International Review of Procedures for Selecting Procurement Routes for Construction Projects

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Final Report

PART 2: Country Reports

May 2005

Country report: Australia

1. Introduction – construction in Australia

Australia is a federal country, with government responsibilities split between the Commonwealth government, based in Canberra, and the Governments of the States and Territories. The latter are responsible for the regulation of construction and are major clients of the industry. The Government of New South Wales spends around $AUS 7Bn (4Bn Euros) annually on construction, a larger sum than any Commonwealth body other than the Department of Defence.

The Australian Construction and Procurement Council (APCC) brings together representatives of the Commonwealth and State governments in order to co-ordinate policies and requirements. It issues guidelines and model documents, which States and the Commonwealth government then implement with perhaps local variations. However, the APCC does not appear to have produced guidance on the selection of procurement routes.

Several individual States, notably New South Wales and Queensland, have used public procurement as a tool for improving the performance of the construction sector. This commenced in New South Wales in the early 1990s following a Royal Commission into the industry stimulated by a high level of labour disputes and allegations of corruption in the award of tenders. Both States have issued guidance on the selection of procurement routes, as part of their asset management strategies.

This country report therefore does not aim to provide an overview of documentation and experience across Australia. It summaries relevant documentation produced by the Commonwealth Government and those of New South Wales and Queensland, supplemented with material obtained from contacts in New South Wales. Unfortunately, it did not prove possible to obtain additional material from Queensland, nor to explore private sector experience.

2. The organisation of construction in Australia

The standard construction business system in Australia is modelled on that of the UK, with comparable responsibilities for architects, consulting engineers, contractors and cost consultants. A range of contract forms are used, as in the UK, but there is no information available on the amount of business conducted by each route. The New Museum of Australia in Canberra was constructed through a pioneering 'alliancing' project (ie partnering, with the parties being bound by a specially prepared contract). Their experience was monitored through a research project which was the subject of a presentation at the Revaluing Construction conference in Manchester in 2003.

There are some examples of public-private partnerships, but this approach has not been used extensively.

3. Official guidance

Commonwealth

The Commonwealth government's procurement guidelines[1] establish that securing value for money over the whole life of the asset is the basis for procurement. They thus reject 'initial first cost' as a principle for a purchase decision. The guidelines are, though, phrased in general terms, and do not cover construction procurement specifically.

[1] Commonwealth Procurement Guidelines. Department of Finance and Administration, Canberra ISBN 0 9752394-6-5 (2005)

New South Wales

As part of its Total Asset Management Strategy, the government of New South Wales has a Capital Project Procurement Manual. Included in the Manual are 'Guidelines for Procurement System Selection'[2]. These cover the procurement of construction projects where the State remains the funder. In an introductory section, the guidelines indicate that alternative procurement routes (BOOT etc) should be considered 'when funding is limited but demand requires early procurement'.

The guidelines define the procurement system as the interaction of the 'delivery system' and the 'contract system'. The delivery system is further categorised as having four options:

- Single contract
- Multiple contract
- Period contract
- Direct labour

The contract system has five options:

- Construct only
- Design and construct
- Design development and construct (ie when the client has prepared a concept design
- Design novate and construct
- Commercial development (ie BOOT etc)

The discussion of the choice of systems is then focussed on the risk to the client; the preferred system will be the one that 'exposes the project to the least crucial risks'. Factors which affect the selection are divided into 'agency constraints' and 'physical constraints'. The former include:

- Available budget and it flexibility
- Funding source
- Cashflow restrictions
- Time for completion and its flexibility
- Need for staging
- Completeness, clarity and timing of brief
- Project profile
- Availability of appropriate resources in-house
- Corporate objectives

Physical constraints include:

- Type of construction (new work, refurbishment or maintenance)
- Building or civil engineering
- Occupied premises
- Complexity of design
- Location of project
- Size of project

The guidelines provide an extensive analysis of the merits and disadvantages of each delivery system and contract system. Broadly, the factors considered are similar to those in other countries: the ability to shorten timescales, the influence of the client, the degree of novelty or uncertainty in the brief etc

[2] Guidelines for System Procurement Selection. Public Works Department, NSW Government. ISBN 0 7310 1007 8 (2002)

The guidelines conclude with two-part 'matrix' which provides a framework for the overall evaluation of risk. The first part deals with the delivery system and is aimed at informing the choice between a single contractor and multiple contractors. The second informs the choice of contact system once that decision has been taken. Each option is rated High, Medium or Low in terms of the way that it may pass a specific risk to the client, but the risks themselves have to weighted individually according to the characteristics of the project.

The matrix is reproduced below (Table A1).

Risk to agency	Risk weighting	Single contract	Multiple contract
Cost and/or time impact due to co-ordination difficulties		L	H
Inability to control cashflow		H	L
Cost impact if project re-designed during construction		H	L
Inability to economically fast-track to achieve early commencement or completion		H	L
Variability of end cost to pre-construction budget		H/M	L
Inability to react to technological changes economically		L	H
Cost and/or time impact of contractor's failure to complete contract(s)		H	L
Cost and/or time impact due to documentation errors between contracts		H	L
Cost and/or time impact of individual documentation errors		L	M
Inability to directly select sub-contractors/suppliers		H	L
Inability to economically amend/impose changes in staging		M	L

Table A1: Assessment of delivery systems

Queensland

As in New South Wales, Government guidance on the procurement of construction in Queensland is set in the context of an Capital Works Management Framework. It has a policy that Public Private Partnerships should be considered for projects costing more than $Aus30m (around 20m Euros) or having a Net Present Value of more than $Aus50m.

a. Buildings

The key document 'Procurement Selection and Generic Contracts'[3] covers the characteristics and use of different forms of contract where the Government retains ownership of the asset, ie it does not cover the factors that might lead to a decision to use private sector funding through BOOT or other forms of 'concession' contract.

[3] Procurement Selection and Generic Contracts. Department of Public Works (undated) www.publicworks.qld.gov.au.

It states that 'the overarching principle is that the risk should rest with the party best able to manage it' and that 'a party should bear the risk when risk is within its control unless a significant economic, cost, time or quality factor determines otherwise.'

The first stage of the process put forward is therefore the evaluation of risks in the project in order to decide whether it is a 'High Risk/Significant' (HRS) project. Broadly, these are projects where failure to meet project objectives would critically affect the delivery of services to the community or major projects which are bound to be the subject of intense scrutiny. HRS projects have to be referred to the Department of Public Works for advice.

The focus at the next stage is on the project timescale. The time from inception to delivery is estimated, making allowance for all necessary stages and for adventitious (weather etc) factors. This provides the input to the third stage which is to determine the constraints on the project. If the principal constraint is that of time, in that delivery is required in a timescale that a traditional procurement system could not meet, then this points to the use of a non-traditional system. On the other hand, the principal constraint may be that of cost, in which case a system that provides certainty of final cost through passing risk to the contractor may be used (although this may not provide overall the best value, since the contractor will price in risks and compromise quality). Finally, it the crucial criterion is that of quality, the client should retain control of the consultants and use a traditional approach.

The guidance document then offers a matrix to assist the selection of a suitable route, from a portfolio of two 'traditional' and four 'non-traditional' routes:

Traditional
1. Conventional separation of design and construction
2. Design and construct lump sum

Non-traditional
3. Design and construction management – two-stage tender – Guaranteed Maximum Price (GMP)
4. Managing Contractor – D and C management – GMP
5. Managing Contractor – Documentation and Construction Management – GMP
6. Managing Contractor – Construction Management – GMP

The non-traditional approaches differ in the responsibility of the contractor for design. All allow for design and construction to overlap, thus shortening the overall project timescale. But some expose the client o greater risk of claims and extra costs because of design errors.

The matrix is very briefly summarised in Table A2.

	Procurement route					
Characteristic	1	2	3	4	5	6
Time efficiency	L	H	M/H	M	M	M
Cost certainty	H	H	M	M	L	L
Ability of client to control quality	H	L	L	L	M	H

H – high M- moderate L - low

Table A2: Queensland – selection matrix

b. Roads

The Department of Main Roads of the Queensland government has produced extensive guidance on the selection and use of different procurement routes[4]. It provides a tool for making a preliminary assessment of the suitability of different procurement routes, but states

[4] Major Roads Project Delivery Options. Volume 1 – Selection of Delivery Options. Queensland Department of Main Roads (2003). www.mainroads.qld.gov.au

that workshops should be used for the larger projects (more than $Aus20m) to decide the route.

The tool initially categorises the various procurement options into three groups, essentially depending on the degree of predictability in the project:

Build Own Operate
Build Own Operate Transfer
Alliancing
PPP
Managing Contractoir
Cost Reimbursable
Performance Incentive

Novate Design and Construct
Design and Construct

Traditional Contract

The guidance discusses of the principal characteristics of each route, and their advantages and disadvantages. It also includes a summary of the factors to take into account when assessing the risks in the projects, and how the result relates to the pre-qualification system for contractors used by the Department. Under this system, contractors are given a risk rating which determines whether they can be considered for different classes of project (The Public Works Department operates a similar system.)

The choice between these three groups then depends on the outcome of an assessment process where different aspects of the project are rated on a 1-10 scale and weightings are applied to each aspect, so that the final output is also on a 1-10 scale. The factors (not all of which need be used, and others may be added) and relevant questions for determining the scores, are shown in Table A3. The result is used as follows:

>7	use one of the first group of procurement routes
3-7	use on of the second group
<3	use a traditional contract

The guidance suggests that further analysis, including a workshop, may be required to determine the most appropriate route within these groups.

Overall, the guidance document is one of the clearest and most comprehensive available.

3. Private sector procurement

Little information on private sector practice has been identified. However, the Australian Contractors Association have published a guide[5] to procurement which would be relevant to all clients. Most of the guide concerns tendering processes but it also sets out the range of procurement and provides a 'brief introduction' to the selection of project delivery methods. This is very similar to that used by Queensland Main Roads.

Selection is based on risk assessment. The process classifies the various risks associated with a project in terms very similar to those used in Queensland:

- Completion risk – the project will not be completed, or will be sufficiently late to impact on viability
- Cost risk – the risk of exceeding the project budget
- Environmental risk - the sensitivity to environmental or heritage issues
- Industrial relations risk – concerning disruptions in the workforce
- Technological risk – the sensitivity to new technologies

[5] Guidelines for Tendering. ACA (2001)

- Operational risk – the risk that the facility will not perform to specification
- Market risk – it may not generate sufficient income
- Political risk – a change of government or of taxation may affect the return on investment

Each risk is rated on a 1-5 scale and weighted. The resulting score is adjusted to a 1-5 scale also. The 'bands' used to judge the outcome in terms of the appropriateness of a procurement route are <1.5, 1.5-3.5 and >3.5, which correspond directly with the bands used by QMR.

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Category	Questions	Weighting

Scope	• Is the scope able to be well defined?
	• Can the scope be fully defined?
	• Is the scope likely to change:
	  o During detailed design
	  o During construction
	• Does the project have multiple objectives beyond the normal time, cost, quality and safety?
	• Is functionality fixed?
	• Does the scope include operations/maintenance?	

Time	• Are there seasonal externally imposed constraints on delivery? • Is early completion of value to the client? • Is it necessary and/or possible to fast track? • Is timetable able to be negotiable? • Will late project delivery produce adverse consequences?	
Risk	• Is risk able to be clearly defined? • Is the quantum of risk high? • To shat degree can risks be mitigated? • Is the risk profile best shared between owners and contractors? • Is the premium for risk mitigation acceptable?	
Constructability	• Is the required technology proven/new? • Are the technology and materials widely practised/available from a number of sources? • Are construction processes simple or routine? • Is construction input to design imperative to success? • Is design input to construction imperative to success? • Will traffic management be complex? • Will packaging improve constructability? • Does the project have multiple interfaces (eg other services, other projects etc)?	
Sensitivity	• Is the project politically sensitive? • Is the project environmentally and culturally sensitive? • Are there local stakeholder/business sensitivities? • Are sensitivities able to be clearly defined? • Is the quantum of sensitivities high? • To what degree can sensitivities be mitigated? • Is the sensitivity best shared between owners and contractors? • Is the premium for sensitivity mitigation acceptable?	
Capacity and capability	• Are sufficient contactors' resources available in the marketplace? • Do we need the resources of a specialised contractor? • Will the project need special contractor capabilities? • Are sufficient owner res ources available? • Do we need specific high owner capabilities? • Will the project need special owner capabilities? • Is the owner willing/capable to be part of an integrated team?	
Budget	• Is there a requirement to meet a guaranteed maximum price?	
Location	• Is it a remote location? • Is it a greenfield or brownfield project?	
Total		

Table A3 Queensland Main Roads Project Assessment Tool

Case Study

Port of Brisbane Motorway

An Alliance project successfully constructed a 5km four-lane motorway, with 12 major bridges, with a 10% reduction in the estimated project cost and other tangible benefits.

The client for the motorway was Queensland Main Roads. They chose an alliance approach on the basis of previous good experience with smaller projects carried out in this way. These had been instituted against a background of concerns over performance and quality in roads contracts, problems experienced with community relations and general dissatisfaction with traditional processes.

The partners in the alliance were QMR, Leightons (contractors), Parsons Brinckerhoff (engineers and project managers) and Coffey Geosciences. Together, they formed Queensland Motorways Ltd to carry out the works. Under the partnership, the parties took collective responsibility for the risks and shared the benefits of the project, through a pre-agreed formula. To promote the alliance approach, an in-house Culture Manager was appointed, who operated in part through providing coaching and support services. Personnel worked in integrated teams and joint activities such as value management workshops were used to create optimum designs and processes.

The alliance coped successfully with both technical and operational issues, for example creating environmental improvements in an environmentally sensitive area with expenditure of $Aus250k rather than the $Aus11m initially thought to be required. They had to overcome established mind-sets within the partner organisations, particularly in staff not directly involved in the alliance.

The final result showed:

- A 10% saving against the original estimated cost, half of which was used to deliver additional project benefits
- A 30% saving in construction time, with the motorway being delivered 6 months earlier than originally forecast
- 40% improvement in injury rates compared with the average for the contractor's civil engineering projects
- 30% saving in bridge construction costs compared with industry averages
- No residual contractual issues or risk of litigation

Country report: Belgium

1. Background

The population of Belgium is approximately 10.4 million, with around 4.4 million households. Economic growth is currently at around 2.5%: this is markedly above the rate in the earlier years of the decade, when growth was around 1%. The unemployment rate is estimated at around 8.5%.

The total construction market[6] is some 24.2 Billion Euros, made up as follows:

	Bn Euros	%
Residential construction:		
New	4.8	20
Repair and maintenance	5.9	24
Non-residential building		
New	5.3	22
Repair and maintenance	3.7	15
Civil engineering		
New	3.6	15
Repair and maintenance	0.9	4
Total	24.2	100

Construction of new non-residential buildings fell significantly in 2002 and 2003 but has since recovered a little and relatively strong growth is forecast. Expenditures on repairs have been constant. Residential construction fell slightly in those years but again is experience a growth, with 47200 completions expected in 2004. Civil engineering is a small proportion of the total market and has shown a decline since 2000, reflecting constraints on public finances.

2. The organisation of construction in Belgium

Statutory responsibilities
Under Belgian law, a registered architect or engineer has to be responsible for construction works, and they have to be carried out by a registered contractor. In building works, structural design is the responsibility of the engineer. The contractor is normally appointed by competitive tender on the basis of a detailed design. Architects are reimbursed for design through a fee based on the cost of the works and receive a separate fee for their supervision of the works. An architect or engineer is responsible for approving any variations to the works proposed by the contractor. Pre-qualification schemes are commonly used.

A distinctive role is played in 4-500 (generally larger) projects each year by the combination of project insurance and SECO, which is a *Bureau de Contrôle*. SECO is appointed by the client to provide technical supervision of the works and is then responsible for approving the original design and any changes, and for supervision of the works. Provided it has approved the design, the works are covered by 'project insurance' in addition to the professional indemnity insurance carried by the designers and contractors involved. The insurance is 'all risks' during the construction phase (potentially extendable for a further two years) followed by 10 year cover against major defects. The system forms the main element of technical control in Belgium, since there are few mandatory standards for construction and no system of public inspection of works

In the view of SECO and of independent observers, this system encourages innovation since there is independent appraisal of proposals (including those originating from the contractor with the aim of simplifying construction) with the client protected from risk by the insurance

[6] Data and trends from EuroConstruct national report, December 2004

system which, if failures do occur, will rectify them without the need to prove liability by any party. It also encourages more co-operative working amongst the parties to the contract.

However, the traditional division of responsibilities is perceived by some to lead to inefficiencies (eg the re-design of a project to enable more efficient forms of construction, the exploitation of any variations, and claims when problems occur), and there is undoubtedly interest in the introduction of other procurement routes (see below).

At the moment, though, most clients remain to be convinced about the advantages of non-traditional procurement rotes; it is possible that this reflects generally good performance by the Belgian construction industry, assisted by its distinct arrangements for independent technical control, but in the absence of reliable international comparative data this remains a speculation.

Design-build
Design-build has been introduced and is commonly used for industrial buildings, where designs can be more standardised.. Some firms have specialised in this form of construction. Technically, design-build might be seen to be a breech of the law governing the responsibility of architects but in practice it is carried out through an association between a contractor and an architectural firm, and so responsibility still rests with the architect.

Public-private partnerships
Public-private partnerships have been employed in some infrastructure works (eg tunnels) and in social housing. There is increasing interest in the concept, particularly by municipalities and in the health sector, and it is being promoted by the Ministry of Finance in order to overcome resource constraints.

Moreover, there is a long-standing 'experimental' programme in the social housing sector which has encompassed aspects of public-private partnership and design-build. This form of procurement was chosen by the Flemish Ministry of Public Works in order to promote high quality and innovation in construction, against a background of concerns about the quality of design and construction in social housing

Framework agreements
Framework agreements have not been employed for new construction; there is a perception that the larger clients do not wish to limit their ability to select architects and contractors by entering multi-year arrangements. However, such contracts have been used for maintenance works

3. Governance of public procurement

Public procurement in Belgium is governed by an Act which translates into Belgian law the requirements of the Public Procurement Directive. Under the Act, public clients for construction works costing over are required to have a competitive tender and to take the lowest priced offer, unless there are overwhelming reasons for not doing so (eg clear evidence of quality differences). One means of promoting satisfactory performance that is used is to restrict the initial tender list. Projects partially funded from pubic sources have more flexibility.

Because of the strict framework in which public bodies operate, there are no published guides to the use of alternative procurement systems.

4. Exploration of alternative procurement routes.

Partnering is only at an early stage of acceptance, with an institutional barrier to its deployment because of the potential conflict with the statutory responsibilities of the architect or engineer. However, in addition, there is resistance amongst clients to become more fully involved in the details of the project, with the call on resources for attending meetings etc and the risk that they will become responsible for design details. The effort involved in acquiring sufficient expertise to be able to play an effective part in the project team is also seen as a

barrier. And there are issues for the individual, in being more exposed to potential criticism if problems occur, and perhaps not sharing fully in the benefits if these are secured by new arrangements.

Despite the constraints on alternative procurement routes, a working group has been established by the Belgian Building Research Institute in collaboration with the Royal Society of Flemish Civil Engineers to develop and promote the case for more collaborative forms of procurement. The group met for the first time September 2004 and is intending to hold a conference in late 2005, in association with the BBRI events company Cobomedia, to promote its findings.

As a contribution to this group's work, one if its members produced a schematic of procurement routes, with comments:

- Client co-ordination
  The client contracts with the architect and engineer and with the main and specialist contractor, and co-ordinates the works. The client has complete control.

- Main contracting with co-ordination
  The client commissions design and planning for a fixed fee. This leaves financial risk with the client.

- 'Turnkey'
  The client contracts with the contractor the project at a fixed price, following a detailed design, therefore leaving risk with the contractor

- Design-build
  The client contracts for both the design (for a fee) and construction at a fixed price. In principle, this conflicts with Belgian law but it is accomplished through the contractor giving design responsibility to an independent architect.

- Developer-led contracting
  A variant of design-build where there is speculative development by the contractor who therefore is also taking responsibility for all aspects of the project.

The client's knowledge and capabilities is a significant factor in the choice of routes; a knowledgeable client will be able to employ the first routes but one with less knowledge of building will use design-build. This also influences the introduction of partnering since partnering exploits the ability of a team to develop new approaches against the client's statement of requirements. With the more defined specifications of the earlier types of contracting, this is less possible.

The paper went on to rate the advantages of each approach against factors of time, cost, quality, client involvement and added value.

The analysis was broadly accepted by the task group. However, it was felt that the advantages of each route needed to be related to the particular project and could not be assessed in the abstract.

5. Views of practitioners

A discussion with three practitioners from different backgrounds (social housing, contractor and project management) revealed both the benefits of partnering and factors which limited its applicability.

As defined by the practitioners, partnering involved (as in Denmark) the early appointment of a main contractor sometimes with the key specialist contractors (HVAC, electrical etc) also. This was made on the basis of a concept design and an indicative price. The main contractor then contributed to the development of the detailed design, without payment. The indicative price formed a baseline for future price estimates, with savings from that baseline being

shared among the partners according to a pre-set formula. After a detailed design had been completed, a final price was agreed. This could be a 'lump sum' for the main works and budget estimates for sub-contracted works, with a management fee. Experience showed that full transparency over costs required very detailed accounting which was difficult to justify.

Contractual relationships and responsibilities were unchanged; there was no attempt to establish a joint body to be responsible for delivery.

The virtues of the approach were seen to lie in the contribution of the contractor to the initial design, in place of the re-design that often took place following award of tender in conventional procedures. In addition, relationships conducive to early resolution of issues were developed, and experience showed that projects carried out through this form of relationship were achieved more reliably and within budget.

In addition, the client was fully involved in the development of the design, and this resulted in a greater level of satisfaction with the final output. However, it was important that all decisions were suitably recorded, with supporting information, in order to provide an audit trail that would protect all interests and prevent inadvertent acceptance of risks.

This approach also meant that construction could commence before all aspects of design had bee completed, thus reducing overall time to completion. This was important to some clients

However, the advantages relied heavily on the ability of the contractor to add value. In the social housing sector, this was constrained by the relatively conventional and well understood nature of the product. Social housing providers therefore used conventional procurement processes, based on lowest price tendering. Designs were developed against structured unit cost guidelines. Because most housing developments were small, they used local contractors with low overheads, who were familiar with the requirements, although all projects were individually tendered. Sometimes, social housing providers let all the specialist contracts and co-ordinated the works ('divided contracting', in Swedish terms). This provided assurance that the lowest price had been obtained but imposed administrative costs.

By contrast, very complex projects required strong co-ordination of a wide range of contractors. The redevelopment of Antwerp rail station to accommodate TGV trains was being carried out through construction management, with a project manager responsible for co-ordination of many specialist contractors, each appointed on conventional terms. Again, this facilitated an early start to construction.

Whatever the process, the project depended critically on the people involved. The traditional system could work well if the right relationships were established.

While public-private partnerships had not been widely used, it was possible for housing providers to participate in wider developments and thereby to utilise private sector investment provided there was a competitive element in the process. They could, for example, agree to purchase some housing in a mixed development, provided there was a competition for the overall development. Or they could contribute land to a development.

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Case Study

Construction of head office for telecommunications company

In 1996, the Belgian telecommunications company Telenet commissioned a 10.000m² headquarters office block in Mechelen to accommodate 600 people. The estimated cost was 8M Euros.

At that time, Telenet was a new company in a rapidly changing business environment. There was much uncertainty about the organisational arrangements that would need to be accommodated and a corresponding need for a high degree of flexibility in all the project partners. In addition, Telenet desired early occupation.

The project was undertaken on a partnering basis, with early appointment of the contractor. This enabled the most efficient construction processes to be employed and works to be started before completion of the full design. But the client had to consider carefully the basis on which to appoint the contractor, in the absence of firm information about the project design.

The first project meeting took place in October 1996 and handover of the first stage in June 1997. The client's timescale was met and the procurement route led to close links between design and construction factors, with minimum waste of effort. Customer satisfaction at the end of the project was high.

Country report: Denmark

1. The Danish construction market

The population of Denmark is approximately 5.4 million, with around 2.5 million households. Economic growth in recent years has been in the 1-2% range and the unemployment rate has been around 6%.

The total construction market[7] in 2004 was some 21.9 Billion Euros, made up as follows:

	Bn Euros	%
Residential construction:		
New	3.6	17
Repair and maintenance	6.0	27
Non-residential building		
New	3.9	18
Repair and maintenance	2.7	12
Civil engineering		
New	3.3	14
Repair and maintenance	2.4	11
Total	21.9	100

In recent years, the non-residential building sector has declined by around 15% from its peak in 2001 while residential construction has grown and civil engineering has oscillated between annual growth and decline, Overall, the market has declined slightly.

Most government works are procured by agencies with operational responsibilities; these are generally small bodies but there are three large public clients for buildings, concerned with government offices, universities and defence works.

It is estimated that 26000 dwelling units were completed in 2004, of which 14000 were for one or two families and 12000 were in blocks of flats. Social housing providers – principally non-profit Housing Associations which receive public funds and are therefore subject to the rules on public procurement – are significant in new residential construction.

2. The organisation of construction in Denmark

Conventional relationships
The standard construction business system in Denmark is similar to that in the UK, with comparable responsibilities for architects, consulting engineers, contractors and specialist contractors. Traditionally, contractors have been selected through a competitive tendering process following a detailed design prepared by the architect and with specialist input from a consulting engineer, and the lowest price tender has been selected, unless there were clear reasons for rejecting it. The contract has then essentially been for a 'fixed price', subject to agreed variations depending on any factors that were uncertain at the time of placing the contract. It has been mandatory for public sector contracts to be awarded on a 'fixed price' basis following competitive tender, but the private sector, as in other countries, is less constrained and firms often have continuing relationships with designers and contractors, with contracts placed by negotiation.

Separate trades contracting
It has been normal, at least in larger contracts, for clients to place separate contracts with the principal specialist trade contractors. This has in part stemmed from a need for maintaining an adequate level of competition in larger projects; Denmark is a relatively small country and has few firms with the technical or financial strength to take complete responsibility for a large project. This approach places demands on the project management capabilities of clients,

[7] Data and trends from EuroConstruct national report, December 2004

and some consulting engineering firms have developed project management units, but Denmark has not developed specialist project management firms such as Mace in the UK. Clients have often preferred to invited tenders for packages of works involving several trades so that only 3 or 4 contracts have been required in a project, thus requiring contractors to form consortia in order to respond.

Design-build
Since the 1960s, design-build has been a recognised construction procurement route. Design-build services have been offered by contractors operating in alliance with designers, rather than through integrated design-construct firms. Contractors have formed alliances with different firms depending on the expertise and experience required for the particular project. However design-build fell out of favour for non-domestic buildings in the 1980s, with clients finding that the resulting buildings did not match their needs as well as buildings procured through the traditional route. There were also complaints about technical quality. Currently, design-build is used extensively in the private sector in projects where the requirements are well understood and the solutions relatively standard (eg for the construction of supermarkets). In the public sector, it is mainly confined to the residential sector. But sometimes government agencies with little capacity for project management will use design-build.

Framework contracts
'Framework' contracts, in which a group of suppliers are contracted to provide services over a period of years for projects which may not be specifically identified at the outset, have not been employed in Denmark for new-build projects, but have been used for maintenance works. This reflects a view in Denmark that the Public Procurement Directive, until revised in 2004, did not permit this form of contract, a view that clearly was not shared in the UK. (In general, it appears that Denmark has taken a cautious view of the modes of procurement permitted by the EU; this is understood to be a legacy of a legal case concerning the Great Belt Link where it was successfully claimed that local contractors were given preference.)

A framework programme is now being explored for the construction of social housing, with offers being sought for the construction of 4-5000 units for a number of Housing Associations. Firms will need to show that they will be able to construct these, for example using industrialised methods, for at least 20% less than conventional construction.

Pubic-private partnerships
Private finance has not so far been employed, because it was not favoured politically and was considered to be difficult to adopt within the scope of the Public Procurement Directive. There is now, however, much interest in the concept. In general, the latest version of the Public Procurement Directive is considered to offer more flexibility. A Directive issued by the Enterprise and Construction Agency (EBST) in December 2003[8] required government agencies to consider the suitability of projects for PPP, taking into account the size, type and complexity of the project. The systematic evaluation should compare the cost when procured through PPP with that resulting from a conventional tender. EBST has issued a tool for making such comparisons and models for standard forms of contract to be used in public-private partnerships. Three projects – a school, a motorway and a new building for the national archives – are now in hand.

3. Governance of public procurement

Public procurement in Denmark (including procurement of projects by the private sector when these are supported by public funds) is governed two pieces of legislation:

1) a general Act on tendering, dating from 2001. This governs the procurement of projects costing less than the 6.2M Euros threshold of the EU Public Procurement Directive. It requires procurement to follow the same basic principles as the Directive

[8] Directive on public-private partnerships, partnering and performance indicators' Bekendtgorelse nr 1135. 15th December 2003

but has less detailed administrative requirements. These are further simplified for the smallest projects (ie those costing less than about 0.3M Euros) The Danish Competition Authority, an agency of the Ministry of Economic Affairs, is responsible for advising upon its requirements and for monitoring implementation of the Act.

A revised Act, reflecting the latest Public Procurement Directive (Directive 2004/18, April 2004), will be introduced shortly and is expected to be implemented by mid-2005.

2) specific legislation which translates into Danish law the requirements of the EU Public Procurement Directive. This therefore governs the procurement of works costing more than 6.2M Euros. The latest Act for this purpose, approved in November 2004, reflects the requirements of Directive 2004/18 and took effect on 1st January 2005.

Guidelines on public procurement of construction, interpreting the requirements of the legislation, are issued by the Enterprise and Construction Agency (EBST) of the Ministry of Enterprise and Economic Affairs. The Agency's most recent guidelines[9], issued in December 2003, anticipate the requirements of Directive 2004/18. They cover not only the requirements of the Public Procurement Directive and the tendering Act, but also the implementation of other policy objectives (eg that public projects should demonstrate good architectural quality and be carried out in such a way as to promote social and community objectives). These were originally set out, in very general terms, in an Act dating from 1971.

As noted above, in December 2003 also, EBST issued a Directive to government agencies and other bodies supported by public funds requiring them to consider Public Private Partnerships and Partnering when developing a construction project. This Directive also instructed agencies to collect performance data on projects according to the definitions established by the newly-established Danish Centre for Construction Benchmarking, and to provide the Centre with such data.

Supplementing its general guidelines on procurement, EBST subsequently (June 2004) issued specific guidelines[10] on the use of partnering in procurement. These are further discussed below.

4. Partnering

Reviews of the Danish construction sector have drawn attention to the industry's relatively poor performance in terms of productivity and costs when compared with other sectors and with the construction sectors in neighbouring countries. This is considered to be a consequence of traditional structures and practices and as a consequence, the government has in the last five years investigated and promoted alternative procurement routes.

In particular, the government have stimulated demonstration projects on 'partnering' and, on the basis of experience with these projects, they are now promoting this approach to procurement. A survey of around 100 projects (not all 'demonstration' projects) was undertaken to investigate how partnering was used in practice. This showed that partnering projects in general proceeded more smoothly than conventional projects. The Construction Benchmarking Centre is currently undertaking a survey of client satisfaction in partnering projects.

Partnering is defined as:

'A form of collaboration which is based on dialogue, openness, confidence and with early involvement of client and companies'

And further:

[9] Byggherrevejledning ('Guidelines for construction clients') EBST, December 2003

[10] Vejledning I partnering ('Guidelines for partnering') EBST, June 2004

> 'The project is implemented by common targets formulated by common activities and based on common economic interests'

The key operational change in the implementation of partnering in Denmark is that the contractor is selected at a much earlier point in the procurement process than normal and so is able to contribute to the project from an earlier stage. Two forms of partnering have been defined, distinguished by the point at which the contractor is selected:

> 'Early partnering', when the contractor is selected after the client's brief has been prepared, and therefore there is an understanding of the scale and complexity of the project and a view of the likely cost
>
> 'Late partnering', when an outline design is available and consequently the likely cost can be estimated with greater accuracy.

In either case, for public sector projects the contractor must be selected through a competitive process. Typically, there is a call for Expressions of Interest, with the respondents being asked to provide information on relevant experience and the names of referees for previous projects. Some 4 or 5 are then invited to bid on the basis of the client's brief.

The contractor works with the project team to refine the design on an 'at risk' basis (ie with no fee) until the design is sufficiently developed for a firm price to be given. The ultimate contract agreed with the selected contractor is a conventional 'fixed price' contract (this is a legal requirement for public sector clients). The contractor has the option of withdrawing from the project if they consider that it will not be commercial worthwhile for them to continue.

Government agencies have found that their processes for obtaining financial approval mean in practice that only 'late' partnering is available to them. However, Housing Associations have been able to employ 'early' partnering because they work to pre-determined cost formulae and can secure funding for a project of known magnitude (in terms of number of units, areas etc) in advance of outline design. Private sector firms have employed 'early' partnering but since they are not required to have competitive tendering processes, they have often brought in contractors with whom they have worked previously.

The key element of early appointment of the contractor, taken by itself, might in UK terms be more accurately be described as a means of securing 'integrated team working'. It does not extend to the formal creation of project team through commitment to a partnering agreement or the signing of a partnering contract, or necessarily to the sharing of risks and rewards, although this is encouraged. The emphasis is on creating a harmonious supply-side team, with the opportunity for input of the required expertise from the most appropriate source.

However, EBST have recognised that integrated teams should also include the client and their Guidelines suggest different ways in which good relationships may be developed across client and supply sides. These include:

- workshops at different phases of the project
- development of common targets
- sharing risks and rewards
- incentives for superior performance – safety, communications, cost reductions etc
- open book accounting
- 'alternative dispute resolution' procedures
- audit of planning and construction processes
- joint steering group

For any specific project, these arrangements may be set out in a 'partnering agreement' but they operate within the context of the contractual framework set for the project.

There is no special form of 'partnering' contract; the EBST guidelines recommend the use of a standard contract form, subject to amendment as required to suit the needs of the individual project. And each party continues to carry their own liability insurance; 'project' insurance has not been introduced. However, there are forms of contract which are common to all parties which can be used in partnering projects.

Further, the Danish Association of Construction Clients (DACC), in guidance published in December 2004, have emphasised that partnering should not result in clients accepting any greater degree of risk than in conventional contracts. It cautions against any agreement of a 'cost-plus' nature or which places any responsibility related to site activities on the client. While clients may in a partnering arrangement participate more fully in the development of the project, ultimate responsibility for the technical performance of the final building, structure etc must rest with the designers and contractors, as normal. There is a concern that the 'partnering' label may be used as a means of transferring more risk to clients.

Danish Association of Construction Clients
The DACC, established in 2003, has some 60 members, of which around 50 are in the public sector. It acts as a forum for debate on client issues, for developing common guidance and approaches, and for its public sector members as a channel for expressing views on the public procurement framework in which they are required to operate.

The DACC guidance on partnering covers:

- The selection of partnering contractors
- The forms of contract suitable for partnering
- Methods for setting the target price
- Organisational issues

EBST guidance on partnering

As noted above all government agencies now have to consider partnering as a procurement route. The EBST guidelines on partnering, issued to support this policy, were prepared with the aid of a network of representatives from around 30 of the early partnering projects, and reflect their experience. They have been endorsed by representatives of the construction industry. The guidelines indicate that partnering has been found to offer the following advantages:

- a more satisfactory outcome for the client, because partnering provides a means of achieving an optimum balance between cost, architectural merit and construction quality and of ensuring the ultimate suitability of the building
- efficient and more effective steering arrangements, since all partners are involved
- more thorough project planning, with better evaluation of risks leading to fewer problems in execution and fewer variations because of errors or omissions. As a consequence, construction proceeds more rapidly, there are fewer defects at hand-over and less wasted effort during the construction process.
- greater satisfaction amongst end-users, since the partnering team is focussed on the final outcome
- easier resolution of disagreements, which are settled through discussion rather than claims
- overall, more opportunity for the client to achieve their objectives

However, there are also potential downsides:

- the client has to make a larger input, which may be a significant demand particularly if they are new to partnering.

- the client cannot be certain that they have secured the project at the lowest cost, and similarly are not able to test the market price for the project through conventional tendering
- there are constraints on the client's ability to secure technical inputs from leading specialists, since these inputs will come from the members of the partnering team

Consequently the guidelines provide a checklist for agencies, in the form of a set of questions and answers which cover points to consider when evaluating the suitability of partnering for a particular project, The checklist is given below:

Price Is there considerable uncertainty in the final cost of the project? Alternatively, is there a need for the final cost to be determined at the tender stage?	If yes, partnering may be a suitable way forward. But early partnering may not be an option if the cost has to be settled through competition.
Quality, and type of project Is the project complex, for example in its technical aspects or because it needs to cover a wide range of functions?	If yes, partnering may be suitable, to bring in all interests when planning the project.
Is it ambitious architecturally?	If yes, it may be appropriate to have an architectural competition first, prior to use of partnering. The winner of the competition would then be selected for the project.
Is it a single – or a repeat – project where the outcome is largely determined?	If yes, a conventional tender may be more suitable
Project size Is it a smaller project?	If yes, the overheads of partnering, with a Steering Group, workshops, etc may not be justified
Times*cale* Is there a requirement for a short construction Period?	If yes, partnering can be suitable since solutions that favour a shorter construction period may be selected at the design stage.
User involvement Is there a requirement for a high degree of user involvement?	If yes, partnering and the use of workshops would be suitable, to enable everyone to influence the cost and quality of the final outcome.

The guidelines also make reference to the capabilities of the client, commenting that the client must have the appropriate people and support facilities for partnering, and that they may be advised to link with another client of user with experience. And they remind clients that they need when embarking on partnering to follow the general policy objectives for publicly commissioned buildings.

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Case Study: Housing development

Background

In "Orestaden", a large-scale development on the outskirts of Copenhagen, a new development of 174 flats known as 'Universitetshaven' is currently under construction in two 8-storey bocks.. Site construction started on 15 January 2005 and hand-over of the final 42 flats will be on 15 November 2005. The construction contact is around 25M Euros. The developer is Kuben Byg A/S.

Procurement approach

Since Kuben is a private sector company, it not constrained by public procurement requirements. It normally selects contractors by knowing the state of the market, the availability of contractors and, of course, their ability to carry out the works at an acceptable price. In housing development, the price is set by the ability of the ultimate purchasers to pay, in the light of economic conditions interest rtes etc. From their knowledge of the market (including the level of fittings, finishes etc which will be expected), Kuben are able to determine the maximum construction cost that will enable the project to be profitable.

In this case, the developer and contractor started working together following an approach by the contractor. There was an initial agreement about the expected cost level and then architects were brought in. At that stage, before planning approval had been secured, all parties were working on a 'contingency' basis, with no fees. Following preliminary approval, a revised cost was agreed but even then a final firm contract depended on a target number of flats being sold 'off the drawing board' once marketing had begun. The final contract covered all design works and construction.

The contractor held an initial workshop at the start of the final phase to ensure that all parties were able to access the knowledge of the developers and others about the design requirements for the housing, since Kuben have built up considerable understanding of market requirements. Some elements of the design at that stage could be changed; others were fixed.

Comments on approach

This approach to procurement reflects the uncertainty at the initial stages; it enables the developer to use the contractor's expertise without incurring costs which may not be recovered. Kuben regard it as typical for them.

The relationship has some elements of partnering, in that there is sharing of risks. Financial incentives are not employed; the principal incentive for the contractor is the prospect of future business. The comparatively short construction time reflects the way that the contractor has been able (a) to introduce construction factors into the design and (b) to undertake detailed planning during the early stages of the project.

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Country Report: France

1 The French Construction Market

The population of France is around 59.6 million, with some 24.8 million households. Economic growth is currently at around 2.6%; this is a considerable improvement on the earlier years of the decade, when growth declined to 0.5%. The unemployment rate is estimated at around 9.5%, one of the highest in the EUR-15

The total construction market[11] is some 158 Billion Euros, made up as follows:

	Bn Euros	%
Residential construction:		
New	34	22
Repair and maintenance	40	25
Non-residential building		
New	24	15
Repair and maintenance	26	16
Civil engineering		
New	22	14
Repair and maintenance	12	8
Total	158	100

Construction of new non-residential buildings fell significantly in 2002 and 2003. With renewed investment in health facilities and an improving economic outlook generally, growth is expected. Residential construction has risen sharply since 2001 with 336000 completions expected in 2004, a reflection of households' increased willingness to incur mortgage debt and of changes in taxation. Expenditure on civil engineering is substantial owing to continued investment in transport infrastructure, particularly at local level, but may be affected by the transfer of road responsibilities to regional authorities. Repair and maintenance is expected to maintain modest growth a small proportion of the total market and has shown a decline since 2000, reflecting constraints on public finances.

2 The Construction Business System in France

The foundations of the modern French business system in construction were laid during the 1960s and 1970s. For the public sector, the cornerstone of the system is the *Code des Marchés Publics* (CMP) the public procurement code, which covers procurement by all agencies designated as being in the public sector. This is complemented for the private sector by similar codes promulgated by AFNOR, the French standards agency. More specific provisions cover the roles of the public sector client in procurement, and the role of 'technical control' in public projects. The Code has been reformed twice within the last five years in response to different influences: EU Directives, the search for efficiency and effectiveness, and concerns over corruption.

3 The governance of public procurement

Relations between the state and its contractors in France are covered by a distinctive body of law known as the *droit adminstratif*, which is separate from the penal and civil codes which form the foundations of the legal system in all statute-law countries. This body of administrative law is also distinguished by being less codified and more dependent on jurisprudence than the civil and penal codes, and so displays the interaction between legislation and jurisprudence (leading in turn to further legislation) more familiar to those

[11] Data and trends from EuroConstruct national report, December 2004

working under common-law systems[12]. The various *Codes des Marchés Publics* and related legislation form the legislative aspect of this interaction in the French construction procurement system.

There are three legislative elements to the French construction business system as it applies to the public client:

- Directives which specify the role of the actors in the process;
- Directives which specify the processes for the selection of suppliers;
- Directives which specify the control of the process.

The first element is founded upon the Decree of 1973 that specified the responsibilities of the various actors in the construction business system. It tackled the issue of inconsistencies in the roles defined for the architect, consultant engineer, and project manager, and in the basis of their payment. It was founded on three principles:

- The level of payment for services rendered needed to be specified in advance, and to be clearly related to the value and complexity of the services provided. Such payment was to be on the basis of the service provided, not the professional status of the supplier.
- Detailed budget evaluations needed to be prepared before seeking tenders.
- Precise definitions of roles and responsibilities needed to be developed for application to projects.

The result of this decree was a clearly defined set of *missions* (project phases) which defined the construction process, with related fee payment schedules, and a defined set of roles in that process. The most important of these are the *maître d'ouvrage* (client) and the *maître d'œuvre*[13] (design team). The design team collectively were also to be responsible for the precision of their budget estimates – they would, henceforth, be liable for serious budget overruns. However, it was open to clients to ask either designer professionals or contractors to fulfil these missions, and so the decree of 1973 opened up the opportunity for the development of contractor-led offers to clients that were effectively turnkey proposals.

Two laws from the same period also defined roles and responsibilities. The law of 1977 provided that the architect alone was competent to apply for the permission to construct a building. Membership of the architectural professions is governed by the regional *Ordres des Architects*. The law of 1975 on subcontracting obliged the client to accept the use of subcontracting, but also specified obligations by on the part of the client towards those subcontractors in cases of default by the principal contractor.

The decree on the *Cahier des Clauses Adminstratives Générales* (CCAG) of 1976 identified three basic types of procurement route:

- *Enterprise générale* (general contracting) in which a supplier bid for the execution of the works which had be previously designed by the *maître d'œuvre* and then subcontracted much of the work.
- *Corps d'état separées,* where all the trades are procured separately, and co-ordinated by the *maître d'œuvre.*
- *Groupement,* where the trades are procured and coordinated by the structural works contractor, but the relationship is one of *cotraitant* (co-contracting) in a partnership rather than sub-contracting in a hierarchy.

[12] For instance, an *arrêt* of October 2004 from the Conseil d'Etat declared null and void thousands of procurement contracts made by *communes* because the elected officials had only approved the contracts in principle, and not the final terms of each contract. This "catastrophic" decision leaves thousands of completed and partially completed buildings in legal limbo with invalid insurance arrangements, and has prompted calls for retrospective legislation to rectify matters.

[13] This translates into English as "master of the works", which is the traditional title of the agent of the crown or church responsible for construction works before the separate roles of architect and surveyor emerged in the 17th century.

While the second option is the traditional procurement route throughout 'continental' (as opposed to Anglo-Saxon) Europe, and general contracting is also widespread, *groupement* appears to be a French particularity. In principle, for all procurement routes, suppliers of design services were to be selected on the basis of *concours* (architectural competitions), while suppliers of execution services were to be selected on the basis of competitive tendering on lowest price (*le moins disant*). In addition, France also continued with their long tradition of private sector involvement in the finance of public works through the *concession* for infrastructure projects, and the *marchés d'entreprise et de travaux publics* (METP) for building. However, this reached something of a hiatus in the early 1990s owing to problems with the transparency of the selection process. It has recently been revived - for instance, the new Pont de Millau is a *concession* – as will be seen below.

With respect to technical control, a law of 1978 formalised the role of the *bureau de contrôle* as the agent of the public sector client in assuring both the compliance of the design specification with the building regulations, and the conformance of execution on site with that specification. This law also applies to private sector clients where their buildings are open to the public. The role of control is linked to the distinctive insurance regime. Suppliers are obliged to warrant services such as heating systems for two years, and the principal elements of the fabric of the building for 10 years. In order to protect themselves against failures during these liability periods, public sector clients are obliged to take out insurance that ensures that the defects are speedily remedied, while the insurance companies pursue those liable for the failure. This approach has the significant advantage for the client that defects can be repaired quickly without first determining liability, and holding those liable to account is left to specialists in the insurance companies.

This system established during the 1970s started to show signs of strain during the 1980s. Some of the signs were:

- A squeezing of the role of the architect as contractors tried to get closer to their clients by taking increased responsibility for design.
- Growing use of negotiation rather than lowest price tendering as an increasing number of tenders were deemed *infructeuse* (unfruitful). Where none of the tenders were within the client's budget, the CMP allowed clients to enter into negotiations to obtain a price that was within their budget. In this process, the interests of the client with respect to specification were protected by the oversight of the *bureau de contrôle.*
- Problems in meeting the challenges faced by *communes* and *départements* of the new responsibilities associated with the decentralisation of French administration.

These strains led to a growing pressure for reform. In 1985, the law on the *maîtrise d'ouvrage publique (loi MOP)* was passed, although its implementation was delayed until 1993 owing to the successful attempt by architects in coalition with trade contractors to restrict the ability of large construction corporations to offer an integrated design-build service. The *loi MOP* provided a new set of phases for the project, and emphasised the importance of the role of the *maître d'œuvre* in the process, thereby pushing the contractor back from a close relationship with the client. While these developments consolidated the role of the public sector client in the process, there remained growing pressure for reform of the CMP. The principal reasons were:

- The need to implement in French law the growing weight of Directives from Brussels;
- The accumulation of judicial decisions which had rendered the terms of the 1976 code uncertain in some significant areas;
- The search for efficiency and effectiveness on the part of the public sector;
- Concerns around the probity and transparency of the selection and management of private sector suppliers by the public sector client[14]. In particular, a new element of the penal code provided for imprisonment of up to two years for errors in the letting of

[14] One of these scandals around the use of METP for schools projects to fund political parties threatens to involve the President of the Republic, Jacques Chirac.

public sector contracts even if corruption were not involved. This had the effect of significantly delaying the award of some contracts.

The 'Trassy-Paillogues' report was published in 1996. It provided the basis for the subsequent reform of the CMP, and led to various decrees in 2001 which implemented the new CMP with effect from January 2002.

The 2001 reform was significant in a number of ways:

- It simplified the text of the CCAG considerably – the number of clauses was cut by two thirds and potential conflicts between national and EU provisions were removed;
- It modernised the text in various ways, such as giving the right to suppliers to submit variations with their tenders, where in the past they had only been invited when tenders were *infructueuse*; It also provided for the 'dematerialisation' of contract documents and their transmission by electronic means.
- It reformed the text, for instance, formalising the role of the '*Personne Responsible du Marché*' (PRM) within the public sector client to clarify responsibilities regarding 'due process' in awarding the contract.

However, the 2001 reform was quickly followed by a further reform which came into effect in 2004. This refined the 2001 reform, but did not introduce any new principles:

- Negotiation with suppliers was not allowed, yet this had in the past proven to be a significant means of resolving issues in tenders, and thereby arriving at truly value-for-money supply.
- Important EU provisions changed, and so consequential changes were required.
- The French state, having suppressed METP in the early 1990s owing to perceived problems with corruption, was starting to experiment again with the private finance of construction projects.

Experience with alternative procurement systems

Alongside the reform of the CMP, a number of innovations in procurement were taking place in French public sector construction, which can be broadly characterised as *partneriat public/privé* (PPP) within the scope of a law of 2003. Two of the more important ones are *Vente en l'Etat Futur d'Achèvement* (VEFA), and *Bail Emphytéotique Administratif* (BEA). These go some way to replace the void left by the suppression of METP, and the delays inherent in traditional public procurement. They were also useful ways for public authorities to avoid the obligations of the CMP and the *loi MoP*, because the client, strictly defined, is in the private sector.

Under VEFA, the public authority passes the site to the ownership of a property developer who then develops the facility and is reimbursed by the public authority in terms of the achievement of construction milestones. The developer retains responsibility for the availability of the facility for period of years, at the end of which it reverts to the public authority. VEFA was originally developed in the 1960s to allow the sale of property developments "off-plan", and a limitation is that the public client is not normally allowed to participate in the design process. However, it is possible to obtain permission to be involved in the design from the Ministry of Finance. VEFA is used for the provision of public sector housing, whether for rent or use by public authority employees. The *Conseil Constitutionnel* has recently agreed the use of such arrangements in the case of urgent or technically complex projects. VEFA is also allowed where it can help property developers meet the requirements of the decree of 2000 favouring the development of mixed social and private housing where the local authority specifies the proportion of social housing in the overall development.

BEA is similar to the UK private finance initiative and provides for the private sector to finance, design, build and operate facilities such as schools and hospitals.

Another option that is being tried out is a design-build-maintain option for the Ministry of Justice (LOPSI). In this approach, the public sector seeks tenders for a facility constructed and operated by the private sector. The public sector retains the right to take over the facility by purchasing it.

A significant advantage of both VEFA and BEA is the much faster schedule from inception to occupation by avoiding the procedures of the CMP – examples suggest an overall schedule reduction from 8 years to 3 years. This is because in both cases the client is a private sector body and none of the provisions of the CMP apply to private sector clients. Hence many formal requirements can be bypassed.

The principles underlying the CMP have, though, been incorporated in the various norms developed by the French standards authority, AFNOR, since 1948 – the latest version was published in 1989. These provide a contractual framework within the *Code Civil* for relationships between the parties in private sector projects. However, private sector clients are not obliged to follow AFNOR standards.

5. Commentary

The recent history of the French construction business system is one of attempts to formalise the procurement procedures while reconciling separation between design and construction which is favoured by architects and trade contracting firms, with the attractions of a much closer relationship between the client and contractor favoured by the large national contractors. The attempt to use VEFA as a route around the CMP is a current example of this dynamic. This interplay of interests takes place in the context of the decentralisation of French government administration, where the technocrats in Paris have less sway over the procurement decisions of the *communes* and *departments*, and yet these bodies lack sophisticated procurement skills. This change has highlighted the need for procedures which can meet the needs for propriety and transparency.

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Case Study: Evaluating BEA in the Hospital Sector

BEA is presently being tried out by a number of ministries. An evaluation of procurement though BEA compared to separate trades contracting has been reported – it is similar in spirit to the public sector comparator analysis that is required for all PFI projects in the UK. The analysis of a new hospital facility of 7468m^2 of usable space found that under BEA it would take 42 months compared to 52 months to build with an overall cost of €14.4m, compared to €13.9m under traditional contracting. However, if the risks transferred to the private sector under this arrangement are also included, then the traditional option could cost an additional €2.4m, while the pricing of the risk associated with BEA added only €0.8m to that cost. When discounted to present values, the study concludes that BEA offers considerable advantages in term of both time and cost.

Country report: Sweden

1. Background

The population of Sweden is approximately 9.0 million, with around 4.3 million households. Economic growth in recent years has been around 2%, although increasing to 3.5% in 2004. The unemployment rate has been around 5%.

The total construction market[15] is some 20.3 Billion Euros, made up as follows:

	Bn Euros	%
Residential construction:		
New	3.0	15
Repair and maintenance	4.7	23
Non-residential building		
New	1.8	9
Repair and maintenance	4.3	21
Civil engineering		
New	5.3	26
Repair and maintenance	1.2	6
Total	20.3	100

Construction of new non-residential buildings has declined sharply since the building boom of the late 1990s, the volume reducing by around 50% in the past four years. This sector now accounts for less than 10% of the market. By contrast, investment in new housing has grown, with around 23000 completions in 2004. The increase is wholly attributable to owing to a higher level of investment in flats, aided by government stimulation of the construction of smaller flats for rent. Construction of single family housing has shown a slight decline. The Civil Works sector has shown modest growth.

2. The organisation of construction in Sweden

Conventional relationships
The traditional 'construction business system' in Sweden is characterised by the comparatively low status of professional firms (architects and consulting engineers) and the correspondingly higher influence of contractors. Traditionally, construction works have been tendered on the basis of conceptual designs, leaving the detailed design to be determined by the contractor. The contractor has then acted as a 'general' contractor, taking overall responsibility for the project and establishing the necessary sub-contracts with specialist trades.

Standard contract forms, negotiated between representatives of supply and client interests, are widely used, and are compulsory for public sector contracts. The principal contract form for the employment of contractors, has recently been revised; the new version, AB04, was issued in December 2004. AB04 essentially sets out a 'fixed price' contract, with variations governed generally by a schedule of rates. Other forms include ones governing consultancy services (ABK) and design-build contracts (ABT).

Some pre-qualification schemes exist; Swedish Rail Authority, for example, participates in a scheme operated by a consultant on behalf of several Scandinavian transport undertakings. The State-owed office developer, Vasakronan, requires contractors in its scheme to re-qualify annually.

The Swedish construction sector exhibits an unusual degree of concentration, with three general contractors, Skanska, NCC and Peab, dominating the domestic market. However, it has, as in all countries, a large proportion of small and very small firms undertaking residential

[15] Data and trends from EuroConstruct national report, December 2004

and maintenance work. This degree of concentration is perhaps a consequence of the wider role played by Swedish contractors, which has encouraged the growth of in-house technical capabilities.

Other forms of contracting

Design-build is a recognised procurement route, particularly when the project timescale is constrained. And some firms have set up as construction management specialists, providing clients with project management and co-ordination capabilities.

In recent years, 'divided' contracting, in which the client has placed separate contracts for the principal work packages, has become more popular; a study at Chalmers University (see below) found, for example, that it was the normal procurement route for office refurbishments.

Public-private partnerships have not been favoured, the view in Sweden being that public facilities should be financed from public sources. Only one major project – the Arlanda Express rail link between Arlanda Airport and Stockholm - has been constructed through this route. Municipalities, though, are increasingly renting their facilities rather than owing them and contractors have moved into development activities.

3. Governance of public procurement

Public procurement of construction works in Sweden is governed by the Public Procurement Act (FS 1992:1528) initially introduced in 1992 and subsequently revised. This translates into Swedish law the requirements of the several EC Directives governing public procurement, and also sets out procedures for procurement of services and works whose cost falls below the threshold level of the Directive. These procedures are, though, very similar to those required by the Directive.

Consultation on further revisions, to give effect to Directive 2004/18, will commence in January 2005; these are expected to be implemented in the course of 2005. The new Directive is seen to offer more flexibility, for example in the provisions for 'competitive dialogue' and therefore to be more supportive of innovation. The new provisions for Framework Agreements are also seen to be helpful.

An Agency of the Ministry of Finance, NOU, Is responsible for advising on the implementation of the Act. NOU provide information through its Website and through its newsletter. However, it does not provide formal advice through Guidelines or other forms of publication, but advises on a case-by-case basis. This reflects the informal character of Swedish society, which avoids bureaucratic structures.

The requirements have been incorporated into guidance issued by public bodies such as Banverket, the Swedish Railway Administration, which also discuss in general terms the advantages and drawbacks of different contractual and payment frameworks[16].

4. Investigation of alternative procurement routes

Reflecting natural cultural characteristics, by international standards the Swedish industry operates with a low level of disputes, very few of which result in litigation. The ability to form constructive client-contractor relationships has been seen as a key competence in construction managers. Consequently, there has been little pressure for the introduction of more collaborative forms of procurement. At the same time, however, construction has been seen as more prone to disputes than other industry sectors while some projects have suffered technical failures and excessive cost over-runs. Several reviews have drawn attention to deficiencies in the industry and there have been change initiatives.

[16] Procurement of building contracts: forms and tools used by the Swedish Railway Administration. J Sundlin. (2003) www.banverket.se

'Partnering' has been employed in some projects. This has involved the use of workshops and other measures to encourage and assist greater collaboration among the project parties but, as in Denmark, there has been no change in formal contractual arrangements. The approach is considered to led to more successful outcomes. UK and Danish experience has been studied. Currently, two major public clients – the Swedish Rail and Road Authorities – have publicly committed to improving the industry through different forms of procurement and have established the FIA (www.fiasverige.se) initiative in which they are undertaking pilot partnering projects with the three large contractors.

These initiatives have not so far resulted in any formal guidance on the use of partnering.

Similarly, there appears to be little formal guidance on the use of other forms of procurement. The information is held tacitly in client organisations. But several recent university studies have sought to identify the factors that influence the choice of procurement. These are summarised below.

5. University studies

Chalmers University[17]

In this study, public and private sector clients for building construction were asked for information on the procurement routes selected for their three most recent projects, and the factors that influenced the choice. They were also asked to provide some personal details. The data were obtained through a questionnaire (170 distributed, 94 responses) and interviews (17 carried out). The clients were categorised as 'public', 'industry' and 'real estate'.

Respondents had employed a wide range of contract forms. Design-build was the most popular, accounting for around 30% of projects overall. A 'general' contractor had been used in around 30% of projects in the public sector and a rather lower proportion in the 'real estate' sector but clients from industry preferred 'divided' contracting. with 30% of projects being undertaken by this route compared with only 15% by general contracting. 'Co-ordinated' contracting (ie the appointment of a main and specialist contractors by the client, with the main contractor having responsibility for project management, was significant at around 10-15% while other forms of contract accounted for less than 5% of projects. Some 16% of industry respondents reported that they had used partnering, although the responses interpreted this as a desire seek a different form of relationship rather than any formal process. Public clients had little experience of the concept.

The influences on the choice of procurement route were related to:

1. The individual

   The individual's previous experience influenced their willingness to used different procurement routes. Individuals from the public sector tended to be older and to have backgrounds in construction; they were more conservative in their choice of procurement routes but this could be also a reflection of organisational issues. Respondents from industry were younger and did not necessarily come from a background in construction; this could be a factor in their greater use of design-build.

2. The organisation

   Organisations imposed their own rules (eg to comply with public procurement requirements) and cultures. The organisation's tolerance of failure, or the way it rewarded success, could promote the use of an unfamiliar contract form. The depth of experience and overall capability in the organisation was relevant; real estate

[17] Thoughts, values and experience that have an impact on the client's choice of project process in the Swedish construction industry. J Johansson and C Akerblom. .MSc Thesis. Department of Building Economics and Management, Chalmers University of Technology (2004)

companies were more confident about using a variety of routes, because of their greater experience. The role played by the client was also important; in the public sector, the client body was often acting on behalf of the eventual user and saw its role as securing the best building for the user's purpose, which meant choosing a procurement route that allowed such influence.

3. The project

   Factors that were frequently cited as influencing the choice of procurement route were:

   - Timescale

     Time pressures led to a route where design could overlap with construction. While this was often design-build, it could also be divided contracting or another form, if the organisation were sufficiently confident

   - Complexity

     This appeared to be a factor only for some types of project, eg in the public sector, it would be a factor in the construction of hospitals and schools but not for offices and housing. It appeared to be less of an influence in the industry sector but perhaps this reflected the greater proportion of relatively simple projects - industrial and storage facilities – in that sector

   - Degree of client input

     This was related to complexity, in that the client needed be able to make inputs during the project if key decisions were inter-related and could only be addressed during the detailed design phase.

   - Cost

     Cost factors were not explicitly explored but the greater range of contract forms observed in the real estate sector were considered to stem in part from the strong commercial pressures in that sector, which encouraged a search for the most cost-effective procurement route (eg the selection of the optimum contractor for each specialist package).

Lund University[18]

This study, by contrast with that at Chalmers University, was based on hypothetical rather than actual projects. Through a questionnaire, some 36 people who were knowledgeable about procurement – mostly clients but including a few contractors, consultants and academics - were asked to indicate their preferred procurement route for different types of project under a range of conditions. They also provided information on the factors that they took into account in making that choice. 32 responses were received.

The projects were chosen to illustrate different levels of scale and complexity:

- A 12000m² office building, to high specification, to be built on a site owned by the client, with an estimated cost of 300MSKr (33M Euros)

- A residential development of 7000 m² in four-storey blocks, with an estimated cost of 130MSKr (140M Euros)

[18] Enquiry into the attitude amongst construction clients on the use of developed models of procurement. B Toolanen. Licentiate thesis Lund University. ISSN 1402-1757 (2004)

- A, air-conditioned commercial (shopping) centre of 20000m², with some 75% pre-let, and an estimated cost of 275MSr (30M Euros)

- A small shopping centre for a small town of 7500 m², with 4000m² pre-let to the Post Office, a pharmacy etc, and an estimated cost of 130MSKr (140M Euros)

The conditions were described as:

Normal	no particular constraints on time, industry capacity etc
Capacity constrained	the project was being undertaken at a time of high demand on the industry, and there might be a shortage of bidders for some of the works
Time constrained	the project needed to be completed in a short timescale, which would require design and construction to be undertaken in parallel
Time and resource constrained	a combination of the two previous conditions
Uncertainty	the project was being undertaken at a time of economic uncertainty. There was no time pressure but changes might be required in the course of construction
Strategic	the client was using the project to develop and promote a new type of building, or another form of product or service innovation

Clients were offered a choice of procurement routes:

Functional contracting	The client requirements were set out in functional, performance-based terms, with the contractor having great freedom in how they were reflected in the final building
Total contracting	The client set down a work programme and more detailed requirements, and limited the contractor's freedom in some aspects. This was nearest to 'design-build'
General contracting	The conventional route, with the contractor taking overall responsibility for the construction following the preparation of an outline design.
Co-ordinated contracting	The client appointed the various contractors, but then delegated to one contractor the responsibility and authority for overall project co-ordination
Divided contracting	The client appointed contractors through a small number of 'packages' and co-ordinated the works
'Much divided' contracting	The client appointed a project manager who then arranged contracts covering design, contracting and materials supply

Different types of relationship were postulated:

I Conventional, contract-based, with a short-tem focus. Trust level not high.

II Co-operative partnership, against a conventional contract but with higher degree of trust

III Project partnering, based on 'openness, honesty and trust', with good teamwork and potentially looking for a long term relationship

IV Strategic partnering, with complete trust, incentives for extending the partnering principle down the supply chain and a desire for all parties to gain benefits from a long-term relationship

As expected, the responses showed that the preferred procurement route and form of relationship were both very dependent on the type of project and the external conditions. Overall, the two procurement routes which gave the contractor most freedom were selected by 43% of respondents under 'normal' conditions, but by 75% under 'strategic' conditions. By contrast, 'very divided' construction was preferred only in 2% of 'normal' cases but in 13% of cases where there were capacity and time constraints. Conventional and co-ordinated contracting was preferred for 40% of normal cases but only for 19% of time-constrained or capacity and time-constrained cases.

Under normal circumstances, 30% of respondents would use general contracting for construction of the residential development, but only 10% for the larger commercial centre, with 19% preferring 'functional' contracting for this. The effect of a time constraint was to increase the use of design-build, to 63% for the residential project. Uncertainty favoured the use of the more fragmented systems, with 'very divided' contracting accounting for 20% of preferences for the smaller commercial centre, in contrast to 0% under normal conditions.

Responses on the form of relationship were notable for strong decline in conventional contract-focussed relations and co-operative relations as one departed from normal conditions, the proportion falling from a combined 80% to an eventual 21% under conditions of uncertainty. There was much larger preference for strategic partnering in the residential development, presumably because it was more possible to see similar projects being undertaken in the future.

When asked about the external (non-project) factors that influenced the choice of procurement route, the two strongest were the degree of influence that the client wished to have over the development, to ensure that their objectives were met, and the state of the construction market. Next most significant were experience in previous projects (so that the project would not be a 'pilot') and institutional factors such as laws, regulations and agreements. Least significant were the opportunity for innovation and pressure for change from within the client organisation or official sources.

But the characteristics of the project were also significant. Time pressures were most important, with technical complexity, the number of functions needing to be served and the degree of uncertainty over eventual use next in the list. Least important were the size of the project and its strategic significance to the client.

With only 32 responses forming the database for the study, too much weight should not be put on its detailed findings. Nevertheless, it provides pointers to the factors that clients take into account in considering procurement routes and overall is consistent with the findings of the Chalmers study. There is an intention to undertake a follow-up study to examine the extent to which the views expressed in this study, based on hypothetical projects, are reflected in reality.

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Case Study: Swedish Post Office Headquarters

Background

In 1999, the Swedish Post Office commenced planning for a new headquarters office for 1200 staff in open-plan accommodation. The building was to be constructed on land owned by the Post Office in Solna, a suburb of Stockholm. By vacating their headquarters in central Stockholm, the Post Office aimed to make substantial annual savings.

The CEO of the Post Office set out the goals for the project. These stressed the need for flexibility to accommodate future reorganisations and that the different buildings on the new site should be seen as a 'campus'. Significantly also, the building should be a symbol of the radical changes then taking place in the Post Office's operations. These goals were maintained throughout the project, and proved a valuable reference point during the design process.

Project history

An architectural competition was held in 2000 on the basis of the goals and a functional brief, the successful practice being BSK Architects in Stockholm. They proposed a building of around 60000m² which took advantage of the natural slope of the land, having nine floors of offices at its southern end, with a sloping glass façade, while only three floors at the northern end. Solar shading on all the elevations was provided by distinctive rectangular panels of steel mesh, external to the glass façade. Following their selection, the functional brief was developed into a detailed project brief, with specifications for each space. However, final detailed design had still to be carried out and the intention was that the architect would work with the chosen contractor.

On presentation of the brief to the Board of the Post Office, there was support for the design but owing to the investment needs of the reorganisation then in progress, the Board declined to invest in the new building. Instead, they decided to sell the site to a developer, who would then construct the building and lease it to the Post Office. Following evaluation of competing offers, a lease contract was agreed with the real estate company of AP, the Swedish State Pension Fund, who brought in Arcona, a Swedish contractor committed to partnering, as the construction partner.

A condition of the contract was that BSK were retained as architects; this proved not to be a problem since BSK were owned by Arcona. Further, AP were content for the Post Office to continue to act during the design phase effectively as the client, although AP attended project meetings. AP considered that the Post Office, as an experienced property owner, would not make decisions that were inconsistent with normal commercial practice. In addition, the lease agreement included a formula which translated any additional expenditures required by the Post Office into a rise in the annual rental. Changes introduced as a result of Post Office requests added around 40m SKK to the initial contract sum of 865 SKK (the total therefore being around 100m Euros). Whether the final costs were in line with this figure, and therefore whether the project was profitable to Arcona, is not known

The Post Office had previously obtained planning agreement from the Solna municipality for a different type of project, but this needed to be renegotiated to reflect the chosen design. Permission was granted in August 2001. In advance of this permission, Arcona authorised the detailed design of preliminary and foundation works to enable an immediate start to construction. Site works started in October 2001 and construction proceeded in parallel with detailed design of the building.

Arcona therefore took a risk by incurring expenditure on detailed design in advance of planning permission. In the view of the project owner at the Post Office, this would not have happened had the Post Office been the client and, as a consequence, the project was completed more quickly. There was further saving of time through carrying out design and

construction in parallel and completion was advanced by around a year by comparison with traditional procurement.

Arcona - one of Sweden's mid-ranking contractors with a turnover of around 100m Euros - have been operating on a partnering basis for more than ten years. In this project, they worked with a set of specialist partners with whom they have long-term relationships, underpinned by agreements which include sharing of risks and rewards according to the project outcome (ie any gains or losses are not based on how individual contracts out-turn, but on the whole project – which encourages collaboration across the supply team). Its loyalty to these partners was illustrated by its decision to retain its usual façade supplier, a relatively small firm, even though this project strained their production resources.

The building was completed in October 2003. The first year's occupation has shown it to provide a very high level of user satisfaction. Moreover, the flexibility offered has allowed two reorganisations to be accommodated without difficulty. A mark of its design quality was that it was featured in Sweden's contribution to the Venice Biennial in 2004.

Comments on procurement process

The choice of procurement route for the Post Office was determined by (a) the significance of the project, which led to the decision to an architectural competition, and (b) the decision to secure the office through external finance. Strictly, the construction contract was made between AP and Arcona. The contractual arrangements could be described as construct-only contract with a guaranteed maximum sum, and with the architect – whose contract was transferred through the land sale – employed by the client (ie AP). However, the ownership relationship between Arcona and BSK made it effectively a design-build project.

The contracts were therefore relatively conventional but they were set in the context of an established relationship between AP and Arcona, who had worked together on previous projects. The distinctive business approach of Arcona, coupled with the role of the Post Office, meant that the contract operated with a high degree of user input and with partnering on the supply side.

Unusual features related to the continuing role of the Post Office, which was set out in the lease agreement with AP, together with details of arrangements for receiving and commenting on proposals, dispute resolution etc.

From the perspective of the Post Office, these well established relationships meant that the project ran very smoothly, with a high level of creativity and cooperation. Several workshops were held initially to introduce the supply team to Post Office personnel and perspectives, but after that the project proceeded through the usual regular project meetings.

The outcome was a project which met all the Post Office's objectives.

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Further information: Description of project in Arkitektur, March 2004 pp16-31
Arcona: www.arcona.se

Case Study: Göta Tunnel

Background

The Göta tunnel is a very large urban environmental scheme in Gothenburg. Currently under construction, it will take 65000 vehicles a day under the centre of the city, thus relieving surface roads near the edge of the harbour and opening up water-side land for development. The client is Vägverket, the Swedish National Road Administration

The tunnel has three sections. The central part consists of twin bores each 1km long and up to 30m deep, which will each take three lanes of traffic. This section runs in rock and has been created through explosive techniques. Entry and exit to the rock tunnel is through 'cut-and-cover' tunnels with a total length of around 0.6km and a depth of up to 18m, constructed in unstable glacial deposits. These sections have poured concrete diaphragm walls, with the actual tunnel constructed from box segments within the walls.

Planning started in the 1990s but construction was delayed by expenditure restraints. However, the line of the tunnel was settled and, in broad terms, its principal components and the works required were determined. Construction commenced in 2000 with the main constructions awarded in 2001. The total contract cost is 2.8 billion SKK (310m Euros) Completion is expected to be completed in 2006, although the current expectation is that the completion date will be several months later than the original schedule.

Procurement

The project is being carried out through five main packages of work: for the rock tunnel, each entry tunnel, surface works such as new roads, and the installation of services. With the exception of the rock tunnel, each has been let as a design-construct contact on the basis of a statement of requirements (which implicitly include detailed technical issues since they require compliance with the specifications and standards of Vägverket). Construction of the rock tunnel is through a construction-only contract

The contractual arrangements were determined by two considerations:

1. The need to have adequate competition. If the tunnel had been tendered as a single project, very few firms would have had the resources to undertake it. Vägverket wished to secure sufficient tenderers, but also to have works packages that were sufficiently large to attract international interest. In the end, one contract was let to an international consortium.

2. The relatively familiar conditions and technology of rock tunnel construction as compared with the difficult soil conditions of the cut-and-cover tunnels. These required technical proposals from the contractors, whereas the rock tunnel was fully designed in-house by Vägverket and let through a conventional tender.

The contracts are conventional, essentially being for a fixed price with arrangements for variations. The technical aspects of the design-build contacts were subject to intense examination before the award of contract and therefore significant changes after award of contract were unlikely. However, there is potential for sharing gains in that it is still possible for contractors to propose different ways of working or technical details to save costs. If these are approved, Vägverket will expect a proportion of the savings.

The successful contractors were selected, following a pre-qualification process, through a second competition in which proposals were evaluated under seven headings: technical aspects, price, implementation plan, timescale, organisation, quality record, aesthetics. Scores under each heading were weighted, in that order, to achieve a final overall score.

Partnering relationships and client input

While the project was being carried out though conventional contracts, all parties have accepted a 'Win-Win' partnering 'agreement' or charter under which they seek to work to common objectives (eg that the Göta tunnel 'should be the most successful urban improvement project and beneficial to all') and to accept targets such as 'no litigation'. This has underpinned relationships and is proving effective. There is, though, no obligation on contractors to extend this form of agreement to their sub-contractors.

The process of creating an integrated project team committed to common objectives commenced with large gathering of managers and staff, with partners, in the Gothenburg Opera House. Following presentations on the project, food and entertainment were provided.

More formally, Vägverket have held many seminars with mangers from the contractors, to promote the principles behind the campaign and generally to generate collaborative attitudes. As part of the formal project management processes also, they have developed indicators of the quality of relationships which are regularly monitored and reported to contractors. The considered that their attitude to claims was consistent with the Win-Win agreement, in that they sought to be objective, rather than biased towards rejection of claims.

Vägverket has in addition developed through a 'Right First Time' initiative directed at all workers on the tunnel which promotes the principles of high quality, high environmental standards, and good safety performance. This programme has been devised in collaboration with the contractors but the resulting literature, distributed to the workforce through the contractors, is 'branded' with a logo derived from the overall project, rather than any of the individual participants.

The literature includes a handbook for all workers, with basic safety information and guidance on the correct procedures for key site tasks such as the insertion of service conduits in concrete. This campaign is regarded as an example of the client working with the contractors to improve their performance. It is the 'carrot' which complements the 'stick' of heavy fines for breaching environmental conditions, for example.

There had been problems – one contractor was reputed to be losing money. And there was an overall delay. However, Vägverket consider that the project was proceeding well, with good relationships.

Commentary on procurement

The Göta Tunnel project mixes conventional procurement principles and contractual routes, chosen for reasons with relate to the scale and complexity of the project, with new approaches to relationships within those contracts. It has not been possible to make a direct link between these approaches and any time or financial benefits but there is an overall view that the Win-Win agreement has been beneficial.

The project itself large, and the investment by Vägverket in its 'Right First Time' educational and promotional programme is designed to pay off in the course of the project. More significantly, perhaps, is a large, repeat client that may expect to work with the firms concerned in future projects, and this initiative may be considered its contribution to a 'continuous improvement' process in its contractors. However, it does raise the issue of the extent to which clients should actively assist contractors to meet contractual obligations (eg fulfilling safety requirements) as compared with helping them to fulfil to contract in a different (eg more rapid) way where the benefits may be mutual.

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Country report: United Kingdom

1. The UK construction market[19]

The population of the UK is approximately 59.6 million, with around 25 million households. Economic growth in recent years has been in the 2-3% range and the unemployment rate has been amongst the lowest in Europe, at around 3%.

The total 'official' construction market in 2004 is some 138 Billion Euros, made up as follows:

	Bn Euros	%
Residential construction:		
New	21	14
Repair and maintenance	34	26
Non-residential building		
New	41	30
Repair and maintenance	24	17
Civil engineering		
New	10	7
Repair and maintenance	8	6
Total	138	100

In contrast to other countries, EuroConstruct also estimate that some 27 Billion Euros of construction activity takes place in the UK through 'unofficial' routes, both legitimate (DIY) and illegitimate ('black economy').

In recent years, construction and renovation of non-domestic buildings has been underpinned by large investment programmes in health and education, and by the continued strength of the UK economy generally. Private housing completions have also risen, again aided by investment in social housing which is also a significant factor in the growth of renovation expenditures. Housing completions in 2004 were around 183000, the highest for a decade. By contrast, the civil engineering sector has declined since 2002, despite continued investment in major projects such as Heathrow Terminal 5.

Overall, the recent history of construction in the UK is one of steady expansion. This has provided a favourable environment for the introduction of substantial changes in business practices, at least in larger projects and the public sector.

2. The construction business system in the United Kingdom

Since the 19th century, the construction business system in the UK has, been based on the separation of design and construction with the former undertaken by architects and engineers bound by strong professional loyalties. The professional bodies have responsibility for setting entry qualifications and accrediting educational courses, and for determining the scope of the works carried out by their members. (For example, until recently architects could not act as developers.) Architects have not only been the leader of the design team (for buildings) but have acted as the client's representative in managing the works.

Contractors have traditionally been appointed through a competitive tender based on fully detailed drawings accompanied by a 'Bill of Quantities' prepared by a 'quantity surveyor' whose role is to determine from the drawings the quantities of materials and works (eg m^2 of plastering) required by the project. The contractor is asked to indicate his unit price for each item, as well as the overall total, and these prices are used to determine the payment for any variation in the works during their execution. The contractor acts as a 'general' contractor, appointing and co-ordinating the specialist sub-contractors and taking overall responsibility for delivery and for the quality of the final output.

[19] Data from December 2004 EuroConstruct survey

Under this system, there is strict separation of responsibilities, with the architect (or, for civil works, the consulting engineer) taking overall responsibility for the design and being required to approve any variations (proposed by either the client or the contractor).

Design-build was introduced in the 1960s and has become a conventional procurement route for standardised types of building such as industrial buildings and retail parks. Other forms of procurement – notably construction management - have been relatively widely employed, with some well-known firms such as Bovis specialising in this form of contracting. The ability of this form of contract to control costs has been the subject of recent debate, following adverse comments in an official report on the Scottish Parliament building, where costs rose from an initial £43m to a final figure in excess of £450m. However, whether the initial figure was realistic, and the extent to which design changes led to the higher final cost, are still matters of controversy.

The construction of private housing is dominated by developer-led construction, with the principal actors being developers who acquire land and obtain the necessary planning permissions. Construction is often completely sub-contacted on a competitive basis, with the developer co-ordinating the activities of the different contractors on a site which may have tens or even hundreds of houses under construction. Social housing is procured through more conventional client-contractor relationships, although social housing providers have in the past few years been amongst the most innovative in exploring new types of relationship.

Developments since 1992

Concerns over the performance of the construction sector led to the setting up of first the 'Latham' enquiry, whose report was published in 1992 and then the 'Egan' Task Force which reported in 1998. These concerns were centred on the fragmented nature of responsibilities in the industry, which led to inefficiencies in delivery and to disputes over responsibility when defects occurred. The industry acquired a reputation for being litigious, with many disputes ending up in the courts; it was alleged that expenditure on lawyers exceed that on remedying defects. The Latham report 'Constructing the Team' focussed on good practice in contractual matters, one particular issue being the payment arrangements between main and specialist contractors, and on means of unifying the industry at institutional level, one consequence being the creation of the Construction Industry Board which produced guides to good practice in the appointment of contractors, consultants etc. However, the report did not advocate radical changes.

By contrast, the 'Egan' report 'Rethinking Construction, published in 1998, reflected the experience of its Chairman who had come from the motor manufacturing sector and contrasted the supply-chain relationships of that sector with the temporary and fragmented relationships in construction. It advocated reform of the process, with single point responsibility for delivery through integrated teams, longer term relationships and a much sharper focus on the client's requirements. The changes required were within managements, not institutions.

The government accepted the principles of the Egan report, and notably sought to put these into practice through public procurement, with a Government Construction Clients Panel (GCCP) being established to co-ordinate the development of new procurement principles.. In parallel, there was general reform of the structures for government procurement, with the creation of an Office of Government Commerce (OGC) headed by a senior executive from the private sector. OGC have been responsible for further development principles and guidance on public procurement. Outside central government, similar changes took place in local authorities through the promulgation of 'Best Value' (equivalent to 'most economically advantageous') principles and their incorporation into legislation[20].

[20] Circular 03/2003 from the Office of the Deputy Prime Minister provides guidance for local authorities on the application of Best Value principles

These changes have run in parallel with the Government's use of private finance for public projects which commenced in the mid-1990s. (For a summary of recent UK experience with private finance, see Annex UK1)

It is significant that the changes advocated by Rethinking Construction and the GCCP received early endorsement by the National Audit Office[21], which audits government expenditures on behalf of Parliament, and by the Audit Commission, which audits local authority expenditures. This endorsement provided essential support for public authorities wishing to change procurement procedures.

Within the private sector, the larger clients – notably BAA (responsible for London's airports) but also BT and large hotel and retail groups – have increasingly developed 'framework' agreements with consortia of firms. The effect has been to reducing the number of suppliers which they deal. Because of commercial sensitivity, few details of these are available.

Insights into current relationships between leading clients and their suppliers in the UK are contained in twp 'Equal partners' studies[22] carried out by a business consultancy. They show that, despite the great effort devoted to improving relationships since the mid-1990s, there is still much progress to be made. In particular, clients remain critical of the industry's apparent unwillingness to lead through proposing innovative approaches, and their inability to understand client drivers and values.

3. Governance of public procurement

Public procurement in the United Kingdom is governed by Statutory Instruments (secondary legislation) made under powers in the European Communities Act 1972. The Public Works Contract Regulations 1991 (Statutory Instrument 2680 (1991)) provide the basic text which translates into UK law the provisions of the Public Procurement Directive. The Regulations have several times been amended to reflect changes, most recently by the Public Contracts (Works, Services and Supply) and Utilities Contracts (Amendment) Regulations 2003 (SI No 46 (2003)) The latest version of the Public Procurement Directive has not yet been translated into British law, but this will take place in the course of 2005.

Procurement of smaller projects is not governed by legislation but by guidance and principles developed by the Treasury and other bodies, and endorsed by the audit bodies.

Responsibility for setting policy on public purchasing rests with the Treasury. The Office of Government Commerce, an agency of the Treasury, is responsible for advising government departments on procurement matters. OGC guidance is based upon a 'gateway' system under which procurement decisions are subject to a formal review at different stages.

OGC Guidance

The current principles governing government procurement of construction are set out in OGC Guide No 6 'Procurement and Contract Strategies'.[23] This states that:

> 'The primary consideration in the procurement of construction projects is the need to obtain best value for money in the whole life of the service or facility'.

This clearly therefore rejects 'lowest first cost' as the criterion for selection.

The Guide goes on to distinguish between:

[21] See, for example, 'Modernising Construction Report HC87 from the Comptroller and Auditor General, January 2001

[22] Equal Partners – customer and supplier alignment in public sector construction, and Equal Partners – customer and supplier alignment in private sector construction. Business Vantage (2004) www.businessvantage.co.uk

[23] Available from www.ogc.gov.uk

Procurement strategy
The best way of achieving the objectives of the project and value for money, taking account of the risks and constraints, leading to decisions about the funding mechanism and asset ownership of the project. The aim of procurement strategy is to achieve the optimum balance of risk control and funding for a particular project.

Procurement route
This delivers the procurement strategy. It includes the contract strategy that will best meet the client's needs. An integrated procurement route ensures that design, construction, operation and maintenance are considered as a whole; it also ensures that the delivery team work together as an integrated project team

Contract strategy
This determines the level of integration of design, construction and ongoing maintenance and should support the main project objectives in terms of risk allocation, delivery, incentivisation etc.

There are three recommended procurement routes for construction works:

- Public Private Partnership – which, because of its higher tendering costs, is not likely to achieve value for money for projects costing les than £20m (30m Euros)
- Prime Contracting
- Design-Build

Other (including traditional) procurement routes are only to be used when they can be demonstrated to be clearly superior to these three

Prime Contracting is defined as 'having a single contractor take responsibility for management and delivery of a project, including demonstrating during the initial period of operation that operating cost and performance parameters can be met in accordance with a pre-agreed cost model'. It thus differs from design-build in that the contractor accepts greater responsibility for meeting operating cost and performance targets. It usually includes incentives such as the sharing of savings, target cost pricing which provides the contractor with a reasonable level of profit, and 'open book' accounting. Generally Prime Contracting is associated with projects that require more complex co-ordination.

In Guidance Note 6, the factors that influence the procurement strategy are stated to be:

- The project objectives
- Constraints – budget ,funding, timeframe, exit strategy
- Cultural factors - for example considerations of the workspace environment
- Risks – for example on late delivery or the use of new materials
- The client's capability to manage the project
- The length of operational service required

There is great emphasis on integration of responsibilities but it is acknowledged that separate contracts maybe required for the delivery of specialised parts of a project.

The guidance reviews the level of risk transfer associated with different procurement and contract strategies, indicating that the greatest transfer of risk to the supplier occurs with PFI; a lower level with private developer funding (ie government enters a per-let agreement with the developer prior to construction) and lower again with a lease agreement. 'Crown build', ie where the government retains the client role and ownership of the project, leaves the greatest risk with the government.

The risk associated with different forms of contract under 'Crown build' is also analysed, with Prime Contracting involving greatest transfer of risk to the supplier, while Design, Build and

Operate, Design Build and Traditional forms of contract leave progressively more with the client. The choice of contract form is also influenced by:

- the resources and expertise of the client
- the influence that the client wishes to have over the design
- who is best able to carry out the design
- the influence that the client wishes to have over planning, interactions with end-users etc
- the market conditions and whether any framework agreements have been set up.

Framework Agreements

The OGC guidance indicates that Framework Agreements may be used for both Prime Contracting and Design-Build procurement, and can be appropriate for maintenance requirements. They are expected to result in savings in cost and time through:

- No requirement for re-bidding each individual project
- Continuous improvement by transferring learning for one project to another
- Improved working relationships
- Continuous workflow
- Speed of procurement

Partnering

Partnering is considered to be an aspect of contract strategy. It is associated with 'clients and suppliers who are committed to continuous improvement and who have a commitment to integrated project teams and working with established supply chains'. Thus partnering is seen as an approach to the development of long-term relationships rather than as a means of procuring a particular contract. It will, though include similar incentives to those associated with Prime Contracting.

OGC offer a matrix for evaluating procurement routes following a decision that the project should not be procured through private finance. This Table is shown in Annex UK2.

4. Major government clients

Each government department responsible for construction procurement has developed its own strategy towards procurement consistent with the overall OGC guidance. Three examples of current practice and associated guidelines are summarised

Defence Estates

Defence Estates is responsible for all the non-operational facilities of the Ministry of Defence. It has adopted PPP/PFI and Prime Contracting as its preferred procurement routes and is in the process of appointing prime contractors for:

I. major projects, on an individual project basis

II. maintenance and smaller construction projects within a whole region (it has divided the UK into seven regions) These contracts are let for a minimum of seven years, extendable to ten years.

III. the operation of specific functions over more than one region (in some cases such as waste water treatment – see Case Study – this is associated with a PPP/PFI scheme)

Prime Contracting is a natural route for the agency, since it is a procurement strategy that his been used for some years in the development and supply of defence equipment.

Defence Estates is therefore no longer making a procurement decision about individual projects, unless they count as 'major'. Through a tendering process, it has selected a consortium for most of its needs in a region and established the framework under which that consortium will carry out the works required. The Defence Estates Annual Report or 2003/4 reports that Prime Contracts have been let for Scotland and the South West region, and for waste water treatment for about one third of the UK. More are in negotiation, to be let in 2004/5.

NHS Estates

Defence Estates has executive responsibility for procurement. By contrast, NHS [National Health Service] Estates is responsible for the provision of advice and guidance to local health providers on the procurement and management of their property but the actual responsibility is devolved to the providers of NHS services ie the health authorities and trusts. Public Private Partnerships are now the principal route for the procurement of new health facilities, but Prime Contracting has been established for smaller projects.

NHS Estates' procurement strategy is focussed on *Procure 21*, under which consortia have been selected through a competitive process to undertake NHS works. NHS Estates have established framework agreements with these consortia and health providers are then able to invite tenders for their individual projects to the consortia, under pre-arranged terms.

Highways Agency

The Highways Agency, responsible for the construction and maintenance o motorways and other trunk routes has similarly selected consortia.

The Highways Agency has set out its principles of procurement. These include:

- Early creation of the delivery team, which 'allows more scope for innovation, improved risk management, better forward planning of resource requirements, shorter construction periods' and other benefits
- An integrated and incentivised supply chain, which benefits from the knowledge and experience of specialised contractors
- The maintenance of a competitive and sustainable supply chain, though making forecasts of future requirements and creating improvement targets within longer term relationships
- Clear points of responsibility, with no unnecessary layers of supervision
- Selection of suppliers on best value criteria
- Fair allocation of risks. The Agency comment that transferring risks to the contractor may improve certainty in final pricing but this may be at the expense of reducing overall value since the contractor will price for the unknown risks. Hence it will accept risks where there is a partnership to manage and control them.
- A partnership approach based on long-term relationships, with performance measurement and continual improvement targets.

5. Private sector practice

The 'Equal Partners' report on the private sector's relationship with its construction suppliers found that: 'around 70% of clients did not appear to have a structured an formal approach to matching the project with the most appropriate procurement route. The choice is typically government by the customer's attitude to risk, which in turn is influenced by funders and specialist advisors who generally favour project structures where responsibility for delivery rests with one or a few organisations'. Further: 'the procurement route is normally a model that has been used on previous projects, and it is reviewed and changed very infrequently.'

Clients considered the form of contract to be less important than the selection of key team members (often at the level of individuals with whom they had worked previously); there was a strong preference for design-build contracts. The major exception to this occurred when experienced clients were undertaking complex projects; these circumstances favoured construction management.

Around 80% of relationships were 'preferred', reflecting the fact that many private sector clients have long-standing relationships with firms who carry out their construction works. These may not be formalised in Framework or Partnering contracts, but there is much evidence that firms are tending to use fewer suppliers and to develop more strategic relationships.

BAA plc

Because of the privatisation of utilities and other state-owned bodies in the 1980s, the UK has, though, a number of private sector bodies which are bound by Public Procurement Directives. Notable amongst these is BAA plc, which operates the three main airports that serve London and other airports in the UK. Since the early 1990s, BAA has pioneered new forms of procurement and now carries out the great majority of its construction works through Framework agreements with suppliers. The performance of each firm in the agreement is evaluated continuously, with an annual overall assessment which, if satisfactory, results in the agreement being extended for a further year. In the view of BAA, this process can be extended indefinitely, without the need for formal re-tendering of the contract..

BAA typically operates through a form of 'distributed' contracting, in that they undertake their own project management (supplementing their own resources with contracted-in expertise) and take responsibility for the co-ordination of inputs. This is a reflection of the need for any construction works to be closely co-ordinated with operational requirements at the airports. The framework agreements allow for different forms of contract and payment mechanism, with BAA prepared to work on a 'cost-reimbursed' basis for projects where the requirements are not well defined at the outset.

The long-term, collaborative relationships developed by BAA have been fully exploited in the construction of Terminal 5 at Heathrow, where BAA in addition have taken the decision to bear all the risks of the project in order to secure the highest degree of collaborative working from their suppliers.

Principal contact

Information obtained from a variety of sources but the focus for procurement reform in the public sector is the Office of Government Commerce www.ogc.gov.uk and for industry reform generally is Constructing Excellence www.constructingexcellence.org.uk.

Case Studies

The programme of construction reform introduced by the government following publication of Rethinking Construction has included the preparation of many Case Studies illustrating new ways of working. These are accessible through the Construction Excellence Website www.constructingexcellence.org.uk.

The first three studies summarised below are drawn from the Construction Excellence portfolio while the fourth concerns an ambitious PFI/PPP project for which contracts were signed in 2004.

Office block - 288 Bishopsgate, London

A 2300m² office block on a constricted site in central London, costing 7m Euros, was occupied within 18 months of the decision to proceed with the development. The client was an investment fund, Mercury Asset Management, and the contractor was Exterior International. The project employed an adapted version of Construction Management in order to allow design and site works to proceed in parallel.

The contract with Exterior had three phases. In the first, Exterior worked with the architects appointed by Mercury Asset Management in order to develop an outline design and project plan. Following approval of this plan, and a target cost, the design was progressively refined in order to reduce the construction time. Some 20 principal packages of work were defined and initial contracts were placed. This stage lasted 13 weeks. Just before site works commenced, a Guaranteed Final Price was agreed and all the contracts placed up to then, including that with the architects, were novated to Exterior. The final construction phase of 45 weeks was essentially carried out under a fixed price design-build contract.

In the view of the client, the approach enabled the offices to be occupied three months earlier than would have been possible with a conventional procurement strategy. The quality of construction was high and the approach will be used ain future projects.

(M4I Case Study 10 – May 2000)

Extensions to School Buildings, Brighton

A novel form of partnering contract was used by Brighton and Hove District Council when they wished to extend two schools. In both cases, the extensions were to be constructed above existing classrooms, with the schools continuing to function while the works were in progress. For this reason, the technical and programming aspects of the project were complex and the Council's professional staff considered that a partnering approach, with early involvement of the contractor, was necessary. This approach enabled the project to benefit from the contractor's expertise and experience from the start and created the right background for the close relationships required with the teaching staff of the schools. To do this, though, meant changing the Council's normal rules on the selection of contractors.

A two-stage selection process was used, with initial responses to questionnaires evaluated on a 75:25 quality: price formula. At that time, the price was the contractor's quoted fee for participation in the design process together with their overheads and profit based on the client's initial estimate of the construction cost. The final selection process took place through a presentation session, again principally on quality, but contractors were asked to indicate if they thought the estimated price was realistic. The successful contractor was Llewellyn.

The PPC2000 form of contract was used. This has been specially developed[24] for partnering contracts and covers all parties including the client, the contractor, the consulting engineer and the quantity supervisor. It sets up a Core Group to oversee the partnership and to resolve

[24] The author of PPC2000 is David Mosey of the legal firm Trowers and Hamlins

issues. A Partnering Adviser guides the client in the creation of the project team. The contract operates by reference to an Agreed Maximum Price (AMP), with parties sharing any differences between the final price and the AMP. In this project, however, the final price was the AMP, despite there being only a small (1.5%) contingency provision and the team encountering some ground-related problems once construction had begun.

Following consideration of various options, a steel and pre-cast concrete structure was selected for both extensions. This could be erected in the summer holiday period, with cladding and fit-out following over the winter. The head-teachers of both schools attended fortnightly project meetings. Both extensions were handed over on programme, in early 2003, with only two defects recorded at each school. The project cost was around 2.5m Euros.

The Council have now established a five-year partnership agreement with the contractors and other parties to the project team. The parties are working on three further school extensions with a total cost of some 4m Euros and a sports centre estimated at 3m Euros.

(CE Case Study 252 – March 2004)

Road construction - Dudley Southern Bypass

The 3.1km Dudley Southern Bypass was constructed through heavily contaminated land previously used for the manufacture of coal gas. The contract included the construction of four interchanges and preliminary works of a metro line. Originally, it was thought that 50000m² of soil would need to be removed for controlled disposal, but the extent of the problem could not be finally ascertained until construction had commenced. This meant that the use of conventional contract carried a strong risk of large supplementary claims.

In response to an initial tender invitation, the contractor Kvaerner put forward both a conventional bid and an alternative tender, involving a partner contract. This was accepted. The contract included a 50;50 sharing of gains or extra costs, by comparison with a target figure. Kvaerner additionally proposed that embankments be re-engineered in order to make use of soil removed from the site, thus avoiding transport and disposal charges.

Regulatory approval for re-sue of the soil rested with the Environment Agency who were represented at partnering workshops. Following extensive tests and negotiations, approval was given. The overall saving was 1.5m Euros on a 25m Euro project, achieved even though the time taken for the tests and negotiations delayed construction of some retaining structures and the contractors had to work round the resulting changes to the construction programme.

In addition to the cost savings, the innovative approach to the use of contaminated soil avoided 25000 lorry movements and the reduction in waste disposal capacity.

The partners were satisfied that the partnering approach stimulated a mutual desire to solve problems and to look for the overall best value from the project.

(M4I Case Study 174, November 2000)

Defence Estates - Project Aquatrine

Project Aquatrine concerns the management of water supplies and waste water for the whole of the Ministry of Defence (MOD) estate. It stems from a Strategic Defence Review in 1998 which concluded that the MOD should strive to divest itself of 'non-core' business, ie activities not directly related to providing the UK's defence capabilities, by harnessing the expertise of private sector companies. The Department's management of its' water and wastewater assets and responsibilities was identified as a suitable example for such divestment.

Arguments for the move were based on both risk and financial assessments:

- 'Crown immunity' legislation, under which government departments were exempt from the requirements of, for example, health and safety and environmental standards, was being withdrawn. This would expose the Ministry to risk of claims for environmental damage, particularly as environmental requirements became more stringent.

- The MOD's water and wastewater services competed poorly for capital funding with other defence needs, resulting in a persistent shortfall of expenditure, together with uneven and unfocussed investment

- The combination of lack of investment and exposure to new requirements meant that very large capital expenditures would be required in the short term, beyond the level that could be contemplated by MOD.

Under, Project Aquatrine, the Department's water and wastewater assets and infrastructure throughout Great Britain are leased for 25 years to private sector providers who are then responsible for maintenance and operation. The initiative covers the MOD's sewage works, water processing plants and water mains, sewers and drains that are outside buildings, removal of surface water and water supply for fire fighting use.

It is structured in three 'Packages', each covering a different geographical area, which have been tendered and negotiated separately. These were awarded in 2003, two to consortia of water companies in partnership with engineering and construction interests and the third to Thames Water plc. Contracts were signed in 2004. The total expenditure contracted through the packages is around 3.5Bn Euros

(www.defence-estates.mod.uk)

Annex UK1

UK Experience with private finance

Although the private finance of assets for the delivery of public services is by no means original to the UK, its rapid development in the UK since 1986 has been without precedent and is probably the most aggressive programme of the private finance of assets for the delivery of public services in any country at present. The policy was launched with a small number of infrastructure projects during the 1980s and was formalised in 1992 as the Private Finance Initiative (PFI). In an important sense, PFI was a complement to the UK privatisation programme of the 1980s and 1990s where nationalised industries – typically the utilities - were sold complete to the private sector with the state retaining only a regulatory role. Various difficulties meant that progress on PFI was slow before the change of government in 1997. Following a review, the policy was broadened in its application, and now forms a major element in UK government procurement. There are now four basic types of private finance procurement in the UK :

- *concession* – typically for infrastructure projects, where an asset is provided for which users pay directly, such as a toll bridge or tramway. The Skye Bridge is an example, as is the M6 Toll road.
- *PFI* – typically buildings for the delivery of public services, where an asset is provided and the public service provider pays a fee based on the availability of the asset for exploitation. This is the most common form of private finance of public assets.
- *public-private partnership* (PPP) – typically used to increase the exploitation of underused public assets where the public and private sectors share in the returns from the sale, transfer or other exploitation of the publicly owned asset.
- *company limited by guarantee* – typically used where privatised companies are not viable without risk-sharing with the state, at least in the last resort. Network Rail and Dwr Cymru are examples.

In 2003, HM Treasury conducted a major evaluation of the experience of concession, PFI and PPP across all sectors. For the financial year 2003-4, these forms of procurement were expected to deliver 11% of the total investment in public services in that year of £41.7 bn – a deal value of £4.59bn. The total capital value of the 563 deals signed by April 2003 was £35.5bn – over 90% of which value had been signed since 1997. Even allowing for the impact of the massive PPPs for the London underground system signed in 2002 and 2003, the steady growth of privately finance deals continued. However, because overall public sector investment was also rising at 7% per annum in real terms, private finance was not expected to grow significantly as a proportion of total public investment. While transport infrastructure – due to the large size of individual projects – accounted for the largest proportion of deals signed at 22%, the acquisition of both health and educational facilities accounted for 16% of the total each.

In late 2002, research was conducted by HM Treasury amongst a sample of public sector project managers on their perceptions of the asset delivery process across 61 operational projects – smaller projects in terms of capital value, and information technology (IT) asset acquisition projects were the subject of separate research. 88% of projects were on time or early in terms of the planned date for facility availability. In just over 20% of cases, the unitary charge payment increased against budget, but in all cases this was due to changes in user requirements by the concessor. The report concludes that PFI is delivering certainty in asset acquisition for the public sector. Complementary research by the National Audit Office (2003) which focused on the construction sector reports in similar terms. Of the 37 projects surveyed using a similar method to HM Treasury, 76% of projects were available for use on time or early, and only 8% were delayed more than two months. 70% of facilities had no increase in unitary charges, and in the majority of cases where there were increases, they were due to either changes in user requirements or regulatory issues.

However, additional, more focused, research by HM Treasury using a similar methodology identified two major problem areas:

- IT projects have a much poorer record of delivery, and most of the successful projects renegotiated their contracts and moved away from the PFI model. The problems were due to inherent difficulties in specifying user requirements in the context of rapid technological change; the use of proprietary technologies which made the substitution of poorly performing suppliers difficult; the lack of a market for the supply of third party finance; the predominance of service provision rather than asset acquisition in unitary charges; and the short life of the asset base.

- Smaller projects – defined as less than £20m - tend to suffer from very high deal-making costs. While delivery of these projects was satisfactory, the existence of significant economies of scale in deal negotiation mean that smaller deals carry proportionally higher transaction costs.

As a result of this research, the reported recommended that privately financed deals be abandoned for IT procurement, and that smaller deals – this particularly affects schools and primary health care facilities – be bundled into programmes.

By early 2003, some 451 privately financed facilities had reached the operational phase – more than double the number for 2000. As a result, payments of *unitary charges* – the annual fee paid by the public sector service provider to cover capital and operational costs - to private facility operators amounted to £5.4bn, or just under 2% of the total government annual resource expenditure of £272.1bn. This figure was expected to begin to fall after 2007-8 and excludes direct toll payments by users. The HM Treasury research reports a high level of user satisfaction with the early experience of the operational phase of the facilities. Only 24% of project managers expressed disappointment in terms of how far "overall performance of the private sector partner" was "matching up to expectations at the time of contract close", and 25% reported that performance "far surpassed" expectations. Similarly, the NAO sample reported that both design quality and build quality were rated as good or very good in around two thirds of cases, with the rest being adequate. In 89% of cases the asset was reported to be performing adequately or better, with the largest group reporting that the facility was performing fully to contract specifications.

Annex UK2

Procurement route		Traditional		Design and Build		Design Build and Maintain		Design, Build, Maintain and Operate		Prime Contracting	
Evaluation criteria	Weighting	Score	Weighted score	Score	Weighted score	Score	Weighted score	Score	Weighted score	Score	Weighted score
Opportunity for supplier to innovate to yield the most cost-effective combination of capital construction, maintenance and operation											
Least disruption in project flow due to perceptions and procedures to meet pubic accountability – minimisation of disputes											
Certainty of whole-life costs											
Flexibility for future changes in client requirements and post-completion change											
Speed of project delivery to occupation./first use											
Control over detailed design and design quality (a detailed output specification is still required)											
Reduction in disputes and in-house costs though single point responsibility											
Control of sustainability issues											
Requirement to optimise whole life cost											
Total											

Table for evaluating procurement routes. Source: OGC Procurement Guide