



Sydney Opera House – FM Exemplar Project

Report Number: 2005-001-C-6

Procurement Case Study and Decision-making Strategies

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PREFACE

The Cooperative Research Centre for Construction Innovation (CRC CI) is a national research, development and implementation centre focused on the needs of the property, design, construction and facility management sectors. Established in 2001 and headquartered at Queensland University of Technology as an unincorporated joint venture under the Australian Government's Cooperative Research Program, the CRC CI is developing key technologies, tools and management systems to improve the effectiveness of the construction industry. The CRC CI is a seven year project funded by a Commonwealth grant and industry, research and other government support. More than 150 researchers and an alliance of 19 leading partner organisations are involved in and support the activities of the CRC CI.

There are three research areas:

- Program A - *Business and Industry Development*
- Program B - *Sustainable Built Assets*
- Program C - *Delivery and Management of Built Assets*

Underpinning these research programs is an *Information Communication Technology (ICT) Platform*.

Each project involves at least two industry partners and two research partners to ensure collaboration and industry focus is optimised throughout the research and implementation phases. The complementary blend of industry partners ensures a real-life environment whereby research can be easily tested and results quickly disseminated.

This research report (Report 2005-001-C-6) is part of a series of reports for the Sydney Opera House – FM Exemplar Project. This report provides deliverables to meet the following milestones:

Sections in Report	Milestones (Commonwealth)	Milestones (CRC)
2. Asset Maintenance in Iconic and/or Performing Arts Centre Facilities	Procurement	Service Procurement
2.1 Asset Maintenance in Iconic and/or Performing Arts Centre Facilities	The SOH Case Study (Replace the previous Gap/Opportunity Analysis, refer to Variation #5)	2.2 SOH Case Study Implementation
2.2 Service Procurement Objectives and Strategies		2.3 Procurement Methods Contract Outcomes (eg. Interview)
2.3 Trends and Innovation		
3. Sydney Opera House Case Study	Procurement Methods Contract Outcomes (Replace the previous Interoperability Analysis, refer to Variation #5)	2.4.1 Pilot Project Implementation
3.1 Facilities Procurement Strategies at Sydney Opera House		
3.2 Procurement Methods Contract Outcomes		
3.3 Summary		
4. Decision-Making Framework and Guidelines for Selection of Appropriate FM Procurement Route	Integration/Business Alignment	2.4 Draft Decision-making Framework for Selection of Appropriate FM Procurement Route
4.1 Executive Summary	Interim #1 (Framework)	
4.2 Existing Research	Decision-making Framework and Guidelines for Selection of Appropriate FM Procurement Route	
4.3 Decision-making Strategies and Guidelines for Procurement of FM Services		
4.4 Summary		
Report 2005-001-C-6	Pilot Project Interim Paper	2.4.2 Document and Issue Position Paper

EXECUTIVE SUMMARY

Objectives

The procurement research of Sydney Opera House FM Exemplar Project aims to develop innovative methods and guidelines for the procurement of FM services, applicable to iconic and / or performing arts centre facilities, or facilities with similar FM functions.

The initial procurement report in June 2005 analysed the strategic objectives and operational requirements that provide 'demand statements' as evaluation criteria in the service procurement process. The subsequent interim procurement report in September 2005 discussed the elements contributing to the criteria for decision-making in the service procurement process.

This procurement report concentrates on the research on procurement strategies and innovative methods using a case study approach. The objectives of this report are:

- to investigate service procurement methods and process in iconic and/or performing arts centre facilities;
- to showcase FM innovation in Sydney Opera House through a case study;
- to establish a preliminary decision-making framework and guidelines for selection of appropriate FM procurement routes to provide a useful model for FM community.

Findings

Findings from this procurement research are presented as follows.

- FM innovation and experience of Sydney Opera House
- Innovative procurement methods and processes, drawn from a case study of Sydney Opera House as exemplar
- An integrated performance framework to link maintenance service functions to high level organisational objective and strategies
- Procurement methods and contract outcomes, focusing on building maintenance and cleaning services of Sydney Opera House
- Multi-dimensional assessment of Service Providers
- General decision-making strategies and guidelines for selection of appropriate FM procurement routes

Further Research

Whilst the Sydney Opera House case study emphasises the experience of Sydney Opera House, a study of procurement strategies and methods from published research and FM good practice will supply facilities managers with alternative procurement routes.

Further research on the procurement theme will develop a final decision-making model for the procurement of FM services, drawn from the evaluation of the case study outcomes, as well as FM good practice and findings from current published research.

1. Introduction

1.1 Introduction

The Facilities Management Exemplar project utilises Sydney Opera House (SOH) to develop research on facility management (FM) with the focus on strategic asset maintenance.

The project was initiated by the Facilities Management Action Agenda, supported by the Australian Government's Department of Industry, Tourism and Resources, Sydney Opera House and Transfield Services and is being delivered by the Cooperative Research Centre for Construction Innovation (CRC-CI), CSIRO, FMA Australia and industry and educational partners. The project's three research themes cover the following:

- *The digital modelling research* aims to develop a digital FM model based on the 3D digital building models to assist in the integration and automation of facility management.
- *The procurement research* aims to develop a performance-based procurement framework for service delivery. FM requirements are defined in terms of performance objectives and the use of multi-criteria decision making strategies.
- *The benchmarking research* aims to develop a performance benchmarking system that comprises performance measures, methods and procedures, and deliver benchmarks which enables facilities to identify and improve critical success factors.

Digitisation, procurement and benchmarking are crucial in improving the performance of FM. The procurement develops strategic plan and deployment framework enabling products, services, etc. meet objectives of performance, economic, environment, etc. The project aims to achieve innovative strategies across these areas and seeks to develop collaboration between them as a basis for demonstrating FM as a business enabler.

1.2 Procurement Research

This report presents the procurement research of Sydney Opera House FM Exemplar Project to date. The procurement research aims to develop procurement methods and strategies for asset maintenance services. In particular, it is developed from a case study of Sydney Opera House as an exemplar.

The procurement research focuses on building maintenance and cleaning services, especially as these have been the subject of recent Sydney Opera House outsourcing tenders. Obviously cleaning is essential actively in virtually every occupied facility, while building maintenance is an important service in preserving iconic and / or performing arts centre facilities. Sydney Opera House has provided the procurement case study in building maintenance and cleaning services, which will consider the challenges of selecting and implementing a procurement method that ensures the selection process is consistent with the Principal's needs and organisational objectives. The delivery from the case study will have wide applications in iconic and/or performing arts centre facilities as well as the FM industry in general.

1.3 Deliverables

This report has achieved the following deliverables.

Section 2 presents FM functional characteristics and requirements in the iconic and/or performing arts centre facilities, and trends and innovation in the current FM practice. An integrated performance framework for the procurement for asset maintenance is established.

The Sydney Opera House case study, and procurement methods and contract outcomes are demonstrated in Section 3, which showcase FM innovation and experiences of Sydney Opera House, including procurement strategies, methods and process. The survey outcomes from interviews with Tenderers and Tender Evaluation Committee (TEC) of Sydney Opera House are assessed, which focus on effectiveness of the tender process, innovative use of a workshop to facilitate communication and collaboration between Sydney Opera House and Tenderers, and understanding of business and performance requirements.

Section 4 provides a general decision-making framework and guidelines for selection of appropriate FM procurement route, which emphasise eight key areas of decision-making for FM procurement. Examples from Sydney Opera House's experience are presented.

2. Asset Maintenance in Iconic / Performing Arts Facilities

Asset maintenance in the iconic and/or performing arts centre facilities, general procurement objectives and strategies, and trends and innovation are analysed in this section, to provide a context for the procurement case study described in Section 3 and decision-making strategies described in Section 4.

2.1 Asset Maintenance in Iconic and / or Performing Arts Centre Facilities

The characteristics and functions of iconic and/or performing arts centre facilities pose special requirements for facilities management and operation. For example, Sydney Opera House has a primary function of a 'Performing Arts Centre'. At the same time it is an 'Architectural Masterpiece' and a 'Heritage Building', and further is of 'Iconic' value for 20th century architecture. These values bring objectives and requirements with them, which have to be integrated with or aligned to the objectives of the FM functions.

Iconic and / or performing arts centre facilities are characterised as requiring special care and a high quality of maintenance. Jørn Utzon and later Peter Hall designed a building of high aesthetic quality - Sydney Opera House. The architecture, with its designed views and spatial compositions, its careful choice of materials and the entire architectural language requires carefully considered maintenance and management.

Special functions and structural properties of iconic and/or performing arts centre facilities also influence maintenance. For example the 'Performing Arts Centre' function of Sydney Opera House and its commercial usage involved changes to the design of the interior when the most significant user at that time, the Australian Broadcasting Company, required changes to the ventilation system, and other features (Kerr, 2003). For aesthetic reasons the new required ventilation system was split into over 70 air-handling units located in 24 plant rooms distributed across the building. Other structural properties established in the original architectural concept and the conservation plan (Kerr, 2003) of Sydney Opera House that have influence on maintenance are:

- Uncommon and distant materials (eg. birch wood, roof tiles, bronze parts)
- Open structures / unpainted elements (eg. exposed concrete)
- No permanent access facilities allowed (eg. lift for window or roof cleaning)
- Only one vehicle entry point (constrained access)
- No back-of-house space around the building
(that would have impeded visibility from all sides)

In addition, iconic and/or performing arts centre facilities are public oriented facilities. Maintenance results require to achieve best performance in tourist attraction, customer satisfaction, increased attendees and increased investment.

Figure 1 presents an overview of the total asset maintenance results and service plan of Sydney Opera House (Rider Hunt Terotech, 2005), which aims to achieve an integrated performance and service results across all its valued categories:

- Iconic building/culture landmark
- Performing arts centre
- Architectural master piece
- National heritage building
- Tourist attraction
- Customers satisfaction
- Increased attendances
- Increased investment
- Increased performances
- A space for public
- Safety

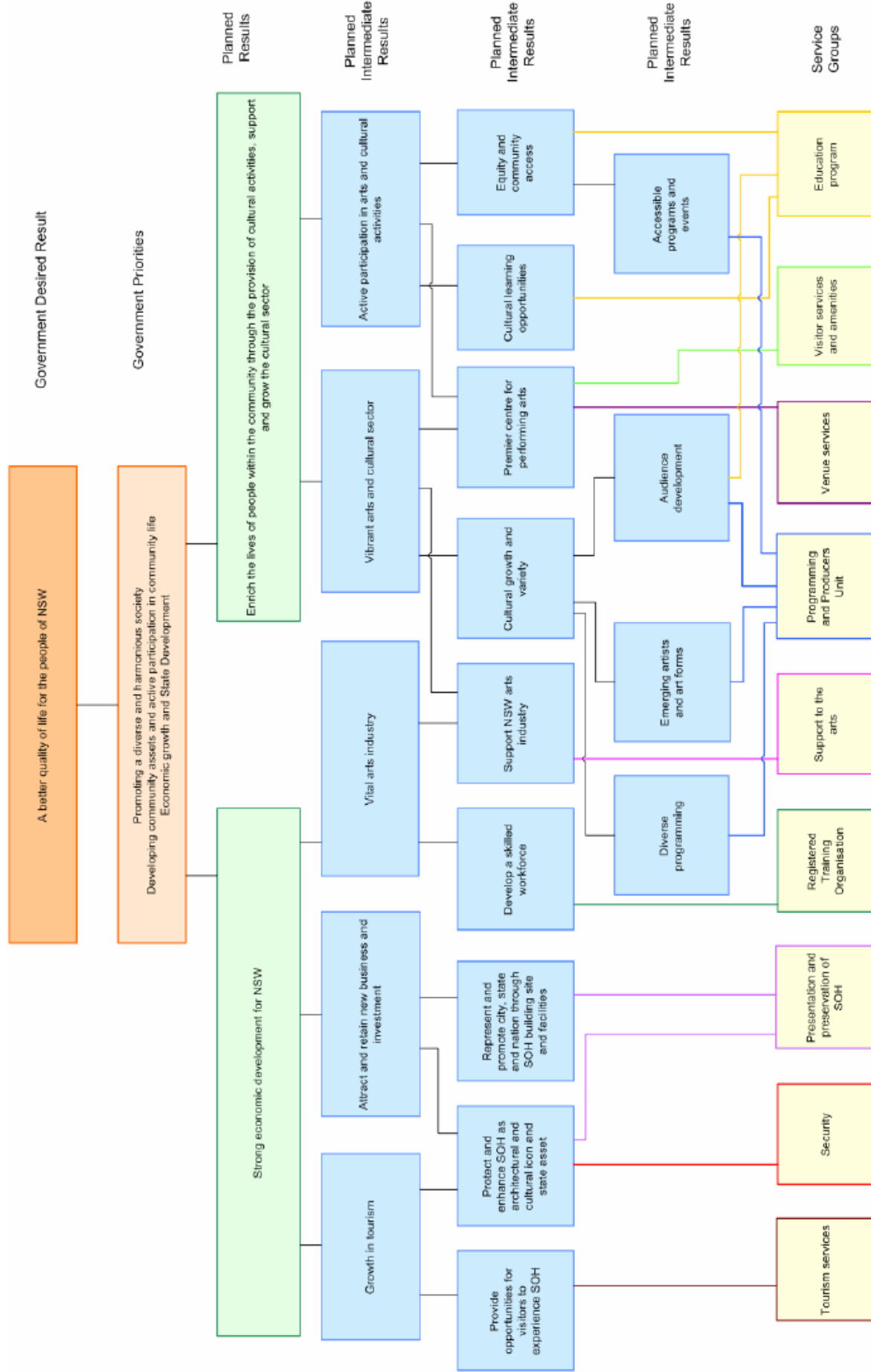


Figure 1 An overview of the total asset maintenance services plan of Sydney Opera House (Rider Hunt Terotech, 2005)

2.2 Service Procurement Objectives and Strategies

The general objectives of maintenance services in the iconic and/or performing arts centre facilities are to achieve best performance in business and operation, and to enhance the facilities as icons, culture landmarks and performing arts centres.

The objectives and strategies of the procurement for maintenance services are required to align with high level organisational objectives and to ensure innovative approaches can be utilised in the procurement process to maximise business outcomes.

2.2.1 Outsourcing of Maintenance Services

Outsourcing of maintenance services has been part of culture in facilities management for some time. Outsourcing services in engineering and facilities management area in Australia has grown 36% within a period of two years (2003-2004), according to the survey by University of Technology, Sydney, Transfield Services Ltd and Boston Consulting Group (2004).

Outsourcing services provide benefits including:

- Cost reduction
- Improved quality
- Enhanced reliability
- Industrial relations
- Access to best / good practice
- Flexibility
- Innovation

For example, Sydney Opera House has internal resources focused on strategic management, supervisory, etc, whilst selected operational maintenance services are outsourced. The maintenance services in Sydney Opera House for the following operational assets are outsourced:

- Building maintenance
- Cleaning
- Mechanical
- Electrical
- Fire services
- Security and surveillance systems
- Transportation systems
- Stage Machinery systems
- Sanitary Plumbing and Plant
- Consultant services

The procurement process of outsourcing should consider the integration of organisational objectives with strategies of outsourcing, performance requirements, etc.

For example, Sydney Opera House is undertaking a lead-edge procurement process of outsourcing. The following lists key stages of the procurement process in Sydney Opera House:

- Strategic Analysis
- Identification by Sydney Opera House of its expectation from each contract of service
- Translation of expectations into a Request For Tender (RFT)
- The understanding of the Principal's expectations by Tenderers
- The tender evaluation process
- Managing the relationship

2.2.2 Key Success Factors for Procurement of Outsourcing

Key success factors for the procurement of outsourcing drawn from the FM industry practice (University of Technology Sydney, Transfield Services Ltd and Boston Consulting Group, 2004; Kakabadse A and Kakabadse N, 2002) are presented as follows.

Management of key performance indicators – Skillful choice and management of key performance indicators have a strong link with positive outcomes and support ongoing improvement of outsourcing services.

Partnership type relationship with Service Providers – Partnership type relationship with Service Providers enables establishing trust, flexibility and better collaboration on strategic planning, resulting better value for money.

Contract management – Performance based contracting, as opposed to specified / prescriptive contracts, are growing as a percentage of total outsourcing contracts. The link between contract duration and degree of management tasks outsourced is significant under Alliance contracting. Outsourcing contracts tends to lengthen from 3 to 5 years towards achieving a successful relationship.

Information sharing and communication in the procurement process – Information sharing and communication between Client and Service Providers in the procurement process appear to have an important influence on improving operations, establishing collaborative relationships with Service Providers, and bringing satisfaction and enhanced reliability.

Application of key success factors to procurement of outsourcing services will be analysed in the case study of Sydney Opera House in Section 3.

2.2.3 An Integrated Performance Framework

An integrated performance for service procurement is recommended in order to achieve a success of service procurement. Figure 2 illustrates an integrated performance framework for the procurement for maintenance services, in which a link of an integrated performance requirement with organisational objectives and special FM functional requirements is established.

Performance Requirements at Corporate Level

Performance requirements at corporate level reflect particular needs and expectations of the organisation and provide drivers for corporate management monitoring.

For example, Sydney Opera House has business expectations (Currie & Brown, 2005) for building maintenance service as:

- Effective transfer of best practice approaches in maintenance and management of the building from the Service Provider to Sydney Opera House personnel responsible for the operation of the building, allowing a demonstrated improvement in the value performance of the service over the contract term
- Transparent measurement and evaluation of the Service Provider's contribution to achieving business and operational outcomes
- The introduction of new technical approaches and maintenance practices in consultation with Sydney Opera House, so as to ensure the maintenance is provided utilising modern maintenance technologies and approaches

These requirements are aligned with the special maintenance requirements of Sydney Opera House, i.e. culture landmark, performing arts centre, and heritage and conservation plan, which provide the needs for service procurement performance.

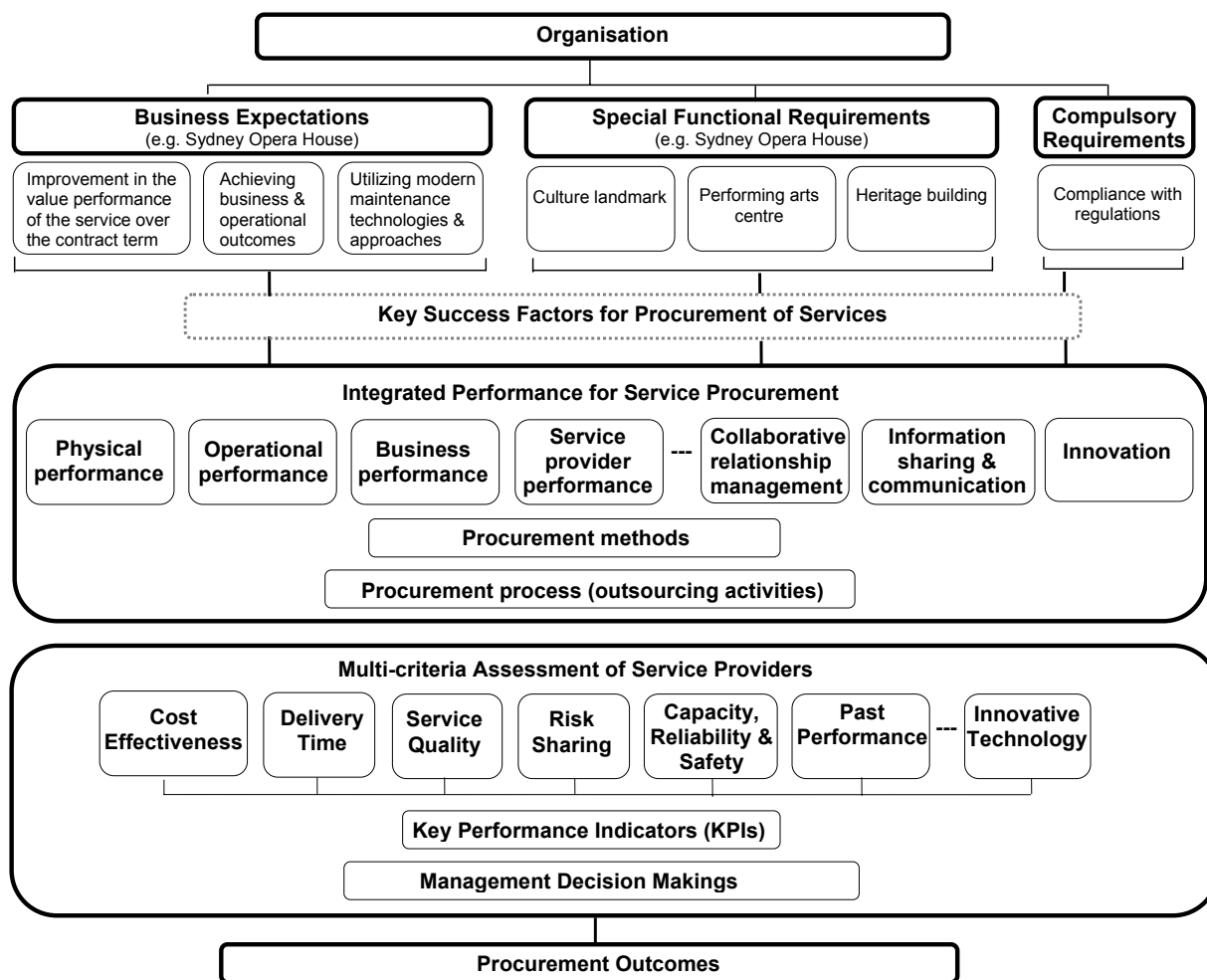


Figure 2 An integrated performance framework for service procurement

Procurement Performance Integrated with Corporate Requirements

The service procurement performance is integrated with corporate requirements and expectations through strategic procurement management. An integrated performance for service procurement comprises physical performance, operational performance, business performance, Service Provider performance as well as innovative aspects such as collaborative relationship management, information sharing and communication in the procurement process, and innovative technologies and approaches. The measurement of the integrated performance is comprehensive and multi-dimensional, and subject to proper definition of priorities for weightings according to importance and selection of KPIs.

Service Provider's Performance

Multi-criteria assessment has been accepted as a method to gain recognition for the Service Provider's performance and support management decision-making. For example, Australian Parliament House has identified the following multi-criteria as mandatory evaluation criteria for tenders (Parliament of Australia, Joint House Development, 2004):

- Conflict of interest

- Financial viability
- Insurance
- Past performance
- Business plan
- Draft service level agreement
- Staffing and management arrangement
- Continuous improvement
- Approach to risk

The performance requirements for Service Providers in iconic and/or performing arts centre facilities incorporate special functional requirements. For example, the past performance criteria for Tenderers by Australian Parliament House require Tenderers to submit details of at least three recent projects they have undertaken which have involved the provision of services similar in size, complexity and functional requirements such as iconic buildings, and how these experiences will be applied to Australian Parliament House.

Sydney Opera House has defined operational performance requirements aligned with special functions for building maintenance works for Service Providers (Currie & Brown, 2005), including:

- A skilled management and technical resource base that is scalable to address complex issues relating to heritage, conservation, maintenance planning and support, to the implementation of new developments agreed to by the superintendent, and to routine operational and administrative matters
- Delivery of an effective inspection and maintenance service notwithstanding the limited 'window' of availability of venues for maintenance, due to performance and rehearsal requirements

Another example is the performance requirement defined by the Department of Finance, Purchasing Division, Washington (2005), which indicated the need of demonstrated knowledge and ability to maintain, manage and operate performing arts centre facilities.

2.3 Trends and Innovation

Trends and innovation in service procurement, especially outsourcing, are introduced in this section, based on the surveys by Kakabadse A and Kakabadse N (2002), Momme (2002), University of Technology, Sydney, Transfield Services Ltd and Boston Consulting Group (2004) and Waara (2004).

2.3.1 Strategic Outsourcing

Most companies have considered outsourcing as critical to their organisational strategies. By accessing to the good practice in other organisations by outsourcing, organisation can turn their full attention to the performance of core and defensive activities for competitive advantage.

2.3.2 Alliance / Performance Based Contract

Alliance/Performance based contracts are growing as a percentage of total outsourcing contracts. The advantages of alliance/performance based contracts beyond the simple provision contracts include:

- Providing joint alliance, which enables to establish better collaboration on strategic planning, shared risks and rewards, and optimise skill sharing
- Delivering key objectives, service performance standards and requirements
- Defining a set of key performance indicators (KPIs)

2.3.3 Innovation in Key Performance Indicators (KPIs) /Non-financial Criteria

Innovation in key performance indicators (KPIs) adds value to the business.

The KPIs, on which the Service Providers are measured, are defined towards multi-dimensional and include non-financial criteria, e.g. quality, time, safety, responses to urgent work and understanding Principal's expectation. Selection of type of criteria and the weights assigned to such criteria are important to the determination of drivers and priorities and to keep Service Providers focused on achieving good performances in key areas.

KPIs will need to be reviewed when the outsourcing environment changes, and updated to reflect innovative initiatives.

2.3.4 Joint Partnerships

The emerging joint partnership relationship provides a close level of interaction between Client and Service Providers and enables to establish joint responsibility for strategy, alliance and deliver a better quality of services for all stakeholders.

Strategic partnership arrangements vary from flexible defined formal contracts to loose strategic initiatives, with a considerable number providing for shared risk and benefit (Kakabadse A and Kakabadse N, 2002).

2.3.5 Information Sharing and Communication in Procurement Process

Information sharing and communication appears to have an important influence on the procurement process and operation.

Trends show that adequate information sharing and open communication will make interorganisational interfaces and Client - Service Provider interfaces more transparent in the procurement process, and enable rapid deployment and collaborative activities between Client and Service Provider, and between management and workforce.

2.3.6 Data Management and Knowledge Management

Procurement management activities and decision-making, including budget, defining KPIs, selecting Service Providers, developing schedules and managing relationships required to ensure reliable data and information, and knowledge learnt from previous experiences.

- **Data Management**

Building information modeling (BIM) for FM provides a new approach for facilities managers to manage the FM data. Building information modeling for FM enables modeling integrated FM information, including the complete facility life cycle from conception to demolition. The BIM for FM has been developed in the digital modeling theme (Report 2005-001-C-4) of Sydney Opera House FM Exemplar Project.

Data-mining approach for FM (Project 2001-002-B of CRC Construction Innovation) provides a powerful decision support tool to enable identification and analysis of large amounts of FM data and to support strategic FM management. The data-mining approach is out of the scope of this project.

- *Knowledge Management*

Knowledge management for FM enables facilities managers to capture, share and operate knowledge, as well as collaborate to create new knowledge. Knowledge management for FM can be supported by artificial intelligence related technologies as knowledge bases and ontologies.

The next section will present FM innovation in Sydney Opera House through a case study.

3. Sydney Opera House Study

The opportunity to study maintenance procurement at Sydney Opera House is both fortuitous and timely Sydney Opera House is one of the world's most recognisable buildings and by association brings obvious kudos to the FM Exemplar Project. Facilities management at Sydney Opera House is in the process of change from a stereotypical culture of being operationally focused and 'hidden in the basement', to a proactive function directly contributing to the success of the enterprise.

The procurement case study follows the tender process for two (2) key contracts: Building Maintenance and Cleaning. The case study examines how Sydney Opera House's FM team sought to;

- Link each contract specification to business needs using Building Condition Indices to define performance requirements; and
- Identify Service Providers with a good understanding of the Sydney Opera House enterprise and a strong cultural fit with the organisation.

The tender process included a number of innovations and placed particular emphasis upon an effective pre-tender workshop being held with each short-listed Service Provider.

Through a survey of Tenderers and Tender Evaluation Committee (TEC) members the case study has assessed the effectiveness of the procurement process from both perspectives. Given that Sydney Opera House had similar expectations of both contracts and used essentially the same procurement process, administered by consultants Currie & Brown, the two (2) tenders are considered as one in a single case study. This is notwithstanding the anticipated differences in the delivery parties, services, skill sets and performance indicators. It is concluded that the effective use of a pre-tender workshop added value to the procurement process. Ideally a case study review of the contracts after a period of operation (say 12 months) will be conducted to assess whether or not the original performance expectations have been met.

3.1 Facilities Procurement Strategies at Sydney Opera House

3.1.1 Sydney Opera House: Business Enterprise and Facilities Management

Sydney Opera House is recognised throughout the world as a building icon of 20th century architecture and a symbol of Australia. As a performing arts centre (PAC) it is one of the busiest in the world, staging some 1500 performances per year, attended by 1.1 million patrons, with a further 1000 non-performance related events ranging from exhibitions to corporate launches and weddings. An estimated 4 million people visit Sydney Opera House each year, many taking tours and enjoying any of five restaurants and bars.

As an enterprise Sydney Opera House is engaged presenting and producing the performing arts, venue hire, tourism, conferences and exhibitions, retail, food and beverage, and a range of other market sectors. Although difficult to quantify, it has been estimated that Sydney Opera House contributes in excess of \$200 million per annum to the Australian economy. As a business Sydney Opera House generates some \$38 million per annum from sales, services and sponsorship, and receives \$34 million in NSW Government grants including \$19 million for maintenance (excluding one-off capital renewal grants)¹.

¹ Sydney Opera House Trust, "From Inspiration to Execution, Sydney Opera House Trust Annual Report 2005", Sydney Opera House Trust, Sydney, 2005

As with any successful business Sydney Opera House has a corporate vision and corporate goals². These are expressed as:

“Our vision is to excite and inspire the imagination”

Our promise is to take people on a journey from the ordinary to the extraordinary into a world where the inspiration of the building outside is reflected in all we do.

Goals

- I. Be Australia’s pre-eminent showcase for performing arts and culture and an international leader in the presentation and development artists and their work.
- II. Attract and engage a broad range of customers and provide compelling experiences that inspire them to return.
- III. Maintain and enhance the Sydney Opera House as a cultural landmark, performing arts centre and architectural masterpiece.
- IV. Create a customer focused workplace where people are recognised for their contribution, realise their potential and inspired to achieve outstanding results.
- V. Invest in the performing arts, cultural activities and audience development by maximising business results of the Sydney Opera House and leveraging its assets, resources and brand.”³

Since the mid-1990’s Sydney Opera House has sought to develop its commercial activities in the presentation of performers, retail, food and beverage and other areas. The success of Sydney Opera House and its many partners is intimately linked to the world famous building and therefore to the standard of facilities management at Sydney Opera House. The corporate vision and goals reflect the synergy between business and building through such references as “inspiration of the building”, “architectural masterpiece” and “leveraging its assets”.

Perhaps more than in many buildings facilities management at Sydney Opera House is seen as a core business function directly contributing to visitor experience and therefore to the success of the building. The case study provides a unique insight into how the Sydney Opera House Facilities Portfolio is developing innovative procurement methods to identify Service Providers that are intended to compliment and add value to the enterprise.

3.1.2 Service Procurement Strategies and Methods

In common with many organisations, Sydney Opera House has progressively increased the range of outsourced maintenance services since the mid-1990’s. Currently there are five site-based maintenance Service Providers with a permanent presence at Sydney Opera House, one each dealing with: cleaning, building maintenance, theatre systems, electrical services and mechanical services. In addition to a range of Service Providers that periodically visit the site (e.g. vertical transportation, security systems and fire services). There is also a small in-house maintenance team that has a bias towards emergency maintenance and supporting performance needs.

Facilities management at Sydney Opera House is managed by the Facilities Portfolio which also has responsibility for site management. The Portfolio is headed by a director, which in itself recognises the importance placed on facilities management by the Sydney Opera House organisation. Within the Facilities Portfolio the Facilities Operations & Maintenance Department is responsible for maintenance planning and delivery; including upgrades and

² ibid

³ ibid

minor works projects. The Department is largely responsible for managing the \$19 million annual maintenance budget using external Contractors and a small internal trade workforce. A separate Building Development Group manages renewal projects beyond the scope of the Facilities Portfolio.

The majority of maintenance contracts use traditional prescriptive specifications. Contract performance tends to be measured by inputs such as task completion and response times. Tender processes have been similarly traditional though using commercial and non-commercial criteria - with particular emphasis placed on heritage and public building maintenance experience. Whilst this approach to contracting was probably appropriate when the contracts were let, by today's needs it underplays the importance of facilities management to the Sydney Opera House enterprise.

In 2005 Sydney Opera House prepared to tender the building maintenance and cleaning contracts, both of which were nearing their expiry dates. With increasing emphasis being placed on enterprise by the Sydney Opera House organisation it was appropriate to review the approach to these two contracts that are critical to the presentation of the building to its many visitors.

3.1.3 Innovation

Sydney Opera House's vision "to excite and inspire the imagination" is Disneyesque in the picture that it presents and comparable to such other visions such as Nike's "just do it" and HP's "invent". To fulfil such a vision in facilities management requires Service Providers with equal vision, empowered to realise their potential and inspired to achieve outstanding results. It was clear to Sydney Opera House's FM team that reusing previous procurement methods might identify capable maintenance Service Providers, but could not be guaranteed to find inspired Service Providers. Therefore, it would be necessary to innovate and develop a procurement route that would lead to the appointment of Service Providers who could relate to, and invest in, Sydney Opera House's vision.

The case study has followed the development of a procurement process intended to refresh the relationship between Client and Tenderers. At its core is a pre-tender workshop that sought to engage all those invited to tender with the Sydney Opera House vision and its expression in the Request for Tender document (RFT). This was underpinned by an Expressions of Interest (EOI) process designed to identify those companies both capable of delivering the required service and identifying with Sydney Opera House's ambitions for the new contracts. The subsequent evaluation process was weighted towards non-commercial criteria linked to an understanding of the Sydney Opera House enterprise and a demonstration how a Tenderer would contribute to this.

3.2 Procurement Methods and Contract Outcomes

3.2.1 Analysis of Existing Contract

The two maintenance contracts that feature in the study, Building Maintenance and Cleaning, have been outsourced for a number of years with the incumbents in place for 11 and 5 years respectively. Assessment of the existing contracts considered both the appropriateness of out-sourcing and the performance of the current contracts.

Out-sourcing was considered within a substantial review of facilities management at Sydney Opera House undertaken at the end of 2004. The review investigated customer (other Sydney Opera House departments) expectations of facilities management and various FM models. It was concluded that preventative and corrective maintenance should be out-sourced to specialist Service Providers, whilst retaining knowledge in-house through a professional management team and a small trade workforce focused on theatre support and emergency maintenance. Therefore, the Building Maintenance and Cleaning contracts would

remain out-sourced. This was a key finding which in the shaped the procurement strategy, services specification and subsequent tender process.

In assessing the existing contracts it was found that both contracts had, in general, achieved their goals, though these were now several years old. A criticism that could be levelled at the in-house FM team as much as the incumbent Service Providers was that the service provided had not been developed in line with Sydney Opera House's business model. Both contract specifications tended to prescribe the works to be done rather than define the quality of service. This probably reflected the [modest] quality of maintenance data available when the tenders were let. The findings of the FM review clearly demonstrated that customers (and hence the Sydney Opera House enterprise) expected a more responsive, more clearly defined and higher standard of maintenance – particularly in the area of site presentation. The Facilities Portfolio needed to tender the soon-to-expire building maintenance and cleaning contracts provided an opportunity to reinvigorate the approach to service delivery and align this with the evolving Sydney Opera House enterprise.

3.2.2 Performance Requirements

Contract specifications begin with an expectation on behalf of the Principal that the appointed supplier would supply certain services. The basis for transaction can range from the simple delivery of clearly defined goods to a subjective added-value service complimenting the Principal's business. The groundwork laid by the FM Review established a degree of customer dissatisfaction with facilities management linked to a lack of clear performance requirements that could be understood by non-FM specialist and related to Sydney Opera House business needs.

Early in the procurement process it was recognised that to meet customer expectations would require generational change in the Facilities Portfolio's approach to contracting. To achieve this, the procurement team would need executive guidance and external input that would challenge the status-quo. The former was provided by both a newly-appointed Facilities Director and Facilities Operations & Maintenance Manager for Sydney Opera House and the latter by consultants Currie & Brown, who jointly formed the core of the procurement team. The procurement team supplemented their own knowledge with site visits to comparable organisations and interviews with the existing Service Providers and key internal stakeholders. The latter was critical in engaging customers with the procurement process, defining of performance requirements and the selection of Service Providers.

A key learning from site visits conducted in conjunction with FM Review and procurement planning was the value of Building Condition Indices (BCI) in defining and measuring performance. Throughout 2005 members of the Facilities Portfolio supported by the then building maintenance Contractor (Lucas Stuart) developed indices to measure building fabric condition, cleanliness, tidiness, and overall presentation. The indices all use a percentage-based scoring system with 100% equalling "as new" and defined standards below this in 10% decrements.

Through a series of workshops and meetings with customers Sydney Opera House's FM team developed and agreed benchmarks for cleaning and building fabric maintenance using the BCI methodology. To fully align with Sydney Opera House operations the benchmarks were then linked to the flow of business; for example toilets were to be at the stated cleaning standard when a foyer was first opened to patrons and at the start of each interval. In a further elaboration, benchmarks were set for immediately after cleaning and a minimum standard at all other times.

A challenge for the procurement team was to negotiate benchmarks that not only met customer expectations but were also realistic, affordable and reflected a reasonable allocation of risk. Achieving realism and affordability required some compromises in customer expectations (the impact on customer responses to the new contracts can only

gauged in coming months). Whilst the BCI enabled current and expected standards to be defined, historically data was incomplete and covered a relatively short time span. Consequently, it was difficult to provide Tenderers with sufficient information on which to assess the risk associated with each benchmark. In finalising the contract specifications it was necessary to limit performance targets to those assets and activities that could be reasonably assessed from an historical perspective.

The use of Building Condition Indices (BCI) underpinned the performance requirements in both the building maintenance and cleaning contracts. However these were not the only requirements of Tenderers, Sydney Opera House's primary contract expectations can be synthesised as:

- An understanding of how building maintenance and cleaning impact on the Sydney Opera House experience for patrons, presenters, visitors and staff
- A compatible organisational culture based upon a commitment to inspire, to work as equal partners and a willingness to innovate
- Ability to understand and use the BCI as a measure of contract performance and reporting tool; using systems developed by Sydney Opera House
- Value for money

These requirements were subsequently reflected in the contract specification, EOI, RFT and evaluation criteria.

Procurement Process

In basic terms the procurement process followed a traditional route of an EOI to produce a short-list companies invited to tender, an RFT, tender evaluation and appointment. However, this conceals a number of innovations that enabled Sydney Opera House to initially identify companies that demonstrated a high probability of understanding the organisation's needs and eventually to appointing two (2) Service Providers that met all the evaluation criteria.

Expressions of Interest

In preparing the EOI documentation the procurement team drew on its experience to identify two areas that could result in unsuitable companies being invited to tender:

- A large volume of EOI's creating difficult and time consuming evaluation task; and
- Companies invited to an EOI interview sending with a well-rehearsed, articulate and persuasive sales and marketing team bearing no resemblance to the skills and attitude of the contract management team.

The EOI four (4) key questions to which inappropriate answers would automatically eliminate a proposer. Having reduced the initial number of applicants the remaining EOI's were evaluated in detail to produce a final list for interview.

Using an agreed evaluation methodology the list of potential Tenderers was reduced to six (6) in both cases (a numerical coincidence). The subsequent interviews provided each applicant with an opportunity to present their own modus operandi and to demonstrate their understanding of the Sydney Opera House enterprise. The TEC noted a number of characteristics that separated those invited to tender from the other companies interviewed:

Those invited to tender demonstrated:	Those not invited to tender:
<ul style="list-style-type: none"> • A personal passion for Sydney Opera House, the icon. • Comprehensive research via web, annual reports, informal site visits (including public tours and attending a show) • An adaptability to tailor corporate systems to Client needs. • An understanding of “inspiring experiences” • A team culture with most or all attendees participating in the interview. 	<ul style="list-style-type: none"> • Lacked personal affinity for Sydney Opera House. • Had not attempted to view Sydney Opera House from the patron or tourist point of view. • Offered a corporate “service package” with expectations of Client compliance. • Allowed one person to dominate the interview (essentially a sales pitch).

On completion of the EOI process the TEC was able to short-list six (6) companies who had the potential to provide high-quality, innovative tenders that would meet Sydney Opera House’s expectations. The initial approach to culling through key questions had succeeded in efficiently reducing the number of EOI’s. All companies responded positively to the request to send a contract management based team to interview, although at some interviews conversation was dominated by a sales-orientated representative. Overall the procurement team was confident that it had seen the genuine face of each contender.

Request For Tender (RFT)

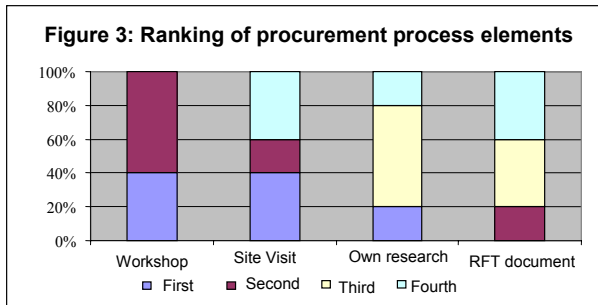
A draft RFT was circulated to all Tenderers who were then invited to attend individual workshops to discuss and develop the document. To encourage free and open discussion the workshops were informal and did not form part of the evaluation process.

The workshop agenda focused on a review of the draft RFT documentation with a particular emphasis on understanding the use of BCI’s and the importance of appreciating Sydney Opera House’s culture and business. For the procurement team the workshops were a critical stage in enabling and encouraging Tenderers to understand the Sydney Opera House enterprise. An additional anticipated benefit was a reduction in requests for information and extensions of time, which for the procurement team can be time-consuming and expensive to manage.

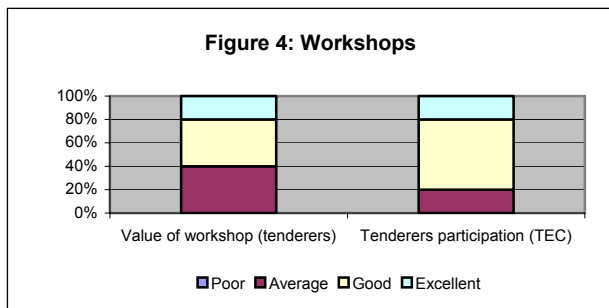
On completion of the workshops the RFT document was finalised and formally issued to Tenderers. During the tender period two site visits were held to enable Tenderers to familiarise themselves with the Sydney Opera House premises. Tenders were submitted without an extension of time and evaluated using a combination of commercial and non-commercial criteria. The survey of participants enables an assessment to be made of the effectiveness of the procurement process in securing tenders consistent with Sydney Opera House’s aims and objectives.

3.2.3 Research Survey Results

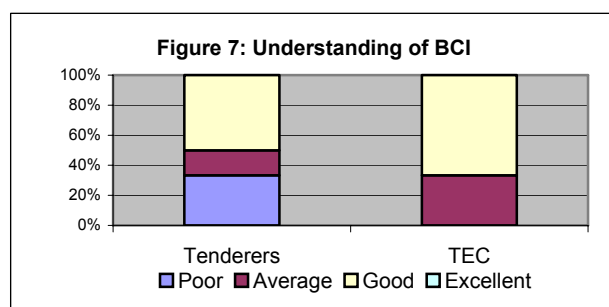
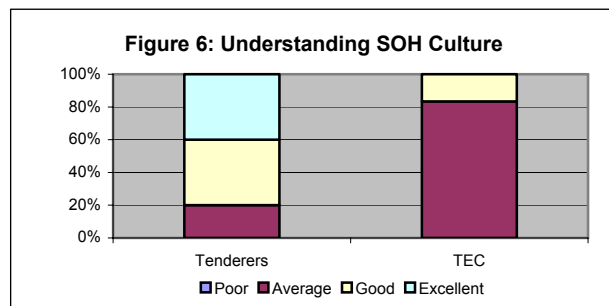
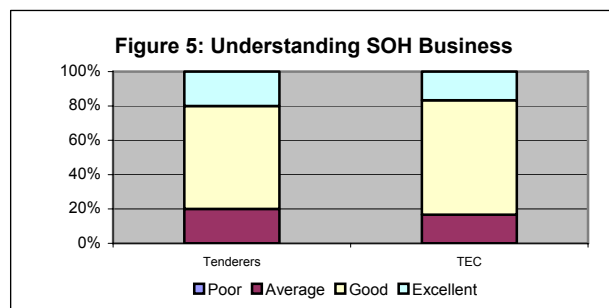
The survey was completed after the tender outcome had been announced. All participants, both successful and unsuccessful parties along with Client representation, were invited to contribute, six out of eight (75%) Tenderers and six out of six (100%) TEC members responded to the survey. There were no significant differences in the responses from successful and unsuccessful Tenderers. The following data has been extracted from survey responses to assess the effectiveness of the tender process, in particular the innovative use of workshops.



Tenders were asked to rank four (4) elements of the procurement process for usefulness in preparing their tender. The majority of Tenderers ranked the workshops as good to excellent (figure 4). The results from figures 3 and 4 are consistent with TEC members' assessment of good participation in the workshops by Tenderers (benefits being related to the level of participation).



However, when the outcomes are taken into account the workshops can only be considered as partially successful. Figures 5, 6 and 7 illustrate how Tenderers evaluated their own understanding of three aspects of the tender and how the TEC assessed Tenderers understanding. From figure 5 it can be seen that Tenderers recognised that an understanding of the Sydney Opera House business was important and TEC members confirm that the tenders demonstrated this understanding. Less clear was the understanding of cultural fit (figure 6), which although recognised as important by Tenderers was not, in the TEC's opinion, matched by the quality of the tenders. Understanding of the BCI received a mixed assessment from Tenderers (figure 7). Interestingly the TEC rated Tenderers understanding higher than Tenderers rated themselves.



Figures 3-7 demonstrate that the innovative use of workshops was valued by participants and enhanced understanding of Sydney Opera House's business. The workshops were less successful in explaining Sydney Opera House's culture and the BCI concept, possibly due to the degree of subjectivity.

3.3 Summary

The case study has demonstrated that the inclusion of a workshop in the tender process can assist Tenderers in understanding the Principal's expectations. More generally, face-to-face contact with the Principal through workshops and site visits is clearly valued by Tenderers. As might be expected it is more difficult to put across subjective and esoteric concepts such as performance indices and culture than subjective business information. The implication for procurement teams is that greater effort must be made to explain these concepts and criteria, along with their relative importance / weighting when they are material to the tender outcome.

The value of the case study must be viewed against the short period in which the contracts have been in place (2-3 months). The real test of the procurement process will be in the long term success of the Building Maintenance and Cleaning contracts. Therefore it is recommended that the case study be resumed in 12 months time with an assessment of Service Provider performance.

4. Decision-making Framework and Guidelines for Selection of Appropriate FM Procurement Route

Whilst the previous sections concentrated on the case study, this section presents a general decision-making framework and guidelines for selection of appropriate FM procurement route to provide a general model for FM community.

4.1 Summary of Findings

- There is a paucity of reliable research in the procurement of FM services.
- In a vertically aligned organisation their FM services procurement route will be subordinate to its strategic imperatives, and will follow the outcome of a comparison of business cases for the alternative modes of delivery.
- A major determinant of procurement process will be the decision for in-house or outsourcing provision of services (for which a substantial research literature exists): In-house sourcing does not require the contractual formalities required when outsourcing, although management processes might be similar (particularly where cost recovery is practiced).
- An organisation's decision for in-house / outsourced procurement will be strategic: depending upon business imperatives, risk and resources, no one resourcing process will be suitable for all organisations purposes. Given this, a general framework based upon Tranfield (2004) is proposed.
- This report does not deal with in-house procurement of FM services.
- This research endorses the Facility Management Association of Australia's "Facility Management Contracting Guidelines" (2003) when considering the issues.
- This research undertaken has been subject to the approval Sydney Opera House – Facilities Management Department. Issues of probity mean that not all issues have been reported.

4.2 Existing Research

There is very little published research on the Procurement⁴ of Facility Management services, and certainly no "best practice" either nationally or internationally. Whilst the Office of Government Commerce in the UK promote a 'best practice in procurement' (OGC, 2004) it is concerned with accessibility, transparency and accountability in the purchasing of goods and services by UK government agencies.

In Australia there are Commonwealth and State Government procurement policies controlling the contacting methods of involving government funds.

- Commonwealth Procurement Guidelines, January 2005
- NSW Government Procurement Policy and the NSW Government Code of Practice for Procurement, 18th January 2005
- Victoria Government Purchasing Board Procurement Policy, 2002
- Queensland State Purchasing Policy, 2nd Edition 2004
- South Australian Construction Procurement Policy Project Implementation Process (PIP), 2005
- Western Australian State Supply Commission Policies and Guidelines, 30th July 2004
- Tasmanian Procurement Practices Manual including Maintenance of Building Assets, 2005

⁴ The research team did not look back to literature prior to the 1990's: Firstly, because FM only began emerging as a profession after 1991, and secondly as it was assumed that anything more than 15 years old would be out of date.

- Northern Territory Procurement Code and Procurement Policy Guideline, May 2003
- ACT refer Commonwealth Procurement policy

Much of the literature that does exist is discursive reporting specific cases and implementations such as hospital maintenance (Lavy and Shohet, 2004), paper mill maintenance (Henderson, 2000), highway construction (Battelle, 2003) etc. Virtually none deals with testing of hypotheses, experimentation, measurement of outcomes, or stand the test of replication.

In Australia the FMA's Facility Management Contracting Guidelines (2003) sets out to "assist in identification and assessment of the contractual requirements needed to deliver facility management services...It assumes that options have been reviewed and a decision made to contract...There are many different ways of delivering a facility management service and some ways are more appropriate than others to a particular organisation." (p.1). The FMA Guidelines cover the broad range of issues to be considered in the business case for the procurement of out-sourced services but cannot be said to prescribe an optimal route for specific situations. Procurement of FM services is subordinated to strategic priorities of individual organisations: similar organisations might deal with the same issues differently and with good reason. "In the complex and ever-changing world of contracts and contract formulation it is not practicable for one set of guidelines to cover all issues..." (p.2).

Facility Audits and Post Occupancy Evaluations can include a range of facility performance measures and indicators, without an accepted industry standard. Ballesty (1999) identifies three critical dimensions of assessment for any facilities as Physical, Functional and Financial performance. "These three variables are inextricably linked but the significance of this relationship is often missed by those whose pre-occupation may be with only one particular facet of property or construction. In the end significant benefits for individuals, organisations and the community are available if optimum efficiency and effective performance is achieved." (Ballesty, 1999).

Luciani (2005, 2005a, 2006) has reported the initial results of his PhD studies comparing in-house to out-sourced FM services, in which he finds "value" varying cyclically over time for both methods of procurement. Details of his metrics for "value" remain to be published, so as yet the relevance of this research to Australian organisations cannot be defined. Initial published results indicate that contractual relationships should be reviewed or renewed at regular intervals, and indeed modes of provision changed in order to preserve "institutional memory" and IP. This poses a contrary point of view to the hypothesis that long-term contracts promote better partnering, hence more effective service.

There is an extensive research literature in the procurement of *projects* (e.g. Ambrose & Tucker, 2000, Gerrish & Hodgson, 1998, Department of Education, 2005, etc.). However, "operations and projects differ primarily in that operations are ongoing and repetitive while projects are temporary and unique...A project is a temporary endeavour undertaken to create a unique product or service. *Temporary* means that every project has a definite beginning and a definite end. *Unique* means that the product or service is different in some distinguishing way from all similar products or services." (PMBOK, 1996). Facilities management services do not fall within this definition of "project" and are operations.

This research literature includes studies based in the construction sector, and in the procurement and "rolling-out" of IT projects. The research literature for service⁵ provision is focussed largely on applications in infra-structure, and strangely, a fair number of studies appearing on database searches relating to the de-commissioning of nuclear power plants. The range of research literature probably reflects governments' research priorities. The bibliography below indicates the range of articles read in the preparation of this report. Many

⁵ Here we refer to labour intensive FM services rather than 'building services' such as HVAC, electrical supply etc.

documents selected from keywords were filtered immediately as the titles appeared irrelevant⁶.

A further consideration of the procurement of FM services is the anecdotal evidence from FM practitioners to the effect that good managers can make poor contracts work for the benefit of both parties, whilst poor managers can confound the best of contracts.

4.3 Decision-making Strategies and Guidelines for Procurement of FM Services

By the procurement of FM services is meant the processes and procedures employed by an organisation to obtain the services required – thus a tactical response to deliver needs to fulfil strategic imperatives. As Bertolini et al (2004) note there are both advantages and disadvantages in arrangements. Speaking of outsourcing maintenance they note “a set of potentially attractive benefits can be reached such as to increase labour productivity, to reduce maintenance costs, to focus in-house personnel on “core” activities, to improve environmental performances, to obtain specialist skills not available in-house, to improve work quality, etc. However, outsourcing also involves a set of drawbacks that must be taken into account by the customer: Loss of control and loss of a learning source, because an internal activity is externalised; loss of knowledge of the plant; possible dependencies on the supplier; variations in the quality of the product given to the customer; and problems among personnel, since they lose their functions.” (Bertolini et al, 2004)

Management textbooks assume that a well run organisation is logically aligned: That is, that decisions are made in a logical (if iterative) process. This process starts with the organisations mission, from which the planning, organising, staffing, directing, and controlling functions are derived. The devolution at each level involves policies, programmes, and procedures that are established to enable the organisation to achieve its mission and goals and are logically integrated and mutually supporting.

Tranfield et al (2004) identify a framework of an eight part interrogation sequence involving 31 questions the first 23 of which an organisation has to logically step through in order to arrive at the parameters within which to arrange procurement of the assets that form their facilities. The focus of these questions is present in Sections 1 and 2 of the FMA’s Facility Management Contracting Guidelines (2003).

Tranfield’s sequence may be translated into a series of 27 questions relating to Facilities Management, the first 20 of which the organisation needs to step through in order to arrive at the parameters within which their Facilities Management should be organised, taking into account the need to justify their assets and services in terms of their mission. These questions have implications not only for the facilities, but also the Building Information Models (BIM) that support their management.

These questions are concerned by grouping with eight areas demonstrated in the following sections.

4.3.1 Corporate Strategy

Which business is the organisation in?

What is the organisation trying to achieve?

What are the core and sovereign parts of the organisations business?

These questions identify the activities that are essential to the fulfilment of the organisations mission, as well as those that are secondary, tertiary or incidental. Whilst many business

⁶ The records of database searches are also available.

organisations are profit driven, many public organisations have mandated purposes in which the facilities they require are 'a necessary evil' (Leifer 2003) in that they tie up capital because there is no market in, for example, law courts. There is still debate about the benefits of public private partnerships (PPP's) in delivering such facilities and services.

Sydney Opera House's stated vision is "to excite and inspire the imagination. Our promise is to take people on a journey from the ordinary to the extraordinary into a world where the inspiration of the building outside is reflected in all we do" (p.4). The Annual Reports report detail its achievements and these are indicated by number of presentations, number of performances, and numbers in the audience (Sydney Opera House, 2005).

Sydney Opera House as a facility is a primary revenue generator in that its performance spaces are leased to presenting companies. In addition, some of its spaces are leased out to food, beverage and retail operators. As an iconic building Sydney Opera House is integrally involved in the enterprise as being a feature of patrons' experience of the performances and is an incentive for repeat business. That it is also a focus for visitors to Australia does not necessarily add to the organisation's revenues, but certainly adds to the National and NSW State economies.

4.3.2 Asset Strategy

What assets, facilities and services does the organisation need to achieve its strategic purpose?

What are the overriding purpose and function of these assets and facilities?

What services do the assets necessarily require?

What are the goals to be achieved through the effective management of the asset base and its servicing?

These questions identify the range of facilities that the organisation fundamentally requires and the support services that their provision requires, for example, repairs and maintenance, cleaning, etc.

Whilst the ownership and responsibility for Sydney Opera House is a given it should be acknowledged that the organisation's facilities extend beyond the performing arts venue itself to include leased office space and storage in three other Sydney locations. As leased premises Sydney Opera House has only limited control and influence over these sites and they are not included in the FM Exemplar research.

The purpose and function of Sydney Opera House as a facility involves performance spaces along with those services necessary to support them. The role of these facilities is established in the Annual Report "Maintain and enhance the Sydney Opera House as a cultural landmark, performing arts centre and architectural masterpiece" (Sydney Opera House, 2005). The goals for cleaning and building fabric maintenance at Sydney Opera House have been phrased in terms of the BPI and BFI indices that have been developed in order to establish a desirable level of cleaning and maintenance and monitor what is actually achieved (Akhurst, 2005).

4.3.3 Asset Knowledge

What assets does the organisation need to own? (Functional Spaces)

What assets does the organisation own? (Asset Register)

What state are the assets in? (Condition Register)

Where are these assets located? (Digital locations / CAD / CAFM data)

The answers under (2) asset strategy lead to the above (3) asset knowledge requirements: As intimated above, the availability of assets and services depend upon the existence of a competitive market. An organisation needs an asset register including the asset's current condition, remaining economic life, and other data. This data would be usefully associated with the digital model to form the BIM. The information in the BIM should feed into existing management information systems such as financial control systems.

The answer to the first question for Sydney Opera House, as with any organisation, would extend to non-core activities and spaces, for which there may be no external market, which must be procured in order for the performing arts business to remain operational.

Being an iconic facility, a fact emphasised by its heritage listing, the condition of Sydney Opera House is of major importance, hence the development of their Building Presentation Index (BPI), and Building Fabric Index (BFI).

As to the final question in this grouping, the larger the organisation the more assets are involved, and the more essential to know where they are.⁷

4.3.4 Asset Monitoring

How is the performance of the asset and its servicing measured?

Is the current delivery of the service acceptable?

What is the rate of asset deterioration?

Are there alternatives approaches?

There is the old management adage that 'if you can't measure it, you can't manage it'.

However, Akhurst raises the practical challenge that managers are often called upon to manage with incomplete information. Drucker commented decades ago that "the manager has a specific tool: information" (Drucker, 1963). More recently it has been noted that in a successful organisation "the control system is built on the belief that people at all levels will make the right decisions if they are provided with the appropriate information" (Samson, 2003). The impact of IT systems on business is the increasing penetration and scope of recording, measurement, and monitoring of all aspects of an organisation's operations such that managers do not have incomplete information.

As in the case of the Building Condition Index (incorporating the BPI and BFI) being adopted by Sydney Opera House the performance of the assets and services need to be measured and monitored. Once this has been achieved, these measures can be included as performance thresholds for Service Level Agreements as has been utilised in Sydney Opera House's contracts. Performance measurement also facilitates the application of benchmarking, management by exception and continuous improvement.

It is often easier to apply quantitative methods to the physical aspects of FM performance than to the soft services: technical performance measures such as availability, serviceability, downtime, failure rates etc. can be readily defined in standards and agreements. For instance terotechnology deals with "the pursuit of the optimum technical and economic cost of ownership or lease of a facility over its whole life span from conception through acquisition to operation and finally disposal" (FMA, 2001).

⁷ For example, the University of Sydney has to manage over 500 cloakrooms, and therefore in order to produce meaningful work orders must define which space and equipment needs attention.

Tracking the history of individual assets maintenance allows their rate of deterioration to be monitored. It further allows predictions to be made as to when replacement is a better option than continued repair, leading to more accurate budgeting, and planning for replacement and sinking fund calculation.

4.3.5 Asset Management and Operational Level

What assets and services must the organisation sustain?

What assets and services should the organisation acquire or replace?

What assets and services can the organisation divest?

Which of the planned activities should be provided in-house?

Which of the planned activities should be out-sourced?

The first three questions follow on from the Asset Knowledge grouping above.

There may well be options for procuring both assets and services: for example for assets; purchase, lease, PPP, BOOT, etc. For services the provision may be dealt with by in-house staff or outsourced. For the provision of both assets and services submission to the scrutiny of a 'business case' the most beneficial mode of procurement should be manifest.

In the case of Sydney Opera House in relation to its cleaning and building fabric maintenance activities, the decision to continue to outsource was endorsed, but review revealed dissatisfaction with the existing contracts. This resulted in the innovative use of a tendering process using a cooperative contract for outsourced services (refer separate Services Procurement report). This approach was designed to involve the successful Tenderer in understanding the business objectives and culture of Sydney Opera House, so they would be better placed to be a value adding "partner".

The FMA Contracting Guidelines identifies four generic types of contracting relationship: traditional; cooperative; partnering; and alliancing (FMA, 2003). In terms of partnering Todeva & Knoke (2005) have identified thirteen "basic forms of inter-organisational relations appearing in theoretical and research literatures" ranging from *Hierarchical relations* where through acquisition or merger, one firm takes full control of another's assets and coordinates actions by the ownership rights mechanism, to *Market relations* that are arms-length transactions between organisations coordinated only through the price mechanism. "The principle dimension ordering this classification is that, from bottom to top, collaborating firms experience increasing integration and formalisation in the governance of their inter-organisational relationships." (*ibid*)

Cunic summarises the risks and benefits of six types of contract under the headings of: Owner's risk; Contractor incentive to improve Client's business; Contractor impact on owner's business KPIs; Cost of execution; Flexibility; Synergy and team work; and Continuous improvement performance delivered to the owner (Cunic, 2003) in the context of plant services in the hydro-carbon industry.

The level of 'partnership' that an organisation wants with its Service Providers will clearly be unique to the circumstances. It is likely that decisions will depend upon the criticality of the service to the organisation and the distribution of risk as much as cost effectiveness.

The intent of partnering is the assumption that the development of mutual experience of the Client organisations operations the greater the mutual trust, leading to less supervision – hence reduction in transaction time and cost – for both parties, although Luciani (2005) throws doubt on this.

4.3.6 *Planning for Capital Investment*

Are these assets and their servicing included in the budget?

Is there a business case to include them?

4.3.7 *Intervention Decisions*

How should assets be classified in the Building Information Models (BIM) in order to optimise Total Preventive Maintenance?

Which combination of interventions provides the best balance of costs, risks and performance over the entire life of the asset?

4.3.8 *Managing Strategic Management of Long Term Assets*

How do I manage the change to a strategic approach?

How do I get the staff / stakeholders to follow?

How do I improve / create a stewardship culture?

These last three sets of questions (6 – 8) are included here for completeness as they are consequent to the preceding decisions and the resulting reviews involving budgetary considerations. These would therefore arise when considering questions on asset management planning (or more generally capital acquisitions and disposals, including strategy and finance), and be extrapolated over the life cycle analyses. However, these have not been addressed under the scope of the current FM research.

4.4 *Summary*

The range of facilities required is governed by the corporate purpose. Once the necessary facilities have been ascertained and obtained, the processes and procedures necessary to run them can be designed, after first specifying the Facility Manager's scope and responsibilities. Performance targets and metrics, and hence the potential for performance audits and benchmarking outcomes, should then be incorporated as KPIs in the agreed Service Level Agreement. These considerations should be contemplated in an organisation's procurement policies and management information system.

5. Conclusion and Future Development

5.1 Conclusion

This report has completed three phases of the procurement research, including procurement case study, procurement methods contract outcomes and general decision-making framework and guidelines for selection of appropriate FM procurement route.

The innovative methods and strategies delivered by this research can be implemented by the Facilities Management industry at the management, operational and educational level. In addition the outcomes are being linked with the Facilities Management Action Agenda to provide an implantation tool for this Government and Industry initiative.

5.2 Future Work

Recommendations for future work in conjunction with deliverables in the following quarters are presented as follows.

The decision-making framework and guidelines for procurement of FM services will be extended to cover the decision-making at multiple levels, including corporate level, operational level and performance level, Figure 8. The interactions between the multi-level decision-making will be analysed using Sydney Opera House as exemplar. Also, the role of data management and knowledge management to support decision-making will be discussed.

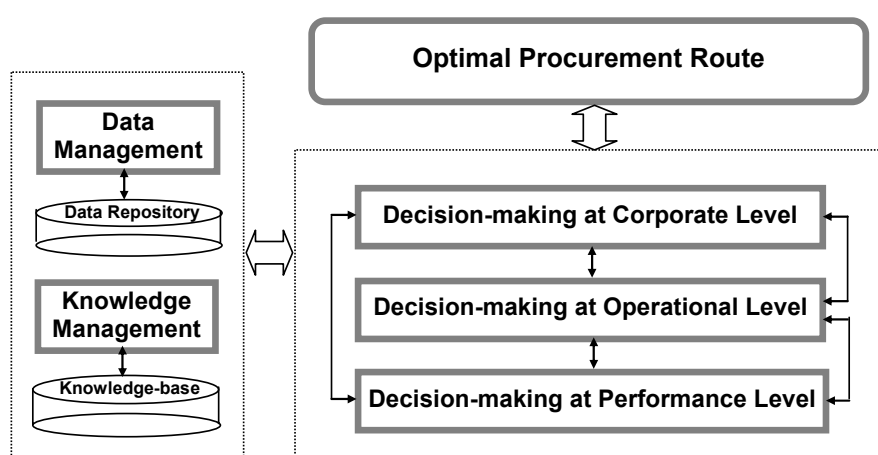


Figure 8 An illustration of multi-level decision-making for procurement of FM services

The final evaluation of the case study outcomes will be undertaken in the following quarters to conclude the assessment of Service Providers' performance, as recommended in Section 3.

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7. Appendix A - Procurement Questionnaire for Contractors

The purpose of the questionnaire for Contractors is to explore the effectiveness of the tender process as seen by the participating Contractors. The questionnaire addresses the period after an EOI process produced a short-list of Contractors invited to tender and comprised: pre-tender workshops, request for tender and post-tender clarifications. Individual responses will be treated in-confidence.

1. Overall, how clear was it made in the tender process that SOH was seeking a Contractor with a good understanding of the SOH business?

Extremely Clear Very clear Clear Unclear

2. Overall, how clear was it made in the tender process that SOH was seeking a Contractor with a good cultural fit with Sydney Opera House?

Extremely Clear Very clear Clear Unclear

3. How useful did you find the pre-tender workshop in understanding SOH's expectations?

Extremely Useful Very useful Useful Not Useful

4. How useful did you find the site visits in understanding SOH's expectations?

Extremely Useful Very useful Useful Not Useful

5. How clear were SOH's expectations in the request for tender documents

Extremely Clear Very clear Clear Unclear

6. By which of the following additional means did you research SOH's business (tick those that apply):

- a. SOH web site
- b. SOH Annual Report
- c. Private site visit
- d. Attendance at a performance
- e. Attendance on an SOH tour package
- f. Other (please specify).....

7. In preparing your tender in what order were the following of value to you? (rank the most useful 1, then 2, 3 & 4)

- a. Pre-tender workshop
- b. Site Visits
- c. Request for Tender documentation
- d. Your own research

8. How consistent were the terms and conditions of contract with creating an equal relationship rather than a traditional "master/servant" relationship?

Extremely Consistent Very consistent Consistent Inconsistent

9. To promote a "partnership" Sydney Opera House offered a 2-year contract with extensions to make 10 year contract. How significant was this in your approach to the tender?

Extremely Significant Very Significant Moderately Significant Not Significant

10. How was your approach to the tender influenced by the maximum contract length (tick all that apply);

- a. Additional time/resources were invested in preparing the tender.
- b. Fixed/investment costs written off over a longer period than the initial 2-years.
- c. Tender included proposals to be implemented beyond the initial 2-years.
- d. Tender price was discounted by more than on a shorter contract.
- e. Other (please specify).....

11. The specification sought to define performance standards through KPI's using a condition index.

- a. How clear was this approach to you?
 Excellent Good Average Poor
- b. How reasonable was the allocation of risk?
 Excellent Good Average Poor

12. If a similar tender process was used again what other KPI's would you propose?

- a.....
- b.....

13. By your own assessment what proportion of the tender documentation you submitted was written specifically for SOH as opposed to being generic corporate material?

- 75-100% 50-75% 25-50% Less than 25%

14. How many man-days were spent preparing your tender (including site visits, workshops etc)?

15. Did you spend more or less time preparing the tender than you would on a typical tender of similar value?

- a. 25%+ more b. 10-25% more c. About the same
- d. Less by 10-25% e. Less by more than 25%

16. How useful was the de-brief process to you?

- Extremely Useful Very useful Useful Not Useful

17. Which of the following aspects of this tender were an improvement on other tenders you have experienced?

- a. Communication, Overall
- b. Workshop process
- c. Clarification of risk and risk sharing
- d. Ability to be flexible and innovative
- e. Other (please specify).....

18. Identify up to two ways by which the tender process could have been improved?

- a.....
- b.....

8. Appendix B - Procurement Questionnaire for Tender Evaluation Committee

The purpose of this questionnaire is to explore the effectiveness of the tender process as seen by the participants. The questionnaire addresses the period after the expression of interest (EOI) process which produced a short-list of suppliers invited to tender. The tender process comprised: pre-tender workshops, request for tender and post-tender clarifications.

1. How useful did you find the pre-tender workshop in obtaining Contractor input to the tender documents?

Extremely Useful Very useful Useful Not Useful

2. Overall, how would you rate the participation of the various Contractors in the workshop process?

Excellent Good Average Poor

3. Overall, how would you rate the Tenderer's understanding of the use of the Building Condition Index?

Excellent Good Average Poor

4. How would you rate the tender process compared to more traditional tender processes?

Excellent Good Average Poor

5. Compared to a traditional tender how much time did you spend evaluating the tenders?

a. 25%+ more b. 10-25% more c. About the same
d. Less by 10-25% e. Less by more than 25%

6. If a similar tender process was to be run in what 2 ways could the workshop process be improved?

a.....
b.....

7. Overall, how would you rate the Tenderer's understanding that SOH was seeking a Contractor with a good understanding of the SOH business?

Excellent Good Average Poor

8. Overall, how would you rate the Tenderer's understanding that SOH was seeking a Contractor with a good cultural fit with Sydney Opera House?

Extremely Clear Very clear Clear Unclear

9. Overall, how would you rate the Tenderer's understanding that SOH was seeking to creating an equal relationship rather than a traditional "master/servant" relationship?

Extremely Consistent Very consistent Consistent Inconsistent

10. In your observation, how significant was the contract length in the Contractor's approach to the tender?

Extremely Significant Very Significant Moderately Significant Not Significant

11. Which of the following best describes the effort involved in understanding and evaluating the tender submissions?

a. Significant effort was required

- b. Considerable effort was required
 - c. The effort required was as expected
 - d. It was easier to evaluate than expected
12. Which of the following best describes the effort involved in understanding qualitative issues in the tender submissions?
- a. Significant effort was required
 - b. Considerable effort was required
 - c. The effort required was as expected
 - d. It was easier to evaluate than expected
13. What 2 factors most contributed to the effort or ease of evaluating tenders?
- a.....
- b.....
14. How clear was the information the Tenderers submitted during the tender process?
- Extremely clear Very clear Clear Not Clear
15. In your experience was the quality of the tenders?
- a. Of a higher standard than expected
 - b. As expected
 - c. Of a lower standard than expected
16. How significant were the Tenderers responses to requests for further information in the assessment?
- Extremely Significant Very Significant Moderately Significant Not Significant
17. Do you feel historical asset management data would have assisted the Tenderers?
- Excellent Good Average Poor.
18. Your assessment for the non-commercial component reflected your intuitive response?
- Strongly agree Agree Do not agree
19. In a similar tender process what other evaluation criteria would you suggest?
- a.....
20. In a similar tender process what evaluation criteria would you not consider relevant?
- a.....
21. In a similar process how would you change the weightings of the criteria, specifically between the commercial and non-commercial components?
- a.....
- b.....
22. Which of the following aspects of this process were an improvement on other processes you have experienced?
- a. Communication, Overall
 - b. Workshop process
 - c. Clarification of risk and risk sharing
 - d. Ability to be flexible and innovative
 - e. Other (please specify).....

23. Identify up to three ways by which the tender process could have been improved?

a.....

b.....

c.....