensure communications within the project.
9. Strategic thinking on projects within BAA is not occurring; Lynton have project managers and development managers creating a strategic to project link on their projects.
10. Graham's research concluded that the value chain within the construction industry is fragmented and does not allow a build up of value. At each phase of the building process information is thrown over a barrier thus reducing productivity. He considered the construction industries of Japan and North America, resulting in 10 critical success factors to achieving value for money.
Implications for model: The model needs to reflect the link between projects and strategy. The system should allow for learning across the whole of the value chain and within project management groups. Lifecycle costing is imperative within the assessment of value.

Actions resulting from interview: Read Graham's MBA dissertation.
Objective of interview:
To understand the CMs perception of BAA as a client of the building process; to investigate how the CM interprets the needs of the client and the definition of value for money.

Main points from interview:

1. HAL are a long way from deciding what they want before they start the project. They need to establish their users needs so that everyone knows what to expect at completion. It has taken X a year to understand how BAA thinks.
2. It is still evident that clients consider X as a contractor.
3. BAA is behind the industry in the construction arena.
4. In order to be a client capable of using the management route they must know what the business is about and must understand the clients needs.
5. In the UK everyone thinks everyone else is trying to screw them, until this mentality ceases the culture shift required will not happen.
6. The worst thing for X is to be handed a completed design as it does not consider buildability, the input of the management organisation is required during this design process.
7. If they are designing a building to meet the clients needs then they must work as a team – best disciplines will automatically give value for money.
8. There is a lot to say about partnering and becoming a team as they have done with Marks and Spencer, since X now think like M&S so don't need to go through the learning curve.

Implications for model:
Techniques such as partnering to bring the contractor, management organisation and the client together should form part of the procurement decision.
The model must ensure that the client/end user needs are fully investigated prior to embarking on the project.
The model must allow for construction expertise in the early stages of design to ensure buildability is considered.

Actions resulting from interview: Discuss partnering with Marks and Spencer
Objective of interview:
To understand the CMs perception of BAA as a building client and their relationship with the management organisation. Also to understand how the management organisation interprets the clients view of value for money.

Main points from interview:

1. X were selected for a number of projects due to their experience and recommendations from BA.
2. The previous project was difficult for them as they were the jam in the political sandwich, producing an intense feasibility study, receiving no feedback and then hearing the project was given to another contractor. No other client would act in this way.
3. They worked hard at becoming a team but found it difficult within the BAA organisation.
4. BAA allowed them 2 weeks to tender for one significant job, the only client organisation to treat the construction industry in this way.
5. BAA was considered difficult to work for as it is highly political and demanding, particular people have their own empires to protect.
6. BAA do not place value on the learning curve and by using different contractors all the time lose experience gained within a complex environment.
7. BAA exhibit changing cost and time goals. Decision making was not delegated down the line so it often took long periods of time for decisions to be made.
8. BAA are considered to have difficulty with personal relationships and do not know whether they are private or public.
9. The briefing material received gave a good feel for the direction and involved intense activity at the start of the project.
10. The interaction with the end user required on many of the BAA projects caused problems with changing requirements.

Implications for model: The structure of the decision making forum within the client organisation must be addressed.
The model must pay specific attention to team work.
The model must establish and review goals in a systematic way.
The strategic procurement of projects utilising families of contractors to make use of the learning curve must be addressed.

Actions resulting from interview:
Name: Donal Dowds  Date: 29 January 1993
Job Title: Managing Director
Company: Glasgow Airport Limited

Objective of interview:
To establish the perception of the BAA project management expertise on the Glasgow airport redevelopment, specifically with regard the establishment of the client requirements. To reach agreement on the research workshop and establish a list of suitable participants.

Main points from interview:
1. Donal owns the brief which has evolved with the project, and takes full responsibility from any repercussions. The brief was developed by the facilities management team reporting directly to Donal with any "unresolvable" problems.
2. It was considered that decision making power was lost in "meddling with fancy procurement", the more structure there is the less authority remains with the project owner.
3. The phasing of the Glasgow project was extremely complex to allow continued operation of the airport throughout its redevelopment.
4. Due to the complexity of Phase I the project was procured by construction management; phase II however, could build upon phase I knowledge and was effectively a greenfield site. This is therefore being procured via Design and Build.
5. The next stage is to audit the final product from Phase I to see whether the brief was actually met.
6. The Glasgow redevelopment emphasised the necessity for off the shelf items, since the Information Systems equipment caused them many problems. Minimisation of new technology will be a significant part of phase II.
7. Whilst investigating the Japanese client base, Donal advised that the research should consider the Honda method of management as they spend much time in the planning phase of their development projects.
8. It was agreed that for the purposes of the research study, all the Scottish Airports would be considered as one and Donal would coordinate the workshop participants such that key representatives from each area of the Scottish Airports' business were present.
9. It was agreed that a package of notes would be posted to Donal for each participant at least two weeks prior to the agreed date (3rd week in March).

Implications for model: Model should investigate owner authority versus procurement
Iterative development of the brief

Actions resulting from interview: Report to accomplish the workshop
Objective of interview:
To present a brief synopsis of my research topic and conclusions so far, in order to seek confirmation that the route pursued meets the brief of the sponsoring organisation.

Main points from interview:

1. The group were concerned that the presentation placed too much emphasis on the UK / US comparison and that the issue was not a procurement or productivity one. The researcher agreed with this confirming that the visits would be considering the wider issues of project management systems and project delivery.

2. The group were defensive toward their own techniques, in particular regarding comments about the VM methodology in the US. The development Director emphasised that the VM guidelines were developed and tailored specifically for BAA plc.

3. The group were keen for me to visit the US airports, as airports were considered to have special problems eg. multi client, stakeholders, security etc. requiring investigation.

4. It was suggested that I should take care how my material was presented within BAA and to outside companies since I was representing BAA and anything I said would reflect the thoughts of BAA.

5. The general inference from the meeting was one of "We are looking at these issues anyway, but it won't hurt to get a second opinion". The researcher took this as a defensive response.

Implications for model:

Actions resulting from interview: Add Chicago International Airport and others to list of visits in the US. Investigate during research the existence of the "Airport Project"
Objective of interview:
To reach agreement on the research workshop for Stansted Airport Limited and develop a list of participants to cover all aspects of the airport’s business.

Main points from interview:

1. Ron is chairing a meeting to uncover the history of the decisions made during the Stansted development, hopefully to learn from the experience. He emphasised that the track transit system arose due to the wishes of the chairman and was dependent upon nothing else.

2. It was suggested that some of the statements made in the document sent to Ron were a direct challenge on Sir John Egan, and the wording may require attention.

3. Ron was concerned that the model presented made no reference to the original concept. In the UK we write a brief then never follow it up, there should be some mechanism for revisiting the brief.

4. Referring to the life of buildings Ron suggested that we should recognise what we asked for in the brief and stick to it, if the building was meant for four years then only design for four years and plan to revisit after this time has expired.

5. Concern was expressed over the fast track nature of many of BAA’s projects and the time required to complete the model. He sited a British Airways project in which the brief was written as the design built up, using the suppliers and contractors. This £3.75m project was successfully completed in 64 days.

6. The model does not mention bringing the contractors and suppliers into the process earlier.

7. The workshop was agreed and set for week 2 / 3 March, to be confirmed by Ron.

Implications for model:
Include a mechanism for revisiting the brief during and after the project to learn from errors. 
Produce a second model for the concurrent nature of fast track projects.
Introduction of contractors and suppliers early in the project lifecycle.

Actions resulting from interview: Send out workshop notes prior to the date set.
Objective of interview:
To reach agreement on the research workshop for Heathrow Airport Limited and develop a list of participants to cover all aspects of the airport's business.

Main points from interview:
1. Roger asked the researcher to select the list of participants, draft a letter signed from himself.
2. The workshop would be held on 10 March

Implications for model:

Actions resulting from interview: Draft letter from Roger to list of participants.
Send out notes 2 weeks prior to workshop.
Name: Andrew Dryland
Date: 3 February 1993
Job Title: Planning Director
Company: Heathrow Airport Limited

Objective of interview:
To understand the role of the planning department and how they interface with the project managers. To judge the level of strategic planning that occurs at project level within HAL and how this information is fed into the project briefing document.

Main points from interview:

1. Planning is different at each airport and there is no communication between them regarding methods of planning.
2. Planning takes four forms: Capacity assessment forecasting implications on the operation, Local authority planning for new developments, Environmental dimension to project development (currently grossly underestimated), facility planning to coordinate different projects.
3. Problems arise with GTS projects at the airport as HAL planning has no responsibility. Need a formal structure for the airport to act as the client.
4. It was suggested that the planning department are involved early enough in projects, AD is on the Capital projects committee so knows about projects as they appear on the business plan and seek approval.
5. The planning department has grown and developed over the past few years, with a simultaneous change in attitude. They do not get involved in projects they don't need to.
6. Their input to the brief is through the project board meetings on which there is a representative from the planning department for each project.
7. The VM process is considered overly cumbersome and its length should reflect the nature of the project under consideration.
8. In terms of long term planning, it is very difficult. They do have a master plan but in the transport industry the grand scheme of things does not always work.
9. In the past we have not spent enough time planning projects ut this has improved significantly. There is a risk of spending too much "crossing the t's".
10. AD believes that general management should be responsible for the early strategic planning decisions, with a transition period where the PM reports directly to general management, before passing to PM.
11. AD was concerned over the issue of the "airport project" and that many of the research studies to date are based on typical projects and do not reflect the complex nature of the airport.

Implications for model: Strategic Project Manager interface with planning and projects. There needs to be formal structure for involving planning dept.in non airport projects at the airport.

Actions resulting from interview: Investigate planning throughout the rest of BAA plc.
Objective of interview:
To investigate the capital approvals process at BAA plc and the criteria by which projects are approved. Also to investigate how this fits into the Project management system.

Main points from interview:

1. The approvals process is outlined on appended page indicating a step approvals process depending on the value of the project.
2. GS is involved in a spectrum of issues concerning project appraisals: Rate of return appraisals, assistance in writing papers to ensure all is included, post project financial appraisals (projects over £100k), forecasting capital expenditure, Monthly capital expenditure report on project engineering costs.
3. GS considers that the choices made between portfolios of projects are valid and we manage the fit between the corporate strategy and the project strategy.
4. A formal reconciliation between engineering and financial audit must occur as they are completely separate documents now.
5. GS considers that capital finance have an early enough input into projects.
6. There are currently two weaknesses: Arbitrary cuts made to projects rendering false value for money at the end of the day, we need to consider the overall picture more fully from the start; a few white elephants slip through the net but not that many.
7. GS believes that things have significantly changed at the airport and that many of the features highlighted in the research model had been taken care of by the new approvals process.

Implications for model: The project management model must reflect the necessary approvals, however this should not lead the model. Portfolio management of projects to ensure arbitrary cuts to projects do not occur must form part of the strategic project management task.

Actions resulting from interview: Sit in on a CPC approvals meeting to test the basis on which they make their decisions.
<table>
<thead>
<tr>
<th>Expenditure level</th>
<th>Approval required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees of £10,000 or more</td>
<td>Heathrow CPC concept paper, to pull &quot;sillies&quot; to a halt.</td>
</tr>
<tr>
<td>Projects &lt; £250k</td>
<td>HAL Managing Director approval, to ensure that accurate figure are being presented.</td>
</tr>
<tr>
<td>Projects &lt; £2m</td>
<td>Airports MD, countersigned by Safety / Security Director and Finance Director.</td>
</tr>
<tr>
<td>Projects &gt;£2m&lt;£10m</td>
<td>John Egan and the management committee</td>
</tr>
<tr>
<td>Projects &gt;£10m</td>
<td>BAA plc board</td>
</tr>
</tbody>
</table>
Objective of interview:
To offer a resume of the research to date and seek comments from RM of the report recently submitted to him. To establish agreement over the research workshop to held within Group Technical Services and develop a list of participants.

Main points from interview:

1. The discussion with RM was fairly heated with RM showing signs of defensiveness.
2. Care must be taken when discussing VM/VE within BAA as they have taken much time drawing a distinction between the two and specifically defining Value Management.
3. Definition of the project stages should also not confuse the BAA staff who adhere to the RIBA stages.
4. RM considers cost management to be subordinate to design management.
5. Difficulty in use of functional analysis in model as Value Management currently considers objectives, not functions.
6. RM confirmed that concept VM is about analysing the need.
7. RM considered that the gatekeeper should be the Project Board chairman or the Project Manager, not the person making the decisions.
8. RM considered Post Occupancy study in the model to be conducted too late in the process and must be done whilst the team remember the issues (2/3 months). It is an onerous process requiring a huge time commitment – the Pier 4A post project audit took 8 to 10 weeks with the interviews.
9. The statement that implementation of a new PMS should not occur during cultural change was strongly disputed by RM, who considered it to be the best time as peoples minds were open.

Implications for model: The model must define each of the project stages
Add two stage Post audit and Post occupancy stage to the model to allow for immediate and long term learning.

Actions resulting from interview: Investigate the gatekeeper role and who should take on this role.
Objective of interview:
To investigate the recent study conducted by BOVIS comparing the UK to the US approach to project and program management.

Main points from interview:

1. There were four main conclusions as to why the US contractor builds cheaper following the 5 week study: Attitude of mind; Intention for the designer to design with Value for Money; Off the shelf products; Understanding and expectation of information, with repeated partnerships of designer, consultant and contractor.

2. Savings could be made in the UK in the following areas: Design by using standard products, Value for Money ethos and worldwide procurement (17%); Productivity through union led and trained sub contractors, material workspace storage and assembly, offsite production and dialogue between the different trades (10%), Management by interlearning of lessons from the US (3%).

3. UK engineers are not aware of the cost implications of their designs. Design could be rationalised by believing value for money. By relooking at the design of the grid pattern for T5, he believes they reduced the space by 25%, the baggage handling space was reduced from 26k m² to 11k m².

4. In the US VE is an ethos part of the design development, in the UK it is an afterthought. Designers do not listen to the users.

5. RW is willing to put together a list of his contacts for my use, it would also be worth speaking with Stanhope developments regarding Broadgate/Ludgate.

6. Clients and contractors work under a different ethos in the US, holding common values due to repeat work together.

7. In the US VE forms part of the process, with designers building in the knowledge of cost implications.

8. Value must be defined as some elements are unique to each project.

9. It was cheaper for BOVIS to buy roofing material from Canada and have it shipped over than to buy from an equivalent UK supplier. The mark up was 100% in the UK.

Implications for model:
- VE part of the process not individual stabs in time.
- Designer ownership of their own cost plan.
- Long term relationship and strategic procurement must form part of the overall picture.
- Define value for each project.

Actions resulting from interview: Chase up the list of contacts from RW.
**Objective of interview:**

*To understand the work conducted by the architects and why their services are not being used by our own airports when they are being sought after internationally.*

**Main points from interview:**

1. The quality of the finished product for Pittsburgh was far below that which would be acceptable by BAA — so no wonder their costs are lower.
2. The VM process conducted by BAA was considered a farce since the teams were asked to challenge a project that was to be tendered on two days hence.
3. He was pleased to know that someone was considering the whole issue of the strategic management of projects within BAA as it causes them much distress currently.
4. He has just produced a glossy report of the work they have completed and that planned in the US to market their services internally.

**Implications for model:**

Time must be allowed for Value Management proposals to be implemented.

**Actions resulting from interview:**
**Objective of interview:**

To reach agreement on the research workshop for Gatwick Airport Limited and develop a list of participants to cover all aspects of the airport's business.

**Main points from interview:**

1. It was agreed that the research workshop would take place within week 2 or 3 in March.
2. A list was drawn up there and then. I was asked to draft a memo to each participant from MP.
3. MP was keen to establish the benefits he would personally gain by being involved in the research workshop. These are to be made clear at the start of the workshop session to all participating to encourage the right involvement.

**Implications for model:**

**Actions resulting from interview:**
**Objective of interview:**
To learn of the research being undertaken by Reading University and finding a way to integrate them and avoid clashes where possible.

**Main points from interview:**

1. Reading University are looking at 9 major areas for BAA: Knowledge Based Engineering, proactive cost models to feed into the Knowledge Based Engineering, life cycle costing, procurement strategy, definition of world class, use of standard components, world literature review, value management guidelines (complete), minor research works.
2. NG wishes to pursue a project considering how all these fit together into one project anatomy. I suggested that this holistic approach would overlay my research to a degree.
3. NG identified the problem in communications between the airports and Technical Services Division.
4. A role for a central coordinator of all research initiatives was identified as necessary to ensure the various sources of research information were properly coordinated.

**Implications for model:**

**Actions resulting from interview:**
Objective of interview:
To understand the history and future of facilities planning and long term planning within BAA plc.

Main points from interview:

1. The role of corporate planning is threefold: Consultancy, Overseas consultancy and corporate planning. This has been through a cycle from the days when FP dictated to the airports on their future planning, to now when they are trying to advise the airports providing a framework for the master plan of the airports whilst leaving the decision making to the airport managers. In the time between these two extremes the airports were going outside of BAA for FP consultancy, showing they did not have belief in their own technical people.

2. HP does not agree with the concept of value management as it is just a ritual for underwriting decisions previously made through iteration by the designers. F plan do this naturally as part of their working culture.

3. A communications difficulty exists in PM now since BAA management is commercially based, a shift from the old days of engineering based management. This has led to wasting time going down "dead alleys" to satisfy the commercial managers.

4. HP put forward the spacial plans for Stansted which he believes will lead to huge saving in life cycle costs. He also thinks Stansted will have its day as airport capacity continues to rise.

5. BAA suffers from the British disease of lack of forethought and planning.

6. The phrase World Class currently in vogue is meaningless. How can you compare old full terminals with a new one, ie at different stages in their history. Denver is a super airport but it was overbuilt with 12 runways, similarly Changi: Of course they are considered the best, "it is nothing to do with design, they simply have oodles of space."

7. Long term planning to airports is 5 years, to us it is 20 years so we have a time relativity problem.

8. Central procurement is not big business, the items being considered will render very small returns.

9. Airport development sits on an S curve and within the next 20 years will reach the plateau, when it does we must be prepared. How can an airport finance its future to meet the expectations of it's customers when growth has stagnated? The government must enable a framework for long term finance and investment. We need Trust status, we are still regulated.

10. Brief freezing could present problems for airports when they are looking forward 20 years. Munich airport has ended up with an out of date project which does not meet their needs.
Implications for model: The growth must be based upon the perceived need in the future, this presents problems when the planning horizon is approximately 20 years. Value management should form part of a wider project management system where planning gets it right first time.

Actions resulting from interview: Visit to Munich Airport to interview with planners and project managers.
Objective of interview:
The researcher was called to this meeting to discuss the contents of the workshop to be presented the following week.

Main points from interview:

1. BL wanted to be sure we were giving the same message to the project managers regarding Value Management.
2. BL asked if my thesis was of any benefit to me, what would I like to be researching I suggested that after a year of research it was a little late for BAA to be asking these questions and I was fully committed to my current research path.
3. He talked about VM and VE as if BAA were at the forefront of all client organisation sin this area. As such Richard Moore and Reading University would be publishing a paper on the subject. He would welcome my input.
4. BL stated that the airports had "no idea about project management, and are running before they can walk".
5. He attacked Head of Cost Management for defining value as only a cost issue and said they were likely to come to blows over it.
6. He said there were a number of specific areas he wished me to look at and he would discuss it with my sponsor.
7. He stated that my research in its current form would do nothing more than validate their current path, but what would this do for me?
8. He would like to speak with me again after the workshop about the possibility of me moving into his section.

Implications for model: Ensure model is transmitting the same terminology and not introducing too many concepts at dipoles to those leaving TSD.

Actions resulting from interview:
Document Analysis
I. List of documents analysed
## Value Management reports analysed during pilot study

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>DATE</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAA Hotel Gatwick</td>
<td>15 Dec 1988</td>
<td></td>
</tr>
<tr>
<td>Skycare Cargo Heathrow</td>
<td>15 May 1990</td>
<td></td>
</tr>
<tr>
<td>Heathrow Rail Express</td>
<td>June/Aug 1991</td>
<td>£205.6m</td>
</tr>
<tr>
<td>Glasgow phase II</td>
<td>1 August 1991</td>
<td>£77m</td>
</tr>
<tr>
<td>Cooling Towers T4 Heathrow</td>
<td>9 Aug 1991</td>
<td>£0.384m</td>
</tr>
<tr>
<td>Departure Lounge extension T2 Heathrow</td>
<td>29 Aug 1991</td>
<td>£3.84m</td>
</tr>
<tr>
<td>T1 Extension Heathrow Express</td>
<td>6 Nov 1991</td>
<td></td>
</tr>
<tr>
<td>Electrical Supplies Heathrow</td>
<td>8 Nov 1991</td>
<td>£1.3m–£10.9m</td>
</tr>
<tr>
<td>Arrivals concourse expansion T2 Heathrow</td>
<td>18 Nov 1991</td>
<td>£2.7m</td>
</tr>
<tr>
<td>Development of Southampton Airport</td>
<td>20 Nov 1991</td>
<td>£21m</td>
</tr>
<tr>
<td>Forward Lounge expansion Aberdeen</td>
<td>27 Nov 1991</td>
<td>£2.8m excl.</td>
</tr>
<tr>
<td>Sth Terminal domestic development Gatwick</td>
<td>Jan 1992</td>
<td></td>
</tr>
<tr>
<td>Victor Pier T4 Heathrow</td>
<td>21 Jan 1992</td>
<td>£15.67m</td>
</tr>
<tr>
<td>Cargo Warehouse extension Stansted</td>
<td>Feb 1992</td>
<td></td>
</tr>
<tr>
<td>Nth Terminal Departure lounge development</td>
<td>6 Feb 1992</td>
<td>£10.3m</td>
</tr>
<tr>
<td>Departure lounge extension T2 Heathrow</td>
<td>24 Mar 1992</td>
<td>£9.5m/£11.7m</td>
</tr>
<tr>
<td>T4 Permanent Aircraft stands Heathrow</td>
<td>27 Mar 1992*</td>
<td>£7m</td>
</tr>
<tr>
<td>Sth Terminal Departure Lounge Retail Gatwick</td>
<td>April 1992*</td>
<td></td>
</tr>
<tr>
<td>T1 Departure Lounge extension Heathrow</td>
<td>May 1992*</td>
<td></td>
</tr>
<tr>
<td>Departure Lounge Retail Development Heathrow</td>
<td>May 1992*</td>
<td></td>
</tr>
<tr>
<td>International departure lounge retail development, baggage system redevelopment and transfer building Heathrow</td>
<td>Aug 1992*</td>
<td>Circa £67m</td>
</tr>
</tbody>
</table>

* denotes Value Management exercises attended by the researcher
Other reports analysed later in the research period include:

<table>
<thead>
<tr>
<th>BAA Reports analysed</th>
<th>Issue Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedures for the procurement of engineering small works and services, Engineering Instruction, Gatwick Airport Ltd</td>
<td>April 1991</td>
</tr>
<tr>
<td>Sth Terminal Departures Lounge Retail Expansion, Project brief</td>
<td>December 1991</td>
</tr>
<tr>
<td>Design guidelines</td>
<td></td>
</tr>
<tr>
<td>Procedures for control of contractors, Glasgow Airport Limited</td>
<td>August 1992</td>
</tr>
<tr>
<td>Value Management guidelines, Version 1.0</td>
<td>November 1992</td>
</tr>
<tr>
<td>Pier 4A Post Project Review, Heathrow Airport Limited</td>
<td>January 1993</td>
</tr>
<tr>
<td>Project Targets, implementation and usage, Technical Services Division</td>
<td></td>
</tr>
<tr>
<td>Quality of Service Monitor, BAA Market Research Group</td>
<td>February 1993</td>
</tr>
<tr>
<td>Value Engineering guidelines, Version 1.0</td>
<td>March 1993</td>
</tr>
<tr>
<td>BAA I.S. Strategy, Construction Projects</td>
<td>May 1993</td>
</tr>
<tr>
<td>Post Contract Cost Management Report No. 4, Piers and Gaterooms modernisation, T3, Heathrow Airport</td>
<td>May 1993</td>
</tr>
<tr>
<td>TSD process improvement report submitted to Chief Executive</td>
<td>July 1993</td>
</tr>
<tr>
<td>Development and Project Management guidelines</td>
<td>October 1993</td>
</tr>
</tbody>
</table>
### Value Management Report

**Project Name:** Arrivals Concourse Expansion  
**Airport:** HEATHROW Terminal 2  
**Project Value:** £2.7m  
**Project Budget:**  
**Program Details:** 60 Weeks  
**Procurement Route:** TRADITIONAL ROUTE  
**Project Manager:**  

<table>
<thead>
<tr>
<th>VM Stage</th>
<th>Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of VM</td>
<td>18 Nov 1991</td>
</tr>
<tr>
<td>VM Facilitator</td>
<td>Stewart Shortland</td>
</tr>
<tr>
<td>VM Team</td>
<td></td>
</tr>
<tr>
<td>David Browne</td>
<td>Pete Williams</td>
</tr>
</tbody>
</table>

**Standard of Report:** Introductions summary and recommendations  
**Recommendations:**  
- Suggested Alternative Proposal (discarded by the architect)  
- Design brief challenged  
- Procurement route change to Design Management  

**Savings Implemented:**  
**Previous VMS?**  
**Methods Used:**  
- Shortlisted five main areas of concern  
- Then interrogated them for value for money
**Document analysis**  
**May 1992**  
**Value Management report**

<table>
<thead>
<tr>
<th><strong>PROJECT NAME</strong></th>
<th>Forward Lounge Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AIRPORT</strong></td>
<td>ABERDEEN AIRPORT</td>
</tr>
<tr>
<td><strong>PROJECT VALUE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PROJECT BUDGET</strong></td>
<td>£2.8m excl fittings, fixtures, furniture &amp; fees</td>
</tr>
<tr>
<td><strong>PROGRAM DETAILS</strong></td>
<td>Completion 31 December 1992</td>
</tr>
<tr>
<td><strong>PROCUREMENT ROUTE</strong></td>
<td>Traditional procurement</td>
</tr>
<tr>
<td><strong>PROJECT MANAGER</strong></td>
<td>Brian Robertson</td>
</tr>
<tr>
<td><strong>VM STAGE</strong></td>
<td>CONCEPT</td>
</tr>
<tr>
<td><strong>DATE OF VM</strong></td>
<td>27 November 1991</td>
</tr>
<tr>
<td><strong>VM FACILITATOR</strong></td>
<td>Don Penrose      Debbie Liew</td>
</tr>
<tr>
<td><strong>VM TEAM</strong></td>
<td>Brian Robertson      PM</td>
</tr>
<tr>
<td></td>
<td>David Browne      Architecture</td>
</tr>
<tr>
<td></td>
<td>David Livesly      FPlan</td>
</tr>
<tr>
<td></td>
<td>Peter Williams      Cost Plan</td>
</tr>
<tr>
<td></td>
<td>Bob Exley         Bld Services</td>
</tr>
<tr>
<td><strong>STANDARD OF REPORT</strong></td>
<td>Intro, Summary, Conclusion/Recommendations (very little info)</td>
</tr>
</tbody>
</table>
| **RECOMMENDATIONS** | Recommended new study 3 weeks later when more info available  
Suggested life of building extended from 15 to 30 years. Chose option from those presented. Different external cladding.  
Suggest demolish existing rather than try to extend. |
<p>| <strong>SAVINGS</strong> | No savings highlighted. |
| <strong>IMPLEMENTED</strong> | |
| <strong>PREVIOUS VMS?</strong> | |
| <strong>METHODS USED</strong> | No obvious techniques. Though recognised not enough info was available. |</p>
<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>Replacement of cooling towers</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRPORT</td>
<td>HEATHROW Terminal 4</td>
</tr>
<tr>
<td>PROJECT VALUE</td>
<td>£384,000</td>
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<td>PROJECT BUDGET</td>
<td>£250,000</td>
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<tr>
<td>PROGRAM DETAILS</td>
<td>Two phases</td>
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<tr>
<td>PROCUREMENT ROUTE</td>
<td>Supply and Installation</td>
</tr>
<tr>
<td>PROJECT MANAGER</td>
<td>Paul French</td>
</tr>
<tr>
<td>VM STAGE</td>
<td>Tenders due back</td>
</tr>
<tr>
<td>DATE OF VM</td>
<td>9 August 1991</td>
</tr>
<tr>
<td>VM FACILITATOR</td>
<td>David Virgo / Don Penrose SEC</td>
</tr>
<tr>
<td>VM TEAM</td>
<td>Paul Brown</td>
</tr>
<tr>
<td></td>
<td>Alan Crook</td>
</tr>
<tr>
<td>STANDARD OF REPORT</td>
<td>Very general and brief</td>
</tr>
<tr>
<td>RECOMMENDATIONS</td>
<td>Change of materials to high grade stainless steel</td>
</tr>
<tr>
<td></td>
<td>Agreed with the design most of way though did challenge some elements</td>
</tr>
<tr>
<td>SAVINGS</td>
<td>None</td>
</tr>
<tr>
<td>IMPLEMENTED</td>
<td></td>
</tr>
<tr>
<td>PREVIOUS VMS?</td>
<td></td>
</tr>
<tr>
<td>METHODS USED</td>
<td>Basic need assessed at start</td>
</tr>
</tbody>
</table>
### Value Management report

**PROJECT NAME** | Departure Lounge Extension  
**AIRPORT** | HEATHROW Terminal 2  
**PROJECT VALUE** | £3.84m  
**PROGRAM DETAILS** | approx. 9 months  
**PROCUREMENT ROUTE** | Traditional route  
**PROJECT MANAGER** | Alan Crook  

**VM STAGE** | SCHEME  
**DATE OF VM** | 29 AUGUST 1992  
**VM FACILITATOR** | Paul Rehling BNS / Don Penrose SEC  
**VM TEAM**  
Graham Jordan  
Peter Williams  
Rachael Oliver  
Stewart Shortland  
Alan Mackenzie AMEC  
John Thompson Matthew Hall  

**STANDARD OF REPORT** | Introduction/ Conclusions recommendations  
**RECOMMENDATIONS** | Procurement route, Structure/Fabric, Services  
No design brief was wasted design fees  
Majority of savings in structural design areas  

**SAVINGS IMPLEMENTED**  

**PREVIOUS VMS?**  

**METHODS USED** | Possible savings highlighted after each proposal  
Shortlisting of areas of concern
### Value Management Report

**PROJECT NAME:** Reinforcement of electrical supplies  
**AIRPORT:** HEATHROW  
**PROJECT VALUE:** Ranging from £1.3m to £10.903m  
**PROJECT BUDGET**  
**PROGRAM DETAILS:** 18 months for immediate option  
**PROCUREMENT ROUTE:** Limited by Southern Electricity  
**PROJECT MANAGER:** Bob Wilson  

**VM STAGE:** CONCEPT  
**DATE OF VM:** 8 November 1991  
**VM FACILITATOR:** Don Penrose  
**VM TEAM:**  
- Mike Fryatt  
- Peter Williams  
- Armando De Souza, Consultant  
- Ron Sharp, SEEBOARD plc

**STANDARD OF REPORT:** Very open report on specialist subject  
**RECOMMENDATIONS:**  
- Reviewed need, method and procurement  
- Suggested that maximum use was not made of existing  
- Agreed need for both short and long term options  
- Then simply chose one of each from options in brief

**SAVINGS IMPLEMENTED**  
**PREVIOUS VMs?** Further info meant another on 5 December 1991  
**METHODS USED:** Presentation then discussion
<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>Phase II development</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRPORT</td>
<td>GLASGOW</td>
</tr>
<tr>
<td>PROJECT VALUE</td>
<td>£77m but increased to £87m by VM before savings</td>
</tr>
<tr>
<td>PROJECT BUDGET</td>
<td></td>
</tr>
<tr>
<td>PROGRAM DETAILS</td>
<td></td>
</tr>
<tr>
<td>PROCUREMENT ROUTE</td>
<td>Mix across building(D&amp;B,D&amp;M,Contractor Design)</td>
</tr>
<tr>
<td>PROJECT MANAGER</td>
<td>Alan Davies</td>
</tr>
<tr>
<td>VM STAGE</td>
<td>Advanced</td>
</tr>
<tr>
<td>DATE OF VM</td>
<td>1 August 1991</td>
</tr>
<tr>
<td>VM FACILITATOR</td>
<td>Deryk Eke / Christine Butler SEC</td>
</tr>
<tr>
<td>VM TEAM</td>
<td>Ted Tinson Graham Jordan</td>
</tr>
<tr>
<td></td>
<td>Pat McEvinney GLA John Bullen LGW</td>
</tr>
<tr>
<td></td>
<td>Chris Croft SHEPHARD</td>
</tr>
<tr>
<td></td>
<td>Neil Farnsworth SHEPHARD</td>
</tr>
<tr>
<td>STANDARD OF REPORT</td>
<td>Detailed and elemental</td>
</tr>
<tr>
<td>RECOMMENDATIONS</td>
<td>The team were told the areas to address therefore scope somewhat limited. Such as move NCP car park, link to car park reduced, write a brief, relocate duty free shop, List presented by Shephards based on experiences elsewhere</td>
</tr>
<tr>
<td>SAVINGS</td>
<td>Estimated (Shephards) £10.89m</td>
</tr>
<tr>
<td>IMPLEMENTED</td>
<td></td>
</tr>
<tr>
<td>PREVIOUS VMS?</td>
<td></td>
</tr>
<tr>
<td>METHODS USED</td>
<td></td>
</tr>
</tbody>
</table>
### Value Management report

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>BAA Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRPORT</td>
<td>GATWICK</td>
</tr>
<tr>
<td>PROJECT VALUE</td>
<td></td>
</tr>
<tr>
<td>PROJECT BUDGET</td>
<td></td>
</tr>
<tr>
<td>PROGRAM DETAILS</td>
<td></td>
</tr>
<tr>
<td>PROCUREMENT ROUTE</td>
<td></td>
</tr>
<tr>
<td>PROJECT MANAGER</td>
<td>Ian Richards</td>
</tr>
<tr>
<td>VM STAGE</td>
<td>Scheme design complete</td>
</tr>
<tr>
<td>DATE OF VM</td>
<td>15 December 1988</td>
</tr>
<tr>
<td>VM FACILITATOR</td>
<td>Deryk Eke, Don Penrose, SEC</td>
</tr>
<tr>
<td>VM TEAM</td>
<td>Graham Jordan, David Virgo, Keith Owen</td>
</tr>
<tr>
<td>STANDARD OF REPORT</td>
<td>Brief</td>
</tr>
<tr>
<td>RECOMMENDATIONS</td>
<td>Elemental changes recommended as team thought design too advanced for conceptual changes. Often changes in order to reduce cost only. (Double – Single doors, move Lifts)</td>
</tr>
<tr>
<td>SAVINGS</td>
<td></td>
</tr>
<tr>
<td>IMPLEMENTED</td>
<td></td>
</tr>
<tr>
<td>PREVIOUS VMS?</td>
<td></td>
</tr>
<tr>
<td>METHODS USED</td>
<td>Some lateral thinking (TV franchising etc.)</td>
</tr>
<tr>
<td>PROJECT NAME</td>
<td>T1 EXTENSION HEATHROW EXPRESS</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>AIRPORT</td>
<td>HEATHROW</td>
</tr>
<tr>
<td>PROJECT VALUE</td>
<td></td>
</tr>
<tr>
<td>PROJECT BUDGET</td>
<td></td>
</tr>
<tr>
<td>PROGRAM DETAILS</td>
<td></td>
</tr>
<tr>
<td>PROCUREMENT ROUTE</td>
<td>No. of packages traditionally procured</td>
</tr>
<tr>
<td>PROJECT MANAGER</td>
<td>Stuart Littlewood</td>
</tr>
<tr>
<td>VM STAGE</td>
<td></td>
</tr>
<tr>
<td>DATE OF VM</td>
<td>6 Nov 1991</td>
</tr>
<tr>
<td>VM FACILITATOR</td>
<td>Lee Duncombe  Debbie Liew</td>
</tr>
<tr>
<td>VM TEAM</td>
<td>Graham Jordan</td>
</tr>
<tr>
<td></td>
<td>Stewart Shortland</td>
</tr>
<tr>
<td></td>
<td>Adrian Siddall</td>
</tr>
<tr>
<td></td>
<td>Stuart Walker</td>
</tr>
<tr>
<td></td>
<td>Grahame Moonan</td>
</tr>
<tr>
<td></td>
<td>Peter Williams</td>
</tr>
<tr>
<td>STANDARD OF REPORT</td>
<td></td>
</tr>
<tr>
<td>RECOMMENDATIONS</td>
<td>Questioned the NEED even though out of the scope</td>
</tr>
<tr>
<td></td>
<td>Rooflights ommitted due to high maintenance. Envelope</td>
</tr>
<tr>
<td></td>
<td>over elaborate for its function of weatherproofing</td>
</tr>
<tr>
<td>SAVINGS</td>
<td></td>
</tr>
<tr>
<td>IMPLEMENTED</td>
<td></td>
</tr>
<tr>
<td>PREVIOUS VMS?</td>
<td></td>
</tr>
<tr>
<td>METHODS USED</td>
<td>None obvious</td>
</tr>
</tbody>
</table>
### Value Management report

<table>
<thead>
<tr>
<th><strong>PROJECT NAME</strong></th>
<th>Skycare Cargo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AIRPORT</strong></td>
<td>HEATHROW Bid 552</td>
</tr>
<tr>
<td><strong>PROJECT VALUE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PROJECT BUDGET</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PROGRAM DETAILS</strong></td>
<td>Program Phased</td>
</tr>
<tr>
<td><strong>PROCUREMENT ROUTE</strong></td>
<td>Undecided</td>
</tr>
<tr>
<td><strong>PROJECT MANAGER</strong></td>
<td>Brian Hamm, AFTEC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>VM STAGE</strong></th>
<th>Outline Proposals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATE OF VM</strong></td>
<td>15 May 1990</td>
</tr>
<tr>
<td><strong>VM FACILITATOR</strong></td>
<td>Graham Jordan, Don Penrose SEC</td>
</tr>
<tr>
<td><strong>VM TEAM</strong></td>
<td>Graham Cotrill, Bob Exley, Peter Williams, Giles Fazan</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>STANDARD OF REPORT</strong></th>
<th>Introduction Summary Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RECOMMENDATIONS</strong></td>
<td>Renew rather than overhaul ex. blding, provide part system build</td>
</tr>
<tr>
<td></td>
<td>Increase fire precautions, reduce reception area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>SAVINGS</strong></th>
<th>savings £136.5k, expenditure £51k, net £85.5k</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IMPLEMENTED</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PREVIOUS VMS?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>METHODS USED</strong></td>
<td>Good understanding of scope and challenging design CONCEPT, Expenditure items identified expressing understanding of VALUE.</td>
</tr>
</tbody>
</table>
## Value Management Report

### Project Name
- Proposed development of Southampton Airport

### Airport
- Southampton

### Project Value

### Project Budget

### Program Details

### Procurement Route

### Project Manager
- Mike Noakes

### VM Stage
- Concept

### Date of VM
- 20 November 1990

### VM Facilitator
- David H Williams / Don Penrose
- SEC

### VM Team
- Eryl Smith
- Tony Norman
- Paul Rehling
- Cliff Pythian

### Standard of Report
- Introduction
- Summary
- Conclusions

### Recommendations
- Move canteen to ground floor to increase revenue potential
- Omit staff canteen
- Remove glazing from some areas.
- Most recommendations were concerned with revenue generation

### Savings
- Not identified

### Implemented

### Previous VMS?

### Methods Used
- None obvious but shortlist of concerns at start
<table>
<thead>
<tr>
<th><strong>PROJECT NAME</strong></th>
<th>South Terminal Domestic Development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AIRPORT</strong></td>
<td>GATWICK</td>
</tr>
<tr>
<td><strong>PROJECT VALUE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PROJECT BUDGET</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PROGRAM DETAILS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PROCUREMENT ROUTE</strong></td>
<td>Design, Manage and construct</td>
</tr>
<tr>
<td><strong>PROJECT MANAGER</strong></td>
<td>Ian Gravatt</td>
</tr>
<tr>
<td><strong>VM STAGE</strong></td>
<td>VM1 PRE CONCEPT</td>
</tr>
<tr>
<td><strong>DATE OF VM</strong></td>
<td>January 1992</td>
</tr>
<tr>
<td><strong>VM FACILITATOR</strong></td>
<td>Keith Owen Barry Middleton SEC</td>
</tr>
<tr>
<td><strong>VM TEAM</strong></td>
<td>John Fenn</td>
</tr>
<tr>
<td></td>
<td>Harry McCall</td>
</tr>
<tr>
<td></td>
<td>Ian Harkness</td>
</tr>
<tr>
<td></td>
<td>Mike Wood</td>
</tr>
<tr>
<td><strong>STANDARD OF REPORT</strong></td>
<td>Intro, presentation, objectives and VM recommendations</td>
</tr>
<tr>
<td><strong>RECOMMENDATIONS</strong></td>
<td>Identify functions of each area in brief. Could phase the works in line with traffic increases. 3 adjacent developments to be considered by same contractor. Particular omissions from brief Suggested procurement route wrong for type of project</td>
</tr>
<tr>
<td><strong>SAVINGS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>IMPLEMENTED</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PREVIOUS VMS?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>METHODS USED</strong></td>
<td>Compared the site to the brief and to the knowledge of ops in that area. No brainstorming evidence. The team appear to have ripped apart the brief.</td>
</tr>
</tbody>
</table>
**Value Management report**

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>Cargo Warehouse Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRPORT</td>
<td>STANSTED</td>
</tr>
<tr>
<td>PROJECT VALUE</td>
<td></td>
</tr>
<tr>
<td>PROJECT BUDGET</td>
<td></td>
</tr>
<tr>
<td>PROGRAM DETAILS</td>
<td></td>
</tr>
<tr>
<td>PROCUREMENT ROUTE</td>
<td></td>
</tr>
<tr>
<td>PROJECT MANAGER</td>
<td>Alan Davies</td>
</tr>
<tr>
<td>VM STAGE</td>
<td>VM1 Feasibility but scheme agreed with tenants</td>
</tr>
<tr>
<td>DATE OF VM</td>
<td>Feb 1992</td>
</tr>
<tr>
<td>VM FACILITATOR</td>
<td>Barry Middleton, Martyn Quarterman, SEC</td>
</tr>
<tr>
<td>VM TEAM</td>
<td>Grahame Jordan, Mike Wood, Mike Cowell, Ian Garatt, Phil Holman</td>
</tr>
<tr>
<td>STANDARD OF REPORT</td>
<td>Intro B/ground Obj. Recommendations, Design Brief</td>
</tr>
<tr>
<td>RECOMMENDATIONS</td>
<td>Limited to current design as rental agreement made, Eliminate some windows, reduce some cable runs, Opportunity for advertising signs, Queeried workshop brief</td>
</tr>
<tr>
<td>SAVINGS</td>
<td>No costs included</td>
</tr>
<tr>
<td>IMPLEMENTED</td>
<td></td>
</tr>
<tr>
<td>PREVIOUS VMS?</td>
<td></td>
</tr>
<tr>
<td>METHODS USED</td>
<td>None identified, quite narrow thoughts.</td>
</tr>
</tbody>
</table>

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UK Interviews
I. List of interviewees
II. Main comments from interviews
Schedule of interviews conducted during the main research study

<table>
<thead>
<tr>
<th>INTERVIEWEE</th>
<th>ROLE AND COMPANY</th>
<th>DATE</th>
<th>INTERVIEW CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bernard Ainsworth</td>
<td>Director, Laing Management</td>
<td>2/3/93</td>
<td>Experiences on Toyota project, Derby</td>
</tr>
<tr>
<td>Anonymous</td>
<td>Project Manager, International Retailer</td>
<td>4/3/93</td>
<td>Project management within a successful retailing organisation</td>
</tr>
<tr>
<td>Anonymous</td>
<td>Project Manager, International Airline, Company (D)</td>
<td>10/3/93</td>
<td>Strategic project management, value, request for workshop</td>
</tr>
<tr>
<td>Drummond Graham</td>
<td>Cost Manager, Thompson Bethuen</td>
<td>30/3/93</td>
<td>Construction productivity control</td>
</tr>
<tr>
<td>Herr Niessen</td>
<td>Architect, Munich Airport Ltd.</td>
<td>16/4/93</td>
<td>Case study of Munich Airport construction</td>
</tr>
<tr>
<td>Igor Rukuts</td>
<td>Partner, Northcroft Neighbour</td>
<td>19/4/93</td>
<td>Century Tower project in Japan</td>
</tr>
<tr>
<td>Mr. Ushio</td>
<td>International affairs, JETRO</td>
<td>10/5/93</td>
<td>Japanese construction culture and ethics</td>
</tr>
<tr>
<td>Prof. Norman Fisher</td>
<td>BAA chair of CM</td>
<td>19/5/93</td>
<td>Construction as a manufacturing process</td>
</tr>
<tr>
<td>Anonymous</td>
<td>Senior Manager, Fast food restaurant chain, Company (F)</td>
<td>21/5/93</td>
<td>Modular build, customers, workshop request</td>
</tr>
<tr>
<td>Mr. Kato</td>
<td>Admin Director, Shimizu UK</td>
<td>8/6/93</td>
<td>Nature of Shimizu operations, Japan contact</td>
</tr>
<tr>
<td>Mr. Koji Ota</td>
<td>Director, Kajima Corp UK</td>
<td>9/6/93</td>
<td>Kajima approach to projects, UK/Japan comparison</td>
</tr>
<tr>
<td>John Francis</td>
<td>PM, Obayashi BV, London</td>
<td>9/6/93</td>
<td>Obayashi, Japanese culture, contact in Japan</td>
</tr>
<tr>
<td>Eddie Martin</td>
<td>Engineering Business Manager, HAL</td>
<td>10/6/93</td>
<td>Capital projects budget and business plan</td>
</tr>
<tr>
<td>Peter Abell</td>
<td>Engineering Manager, T1 HAL</td>
<td>10/6/93</td>
<td>Small works, maintenance projects estimates</td>
</tr>
<tr>
<td>George Cook</td>
<td>Civil Engineering Manager, HAL</td>
<td>10/6/93</td>
<td>Engineering project cost estimates</td>
</tr>
<tr>
<td>John Fenton</td>
<td>Head of cost management, BAA</td>
<td>11/6/93</td>
<td>BAA business plan for capital and revenue</td>
</tr>
<tr>
<td>Anonymous</td>
<td>Ex John Laing Homes</td>
<td>15/6/93</td>
<td>Modular build, experience in Japan</td>
</tr>
<tr>
<td>Martin Sykes</td>
<td>Procurement Director, BAA plc</td>
<td>22/7/93</td>
<td>The future of procurement in BAA</td>
</tr>
<tr>
<td>Graham Jordan</td>
<td>Chief Architect, BAA plc</td>
<td>22/7/93</td>
<td>Definition of value, experience of work in US</td>
</tr>
<tr>
<td>Ted Tinson</td>
<td>Engineering Director, BAA plc</td>
<td>23/7/93</td>
<td>Engineering design guidelines, culture change</td>
</tr>
</tbody>
</table>
Objective of interview:
To learn of the work Laing Management produced for Toyota at the recently completed Derby factory site. Also to understand the Japanese construction culture as perceived by the British management company and any problems or benefits incurred.

Main points from interview:

1. The Toyota factory project was a £200m project of 19 month duration. It filled a 600 acre site in some places to a depth of 7m. The emphasis was on state of the art production lines not on the civil engineering works.
2. Teamwork was the essence of this project with all parties sharing the same site hut. Communications were easy and informal.
3. Short lines of communication allowed transfer of information informally, NO paperwork was allowed.
4. All parties to the contract took joint ownership of the risk.
5. The client was based on site and this was considered of upmost importance for decision making.
6. All decisions were made by consensus, which lead to good decisions but took a great deal of time.
7. Shimizu had a strong relationship with Toyota acting as their "mate" for the duration of the contract, taking the place of surrogate client for Laing Mgmt.
8. Contractors were chosen selectively.
9. Finance and construction were not split into different disciplines but were considered as one issue.
10. The client spent a long time developing a relationship amongst the team members: evening meals every month, prize giving to the best contractor etc.
11. Trust was considered more important than contracts.
12. BA considers that in the UK the PM is not given the remit to conduct his / her job satisfactorily.
13. In the UK the client has not finished his thinking when he hands the project over to the project manager and becomes one removed.
14. The Japanese "client" knows what he wants, when and what size etc.
15. Hints on Japanese culture and ethics were given to the researcher.

Implications for model: Try to develop interrelationship between all parties and have techniques for maintaining motivation.
Project Manager empowerment and client decision making should be facilitated.
Client must finish his thinking via decision making model.

Actions resulting from interview: Contact Toyota and Shimizu in the UK prior to Japan.
Objective of interview:
To understand how this successful national retailer (X) achieve value for money in construction and learn of the systems they have in place for managing their projects. The researcher will also look for any signs of strategic project management taking place. This interview will replace the workshop since the time commitment was considered too great by this company.

Implications for model: The Project Manager must be given autonomy
Strategic procurement to build a family of suppliers
Integrate change into the value process
Standard cost documents
Culture shift required
Commercial training of project managers required

Actions resulting from interview: Investigate the procurement committee and the project boards.
Main points from interview:

1. The construction philosophy has evolved over the years within M&S into one less concerned with engineering and more commercially oriented.
2. The project Manager spends most of his effort at the front end of projects producing detailed project documents.
3. Historically X was a family run business and has maintained many of the traditional features, including huge stores, over specification and internal inefficiency. It was due to their culture and that would take of changing.
4. As departments began to rationalise their processes, the trend moved into the construction area as a few commercial managers were moved into the role of project manager.
5. Design was often over specified such that X were installing four possibly six boilers too many! In the equipment department they had 153 suppliers the smallest of which had a turnover of £8000 per annum with X. (They reduced their supplier base from 150 to 23). They have now developed a supplier base and more and more work goes down the competitive tender route.
6. RH considers it essential to have commercial managers running the business not engineers as has been the case in the past.
7. Project Management was discovered in the equipment department where they used to have 15 different tradespeople putting together a room set. They began to let out the contract to a shopfitting company to manage the whole works.
8. The culture change in an environment such as this must start from the top.
9. Construction is not their core business "We are about socks and knickers", therefore they had to build within a price the business could afford.
10. X now employ commercial people as PM who can think laterally, can challenge and will do things commercially and differently. What they used to have were project coordinators.
11. They instigated the building client in the form of project boards consisting of the group executives to act as the Yes / No people.
12. Change management is a large part of the job now since the change instigator has to convince the project manager it will generate value to make the change.
13. They have a standard cost document for all projects detailing all the changes and changers. They demand that the QS gives information as they require it not as the industry has always delivered it.
14. X are looking for quality and cost, the former being a very emotive thing.
15. Five years ago they had one management contractor but now they have five and put the odd rogue in to check themselves.
16. Each PM has approximately 20 projects on at one time at different stages of their lifecycle.
17. The project managers have technical coordinators who assist the PM in gathering info for the briefs. They use a number of briefing processes.
18. A procurement committee (QS, architect, line dept reps, CM, etc) makes the decision on the procurement route and the contractor.
19. The project manager is not involved in challenging the strategy. PMs just run with it.
20. X do not have a PM manual – the project board leave it to the PM.
**Name:** Igor Rukuts  
**Date:** 19 April 1993

**Job Title:** Quantity Surveying Partner

**Company:** Northcroft, Neighbour and Partners

**Objective of interview:**  
To understand the role of the QS on projects in Japan and the cultural differences perceived by those ex patriots working on the projects.

**Implications for model:**  
- Build in time to deal with regulators  
- Develop partnership with local community

**Actions resulting from interview:** Follow up contacts IR gave and meet with them if possible.
Main points from interview:

1. IR played the role of traditional cost consultant responsible for VE, advised on cost during design development, negotiated costs with the contractor.
2. Their traditions and culture pervade the construction business.
3. They could not understand the fact that he was looking further than lines on drawing asking for budget estimates to forecast what would actually appear on site.
4. Promises are made to contractors prior to the project and IR caused a few ripples when he questioned the high prices of these contracts.
5. The particular client for this project was naive in many ways.
6. There are a lot more bureaucratic processes to go through for earthquake regulations and fire regulations. These constraints actually affected the economy of the building.
7. Decisions are made strategically but they can often be the wrong decisions. In terms of planning the Japanese are naturally cautious. Planning before site entry ensures better managed sites and material handling. There was a lengthy planning process. However this does have on costs.
8. Long term relationship maintenance is more important than money.
9. Despite all the cost planning, cost control, precontract – Obayashi tried it on a bit. I reduced the cost immediately by £15m and then squeezed out a further £5m. In a normal situation this price would have got past the client.
10. Meetings were informal and the team development was strong as relationships were developed and worked upon by the client and the contractor.
11. Japanese business demands that no one loses face even if that means leaving a meeting without resolving the issue at hand.
12. The CEO of the client went to key meetings and delegated a few tasks.
13. No brief was given, the architect had to pull the information out of the client. They went into the contract without the fitting out details known which transgressed some of the rules.
14. The Japanese contract was pretty meaningless and very short, IR rewrote the document to make it more finite in it's terminology. However, the contract clauses were never quoted in any of the disputes, it was normally settled in the bar after work.
15. Sympathy with surroundings is important and the contractor went to all local areas to explain what was happening.
16. Late decisions is the Japanese way.
17. Japanese companies look at the world on a long term basis, slow investment, market penetration at the right level.
18. The Japanese contractor has a huge investment in R&D they were very hard workers and worked until the job was complete.
Objective of interview:
To discuss this PM's experiences in the US. To discuss the difficulties of working under the constraint of a landlord and what systems are in place to record the user needs for a project both under their control or under the control of HAL.

Implications for model:
The model must allow project manager empowerment.
Streamlining the decision process must be achieved.
Thorough briefing defines the value criteria which substantiates the financial approvals process.
Develop partnership with contractors
Achieving common goals often difficult and must be built into model

Actions resulting from interview: Telephone Curry and Brown, NY
Contact New York Port Authority.
Main points from interview:

1. D's annual construction spend is approximately $75m. At any one time a project manager could have eight or nine projects simultaneously.
2. The role of the project Manager is to represent the client organisation to the construction industry, giving a common voice and a common standard. Also to find out from the client what his business case is. ie. we act in a challenging role, seeking the best solution to the problem.
3. The 13 project managers in the property branch are very much dealing with procurement rather than hands on PM. Finding out what the user wants, going through the business case with him, defining the needs and the requirements of the business and then going outside and procuring the expertise. We are commercially based rather than technically based.
4. Strict criteria for taking on projects. Decisions are made based on financial appraisals, D considers the value for money issues to be considered during the development of the user needs.
5. Time and schedule are considered the two major criteria.
6. D does not consider it to be of great benefit to go back to the customer to see if the project was a success. Learning from experiences of past projects and putting briefs together with the same people achieves the learning and feedback.
7. Once the budget has been approved and the project must be monitored to ensure the quality levels give value for money – D are not particularly good at this.
8. The most important task for the project manager is to put together a clear user brief for the client and that as data for the rest of the project. This PM considers D to excel at this task.
9. Project boards are considered very good, D are trying the project champion concept similar to the project board this helps to structure and streamline the decision making process.
10. D is a very market led organisation so normally projects have been strategically considered for many years before they are embarked upon. There is often therefore a natural case for them in the business. The planning division look at projects for five years hence.
11. BAA owns 70% of D's property which makes development very difficult.
12. On many of the joint projects between HAL and D, this PM considers that the team do not have common goals.
13. D considers that they excel in front end project work and this is where they should concentrate their efforts. For this reason they are thinking of reducing the number of project managers to four or five and going into partnership with a PM consultancy to provide project execution PM skills.
14. All project managers are within the D management structure so can challenge the business managers.
15. They are currently considering partnerships with a handful of contractors.
16. The PM does not believe in bringing in the contractor too early as he is solution oriented and the industry is not yet ready for open minded contractors.
17. There is a limit to what the PM can take on, to expect him to manage the stakeholders during the project is too much and should be given to another.
18. This PM considers US and UK construction industries to have few differences
Objective of interview:
To investigate the Munich Airport development and learn of any difficulties that may have arisen due to building over such a long period of time with many stakeholders. The visit would also encompass a site visit.

Implications for model:  
Appreciate that forecasting is not always correct  
Build in checks on brief as project develops  
Use coordinator/representative for multiheaded client  
Keep client informed so that he knows what to expect at the end of the project  
Change control documents  
Constantly monitor environment

Actions resulting from interview:
### Main points from interview:

1. Munich Airport is a private company with three separate shareholders, the free state of Bavaria owns 51%.
2. The decision to build a new airport arose in 1969, followed by a design competition to create a concept design for the airport in 1971. Well known international companies were approached for this. The concept was completed in 1972.
3. The reason for the new airport was threefold: capacity; security as aircraft currently fly over central Munich; and the cost of land in the centre of Munich.
4. Decision was made for a linear building organised in modules of 1km length. Space to handle 55 aircraft with 20 pier served stands. The modular arrangement allowed flexibility with each of the four modules housing all facilities to run a mini airport.
5. The traffic figures dropped at the end of the 70's so the original two buildings was reduced to one. Now they are considering building the second to cope with the huge number of transfer passengers. The original design does not cope well with this type of traffic and the design is somewhat outdated by events even before it is complete.
6. The new terminal already being planned will take on a completely different form: as a central complex with short walking distances for the 50% transfer passengers expected.
7. The design of the hangars and service buildings takes a similar form to the terminal and therefore the external appearance formed a large part of the cost. This was considered to add value to the customer by presenting a good image. The only building that was not under their control architecturally was the FAA building which is considered to stand out from the main concept.
8. The final cost of the airport is Gm 8.5bn, much higher than the original estimate due to the changes from the original brief.
9. 55 A/E of MAA looked after a different part of the project ensuring that a common design theme existed. They do not use "PM" but client rep.
10. They had political shareholders therefore had to proceed by competitive tendering, if they had been private they could have spoken with the contractors and got what they wanted.
11. The client was multiheaded and the airlines formed a consultative committee.
12. Due to the slow nature of decision making due to the bureaucracy the project began to fall behind schedule. They decided to employ a project champion for the duration of the project from outside the organisation with full responsibility for decision making. This saved the project as far as Munich were concerned.
13. After opening in May 1992, there were some small problems that have been sorted but the response from passengers has been favourable.
14. All through the design the owner knew what he was getting: the main design was set by the design competition, as internal finishes became apparent they were always made up as a mock up for approval prior to purchase. Therefore the design team carried the decision makers with them.
15. The cost increased due to the airlines changing their minds, the change of project scope and the airport changing their ideas.
16. The planning process was very long and resulted in the project stopping on site for four years whilst the planning approval went through.
17. The second terminal will only be applied for when the T1 is full but when it
Objective of interview:
To gain an introduction to the Japanese construction industry and establish contacts via JETRO with particular organisations in Japan.

Main points from interview:

1. Kansai International Airport project was confirmed as being the largest construction project in Japan, employing a huge number of engineers, including all of the big six. It will be a landmark for the Japanese construction industry.
2. The status of professionals is lower than client/contractor or engineer.
3. The big six probably have the highest technical services expertise in the world and train their engineers all over the world.
4. The Japanese construction industry is frequently criticised for being exclusive and will change dramatically over the next ten years.
5. Mr. Ushio suggested that the four main sources of construction in Japan from the client side are: the ministry of construction; electric power companies; life insurance companies and car manufacturers.
6. It was suggested that the contacts with these companies should be established in the UK first so that a formal introduction could be made in Japan by the UK office.
7. JETRO is a public entity, government funded. It was established after the war to export Japanese goods throughout the world. They now have 80 offices over the world and pass information between Japan and the rest of the world.
8. Mr. Ushio represents construction, conducting general research in European countries and the Middle East, in order to expand the Japanese business here. They also help UK companies expand into Japan.
9. It was suggested that I should start by talking to the big six contractors who all have offices in London.

Implications for model:

Actions resulting from interview: Contact a selection of the big six in London.
Seek out a contact within Nippon Life in the UK.
Objective of interview:
To investigate the work DG is conducting on client control of productivity during the construction phase of a project.

Main points from interview:

1. DG is currently putting together proposals for the management of resources and risk assessment for a client organisation in the UK.
2. The first of these analyses the labour resource broken down over the period according to the cash flow. The actual is then compared to the estimated as the project proceeds. This allows the client to highlight under resourcing on site as soon as possible and therefore flag to the contractor that they should be improving the situation.
3. The contractors pre and post personnel are different and do not really know what is supposed to be occurring on site according to the plans. However they are contractually responsible for progress on site.
4. A simple ratio of the cashflow to the manhours on site for each period gives an assessment of the £/manhour.
5. The cost risk assessment relies on splitting the project into cost centres and assessing the risk allocated to each judgementally.

Implications for model: It is possible for the client to gain a basic appreciation of the resource levels on site and therefore have some control over the productivity.

Actions resulting from interview: Present the document from DG to BAA for comment.
Objective of interview:
BL called the meeting

Main points from interview:

1. BL requested the use of the research framework as the basis for a presentation to the management committee.
2. BL will make a few changes to the framework to fit with the current situation within BAA plc.

Implications for model:

Actions resulting from interview:
**Objective of interview:**
*Inaugural lecture for the BAA plc chair of CM.*

**Main points from interview:**

1. The issues that worry clients are building costs are higher, schedules are longer, running costs are higher and it costs more to build in the UK than in the EC or the US.
2. The weaknesses in the UK are evident: use of bespoke parts, aesthetics constrain future use and expansion, poor management of design: need better briefs and to tell designers what methods and styles are acceptable before they begin.
3. There is unsatisfactory feedback from project failures.
4. In order to increase user satisfaction clients must use QFD and post occupancy.
5. The client is the key player in the project process since they have the ability to influence costs, they understand the implications of the life of the project, there is a growing expectation for the quality of the working environment.
6. Systems produce consistency and reliability, people produce innovation and value. These must therefore be brought together.
7. Building is no longer different to any other industry if the client pulls together the best people and systems.
8. Lessons can be learnt from the manufacturing industry: lean manufacturing, componentisation, flexible manufacturing, reduced use of specials, object oriented database (knowledge based engineering).
9. KBE enables the client to be in more control of the design process as he can simulate the process. KBE can act as the glue between client / PM / designers and component manufacturers.
10. It is necessary for clients to demand a % of standard components which will lead to design optimisation, greater performance and will allow the client to identify a components function, performance, life etc.
11. NF concluded by suggesting that construction is moving toward being a manufacturing process. The challenge is for the industry to respond.

**Implications for model:**

**Actions resulting from interview:** Investigate the manufacturing processes during new product design, especially flexible manufacturing and concurrent engineering.
Objective of interview:
To understand the change that company F made to their construction process to reduce the duration to only six weeks from 26 weeks originally. Also to discuss the date and delegate list for the research workshop.

Implications for model:
Use of standardisation and modularisation should be considered per project and centrally
The model must challenge the current construction culture in the UK
Strategic procurement is different for organisations building common structures where lessons from one project can be directly transferred onto future projects.

Actions resulting from interview:
Contact Charlie Thompson to discuss the modular house building in Japan.
Arrange site visit to Company F construction at Gatwick Airport.
Main points from interview:

1. John Egan's philosophy that everything is better in the US in a misinterpretation of what he said. His analogy to the manufacturing process is spot on.
2. There is wastage of 14% in the UK construction industry. They therefore brought in modularisation reducing the time on site to 28 days from ground preparation.
3. They discovered by talking to their German and French counterparts that they spend £9m a year on professional fees. Now they do not use professionals, they have their own team of 42 including an architect, designers, PMs etc.
4. J Sainsbury has turnover in one store of £1m a week, they have reduced their construction time by 15 weeks by using modularisation, equivalent to £15m.
5. F's stores are fabricated in factories in clean conditions similar to car manufacturing. They are built in cheaper areas of the UK and transported to site where they are clipped together electrics and all. Modularisation eliminates snagging as quality is ensured within the factory.
6. At one time the french construction costs were 25% cheaper. The problem turned out to be purely the construction codes in the UK. There are many unnecessary features to their buildings. They have just built 28 stores without gutters and are being taken to court over it. They have light fittings costing £68 each – why?
7. The construction industry needs challenging clients to change it in the UK. F have had a huge culture shift to accommodate the new thinking.
8. Not all of the 66 countries in which F builds are convinced of the modularisation concept. They have a central European committee to act as a focal point for communication within F.
9. The interviewee's ultimate hope is to de skill the construction industry. They have a chippie doing the brickwork on their buildings now in the factory.
10. They want to get to stage when they can all buildings off a computer like the modular house buildings in Japan (Talk to Charlie Thompson worked with Sekisui house).
11. F UK have the lowest cost of the group at present and they are trying to convert the rest.
12. They have preferred suppliers and use particular factories to put together their modules. It was suggested that I see the construction of company F at Gatwick.
Main points from interview:

1. The Japanese construction philosophy is built on the strength of three factors: trust, leadership and construction led design.
2. There are many lessons the UK could learn from the Japanese construction industry.
3. Contracts in Japan are very much for the bottom drawer and are very rarely referred to, instead the Japanese encourage communication and mutual trust.
4. During the Toyota manufacturing contract in Derby they sat down regularly with their contractors Directors and discussed problems and the critical path.
5. They made people aware of where they fit into the whole program of works.
6. It is common for Shimizu to take the architect out for lunch and a drink if they do not like to quality of the aesthetics going up. In this way they can come to a solution in a much more amicable way.
7. Mr. Kato showed a great respect for Laings especially Mr. Ainsworth as they converted very well to the Japanese method of working.
8. The contact for Shimizu Japan will be Mr. Kaiyama who was in charge of the work in Derby from the Japanese side. It was implied that Toyota would probably not speak with me but would hand me over to Shimizu.

Implications for model:  Develop project communications strategy early in the project model
Reduce lines of communication

Actions resulting from interview:  Await letter from Mr. Kaiyama following formal introduction from Mr. Kato.
Objective of interview:

Having contacted Mr. Ota to request an interview in Japan, he suggested that I would be better to simply talk with him as I would learn no more in Japan. Therefore this interview will address the same questions as those to be asked in Japan.

Main points from interview:

1. Promotional video for the work conducted by Kajima: broad range of tunnelling technology, great teamwork, Kajima institute of construction technology from the nucleus of R & D within Kajima, research into flexible structure to ensure safety during earthquake, robots used for floor finishing and laying rods for foundations, intelligent buildings, computer simulations for building evacuations, underground space utilisation.

2. Japan has an island culture, very much an enclosed society where negotiation is the key. This has led to the R & D culture as they must have something by which to market themselves, it provides product differentiation. R & D would not be necessary.

3. Value engineering is achieved by Quality Control as these are effectively the same. QC is part of the basic culture, with problems being passed up from site through the engineering department to the R & D section. The solution then filters back to all sites (see figure).

4. Negotiation is a disadvantage in many respects as the contractors ends up paying if the client makes changes or makes a mistake. The risk taken on by the contractor in Japan is higher than that by the UK contractor. When we say guaranteed we mean it.

5. Life cycle costing is very important, they are making a product not just for construction. We have a brand business and must maintain our reputation.

6. VE was considered to be staying within the budget. Once the full design has been submitted this is the cost that they will complete within, whatever that may mean to the contractor.

7. They regularly have a transfer of technology to their subcontractors. Because they use a common group of subcontractors they can afford to do this, the benefits are enormous and QC flows right down the project organisation.

8. In the UK we lack design management, R & D support and engineering management. In Japan the above allow them to fully coordinate their drawings amongst the whole team, therefore the cost is clear.

Implications for model:

Encourage the model as a philosophy of achieving value through all actions at all levels in the organisation.

Design management and concurrent engineering.

Actions resulting from interview:
Figure A6 Quality Control to achieve value on site within Kajima
Objectives of Interview:
To establish a contact in Japan with Obayashi, using the UK office as a formal introduction. To understand a UK perspective of the Japanese construction philosophy from within a Japanese organisation.

Main Points from Interview:

1. The difference between the UK and Japan is not particularly technical but wholly cultural.
2. 50% of all contracts are negotiated therefore the profit motivation is very small, there is organic growth within the market. The clients try to maintain a balanced turnover across all the contractors they use. The contractors are therefore guaranteed repeat business which is both advantageous and disadvantageous. They take on board the whims of the client in an attempt to satisfy the client wholeheartedly.
3. The Japanese construction company offers a total service to the client, relationships are developed over time and the next job motivates the contractor to offer the ultimate service to the client.
4. Client briefs are thin and extremely sparse of information. They place their trust in the contractor. It is down to the contractor to fully investigate the client needs and design within the allowed budget.
5. The Japanese go to huge lengths to avoid conflict. They have premeetings to decide the outcome of a meeting to avoid conflict within the meeting. All decisions are made by consensus.
6. When graduates join Obayashi they do so for life. They do not have extensive contracts as they trust their company.
7. The construction philosophy is based on total quality and design management by the contractor. Consultants are not used.

Implications for Model: Lessons to be injected regarding the philosophy across the whole project organisation. Partnering and using a small family of contractors may be a strategic lesson from Japan.

Actions Resulting from Interview: Await response once JF has approached his colleagues in Japan.
Objective of interview:
To investigate the evolution of the projects capital budget and the control of costs from a central viewpoint across the portfolio of projects.

Main points from interview:

1. Small projects need consideration within BAA since, even though they are small by value they are huge by number and create a huge cost. The PMs managing these are not commercially aware.
2. Post contract cost management is being pushed now since the PMs simply want to push the top level figure to top management.
3. Not many people in BAA are commercially aware. Politics is rife.
4. They are not threatened by the use of independent cost advisers, as they now are in a position to take on a coordinating role.
5. Major projects estimates are fairly well produced but small projects estimates are plucked out of the air.
6. Business plans are put together by each manager and coordinated by finance. This goes up to corporate office who assess and tell the airports what they are allowed to spend. This is when the projects department hear what they have to cut out etc. Projects are prioritised according to their categories.
7. There is a lack of M & E professionals at PM level to manage large M & E projects so the terminals must do it.
8. Projects that arise but do not appear on the business plan can generally be slipped in to RP1 or RP2. The cost management document allows the project board to know the status of projects at any one time and promotes standardisation of cost reports.
9. Internal costs are now documented. The cost report is a detailed report highlighting over and underspend and all change orders, possible change orders and their value. It also details all fees for both internal and external consultants.
10. See maintenance manager of Terminal One about small projects estimates.

Implications for model:
Small projects model required
Detailed post contract cost management documents required
Choose project manager to suit particular projects
Politics must be considered during project management model as it often overwhelms proceedings.

Actions resulting from interview: Arrange meeting with Peter Abell regarding small projects estimates.
### Objective of interview:

To investigate the evolution of the estimates for the business plan for small projects.

### Main points from interview:

1. The engineering manager covers four main areas: Major maintenance, minor planned maintenance and projects over £250,000, projects under £100,000.
2. The figures for the major maintenance category are hard to pull together as there has never been any planned maintenance on major plant in T1. Therefore PA had to make an assessment for each category and submit a reasonable sum for what they could spend in a year. It is fairly adhoc since the building is 23 years old, in a new building it would be preplanned. In this case it is a matter of seeing to the urgent jobs first. If he does not spend the allocated sum in one area then it is transferred over to another.
3. The figures for minor maintenance are worked by taking the previous years figures and adding on for inflation. PA strongly believes that this can be accurately calculated and will be doing so for next years figures. (MSc dissertation based on this).
4. They only have two projects of value over £250,000. Here the figure have been calculated by asking the manufacturers for estimates. So these are realistic figures.
5. Projects under £100,000: These are clumped together but each has been estimated separately by getting realistic figures from the industry.
6. PA maintains that his estimates are realistic and are not the result of a plucking in mid air. Prior to his arrival however there were no business plan figures.

### Implications for model:

- It is important to add structure to small projects
- Don't allow small projects to develop without cost management

### Actions resulting from interview:
Main points from interview:

1. Civil engineering projects in this department are fairly easy to estimate as the aircraft pavement jobs could be based on the previous projects figures.
2. The nature of the project approvals process pulls along the managers with the evolution of the cost, so the board are aware of the cost development.
3. The approval process is split into significant parts: the concept approval and the project approval. The prior of these achieves funding for the concept design fees, with an initial estimate of the project cost. At the project approval stage there must be a full detailed cost plan for the project for which the board will give approval.
4. Generally there is a lack of cost planning and the cost put forward initially can lead the project.
5. The engineering department can put real costs to engineering solutions, the client departments are less aware of construction costs therefore are not as successful at estimating.
6. If anything the engineering department err on the conservative side when they relate to past projects. The bigger the job is the more difficult it is to put a price on.

Implications for model: Build up cost and technical expertise through learning loop.

Actions resulting from interview:
Objective of interview:
To understand how the project costs are controlled from a BAA perspective and if any projects are prioritised over others.

Implications for model:  Portfolio management of projects based upon corporate objectives and value
Allocate money to allow adequate budgets or cut budgets a little on all projects?
Cultural barrier to working with central model when the central gatekeepers have the power to cut budgets

Actions resulting from interview:
Main points from interview:

1. The capital allowance is based on how much the business can afford, keeping the gearing down and meeting the profit levels expected. From this a project target figure is derived.

2. Therefore JFK looks at the airports requested capital expenditure and the differences between this and the target figure. His job was to find ways of removing the discrepancy between the two figures. At one time (no longer though) JFK took a strategic overview of the business needs and the figures as requested from the airports.

3. The solution was often in rephasing the projects, cutting others according to the estimate that was submitted, or reducing budget due to the inability to spend that sort of money in a short space of time.

4. For example this year JFK has suggested reducing the target by:
   4.1 Slippage of projects due to longer planning periods should reduce the spend early on.
   4.2 Value Management should be producing savings of the order of 2.5%.
   4.3 Physical impossibility for HAL to do all the work requested therefore phase their work.
   4.4 Cut 5% off target due to the procurement innovations arising.
   4.5 Categorise projects according to "musts" down to "less important".

   A balancing act is performed on the business plan once produced. Up until two years ago this was never carried out and the figures were reduced piecemeal.

5. There must be a balance between the spend at airports on revenue, capital and passenger service projects.

6. Michael Maine's role is to ensure that the capital is spent wisely. So when a project exceeds its budget by 50% (T2 extension) something must be done. This raised the question of when JFK should become involved in projects.

7. The reason for the cost data base and project targets produced by cost management are to make the figure submitted by the airports more realistic.

8. Cost management are trying to raise their profile such that they are involved earlier in the project lifecycle when the figure are set.
Objective of interview:
To investigate the work conducted in Japan with regard to modular house building. Also to understand the interviewee's perception of the Japanese construction industry and seek contact within Sekisui house in Japan.

Main points from interview:

1. Laings first got involved with modular build when Mobil requested two modular service station huts with a view to develop them across the UK. Although they were successfully built they were not commercially efficient.

2. Previously it was the building of the shop that delayed the completion of Mobil's projects they were looking to reduce this. On a third attempt Laings reduced the time on site to 7 days on site following 6 weeks in the factory, compared to the previous 6 months on site. Following this they had an order for 20 units from Mobil and set up a Laings production plant in Banbury.

3. The benefits of modular build lie in its speed and control of quality achieved in factory environment – not really in terms of pure cost.

4. Laings set up an affiliation with Sekisui House in Japan in an attempt to expand into Asia. They embarked on a joint project to produce English Georgian houses for Japan in an export kit. He went out to project manage the construction.

5. He found the organisation on site frustrating as the pace was so slow, site control was poor, where sites can sit for days and days because of poor practice. He identified two levels of site practice: exceptional in large contractors, appalling in smaller contractors.

6. The house building industry is well developed in Japan where consumers may walk into showroom, select their choice of house, room shape and finishes from a computer database and leave within two hours with plans and elevations of their house. This does not reduce uniqueness to any degree as each house is custom designed for the consumer. It relies on the use of standard components with reference numbers that can be bolted together.

7. For this reason fabrication must be spot on, the UK supply base is not ready to take on this responsibility and therefore we are far from full standardisation.

8. In Japan there are very few decision makers, they work by consensus management, they could learn from the western approach to single point contact.

9. Their view of success is very different from ours. Success means a completed building having involved many people, having maintained good relations.

Implications for model: Full modularisation may not always be appropriate but standardisation of frames etc. may be – strategic consideration

Actions resulting from interview:
Objective of interview:
To introduce my research to the new procurement director, especially my concerns regarding the procurement decision and strategic procurement issues and establish his objectives for the future of procurement within BAA plc.

Implications for model:
- Early input of procurement issues into the model
- Standardisation and central procurement must be considered at strategic level
- Selection of contractors and professionals
- Must facilitate central control of elements whilst project occurs within the business units
- Contract development to harmonise client / contractor
- Implementation must occur as it so often gets lost at the end of the process.

Actions resulting from interview: Send MS a resume of my research study and the results from the work so far.
Set up a second meeting with MS on my return from the US and Japan.
Main points from interview:

1. MS hopes to establish a network of procurement professionals across the airports with central control at the Group Technical Services.

2. The following issues require attention:
   2.1 The huge amount of purchasing that goes on by people who are not necessarily in charge of purchasing
   2.2 Only 25% of purchasing is conducted by purchasing department
   2.3 Central procurement of goods which means the BAA must know what they want at an early stage so the design must be taken far enough down the line to be able to rely on the figures.
   2.4 Procurement means more than contracts
   2.5 Ensure that the architects / engineers are selected carefully based on past experience
   2.6 Develop harmonising ethos with non adversarial contracts
   2.7 True standardisation can only come with a client who knows what he wants
   2.8 Procurement is not just dealing with major projects.

3. On entering BAA he saw:
   3.1 An organisation that was 20 years behind in terms of technology
   3.2 Poor communication with no sense of urgency
   3.3 An organisation that was not making world class leading movements
   3.4 Many narrow minded persons
   3.5 Everyone thinking they know about procurement but no one listening to first principals
   3.6 Lots of continuous improvement groups with many good ideas, but very little implementation
   3.7 An organisation lagging far behind other UK clients in terms of project management.

4. MS was surprised I had not approached the process industry and gave me details of the project management manual produced a Glaxo when he was there. This was used as a bible and each project manager was fully trained by attending a series of seminars. The execution manual laid out who was involved in the project and their role; details and types of job required at each stage of the project.

5. Generally MS was in full agreement with the strategic management of projects, agreeing with the early injection of procurement considerations.
Objective of interview:
To investigate the work of BAA plc in the US, since GJ has been involved directly in the retail developments in the US. To understand GJs impression of US projects as compared to those he has been involved with in the UK.

Main points from interview:

1. It is inbred in the US culture to understand what value is. They wake in the morning and know what the value of their development is. The clients are advised thereof.
2. They are extraordinarily good at building within cost estimates and therefore rely on cost estimators who put together very good first costs.
3. The day one activities in the US are putting the case together, the day two activities are involving the contractor and putting together a cohesive team.
4. It is somewhat a myth that they build faster, better and cheaper – a lot of their construction is much more expensive. Terminal 5 in Chicago cost £6000/m compared to a UK terminal of £1500/m.
5. In terms of value for money, GJ perceives that the UK achieve better value for money in terms of quality and choice of standards. The UK has professional attributes, the US has cohesive team benefits.
6. The BAA culture has changed significantly and shows in their approach to the US commercial ventures. They have taken from the US shopping mall, bettered and is now offering back. If we could improve our construction process we would have something really valuable to market.
7. BAA does not fully understand value yet, but is getting there. In the US value is defined and everything is focused towards that, therefore the end target is always in view. BAA is beginning to equate value with specific facts and tangibles, the message is gradually permeating through the organisation.
8. Standardisation is one quality attribute of the US but may reduce innovation in design. However, GJ has reservations about standardisation as someone will always build it cheaper.
9. The US air terminals are not perceived as we perceive air terminal, they are purely an internode connecting point. They have no perception of passenger services and do not consider them a revenue generators.

Implications for model:
Early involvement of contractors
Cohesive team development
Standardisation versus competition

Actions resulting from interview:
Objective of interview:
To investigate the current role of the engineering department within BAA following the radical reduction in staff and the turnaround they have recently gone through.

Main points from interview:

1. There has been a culture shift from being project driven and seen as just another consultant to a department from whom the business units may seek advice and professional expertise.

2. They have moved from being discipline lead to being business lead:
   2.1 Specialist systems
   2.2 Airport buildings
   2.3 Airport pavements
   This has lead to integration and communication across the disciplines within each of these business groupings.

3. They have stated the following ratios for the split of their activities: Core business (50%), Corporate (cost) (25%), external (25%). In actual terms they core business figure has risen to 70%, so they are exceeding their target.

4. The engineering department staff numbers peaked at 230 post Stansted and Macau, they now sit at 70.

5. They have produced a design manual split into the three groupings above based on their good and bad experiences and considering the following:
   5.1 BAA standard level of performance
   5.2 Standard products off the shelf
   5.3 Standard fittings for standard layouts etc.
   They are unsure whether the guidelines should be policy or guides, the management committee will decide this.

6. The general view is that the engineering department has come full circle and is now operating as it was about 10 years ago. They are fulfilling the role required by the airports and have passed the "telephone test" - the engineering department is being contacted for information at the start of a project. This turnaround has been achieved by embarking on a CI initiative.

7. Project boards are considered to be good in principal but the PB chairmen need training.

Implications for model:
Model should facilitate tapping into the experience of professionals from within BAA
Careful use of existing guidelines

Actions resulting from interview:
Appendix E
Main research

Results from Participative Workshops
I. Workshop Agenda
II. List of participants
III. Main comments from workshops
Agenda for the participative workshops

The research workshop format was put together to encourage two way communication and to raise issues unanswered by the research model. The figure below details the agenda for the workshops conducted within BAA and the workshops conducted at the external organisations. The duration of these workshops varied from between two and three hours dependant upon the time allocated by the organisation involved.

<table>
<thead>
<tr>
<th>BAA Workshops agenda</th>
<th>External Workshops agenda</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 min Introduction</td>
<td>10 min Introduction</td>
</tr>
<tr>
<td>30 min Presentation</td>
<td>20 min Questionnaire (Q1 and Q2)</td>
</tr>
<tr>
<td>20 min Questions &amp; Answers</td>
<td>30 min Presentation</td>
</tr>
<tr>
<td>90 min Open challenge of model</td>
<td>20 min Questionnaire(Q3, Q4, Q5)</td>
</tr>
<tr>
<td>10 min Conclusions</td>
<td>20 min Syndicate Groups</td>
</tr>
<tr>
<td></td>
<td>20 min Group presentations</td>
</tr>
<tr>
<td></td>
<td>50 min Open discussion/challenge</td>
</tr>
<tr>
<td></td>
<td>10 min Conclusions</td>
</tr>
</tbody>
</table>

The changes made to the workshop agenda, following the BAA workshops, were induced partly by the difficulties arising from the first agenda. It was found difficult to control a group of 8 to 10 senior managers with such a loose framework. It was often necessary to pull the group back to discussing the model in question rather than specific problems arising in particular projects. It was considered appropriate to encourage an active input from the participants by breaking them into groups to discuss a particular issue and then relating that back to the rest of their colleagues. This was found to work well and forced the participants to think deeper about the model and it's implications.

The other reason for the change in workshop agenda was the request from the external organisations for a two way learning process where their managers were encouraged to challenge their own perceptions of how project management should be conducted. They were looking for a professionally presented management exercise that could form the basis for an ongoing critique of their current practice.
Workshop Questionnaire
May 1993

To be completed during the workshop when instructed, for collection at the end of the workshop session. For analysis purposes please could you answer a few basic questions.....

Location of workshop

Your job Title

Length of time in your current organisation

QUESTION 1

Please explain what you understand by the term value for money?
QUESTION 2

Please write down at least two ways in which your organisation ensures value for money on their construction projects. (If these tasks are related to your own job please indicate with an asterisk).
QUESTION 3

How does the framework presented to you at the start of this workshop differ from the project management practice carried out in within your organisation?

ie What does this framework do over and above current practice?
& What does this framework not do as well as current practice?
QUESTION 4

Please indicate what you see as the strong points/ advantages of the framework?
QUESTION 5

Please indicate what you see as the disadvantages of this framework or those areas where the framework would not work?
List of Workshop Participants

**Gatwick Airport Limited**
8 March 1993

Martin Ong Engineering Director
Chris Johnston Senior Estates Surveyor
Hilary McKinley Finance
Graham Shave Engineering Manager, Airports Estates
Harry Leach Engineering Contracts Manager
David Poat Senior Project Manager
Russell Batchelor Senior Project Manager
Matthew Fletcher Quantity Surveyor
Geoff Lamy Maintenance Manager, South Terminal Engineering
Jerry Sparks Project Manager
Ian Gravatt Senior Project Manager
Graham Coterall Project Manager
Dave Holcroft Project Manager

**Heathrow Airport Limited**
10 March 1993

Roger Cato Operations Director
Janis Kong Transfer Manager
Liz Southern Planning Manager
David Cumming Terminal Manager T1
John Murphy Senior Project Manager, Central Projects Group
Stewart Shortland Project Manager, Central Projects Group
Ian Jamieson Managing Surveyor
James Walsh Finance
Chris Woodruff Retail Operations Manager
Roy Davies Bovis Construction Manager
Fred Eaves Independent Cost Consultant, MDA

**Stansted Airport Limited**
16 March 1993

D Bond Track Transit Manager
P Buckle Engineering Manager
C Bush Head Planning
C Cranwell Retail Manager
P Flanagan Finance Controller
J Fletcher Terminal Manager
A Flower Purchasing Manager
B Robson Head of Property
K Scott Facilities Manager
T Smith Quantity Surveyor
A Whiteside Operations Manager
Technical Services Division
18 March 1993

Barry Lucas  Development Director
Richard Moore  Head of Value Management
David H Williams  Projects Director
Mike Noakes  Project Manager
Ted Tinson  Engineering Manager
Chris Barlow  Development Manager
Martyn Quarterman  Senior Cost Manager
Andrew Swiestowski  Principal Cost Manager
Mike Birchall  Planning Manager
David Hall  Bovis Construction Manager

Scottish Airports
24 March 1993

Donal Dowds  Managing Director, Glasgow Airport
Robert Swan  Operations Manager, Glasgow Airport
Ron Wallace  Managing Director, Edinburgh Airport
Cliff Phythian  Commercial Manager, Scottish Airports
Alastair Smith  Business Development Manager, Scottish Airports
Colin Crighton  Technical Services Manager, Glasgow Airport
Stuart McVicar  Terminal Development Manager, Glasgow Airport
Bill Halliday  Engineering, Aberdeen Airport
Derek Hendry  Engineering, Aberdeen Airport
Richard Russell

Lyntons
20 April 1993

Chris Smith  Quantity Surveyor / Project Manager
Ross Gunthorp  Senior Project Manager
Richard Jeffrey  Project Manager
Nigel Pittam  Construction Manager / Surveyor
Paul Sanders  Senior Project Manager
Derek Beck  Senior Project Manager
Barry Horrell  Senior Project Manager
**Company A**  
5 May 1993

Strategy Implementation Manager  
Property consulting services Manager  
Planning Project Manager  
Procord Account Manager /Project Manager  
Partner Brook Barnes James QS  
Tilney Lumsden Shane Design Partnership

**Company B**  
7 May 1993

Contracts Manager (Water)  
Project Manager  
Principal Construction Engineer  
Operations Manager (Projects)  
Principal Project Planner  
Principal Project Manager  
Design Team Leader  
Project Manager  
Principal Project Control Engineer (Water)  
Project Manager

**Company C**  
12 May 1993

General Manager Major Projects  
Design Manager  
Customer Services Manager  
Construction Manager  
Engineering Manager  
Quantity Surveyor  
Major Projects Manager

**Company D**  
19 May 1993

Senior Project Manager Property Branch  
Construction Executive Property Branch  
Project Manager Construction Group  
Policy and Planning Manager  
Construction Executive Purchasing facilities  
Project Manager Property Branch
Company E
19 July 1993

Principal Environmental Engineer
Managing Architect
Senior Project Manager
Construction Resources Manager
Chartered Quantity Surveyor
Project Manager

Company F
8 July 1993

Assistant Vice President Construction Manager
Head of Corporate Property
Company Architect
Regional Development Manager
Senior Project Manager
Regional Construction Manager
Construction Purchasing Manager
Divisional Operations Manager
Partner, Edmond Shipnay and Partners, QS and PMs
### STRONG POINTS IN MODEL

- Definition of client
- Emphasis on pre decision to build stage
- Management of design
- Definition of success at the start of the process
- Making the framework a company philosophy
- Definition of value for money specific to each project
- Including the right people at the right stages
- Involvement of the industry in the value thread
- Will introduce commonality across the airports

"We are quite good in BAA of formulating a program and picking out bits we think will be useful and easy; this must be a whole process"

"This must be group led involving the airports in the development of the initiative; no one heard anything about VM until it was a set of guidelines"

### WEAK POINTS IN MODEL

<table>
<thead>
<tr>
<th>Weaken</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The model introduces bureaucracy</td>
<td>Strengthen the philosophy of the model rather than distinct stages</td>
</tr>
<tr>
<td>Could be confusing with too many people</td>
<td>Indicate the single point of contact and political issues</td>
</tr>
<tr>
<td>Who is the ultimate owner?</td>
<td>Emphasise the definition and role of the champion</td>
</tr>
<tr>
<td>Level of resourcing required for the framework to function</td>
<td>Identify people requirement at each stage, stress philosophy</td>
</tr>
<tr>
<td>Culture change required to introduce such a philosophy</td>
<td>Produce an implementation plan to reflect the culture change issues</td>
</tr>
<tr>
<td>The time requirement</td>
<td>The time should be quality time, need to make good case for model</td>
</tr>
<tr>
<td>Does not address mixed values of each player</td>
<td>Emphasise the defn and ownership of values in whole project orgn.</td>
</tr>
<tr>
<td>The model does not address small works</td>
<td>Reproduce the model in a simplified form for use on small projects where all stages can be done very rapidly</td>
</tr>
</tbody>
</table>
### STRONG POINTS IN MODEL

- Gives total team the benefit of past decisions
- Functional analysis could be very useful
- Communication of the value message
- Choice of specific PM to suit project
- Highlights possible gap between strategic / tactical
- Definition of value common to the project
- Structured approach from problem to solution
- Post occupancy feedback
- Constant reevaluation of value
- Communicating the vision to the project organisation

"We are not good at functional analysis, we jump to the solutions too quickly."

"The project manager does come on board during the strategic stages through the project board. The skills gap therefore depends upon the skills of the personnel on the project board."

### WEAK POINTS IN MODEL

- Not suitable for small works
- Does not address the price of quality
- Does not cope with the changing value message from top of organisation
- Does not address the issue of standardisation
- Need to challenge specifications
- Does not deal with the need for team chemistry
- Level of resources necessary
- We are the client representative not the client
- Does not address the legal issues
- Needs padding out to emphasise procurement issues eg partnering
- "Decision to build" line could be in the wrong place
- May be adding too many people into the process
- Does not emphasise role of champion
- Does not iteratively produce the brief
- Project targets, LCC and components should come earlier in the process

### ACTION

- Reproduce simplified model suitable for small projects
- Included in the value definition
- Add feedback loops throughout the framework for reevaluation
- Should be included in the value definition
- Include in the strategic stage feed down to design
- Overlay human issues and management issues
- Present model as both a philosophy or with resource requirements
- Emphasise the definition of client/PM/end user at the start
- Add specific procurement bubble
- Redefine D to B line and make a permeable boundary
- Emphasise the communications thread and the single point of contact
- Put champion identification into stage one
- Show iterative production of brief at each stage of the framework
- Specific BAA processes, may need to show earlier
STRONG POINTS IN MODEL

Post Occupancy study so that feedback is achieved
Definition of for whom Value for money is being achieved
Stages 1 and 2 structured to address strategic issues
Puts thread from business strategy to project strategy
Essential to have a framework
Early involvement of PM aids definition of value
Specific choice of project manager
Record of decisions made and why
Development of brief based on value definition

"Stansted was a project – actually a number of subsidiary projects within that project. If you look at Stansted and these subsidiary projects that occurred within, it is quite obvious that none of these stages have been gone through".

"If the people involved in the project are the ones that are going to live with their decisions, that is what concentrates the mind".

WEAK POINTS IN MODEL

Does not cope with environmental changes
Does not cope with the change in values with time
Post occupancy stage could dwell on the past at the expense of anticipating new problem to deal with
Assumes all parties can positively contribute to the process
Does not cope with changes in key personnel thus values
Does not cater for sub projects within the main project
Over complicated and bureaucratic
Could be unfeasible to involve the PM in stages 1 and 2 for all projects
Model too complicated for small works
Does not consider how the budget is set for the project

ACTION

Add environmental bubble at start and stress future management
This should form part of the organisational learning curve – identify
Emphasise challenging creative nature of the model

Emphasise identification of correct people at the start also politics
Add contingency feedback to ensure value thread is maintained
Add option to split into a number of submodels – with caution
Stress philosophy and the client amending the generic model to suit
Investigate feasibility of strategic managers/ Selected input of PM?
Produce with generic stage 1, then sub models for each small project
Add budget setting milestone a start – investigate current practice
### STRONG POINTS IN MODEL

- Distinction between client and multi value system
- Definition of value for money for each project
- Puts a framework to the project process
- Can reflect current VM process therefore not in conflict
- Post occupancy stage and feedback
- Framework largely fits with what BAA is striving to do

"The ground rules and issues have been established, the problem is making sure that it is universally accepted. But the ideas are very clear and BAA has moved a long way. We are a lot clearer than other organisations"

"Tactical Project Management is generally understood. If you were to ask anyone, without the benefit of this breakdown, what a strategic manager is, I don't think they would know."

### WEAK POINTS IN MODEL

- Decision to Build line terminology confusing
- Decision to build line is not a fixed line
- May need construction industry input earlier
- Does not highlight the primary and secondary values
- Summary model too mechanistic
- Cut off between concept and feasibility difficult as the client often wants more information early in the process
- Model assumes knowledgeable client
- What's the distinction between stages 1 and 2
- Does not address the multi value system within the client organisation
- Not enough emphasis on the relationship between the client/PM/end user
- Terminology in conflict with current terminology
- Stage four looks like it is retrospective
- Laborious
- Fit with approvals process? Need option evaluation before approvals
- Risk and procurement diverging on first slide
- Development of brief too late, should be iterative, lack of clarity of stages
- Model does not emphasise deliverables
- Confusing and misleading to have design and construction together
- Model implies strategic manager hands over to project manager

### ACTION

- Redefine "Decision to Build"
- Make boundary flexible to be altered for each project
- Make boundary permeable
- Alter early stages to reflect the strategic/project values with ranking
- Allow choice in model and emphasise the philosophy
- State to whom the model is targeted
- Rethink what each is trying to achieve
- Add multi dimension to client value system, emphasise communications
- Pictorially represent the communication network at the start (outwith)
- Bring in line the two systems – which is best?
- Assess the processes within stage four and redefine
- Emphasise philosophy and framework
- Investigate the approvals process and overlay – problem?
- Bring bubbles together and indicate how one integrated with other
- Show different brief stages and how they evolve and where
- Show output boxes with specific PM milestones
- Split design and construction stages connect with procurement
- Show intended link and thread through model from strategic to tactical
## STRONG POINTS IN MODEL

- Spans both the strategic and tactical elements
- Highlights skill requirements of the project manager
- Introduces life cycle costing
- Defines value at the start of the process
- Puts a structure to the process of the project
- Records the specific definition of value
- Standardises the process for new PMs to the business
- If implemented as philosophy, resourcing not an issue

"The problems are about people and politics and that really ought to come onto the table".

"Confrontation equals isolation"
"Fraternise to maximise"

"The model, or any section of it, is totally dependent upon the quality of the one person who is leading it. At the front end of this you must have a person who really believes in the project – with the PM to help him".

## WEAK POINTS IN MODEL

- Would not work for speculative building projects
- The project managers role is different on every job
- Model lacking project managers involvement during design stage
- Misleading to clump design and construction together
- Model does not create enough milestones, it loops too much
- Model assumes all projects start as a problem – what about opportunities?
- Model too mechanistic – does not consider the politics in an organisation
- Need to clarify definition of "Worlds best"
- "Multi value system" may be misleading, implies it is OK to bring in your own values once past the DtoB line
- Ignores procurement issues – central procurement, partnering
- Lacks clarity of the management of people process

## ACTION

- Emphasise the scope of works in the definition of participants
- Split design from construction and indicate "clients" role
- Split design from construction and link with procurement
- Identify specific milestones – brief stages, freezing of cost estimate...
- Open up top of model to react to a number of situations
- Overlay the political/people dimension of the model
- This should be encompassed in the high level value definition
- Define multi value system and relate to the client value system
- Open out the procurement box in stage one to highlight these issues
- Bring out/overlay the people management issues
### STRONG POINTS IN MODEL

- Model structures current practice – supports model
- Aids giving long term perspective on short term projects
- If suited to smaller projects could promote ownership
- Good to highlight values early and compare at end
- Could help put a cost to aesthetics
- Highlights life cycle costing early
- Highlights skills gap at project board level
- Facilitates the strategic choice of procurement route
- Post audit review process important
- Gives better use of time even if it takes more time
- Highlights training need
- Highlights strategic element of project

"I have absolutely no doubt in my mind that, if we applied it (the model) we would have a better understanding and a better quality decision making process than we do at the moment".

"I have seen little evidence that the project board has wrestled with what is the corporate strategy that we have to incorporate into this scheme".

"It is an interesting concept to establish exactly what you are trying to achieve in terms of value and how you are going to measure it".

### WEAK POINTS IN MODEL

- Slides were confusing – too many arrows
- Model is not applicable to smaller projects
- May lead to over management, bureaucracy and huge time implications
- Not feasible to involve PM too early (resources)
- Need to challenge our current perception of PM/PB/client definition
- Does not stress the philosophy element enough – looks too mechanistic
- Does not cope with the changing view of value with time
- Will require a culture shift
- Need to emphasise the brief and understanding from both sides
- Model does not reflect the complex transfer of value from client to construction industry on different procurement routes
- Does not recognise difference between PM and client values
- Will require education
- Looks like hard work so people may skip stages to get through it
- Not good to have a blanket approach to each project

### ACTION

- Simplify model to look less mechanistic
- Reproduce model to bypass some of the routine without cutting stages
- Stress philosophy and quality use of time, allow choice within model
- Investigate alternative method of value transfer once PM brought in
- Define each at start of thesis
- Stress philosophy and introduce element of choice into the model
- Plan for change of personnel, feedback within model to check values
- Implementation plan to reflect required changes in culture
- Introduce iterative stages of the brief – possible sign off need
- Do we need a different model for each procurement route?
- Each project to produce a plan of value transfer?
- Add multi value dimension to the client value system
- Highlight training needs
- Allow for choice and development of specific model for each project
- Use as a generic model from which the specific one can be drawn?
CURRENT PRACTICE WITHIN COMPANY A

(A) have gone through some changes in recent years, including the removal of their project mgmt arm to become an external PM consultancy, Procord (Aug 91). (A) solely use Procord to manage their projects and keep their hands well off the project once handed over. The handover takes place as soon as possible, during stage 1 and it is Procord who are responsible for challenging the need and putting together the brief. (A) keep an outside look at the progress but maintain as little involvement as possible. Procord use a project mgmt system which was developed when they became Procord. It is very similar to the model but utilises milestones more. Communications are at the hub of the model with kick off meetings at key stages, documentation of information, presentations. They make use of control documents so that the PM can interpret the system to suit his project and therefore there is choice in the PMS. (A) expect Procord to represent them, injecting innovation and creativity into the process. They admit to little involvement at the strategic stages and in the past little attention was paid to the thread of value through the project. They now have a planning manager who is responsible for the collation of all stakeholder needs. (A) property group are strategists from an organisational viewpoint and also an operational/project perspective. Most of their problems in the past have been due to the inability of the client to manage himself. Communications was sited as vital to the success of the project and the changes taking place within (A) are occurring to improve these aspects. Project management guidelines were seen as important to allow PM uniqueness within a general framework.

STRONG POINTS OF MODEL

Strong emphasis on front and back ends
Good early planning
Strategic awareness
Right people structured into the equation
The aftersales stage
Builds formality into the key stages
Simplicity of model is good
Challenges the conventions of constrm. industry
Split between client and multi value teams
All parties encouraged to "buy in"

WHO IS THE PROJECT MANAGER?

The problem is owned by the owner or strategic project manager, the project is owned by the sub project manager. So one owns the business solution and the other delivers it.
PM acts as a buffer between the internal politics and the and focuses on the issues that the people below need to hear.
The same applies within the contractor organisaton.
It is difficult to find one person to represent all of the project stakeholders, but it is essential to have one point of contact.
There is no one answer to the strategic/tactical issue, it depends on the problem and the personalities involved.
### Weak Points of Strategic PM Model

<table>
<thead>
<tr>
<th>Weak Points of Strategic PM Model</th>
<th>BAA</th>
<th>Impact on Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision to build line needs to be flexible</td>
<td>Y</td>
<td>Make decision to build line flexible in location</td>
</tr>
<tr>
<td>Decision to build line terminology confusing</td>
<td>Y</td>
<td>Redefine decision to build line</td>
</tr>
<tr>
<td>Model needs to introduce Constn. Ind. earlier</td>
<td>Y</td>
<td>Allow early introduction of Construction industry</td>
</tr>
<tr>
<td>Need to identify a focal point in the model</td>
<td></td>
<td>Indicate PM leadership and common flow</td>
</tr>
<tr>
<td>Model needs to suit nature and size of project</td>
<td>Y</td>
<td>Develop bypass model for small and fast projects</td>
</tr>
<tr>
<td>May need bypass for smaller projects</td>
<td></td>
<td>Develop bypass model for small and fast projects</td>
</tr>
<tr>
<td>Can we mobilise the RIGHT team early enough?</td>
<td></td>
<td>Define nature of client at start</td>
</tr>
<tr>
<td>Over emphasis on client involvement</td>
<td></td>
<td>Develop implementation plan to involve all BAA</td>
</tr>
<tr>
<td>Problem with implementation – all pervasive?</td>
<td></td>
<td>Emphasise the PM autonomy and allow choice within mod</td>
</tr>
<tr>
<td>No choice available for the PM</td>
<td>Y</td>
<td>Include contract development in early procurement</td>
</tr>
<tr>
<td>Not defined as either philosophy or framework</td>
<td></td>
<td>Develop measurement system to test project proceeds</td>
</tr>
<tr>
<td>Does not address the contractual system</td>
<td></td>
<td>Change management plan</td>
</tr>
<tr>
<td>Does not test values till the end of the model – too late</td>
<td></td>
<td>Milestones must be achieved before passing to next stage</td>
</tr>
<tr>
<td>Model does not facilitate change – need to redefine</td>
<td>Y</td>
<td>Communications thread through model</td>
</tr>
<tr>
<td>In danger of not making decisions with rolling reevaluation</td>
<td></td>
<td>Allow for team building and mutual trust</td>
</tr>
<tr>
<td>Not much emphasis on communication in the model</td>
<td></td>
<td>Value thread filters value from top management to project</td>
</tr>
<tr>
<td>Model too narrow – homes in on project too quickly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procurement may be brought in too early</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does not pull all people into a team</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concern over the hierarchical dependency of value criteria</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Major Issues**

- More milestones required
- Overlay of people management and communications to the model
- Management of your own client organisation
- Philosophy or structure?
- Thread of the value message through the organisation

- "The industry side of things is easy and if you can't do that then give up - what we are unprofessional at is controlling stakeholders and managing ourselves."
- "There is a gulf between the client and contractors, if the model could draw a circle around the client and multi value systems then it would be doing wonders."
CURRENT PRACTICE WITHIN COMPANY B

(B) made the statement that the middle section of the model was very similar to that used in their project management process. They have recently gone through some changes in the same way as BAA in promoting the importance of major projects to the business. Project management guidelines were issued within the last year and act as a framework to structure what exists. The nature of their project were considered to be different in that they are often responding to a problem or are there to meet a regulation. Therefore value for money was difficult to define. They admitted that the preconcept and concept stages as represented in the model were muddled through in (B) and the organisation does not necessarily challenge the fundamental need. The stakeholders are varied and many and often the project arises from a regulation set by one of them. The 16 PMs manage up to 12 projects at any one time of varied size. They allude to a project team under the PM consisting of the client among others. The ultimate owner is considered to be the CAPEX board and the local client rep to be the operations manager. They appeared proud of their use of innovative procurement routes, especially their design and construction contracts. They sited the management of the stakeholders with their regularly conflicting objectives as one of their problems. Indeed they considered their projects to be similar to airport projects in their complexity. The PM manual lays out a number of milestones which are required to be signed off. However there still tends to be a rush at the front end of the project. (B) stated that they were task oriented, their strategy being held by government, and they often simply responded to the solution identified. It was considered that (B) looks at cost more than V for M, with much cost control. The (B) manual tends toward a structure rather than a philosophy. Whole life costing is of extreme importance and has always been conducted.

STRONG POINTS OF MODEL

Very strong feedback action plan at end
Commonality with TWU framework
Value being put at strategic level
Helps facilitate challenge of corporate standards
Model is rigid so forces all stages to be considered
Put values down on paper for record of decisions
Challenges assumption of need high in organisation
Early attention to strategic issues
Looks at Value for Money not simply cost
Addresses the HOW as well as the WHAT

WHO IS THE PM?

The project manager manages all the project interfaces, but very often doesn't have the authority to do this.
The PM is the conductor of the orchestra with the orchestra playing to him, he probably can't play any of the instruments.
The successful PM within (B) is probably an engineer as they manage engineering projects.
There is a dipole between the skills required during strategic or tactical stages and it relies on the personality as to whether the PM holds all the skills.
### Weak Points of Strategic PM Model

<table>
<thead>
<tr>
<th>Terminology of Decision to Build line misrepresentative Model does not consider environmental constraints</th>
<th>BAA</th>
<th>Y</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>The more rules you make the less you can manage Does not consider innovative procurement routes</td>
<td>BAA</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>The model does not allow for feedback loops Don't know if decisions made in previous step are OK Assumes that the definition of value should be made at top Introduces quite a number of interfaces</td>
<td>BAA</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Does not consider interface management during hand over Does not allow by-pass for fast track or small projects</td>
<td>BAA</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

*Ensure the model has choice built within it to allow the PM to manage*

*Enhance the procurement information in model*

*Introduce feedback between stages to learn as we proceed*

*Emphasise the communications network*

*Add a bubble for handover at end of stage 4*

### Major Issues

*People management and communications must overlay the process of PM*

*Milestones during the process are essential with feedback throughout*

*Strategic issues were considered important*

*Nature of their business makes PM very complex*

"The tablets of stone handed down from above are not always the tablets they appear to be."

"There is an assumption that if something is being asked for, then it is a major hurdle and sometimes it is not. What is important is recognising where you are and what the next stage is"
CURRENT PRACTICE WITHIN COMPANY C

Company (C) plc has recently gone through a major restructuring following a study by an external consultant. This change took place during the T2 development causing changes in the client and end user personnel. At the outset of the T2 project a specific PM team was set up as part of a multi-tiered project organisation. Level 1 "Steering group" was made up of councillors (C); Level 2 "Working party" was made up of directors and senior managers; Level 3 "Project team" was made up of a group of consultants: Manx city architects and designers, Consultant contractors Taylor Woodrow, and the Project Mgmt team. The purpose of this set up was: 1) to make sure the airport got what was briefed, 2) to input on issues of design, 3) to monitor the program, 4) to provide a strong client base in financial control, 5) to separate the client requirement from that of the designers. Change management was rigorously controlled during the design and construction phase in which the project team were intimately involved. Any prices that were over budget were discussed with the client to find an alternative solution. All decisions were passed through the PM team acting as a filter. (C) plc had a large input into the design. In hindsight the quality of the Terminal is being questioned by the PM, and there arose the issue of the lack of knowledge of the building process by the client. The brief was established by the PM during the feasibility stage. It was apparent that the end user was not consulted as much as he wished.

This is the only project of this magnitude that has been conducted by (C) plc and (C) plc now intend to use the T2 PM structure for future projects. Their smaller projects were dominated by time constraints, and very often missed the earlier stages of the model. Whole life costing and standardisation are issues under consideration but are not formally used. They do however know the running cost of their current facilities and learn from that. The smaller projects tend to have less order defeating good practice.

STRONG POINTS OF MODEL

- Mechanism for determining the optimum solution
- Logical process to reach procurement choice
- Constant examination of the brief and the goals
- Ownership of the values by everyone
- Passing client values to the team to encourage motivation
- Framework avoids reinventing of the wheel for each project
- Value related to broader issues than cost
- Integration of corporate strategy
- Use of action plans
- Step back approval at each stage considering all possibilities
- Feedback of great advantage to future learning
- Clear identification of key players
- Emphasis on involvement of all players

WHO IS THE PM?

This model identifies that the PM is not necessarily the project controller (the classical PM).

- The PM should be the person with the largest stake in the project. Different thoughts from the client and from the PM.
- The PM can have strategic and tactical skills but the MA plc PMs don't. The project controller should not be involved in strategic level but the high level PM can be involved in both.
- The contractor sees the person who issues the contract, which is not the client.
### WEAK POINTS OF STRATEGIC PM MODEL

<table>
<thead>
<tr>
<th>Weak Point</th>
<th>BAA</th>
<th>IMPACT ON MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time constraints will result in short cuts being taken</td>
<td>Y</td>
<td>Ensure each player is identified at each stage</td>
</tr>
<tr>
<td>Decision making often driven by powerful individuals</td>
<td></td>
<td>Talking of the VM process not VE necessarily</td>
</tr>
<tr>
<td>Does not include TQM</td>
<td>Y</td>
<td>Produce carefully planned implementation plan</td>
</tr>
<tr>
<td>Excludes certain disciplines at certain stages</td>
<td></td>
<td>Emphasise communications network and ownership of values</td>
</tr>
<tr>
<td>VE should be introduced earlier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needs top management commitment in order to work</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Opposing client requirements make V for M defn. difficult</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Time dimension of value for money not considered</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Feedback from Post Occupancy too late for alot of projects</td>
<td>Y</td>
<td>Include two stage feedback from the two stage POVM</td>
</tr>
<tr>
<td>Does not cater for simple project – need bypass</td>
<td></td>
<td>Carefully planned implementation plan</td>
</tr>
<tr>
<td>Needs to be fully understood by all participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process is not flexible enough</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Does not address budget setting at the start of the process</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

### Major issues

- **Complexity of the airport business**
- The time constraints of projects make any methodology very difficult
- Specific management and learning implications from the T2 development
- Difference between PM, client and end user definition of value

"Is it value for money when things are trimmed to meet the budget and then on completion customer services spend a lot of money to bring things to their liking"

"You sacrifice significant aspects of the ideal to achieve what you've got to do".
CURRENT PRACTICE WITHIN COMPANY D

Following privatisation in 1984 the project management function was recruited from outside recognising the skill required. (D) conduct strict capital investment approvals process which forms their project process. The property group has a large input during the early stages in fully investigating the customers need. This is documented in the user requirements brief, a lengthy and detailed document. (D) is considering contracting out the tactical project management and concentrating on the strategic element. They are moving towards a very slim project management orgn. to oversee the work of external consultant project managers. They elect a project champion at the start of the project. The property branch therefore manage the thread from strategic issues to tactical project management issues. The capital investment approvals assesses tangible and intangible benefits in attempting to define value for money. Post occupany reviews are not done but are desired. The airport project is not considered to be an exceptional case as many industries suffers similar constraints. They are often constrained in achieving value for money by the airport operator as their landlord. Central procurement is used via the finance department but they realise that flexibility is vital to ensure its effective use. PM is thought as the management of change. The fluidity of the business causes a difficulty for the project management process. The PMs recognise that construction does not form part of the core business so they must be seen to add value to the business and offer project mgmt as a service. They belong to a diverse organisation in which the building customer is "uneducated". They must tease out the customers true needs. Project management is considered to be the management of change. The airport has diametrically opposed objectives to those of (D), sparking many problems during the definition of joint projects.

STRONG POINTS OF MODEL

- Systematic approach
- Draws attention back to the project objectives
- Can be used to improve client process
- Clear lines of communication and process
- Project learning (Not often done)
- Clearly identifies steps from the beginning
- Improves probability of getting it right first time
- Should highlight conflicts in Value for Money early on
- More careful choice of project owner
- Structured initial stages
- Ensures agreement between client need/corp strategy

WHO IS THE PROJECT MANAGER?

The project manager is responsible for coordinating and educatin the process and coaching the customer group to define their business objectives and needs

The project managers difficulty is bridging the gap between the business case and the customers needs
Company D participative workshop  
May 1993

<table>
<thead>
<tr>
<th>WEAK POINTS OF STRATEGIC PM MODEL</th>
<th>BAA</th>
<th>IMPACT ON MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model does not cope with changes in top level mgmt structure</td>
<td>Y</td>
<td>Allow confirmation of objectives in this occurrence</td>
</tr>
<tr>
<td>Cost and schedule not brought in early enough</td>
<td></td>
<td>Add cost and schedule earlier</td>
</tr>
<tr>
<td>Difficult to explain to users</td>
<td></td>
<td>Simplify presentation and develop induction pack</td>
</tr>
<tr>
<td>Procurement enters model too early on</td>
<td></td>
<td>Explain nature of early procurement input</td>
</tr>
<tr>
<td>Handover problems from strategic to tactical PM</td>
<td></td>
<td>Handover procedure between strategic and tactical phases</td>
</tr>
<tr>
<td>Up front costs could be too excessive</td>
<td>Y</td>
<td>Produce a project management model for small works</td>
</tr>
<tr>
<td>Small, fast and dynamic projects may need cut down version</td>
<td>Y</td>
<td>Identify additional staff (?) requirement</td>
</tr>
<tr>
<td>Cost of additional staff may outweigh business</td>
<td>Y</td>
<td>Assign the project champion in the concept stage</td>
</tr>
<tr>
<td>No project champion assigned</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Major issues

*Conflicting objectives between the landlord and the airline*

Aesthetics can exist within the definition of value for money
The airline business is ever changing and the model must keep up with the changes whilst minimising the impact on the project. Contracting out the project management function and acting as project brokers

"The most difficult part is sitting down with a client who keeps changing their mind"
"If we change radically what finally happens from the point we get involved then we are doing our job correctly."
"At preconcept stages we must not be narrow minded but visionary and look at the wider business issues"
Introducing a feel good factor is difficult to put a value on. These could easily be VE'd out, they must therefore be defined as part of the objectives."
CURRENT PRACTICE WITHIN COMPANY E

Company (E) reestablished their PM section seven years ago which now consists of 3 regional project management groups who manage the projects under their area. This means that the number of projects assigned to each PM varies according to the demand for (E) stores in that area. On average each PM may have 2/3 projects on sites and another 2/3 smaller projects to manage. The client of the PM is considered hard to define as from the outside the PM is the client, from the PM the retail department is the client, but the development group also has a large stake in the project. There was not really any mention of the customer in the discussion of client definition. The PM does not get involved in the early stages of the project, the site evaluation / early decisions are made by the development group. Due to the nature of (E) multi similar projects, each type of store is graded according to the client requirements from A to E. Since each of these buildings has a standard function then the PM uses a generic brief and the retail department lay out the basic store plan. The generic brief is reviewed continuously by the board. The definition of value is not clear within (E) and there appears to be a confusion in the translation of the corporate value definition into project. The PM is not held accountable with failure of corporate value for money. The delegated authority to each PM is low. (E) have been installing standard components for many years and are now going through the cost benefit analysis for having standard buildings such that they may be designed in batches. LCC has not been sufficiently considered in the past. Central procurement gives perceived advantages now being questioned. Overspecification has been a problem for (E), only recently being challenged. Offsite fabrication is conducted on few items, found more costly. The procurement route most regularly used at present is construction management which is successfully applied. The type of contract is thought less important than the people selected to do job.

STRONG POINTS OF MODEL

Feasibility stage will prevent inadequately developed concepts
Relook at the meaning of "Value"
Greater emphasis on client's interpretation of value not PMs budget
Forces client to identify need early on
Identifies all stakeholders
Recognises the importance of soft issues and team development
Continual involvement of client should lead to an understandable brief
Additional planning and detailed strategy
Proactive approach up front
Periodic reviews must give comfort to senior management
Value culture and communication, carrying through objectives

WHO IS THE PROJECT MANAGER?
### Weak Points of Strategic PM Model

<table>
<thead>
<tr>
<th>Responsibility is segmented</th>
<th>PM acts as client but also identifies with Constn. Ind</th>
<th>Dicate common responsibility with PM through project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficult to translate commercial values into project terms</td>
<td>Bureaucracy</td>
<td>Indicates need for value thread – give examples</td>
</tr>
<tr>
<td>Face of projects deflects the overview approach</td>
<td>Not enough emphasis on the management of change</td>
<td>Highlight and only involve the people that need to be involved</td>
</tr>
<tr>
<td>PMs could rely too heavily on checklist approach</td>
<td>A purely analytical approach does not allow for gut feeling</td>
<td>Introduce loop for the management of change at D &amp; C</td>
</tr>
<tr>
<td>Could become too much of a system that must be done</td>
<td>Not appropriate for multi similar projects need generic model</td>
<td>Emphasise the philosophy of the model</td>
</tr>
<tr>
<td>Time and resources required for all the extra planning</td>
<td>Time frame for JS projects would not allow such analysis</td>
<td>Emphasise the philosophy of the model</td>
</tr>
<tr>
<td>The longer time allows client more time to change his mind</td>
<td>Inadequate look at the requirements of maintenance</td>
<td>Generic strategic part could be done on regular basis</td>
</tr>
<tr>
<td>Difficult to identify stakeholders – not manageable</td>
<td>Would not work for fast track projects</td>
<td>Emphasise quality time at the start</td>
</tr>
<tr>
<td>Some projects are directed to implement new ideas</td>
<td></td>
<td>Highlight the maintenance group as one of the stakeholders</td>
</tr>
</tbody>
</table>

### Major Issues

- **Management of multi similar projects not suited to model**
- **Commercial values verus project managers values**
- **Analytical model looked on sceptically**
- **Strategic project management considered not to be role of PM**

"(E) get good value for what we're asking for; but the question now is do we need all we are asking for –
the development of design allows belt and braces in to the project"

"Procurement choice and contract are not that important, it is the relationship with and the quality of the contractor and the consultants. We have seen contractor consultant mixes work well under a number of contract routes – so it is clearly the people not the contract."

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**July 1993**

Company E participative workshop
CURRENT PRACTICE WITHIN COMPANY F.

It appears that the management of projects within Company (F) Ltd has had a facelift over the past three or four yrs primarily due to the recession and the need to build for less money. The project management group is split into regions dealing with the construction of outlets within these areas. There is a strong corporate message to which each PM fully subscribes: to build more restaurants than ever before, giving 100% customer satisfaction within the least amount of time.

There are a large number of similar buildings to be constructed so an overlying brief exists from which the PM draws the specific details for each individual project. The PM function within (F) was described as not typical of all client organisations: "they are more organised, more structured and can say exactly what they want before construction starts". The explanation for this was that the PMs are empowered to a very high level and therefore can answer questions without having to consult the client. (The client was described initially as the operations department but fundamentally as the customer).

Projects within (F) start from an opportunity not from a problem as would normally be the case in BAA. PMs are becoming increasingly more involved in the early stages of the project. Continuous R and D enables the evolution of the brief as the tight feedback network within the organisation looks constantly for better ways of doing things. This standardisation has allowed the PM a clearer set of parameters so the face presented to the industry is one that knows their requirements.

The (F) PM is very involved during the construction phase, oft described as being too involved. The communications network across (F) is very strong and inter/intra country cross fertilisation of information happens on a regular informal basis, this is part of the (F) culture.

STRONG POINTS OF MODEL

- Definition of hierarchy of value from corporate to project
- Strong communications ensuring value is met
- Evaluates decisions at start before Decision to Build
- Ensures logical progression from one stage to another
- Any form of analysis at each stage is good
- Greater up front and post occupation thought
- Should prevent wasteful expenditure and poor functionality
- Promotes cohesive, interactive project team approach
- Feedback from past project used in the framework
- Visionary thinking more easily used in model
- Checklist type programming and team formulation

WHO IS THE PROJECT MANAGER?

The whole service from the initial brain thought to the point at which the restaurant is opened on site. It includes the building management, engineering and financial management.

The PMs job is to find the problems, jump them and solve them.

PMs have to be politicians, they are the link between the client and the contractor and effectively are the client to the contractor.
Company F participative workshop

July 1993

<table>
<thead>
<tr>
<th>WEAK POINTS OF STRATEGIC PM MODEL</th>
<th>BAA</th>
<th>IMPACT ON MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficult for Client with no previous building experience</td>
<td>Y</td>
<td>Define at start the client for which the framework is suited</td>
</tr>
<tr>
<td>Could be difficult to apply to continuing similar buildings</td>
<td>Y</td>
<td>Could be the same issues as the small works model</td>
</tr>
<tr>
<td>Possible looping at each stage causing delays</td>
<td>Y</td>
<td>Conclude each stage in a milestone</td>
</tr>
<tr>
<td>Processes do not finish at a single conclusive point</td>
<td>Y</td>
<td>Use milestone to lead into the next stage</td>
</tr>
<tr>
<td>Formalised process may cause conflict therefore bottlenecks</td>
<td>Y</td>
<td>Emphasise the philosophy of the framework and the teamwork</td>
</tr>
<tr>
<td>Time taken to enact the client value system</td>
<td>Y</td>
<td>Overlay the framework with the political processes within client</td>
</tr>
<tr>
<td>Brainstorming and prioritising often haphazard</td>
<td>Y</td>
<td>Show thread of ownership throughout the model</td>
</tr>
<tr>
<td>Political pressures may not sit well with a logical approach</td>
<td>Y</td>
<td>Political overlay</td>
</tr>
<tr>
<td>Does not emphasise continuity of ownership</td>
<td>Y</td>
<td>Change terminology to be more user friendly</td>
</tr>
<tr>
<td>Will not overcome high power based personnel ruling</td>
<td>Y</td>
<td>Show end user input at the early stages</td>
</tr>
<tr>
<td>Buzzwords to come to terms with / overly academic</td>
<td>Y</td>
<td>Define the project manager at the start of the process</td>
</tr>
<tr>
<td>End user not included in the early stages</td>
<td>Y</td>
<td>Identify the necessary people and only involve where necessary</td>
</tr>
<tr>
<td>It is presumptuous as to the resources and status of the PM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slightly too top heavy, too many bodies with too much input</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Major issues**

*Definition of the client and where the customer comes into the equation*

*Academic nature of the model*

*Whole network and feedback chain within the (F) organisation*

*Use of offsite fabrication and modularisation*

"We have the building, we know the need and the time constraints, therefore stages 1 and 2 are not necessarily relevant to us".

"What is different about (F) is that most people in (F) are empowered to an incredible level and the Project Managers can make decisions without going back up the chain".

"It is value for money to have internal PMs because they carry the (F) message, they know what the brief is and can transmit the value message to the design and construction team"
Appendix F
Main research

Results from International Benchmarking Interviews
I. Interview schedules
II. North American interview comments
III. Japanese interview comments
Questions for US client Organisations

Client Name: .................................................................

Location: .................................................................

Interviewee: ..............................................................

Date: ......................... Time: .................................

The following questions hope to assist in understanding the client’s approach to the building process from very initial thoughts deep within the client organisation to a completed project. The questions are loosely structured to allow open discussion of the points raised.

1  THE CLIENT’S BUSINESS

1.1 What is the nature of your organisation’s business?

1.2 What is the definition of a project manager within your organisation?

1.3 As a project manager (?), who would you define as your client?

2  THE PROJECT PROCESS

2.1 What do you see as the main stages of the project process?

2.2 What is the Project Manager’s involvement at each one of these stages?

2.3 How much control do you retain during the project lifecycle?

3  THE EARLY PROJECT STAGES

3.1 What do you consider to be important at the stages before design?

3.2 How are these predesign stages managed? and by whom?

3.3 Do you consider your projects to be related to the business strategy?
3.4 As a client representative how do you translate your business need into the project as perceived by the construction industry?

3.5 How early do you get involved in the clients decision making process?

4 VALUE FOR MONEY

4.1 What do you understand by the term Value for Money?

4.2 Does each project take on its own definition of Value for Money?

4.3 How do you communicate your vision of project Value for Money to the design and construction team responsible for achieving the end result?

5 COST CONTROL

5.1 How much emphasis do you place on cost control during the design process?

5.2 How do you achieve cost control during design and construction? Do you take a proactive or monitoring role?

6 TOOLS AND TECHNIQUES

Could you please discuss your interpretation and use of the following:

6.1 Life cycle costing

6.2 Modular design

6.3 Use of standard components

6.4 Risk management

6.5 Value Management/Engineering

6.6 Innovative procurement options

6.7 Productivity control and management on site
Clients business

1.1 Nature of business

1.2 Defn. of PM
- Tactical
- Strategic
- Front&End
- Other

1.3 Defn of client
- Corporate
- End user
- Int.dept.
- Confused

Project Process

2.1 Main stages of project

2.2 PMs involvement

2.3 PM control during PLC
- Cost
- Schedule
- Personnel
- Total

481
The early project stages

3.1 Important stages predesign

Client brief
User input
Defn of need
VM
Choice of PM
Ownership
Financial
Approval
Schedule
Planning

3.2 Predesign management

- Structured
- Unstructured
- Cultural
- Haphazard
- Other

PM
Client
Senior mgmt
Board
All

3.3 Related to business strategy

- Yes
- No

3.4 Translation of need

- Communication
- Brief
- Culture
- Long term relations
- Strategy
- Procurement
- Use architect

3.5 Involvement in the decision making - when?

- Preconcept
- Concept
- Approval
- Feasibility
- Design
- Construct
- Handover
- Feedback
Value for money

4.1 Defn of value for money

<table>
<thead>
<tr>
<th>Standard</th>
<th>Narrow</th>
<th>Broad</th>
</tr>
</thead>
</table>

4.2 Project defn of V for M

- Yes
- No
- Generic

4.3 Communication of vision to team

- Written down
- In brief
- Verbal communication
- Assumed
- Prioritised in brief

Cost control

5.1 Cost control during design

- High
- Low

5.2 How is cost control achieved

- QS
- VM/VE
- Selective
- Milestones
- Cost plan
- Project targets
- Review periods

## Tools and Techniques

<table>
<thead>
<tr>
<th>Technique</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Life cycle costing</td>
<td>□</td>
</tr>
<tr>
<td>Modular design</td>
<td>□</td>
</tr>
<tr>
<td>Standard components</td>
<td>□</td>
</tr>
<tr>
<td>Risk management</td>
<td>□</td>
</tr>
<tr>
<td>Value Management/Engineering</td>
<td>□</td>
</tr>
<tr>
<td>Innovative procurement</td>
<td>□</td>
</tr>
<tr>
<td>Site productivity/control</td>
<td>□</td>
</tr>
</tbody>
</table>

## Observations


Questions for Japanese client Organisations

Client Name: ........................................................................

Location: ...........................................................................

Interviewee: ........................................................................

Date: ........................................ Time: ...................................

The following questions hope to assist in understanding the client's approach to the building process from very initial thoughts deep within the client organisation to a completed project. The questions are loosely structured to allow open discussion of the points raised.

1 THE CLIENT'S BUSINESS

1.1 What is the nature of your organisation's business?
   How is your company involved with the construction industry?
   What product/service does your organisation make?

1.2 What is the definition of a project manager within your organisation?
   Does your company represent itself during a project? If so what is the client representative responsible for?

1.3 As a project manager (?), who would you define as your client?
   For whom are you conducting the project?
   Do you report to an internal department during the project? Do they provide you with a brief/program document?

2 THE PROJECT PROCESS

2.1 What do you see as the main stages of the project process?
   When does a project start and finish?
   Do you divide the project into a number of smaller distinct stages to manage?

2.2 What is the Project Manager's involvement at each one of these stages?
   What is the client representative/Project Manager's input during each of the project stages?
   How does the client stay in contact with the project during its life?

2.3 How much control do you retain during the project lifecycle?
   Does the client hand over responsibility for the project to the contractor? or do you remain very much in control?
   Where are the main decisions made during the project? Does the PM have authority delegated to him?
3 THE EARLY PROJECT STAGES

3.1 What do you consider to be important at the stages before design? 
What steps need to be taken before the design commences? 
What do you do in order to plan your project before employing any construction personnel? 

3.2 How are these predesign stages managed? and by whom? 
Who manages the planning that occurs in the client company before the project design commences? 
Do you have a separate planning department? How does it communicate with the Project Manager? 

3.3 Do you consider your projects to be related to the business strategy? 
How do your projects relate to your organisational corporate strategy? 
Do your projects fulfil a business need? 

3.4 As a client representative how do you translate your business need into the project as perceived by the construction industry? 
How do you document the clients need in a form for the designer/contractor to understand? 
Does the contractor understand the nature of your business and the project you require or does he need a brief? 

4 VALUE FOR MONEY

4.1 What do you understand by the term Value for Money? 
How would you prioritise, time cost, quality and functionality? How important are aesthetic features? 
What level of quality do you strive for in your projects? How do you know you are receiving this at the minimum cost? 

4.2 Does each project take on its own definition of Value for Money? 

4.3 How do you communicate your vision of project Value for Money to the design and construction team responsible for achieving the end result? 
Do you need to explain the project to the contractor or is be aware of your need? 
Does the contractor/designer tell you what you need, or do you tell the contractor? 

5 COST CONTROL

5.1 How much emphasis do you place on cost control during the design process? 
How important is the control of cost during the design process? 
Do you actively control the rise of cost during the design process to ensure the design meets your needs but at a cost you can afford? 

5.2 How do you achieve cost control during design and construction? Do you take a proactive or monitoring role? 
Who monitors and manages the project cost? 
Do you set a budget for your project? How do you keep the project cost within the budget?
6  INTERNATIONAL CONSTRUCTION

6.1 If you have experience of working within the UK please could you explain any difficulties you had working within the UK construction environment.

6.2 What elements of the Japanese construction industry do you think are transferable to the UK?

6.3 In studies of the construction industry in the UK, a number of problems arise from a lack of mutual trust, cohesive team work and common goals. How is this achieved within the Japanese construction industry?

7  TOOLS AND TECHNIQUES

Could you please discuss your interpretation and use of the following:

7.1 Life cycle costing

7.2 Modular design

7.3 Use of standard components

7.4 Risk management

7.5 Value Management/Engineering

7.6 Innovative procurement options

7.7 Productivity control and management on site
Questions for Japanese General contractors

Client Name: .................................................................

Location: .................................................................

Interviewee: ..............................................................

Date: .........................  Time: .........................

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1  THE CONTRACTOR'S BUSINESS

1.1  What is the nature of your organisation's business?

- How is your company involved with the construction industry?
- What product/service does your organisation make?

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1.3  As a project manager (?), who would you define as your client?

- For whom are you conducting the project?
- Do you report to an internal department during the project? Do they provide you with a brief/program document?

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2.1  What do you see as the main stages of the project process?

- When does a project start and finish?
- Do you divide the project into a number of smaller distinct stages to manage?

2.2  What is the Project Manager's involvement at each one of these stages?

- What is the Project Manager's input during each of the project stages?
- How does the client stay in contact with the project during its life?

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- Where are the main decisions made during the project? Does the PM have authority delegated to him?
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3.1 What do you consider to be important at the stages before design?
What steps need to be taken before the design commences?
What do you do in order to plan your project before employing any construction personnel?

3.2 How are these predesign stages managed? and by whom?
Who manages the planning that occurs in the client/your company before the project design commences?
Do you have a separate planning department? How does it communicate with the Project Manager?

3.3 Do you consider your projects to be related to the business strategy?
How do your projects relate to your clients corporate strategy?
Do your projects fulfil a business need?

3.4 How does the client translate his business need into the project as perceived by the construction industry?
Does the client provide a briefing document?
How do you document the clients need in a form for the designer/contractor to understand?
Does the contractor understand the nature of your business and the project you require or does he need a brief?

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How would you prioritise, time cost, quality and functionality? How important are aesthetic features?
What level of quality do you strive for in your projects? How do you know you are receiving this at the minimum cost?

4.2 Does each project take on its own definition of Value for Money?

4.3 How do you go about understanding the clients vision of project Value for Money and then passing this onto the design and construction team responsible for achieving the end result?
Does the client need to explain the project to you or are you aware of his need?
Does the client tell you his needs or do you have to question him to find out?

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5.1 How much emphasis do you place on cost control during the design process?
How important is the control of cost during the design process?
Do you actively control the rise of cost during the design process to ensure the design meets your needs but at a cost you can afford?

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7.7 Productivity control and management on site
International interviews during the main research study

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Main points from interview:

1. Real Estate actively markets its services within the (H) business units, using past success as a basis. They pursue their clients to hear of future project portfolios to actively search for an early input.

2. Identify one person who can represent the client business unit.

3. Spent 2/3 years developing CM guidelines which have just been completed. The whole team were involved in the development of these guidelines, which allow flexibility for cultural differences in international work.

4. Produce very sophisticated Conceptual Design Programming Document, which takes approximately 6 weeks and is the hinge pin for all future communication of the project objectives. It is so sophisticated that it can be passed to an outside designer, from which to work.

5. The PM has a mini contract with his client for schedule and budget milestones; any costs over that agreed for the production of the program are absorbed by the Real Estate Department.

6. The budget is set by assessing the need and suggesting a suitable cost to meet that need, there is not generally a sealing limit at budget stage.

7. The client maintains ownership of the project and uses the Real Estate budget for his overall business case.

8. Since the client's need is already prioritised in the Conceptual Design Programming Document the PM is given a high degree of delegated authority to make decisions.

9. The PM recognises that the project realises the organisation's strategy.

10. Achievement of value for money hinges on a list of client expectations.

11. On a number of projects the project team have set up an information centre through which all contractors must pass prior to commencing work on site, adding to the motivation and commitment to the project.

12. Value Engineering is not specifically conducted in the form of 40 hour workshops, it is put into the hands of the designers (internal) to ensure they conduct VE as they proceed.

13. A project close out report is conducted on every project, detailing cost, schedule information in addition to pictures and a customer satisfaction survey.
Main points from interview:

1. The PM role has been set up as a contention system whereby the first role of the PM is to significantly challenge the clients wishes. The project managers role therefore starts after the statement of need document from the client.
2. In order to reach an estimate of between 20/25% tolerance a set of estimating assumptions are made by the PM.
3. The PM goes to the management committee on behalf of the client to receive approval to continue with the design. Following this they go back in phases to ask for more as the design proceeds.
4. Design Criteria are then drafted which represent the specific requirements of the client. This is done by a series of reviews back and forth between the client and the project manager.
5. The (I) pride themselves on their award winning buildings which means that they employ renowned architects. In order to maintain control of the architect the contract states that the design must be within 10% of the budget, if the cost exceeds this then the architect must redesign at his cost.
6. (I) send a team to review the architectural drawings on the drawing board to save time and excuses!
7. Standard (I) contract documents are used, which are extensive and require heavy negotiation, therefore tend to use contractors familiar with the documents.
8. Savings clauses are included in the G max contract to encourage the contractor to conduct VE and reduce the cost where he can.
9. Users/maintenance staff are encouraged to come onto site and make small amendments if necessary e.g. position of valves and motors etc.
10. The (I) culture is very strong and the PM generally knows what the client quality expectations are. To communicate this they take the designers to other sites to show expected quality; they visit contractors sites to see if their quality meets up to their expectations. This is considered a very important part of the pre-qualification process.
11. They hold national contracts for carpets, paint, lights etc, for which the supplier has to keep a minimum level of stock.
Main points from interview:

1. As Business Units are now "quasi independent" it is becoming more and more difficult to interpret their requirements. Therefore there is a corporate function to look at the global picture and set priorities.

2. A Capital Lease Appropriation Report must be submitted by each BU emphasising their strategy before they go into the options for achieving it in construction terms. The board will not even consider the capital request without this strategic dimension to the report.

3. This CLAR calls for consolidation of financial and Real Estate expertise, a service offered by the Corp. Real Estate Department.

4. The Corp. Real Estate Department actively market their services in the whole strategic and tactical PM both internally and externally. They base this on success stories and strongly believe that they add significant value by early involvement.

5. The corp mission, strategy and goals are cascaded down to the BUs, in turn to the managers, in turn to the staff. In this way their is a continual thread of support where each individual's goals are routed in their managers.

6. The Corp Real Estate act as "Process Brokers" whereby they identify the tasks that need to be done, the resources required and outsource it to the organisation best capable of achieving it. In effect they are true strategic PMs.

7. Their services are recognised throughout most areas of the organisation as of great advantage, it is simply the internal charging that holds back BUs from utilising them more fully.

8. They consider that they fail in one main area: Systems Capability Database, holding information on a group wide basis for facts such as Maintenance, Building Portfolios, PM software etc.

9. They also have a big problem with aging facilities, due to lack of maintenance during their lives - Corp Real Estate is also offering assistance with the plan for these buildings.

10. They utilise a preferred supplier strategy where they recognise they are a service company and therefore become fully integrated into the user of their services, one cannot tell where the BU ends and the strategic PM starts.

11. They constantly search for methods to accelerate construction on site which may lead to modular build or off site fabrication.

12. (J) are participants of the Business Round Table where large corporate organisations meet in a benchmarking exercise and use the forum to exchange, communicate, listen and learn (!).
Main points from interview:

1. Political activity fairly high within the airport environment during the development of the commercial project.
2. Very limited brief from the client, which led to the architect developing his own brief for the project. Architect listed the criteria he considered necessary to which the client gave his approval.
3. Architect developed his own planning criteria including public/private ratio, arrivals/ticketing ratio, commercial/ non-commercial ratio. This was achieved by many visits to international airports worldwide, standing and observing the pax movements and sizes of areas etc.
4. The architect had no prior knowledge of airport design.
5. It is considered that there are many architectural features within the terminal that do not add to the value of the development. The architect puts these down to creating a world class airport (but for who?).
6. Four benchmark areas were established by the architect: flexibility; aircraft manoeuvrability; cost effectiveness; passenger convenience. Any design decisions were based on these benchmarks.
7. The architect believes he took the role of ombudsman in the management of the many stakeholders to the project: county council, airlines, passengers.
8. The scope of the project changed from $150/ft² to $180/ft² which led to a project cost of $782m (original estimate $563m). This scope change was apparently due to client changes.
9. In order to achieve flexibility for expansion the total expanded vision was designed and then imploded to allow for future expansion without altering the existing. There appears to be no unnecessary flexibility built into the design.
10. The retail development was motivated by the desire to attract passengers to Pittsburgh not for commercial reasons.
Date: 10 August 1993

**Job Title:** Director of operations
Program manager, quality control

**Company:** (N) Construction manager for international airport, Chicago

**Main points from interview:**

1. This project is said to have succeeded "in spite of itself".
2. The project has doubled in cost from the first guestimate largely due to the complexity of the client organisation and the degree of politics involved.
3. The project underwent three changes of client leadership throughout its life, with the final project manager coming from a consultancy employed to manage the development.
4. The decisions within the client body were said to be skewed due to the politics at play within the client group. The complexity of the client project organisation led to poor communication (see project team organisation chart).
5. The City of Chicago purchasing agent and the airlines had a high degree of influence on the project.
6. The owner was said to be uneducated with no prior experience of managing a large project. This led to the late appointment of the architect and CM.
7. The main problems arose due to poor design management, decision making by committee, a very limited brief and an architect, chosen for political reasons, who seemed to have a free reign of the project.
8. At the start of the final phase of leadership the project was subject to a variation of project visions which led to a disjointed team. The team were therefore forced to create their own vision and pull together to complete the project successfully.
9. The project manager considered the PM input to start too late and feels strongly that the PM should be involved at the earliest possible point.
10. Value for money was considered to be very subjective, comparable to art and the PM made decisions on V for M matters by gut feeling and accumulated experience.
11. The PM who drove the project home made a large number of changes to ensure completion of the project: 41 contractors selected from a list of prequalified contractors, a high emphasis on quality, and change from traditional procurement to fast track to bring the project in within the schedule, dictatorial leadership to force ownership and commitment on the construction team and careful political management.
12. The level of quality control on site was outstanding and proved to serve a number of advantages: early identification of problems, acute awareness of all contractors of the expected quality levels, strong site motivation and pride, quality thread throughout the value chain, achievement of lifecycle benefits.
Main points from interview:

1. The construction management with a very proactive CM was witnessed on this project, visited during its early stages.
2. The project had 112 user groups to satisfy which was co-ordinated by the client (Project Dir. with 6 PMs reporting to her to establish the user needs), managed by the CM very effectively. Communication routes were short and frequent.
3. The owner had employed a retired Navy PM with many years of experience to manage the client's interests in the project.
4. The whole team consisting of the owner/client, CM architect and consultants are all located on two floors of the same building adjacent to the project site.
5. A sophisticated prequalification process was utilised with full input required from the owner on main decisions. The team were clear that they wanted the contractors to make their profit from this project, so the prequalification process was to ensure that both this objective and their own of value for money were achieved simultaneously.
6. The client put together a Blue Ribbon Group of "important persons who had just finished similar projects", who have reviewed the project logic and are thought to have had an immense input.
7. The CM group have planned their project to a high degree and produced a report for the client of the many brainstorming sessions they have held to uncover unknowns. Hand written cards covering the walls in the meeting room detail the logic of the project from strategy/objectives down to the practicalities of the construction process. This is added or rearranged as necessary and a copy is distributed to all of the project participants so all know the issues involved. Very impressive.
8. Architect required to issue "drop dead" schedule to which he must conform, failure raises red flags for the CM. The CM needs owner support in order to manage the architect, therefore an educated client.
9. The CM master schedule contains "decision milestones" highlighting points at which particular decisions must be made by the client to avoid overrunning the schedule. The CM therefore is actively managing the client.
10. "Decision tracking" is being planned which will highlight all aim actions, person responsible and the date for the completion of the required action.
11. A detailed program budget was established at the start of the project. The team are now studying various materials options to realise life cycle cost advantage.
12. The team will document every reason for a change in the project budget in order to have a paper trail of the budget changes.
Main points from interview continued:

13 The PM starts as the planning manager and becomes the active project manager once the project is into design and construction. The CM feels this is vitally important in order for the PM to be fluent in the early decisions. This is also imperative for the client PM.

14 The CM had a very broad definition of Value for Money encompassing the shopping lists of concepts, goals, level of finish, quality of work, expectations of client user groups. If cost needs to be reduced then prioritise with the client what areas can be reduced to maintain value for money.

15 The client visited the last three jobs of all the competing CM organisations to establish the quality of the products they have produced in the past and to speak to the clients confirming attainment of value for money.
Main points from interview:

1. For any single project they can have a multitude of project managers from the 18 they have in the Real Estate Department at present.
2. The clients are the multitude of users groups who use the terminals.
3. There is a trend emerging, due to the economy, where the airlines previously doing all their own construction are now entering shared terminals with other operators, built by the local city council.
4. It was suggested that it may be the case that the achievement of Value for Money for the airline is constrained by the heavy influence and control of the city council, wishing to fulfill its own objectives.
5. The (P) Terminal at Chicago had to be approved at every stage of design by the City of Chicago. The designer had to conform to the city guidelines for the appearance of the terminal.
6. Value for money is seen as a shifting dimension: if Terminal One at Chicago were to be built now many of the architectural features would be left out as they are no longer seen as adding that much value.
7. Value for Money for United Airlines lays in the quality and corporate identity of the built product. The precise definition of these are understood from a cultural perspective and the PM often relies on his gut feeling.
8. Up to 10/20% of the design is conducted by the planning department in which the PM has no input. The PM interviewed felt that his involvement came too late in the Project Lifecycle, as the planners do not understand the practicalities of the building process. The PM takes over the project and adds detail to the user requirements and sees the project through design and construction.
9. When the user groups' needs contradict, the PM pulls them all together and comes to a compromise within the scope of works as he understands it.
10. United Airlines has clear standards as to the space allocation of each facility and expected quality standards.
11. Central procurement of common items is necessary to maintain the corporate identity throughout the world for (P).
12. Ownership by end users is encouraged by signing off the brief document, however ultimate responsibility belongs to the PM.
13. Modular building or the "cookie cutting" approach is considered inappropriate for airport facilities due to their unique nature.
Main points from interview continued:

14 Standardisation is strived for in each terminal but the locational constraints mean that standardisation is not achieved on a global basis.
15 (P) consider that they manage projects in a similar manner to British Airways plc.
16 The PM interviewed suggested that they were a long way from achieving non adversarial construction projects.
17 Airport projects are considered to be exceptional and require careful political, practical and operational management.
Main points from interview:

1. Project Management is considered to start at the very inception of a project, establishing and communicating the end user needs and follow that through to final completion. As soon as it is apparent that a problem will impact facilities then the PM becomes involved.

2. During the early stages of the predesign process the PM conducts field studies of the current and perceived future situations to ensure that the base data is correct and that the need is reality. This may lead to a purely operational solution being found.

3. The PM recommends the solution after various design concepts are established and a different department are responsible for analysing the likely IRR.

4. The client and PM jointly own the project as a team. The PMs ownership covers the time, cost, quality and maintainability of the product.

5. There is no hard and fast way to document the brief, not all projects have a brief.

6. Value for Money is considered in terms of the Return on Investment, the quality and the current and future cost of money. The Corporate Value Plan considers: what product does the customer want and what are they prepared to pay for it.

7. The definition of Value for Money has changed with the economy.

8. Airport projects must be managed carefully from start to finish to avoid disruption to the passenger. The airline are prepared to pay for special finished hoardings to conceal the construction from the pax.

9. The budget is set from experiential understanding of what a project of this nature should cost. The scope definition is considered important at this stage.

10. (Q) have a sophisticated financial management system that tracks contracts, commitments and payments.

11. An overall balance of cost is attempted whereby the overrun of one item is absorbed into an underrun item. The cost control process starts proactively but inevitably becomes reactive as problems occur.

12. Localised standardisation takes place.

13. VE is not conducted as workshops per se but they continuously evaluate items giving a similar effect for less cost.

14. Although he does not get too involved with site productivity, the PM is very involved in the establishment and achievement of milestone dates to allow the operation to run smoothly. Therefore he has an interest in the site productivity.

15. Airport projects were considered to fall into a group similar to this where construction is conducted amidst an active operation. It is unique since it involves the public like any form of transportation.
Main points from interview:

1. The clients of (S) tend to be general contractors and engineering groups; but contractors are effectively the client to the subcontractors.
2. In establishing estimates they use large broad numbers resulting in fairly loose estimates.
3. The tendering process works by negotiation, (S) gets involved at post contract stage.
4. The general contractor is considered to hold a lot of power and dominate the client. (S) believes the contractor overrides the client and in that respect does not become part of a team.
5. The general contractor finds out loosely the client needs, sees how much the client can afford then adds on a bit to see how much the client will really pay.
6. Maintenance of a wet relationship is all important. The system relies upon it. If the budget is low then the general contractor may make a loss in the hope of receiving the next job. The profit is considered in long time scales, over a series of project. A loss on one project may guarantee the next job.
7. Change is not welcomed in Japanese culture so the process of continuous improvement suits. The change is floating around for some time before it is actually implemented that it becomes accepted.
8. The planning process is described as long and meandering, conducted by the general contractor, client and customer together.
9. The owner, in forming his business plan, highlights a need well in advance and therefore has time to spend on rigorous planning. Long strategic planning therefore facilitates project planning.
10. Ministry regulation of strategic planning is common place and government has been known to select strategic routes for organisations.
11. Stakeholder issues do not cause too much concern as the nature of the culture creates harmonious project conditions.
12. The general contractor is fairly strict about change orders as he must build within the cost originally estimated in the lump sum contract.
13. (S) does not believe the Japanese construction industry delivers value for money; land costs to construction cost ratio is 90:10, therefore they are not that concerned with saving on design and construction cost.
14. Site practice works as clock work on the sites of 6 - 20 large contractors; on the sites of the other 4960 inefficiency is rife.
Main points from interview:

1. (V) is what is left of a 40 strong department consisting of planning, construction and maintenance; it is now simply the maintenance and business development group offering services internally and externally.
2. The clients of the building process are the internal departments.
3. An appropriation request is submitted for projects required within each sub unit, following the five year plan which is fixed by the third quarter of the previous year.
4. The PM and user work very closely alongside the strategic planners.
5. (V) do not do the design themselves, even though they employ 60% technical people.
6. The PM gently challenges the clients document of need, much softer approach than in the US.
7. The estimate, produced in house, is passed to the user who adds to his appropriation request for approval. The estimate is gradually firmed as the project proceeds.
8. (V) discussed the importance of the user survey once well into occupancy; for example increasing the user satisfaction for lighting from 50% to 80% by post project alteration following a user survey.
9. "Obviously" life cycle costing is considered when considering the options for development. However, no evidence of its formal use.
10. Maintenance staff are involved during design.
11. Value for money was not understood as a phrase by (V); Value engineering is not conducted, but they expressed a significant interest in becoming involved in a VE program.
12. Standardisation is not totally appropriate to nature of their business, but is achieved to some degree by telling the designer the concepts and objectives.
13. The differences in management philosophy between the US and Japan is so marked that the supporting role supplied from Japan to US had to be abandoned. The Japanese human factors did not fit well in the US. It is important when designing a PM system to base it upon the uniqueness of the location and culture.
14. The problems with international comparison arise due to the construction cost in Japan being 2 or 3 times higher.
Main points from interview:

1. (R) had prepared a number of sheets to explain their organisational structure, project structure for Design and Build and Build only; details of a large project for later site visit.

2. A sales video was shown of the automated building construction system in use on one of their projects. (Only cost effective after 20 floors, reduces labour by 50%).

3. The Japanese method of project delivery with design and construction under the responsibility of the same contractor is clearly preferential to (R). They consider the true CM to be too reliant on client education and experience.

4. The construction of philosophy was described as schedule, budget, quality and safety measurement. It was interesting that there was no mention of human issues.

5. The Japanese client has a lot of power over the contract: if the client delays the project by a week the contractor will deliver on time – there is a balance between the contract and human issues.

6. It is very expensive for the Japanese contractor to work in Europe for a Japanese client. However, it is necessary due to the uneducated client and the language / culture barrier. In this position the English speaking contractor acts as an arm to the client organisation.

7. The UK contractual awareness is seen as an area where the Japanese construction industry could learn. The contractor must jump to every whim of the client, this should be more contractually based.

8. The Japanese manager is expected to show loyalty to his company and work into the early hours if something needs resolving. They could not identify with the Western PM who leaves a problem to be dealt with the next day.

9. Mutual trust is achieved by the "next step is client" philosophy; showing respect for the next person in the chain of activities and passing on a finished product.

10. (R) does not see any disadvantages of the long term relationship arrangement, other than lack of contractual basis.

11. The Japanese client does not communicate his needs particularly well. They consider changing their minds as their prerogative. The brief will describe their business need but the contractor must accommodate changes to fully meet the need.
Main points from interview continued:

12 Contracts set under guaranteed maximum price basis. Reductions within this occur in reducing the material spec eg according to the contractors view of Value for Money.

13 The PM uses "tough negotiation" to control the project. The PM keeps on until he gets the answer he wants.

14 UK PMs do not use the critical path methods efficiently. In Japan the PM does not let the program slip from the CPN; this may mean working at weekends and on public holidays.

15 Architects are "artists who know nothing of the construction process"

16 The role of the PM is to let the client sleep well, take on all the problems and ensure that the project will complete on time.

17 Site visit:
   17.1 Land cost is very expensive, yet they had allowed 50% of the space for public area, this was in negotiation with the government.
   17.2 The site visited was very clean with materials lined up in preparation for use; the project was a computer constructed building. The computer controlled robot was actually rising with the building construction.
   17.3 The project was a balance between meeting the needs of (R) and meeting the needs of the government.

18 The Japanese manager is employed for life. They are caught in a system from which the can not escape. The employer takes advantage of the managers as they know they can not leave. Having witnessed work in Europe, many managers expressed a desire for the freedom of the Western system.

19 People are moved around the company so there are chances for career progression. They receive on the job training and exposure to as many different construction experiences as possible.
Main points from interview:

1. (U) had recently completed a large construction project in the UK and had strong opinions on the relative merits of the Japanese construction system and the European system.
2. (U) can directly control their projects using in house engineering and direct contracts with sub contractors; outside of Japan however it is more difficult as they don't fully understand European contracting; they therefore like to have a general contractor on their team.
3. Organisation Japan has a single point of contact with lump sum contract, so control is easy. In Europe the central interface point is very complex to manage. In the UK their general contractor became part of the owner organisation, but the control considered to lay with the client.
4. Contract The UK contracting system based upon suspicion and the contract is referred to at any opportunity. In Japan the contracting arrangement is based upon trust and reliability – the Japanese contractor tries to avoid disputes.
5. Competition In Japan negotiation takes place between a selection of the big six contractors. In the UK the skills are spread out so a different contractor is used each time. Since the general contractors work with (U) they know the quality levels expected and they even know the standard design documents.
6. Risk If there is a design error then the Japanese general contractor takes all the responsibility and pays. In the UK the client takes the risk as many sub contractors are contracted directly to the client.
7. Cost control Since the Japanese contract is lump sum the general contractor is not expected to break down the cost. In the UK the cost is easier to control as it is broken down elementally.
8. In Japan each individual is supported by his company; In the UK each PM is responsible for his own work and stands on his own. The Japanese system helps manage claims since the company is the strength behind the PM and it is difficult for small contractors to claim against them.
9. (U)'s reaction, when asked what happens to that support when a project fails, was laughter. They are asked to try better next time.
10. Japanese union activity is strong but they don't get union action on site as in the UK.
11. Teamwork is very important and considered lacking in the UK. The consensus decision making in Japan was considered to lead to better quality decision and not to slow the project down.
12. The UK Construction Manager does not use CPN properly. He does not set critical points and stick to them; the critical points are moveable!
Main points from interview continued:

13 The UK method of managing sub contractors is seen as reactive with lots of letter writing to cover their backs. The Japanese system is more proactive with problems openly discussed. In the UK the sub contractor must stick rigidly to the design detail even if incorrect and they do; in Japan this would be openly discussed to find the optimum solution.

14 The Japanese client follows the CM process himself by holding and understanding a network chart.

15 The concept for the project in the UK was jointly produced between (U) and the general contractor. Cost control was achieved by communication and understanding.

16 Within the organisation of (U), the planning division was responsible for establishing the basic need for the new plant and the production details; the facility division was responsible for putting together the building brief.

17 Strategic project decisions are made by top management. The planning time from press release to visit to the UK was only 3 months.

18 Value engineering is considered to be a fluid thing; the responsibility of each individual. They do not conduct specific VE exercises but they do understand the VE process and terminology.
Main points from interview:

1. The four participants represented the planning, design and project management of the new airport. A video was shown to explain the development of the airport to date.
2. The motives for the project appear to be political is indeed the make up of the team to manage the project, primarily due to funding.
3. The concept for the project was constrained by noise and lack of space therefore was developed as an off shore land reclamation project. They looked to the UK for initial guide on size of terminal etc.
4. The size of the island was based on the original need but since then the size has been reduced due to cost. This project arks the first private venture for airport construction in Japan, however many of the team are from the government agency anyhow, so they do not really notice the difference.
5. The airlines do not really have a stake in the project since the slots etc have not yet been agreed. The airlines are consulted through IATA but don't really cause any problems.
6. The early stages of planning were subject to many government restrictions. Deregulation was a major contributing factor.
7. The planning for the project took 20 to 30 years. The specific numbers are changing year by year. The original figures were based on their 5 year plan figures, but not much information was readily available on the design criteria etc. The original concept and location was devised by (W), the location of the island decided 20 years ago, the location of the terminal 10 years ago.
8. When asked if they were confident that they had sized the island correctly everyone laughed. They gave the impression that cost pressures had pushed the size down, inferring that they were spending 1 bn Yen on an airport that would be too small. They consider it will serve for 10 years then they have an expansion project already in planning.
9. The consultants were responsible for any design detail on top of the concept developed by (W).
10. Client changes are taking place regularly; and therefore the cost is increasing rapidly. The cost manager considered the cost to be "out of control". Areas that are not core have been heavily reduced.
11. The design is complex and was chosen from 48 proposals to represent a design statement – this lead to a heavy debate regarding the cost of design versus value.
12. The original concept has changed somewhat, and technical problems have been overcome. Nevertheless the project scope is reducing daily due to cost.
Main points from interview:

1. The interviewee has spent much time outside of Japan and thus had much experience of the UK construction system.
2. (T) was the general contractor for (U) in the UK and sat alongside the client. They believe they were the main decision makers for the project in the UK.
3. The UK designers worked differently to the Japanese designers. The drawings went through so many alterations taking much time so (T) called the designers aside and explained the project objectives and told them the new system for drawing reviews to save time. They always explain WHY they need something done directly to those it effects.
4. In the UK the contractor is always looked down upon. In Japan full communication is achieved and cooperation leads to fewer problems. They maintain relations with the client by becoming part of the client organisation.
5. Once a week company directors discuss problems and resolve them mutually.
6. Value for money is achieved through common understanding of the clients need. When (T) told the designers to use a particular material that had not been seen in the UK before (T) sent the designers to one of their sites in Japan to explain the merits in attempting to communicate their intention for the project and achievement of value for money.
7. The UK designer was thinking in contractual terms about using this new material rather than for the good of the project. The risk for this new material was shared by all parties, once the designer understood this he was accommodating to the new material.
8. The PM's role is one to inspect the site every day, to look at materials and workers on site, to resolve problems on site mutually. Thus proactively look for problems on site and search for solutions before the problems arise.
9. Characteristics of Japanese management are Trust, Leadership and integration of design and construction. Achieving this in the UK was ok after the first 3 months when they had to change the UK contractual thinking. The success was based in explaining the problem the solution and the reason for the solution.
10. Risk and cost are in balance; the transfer of risk will always be paid for. (T) had a one page contract with (U). The motivation for completion on time and successfully was the knowledge of future work.
11. (T) got about 60% information from (U), nut they had built similar projects for the same client so based the detail on the quality levels in that project.
12. Life cycle costing is always conducted, standardisation where possible but they are behind the US, value engineering achieved through the TQM process, everyone brought ideas for savings - saved £3m this way.
13. (T) advice to the UK: Look for good sub contractors, keep them, keep them busy and make them part of a family of contractors to minimise the learning curve.
Main points from interview:

1. Promotional video for the work conducted by (R): broad range of tunnelling technology, great teamwork, (R) institute of construction technology from the nucleus of R & D within (R), research into flexible structure to ensure safety during earthquake, robots used for floor finishing and laying rods for foundations, intelligent buildings, computer simulations for building evacuations, underground space utilisation.

2. Japan has an island culture, very much an enclosed society where negotiation is the key. This has led to the R & D culture as they must have something by which to market themselves, it provides product differentiation. R & D would not be necessary.

3. Value engineering is achieved by Quality Control as these are effectively the same. QC is part of the basic culture, with problems being passed up from site through the engineering department to the R & D section. The solution then filters back to all sites (see figure).

4. Negotiation is a disadvantage in many respects as the contractors ends up paying if the client makes changes or makes a mistake. The risk taken on by the contractor in Japan is higher than that by the UK contractor. When we say guaranteed we mean it.

5. Life cycle costing is very important, they are making a product not just for construction. We have a brand business and must maintain our reputation.

6. VE was considered to be staying within the budget. Once the full design has been submitted this is the cost that they will complete within, whatever that may mean to the contractor.

7. They regularly have a transfer of technology to their subcontractors. Because they use a common group of subcontractors they can afford to do this, the benefits are enormous and QC flows right down the project organisation.

8. In the UK we lack design management, R & D support and engineering management. In Japan the above allow them to fully coordinate their drawings amongst the whole team, therefore the cost is clear.