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International Review of Procedures for Selecting Procurement Routes for Construction Projects

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Final Report

PART 1: Main Report

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Executive Summary

This report is the outcome of a study commissioned by the Knowledge Centre for Public Procurement in the Nethelrands. Its aim was to provide information on the selection and use of different procurement routes in countries with well-developed construction sectors, and particularly to illuminate how each country related the characteristics of the project to the choice of procurement route.

Chapters 1 and 2 of the report set out the background and the methodology of the study which covered five European countries (Belgium, Denmark, France, Sweden and the United Kingdom) and two Australian states (New South Wales and Queensland). For each country, information was obtained on the use of different construction procurement routes, and the guidance available from official or other sources to assist the selection of the most appropriate route. This information is presented in Part 2 of the report in the form of six 'Country Studies'.

The information obtained has been set in the context of each country's 'construction business system', this concept being discussed in Chapter 3. Every significant construction project involves the functions of design, construction and project co-ordination. The term 'construction business system' describes the traditional arrangements established in each country through which these the various 'actors' in a project (including the client) collaborate in order to accomplish construction projects. The actors operate within an institutional framework set by legal and other regulatory arrangements. They interact through contract structures and commercial procedures and exhibit patterns of behaviour which stem from culture, tradition and experience. Thus construction business systems operate at three levels: *institutional* (legal principles etc), *governance* (contractual relationships) and *behavioural* (traditions, values etc). Contract structures - which are the principal focus of this report - are at the 'governance' level.

The countries studied were chosen because they differed in their construction business systems and because each had taken initiatives to improve their procurement arrangements, including in most cases exploring non-traditional procurement routes. The systems in the countries studied may be characterised as:

- 'Anglo-Saxon' (Australia, UK) - which have strong professional cultures and distinct separation of design and construction responsibilities;
- 'corporatist' (Denmark, Sweden) - where the cultural and institutional divide between design and construction is less marked and a collaborative culture is more prevalent, and
- *étatique* (France, and to a lesser extent Belgium) - with stronger state influence on industry roles and relationships, and where much of construction has been contractor-led, with the design function having formal responsibilities but a lower profile.

In the first two construction business systems listed above, responsibilities for design, construction and project co-ordination are separated. To overcome this inherent fragmentation of responsibilities, these countries have in recent years developed a range of 'contract structures' which combine these responsibilities in different ways, and have produced guidance on the suitability of different contract structures for different types of project. By contrast, in the countries with strong contractors, operating within an inherently more integrated system, firms adapt to the requirements of the individual project through informal negotiation within standard procurement structures; the form of contract is not seen as a significant issue and consequently they have no need for guidance on the selection of procurement route. The use of 'project insurance' in those countries may also serve to insulate clients from some of the consequences of failures in the supply chain and cause them to be less concerned about contract arrangements.

There are also differences in the way that 'independent' actors control projects on behalf of clients. In the 'Anglo-Saxon' system, the principal independent advisor is a cost consultant

('quantity surveyor') who estimates the cost of the project and advises on the cost implications of any proposed change to the design. Designers carry a professional responsibility for the technical acceptability of the original design and any changes. By contrast, in the *étatique* system, the independent consultant in many projects is a *bureau de contrôle* responsible for checking the technical acceptability of the design and any changes, and compliance with regulatory requirements. This arrangement – when coupled with the project insurance arrangements – provides clients with assurance over the design and facilitates design changes (eg to improve constructability or to overcome unexpected site problems) following the award of the construction contract.

Chapter 4 identifies the first procurement decision as that concerning funding, whether to procure an asset owned by the client, using the client's funds, or a service delivered through an asset owned by others (for a public client, this would be accomplished through a PPP/PFI arrangement). It then focuses on the different forms of contract structure that have been developed in the Anglo-Saxon and corporatist systems for the procurement of a constructed asset. These fall into four main groupings:

- traditional (separated responsibilities)
- mediated (management-led, such as construction management)
- integrated (design-build and its variants)
- extra-integrated (design-build-operate etc)

The chapter considers the merits and risks associated with each. It also discusses two approaches for improving performance at the 'behavioural' level: framework arrangements and partnering.

Each type of contract structure demonstrates trade-offs between risks and costs. Thus integrated, fixed-price contracts (eg design-build) provide high cost certainty, provided there is little variation in the project following award of contract. They also place risks essentially with the contractor, and therefore the offer price will include a premium to reflect this. By contrast, mediated contracts have less cost certainty at the time the decision to proceed is made, since the total cost will be the sum of a number of individual contract prices. But they allow more scope for optimising the choice of individual specialist contractors and for adjusting the timing of contracts to minimise uncertainty. Ultimately, they may result in a lower overall cost. The former route may be best for a straightforward, well characterised project while the latter will be more suited to a project where some aspects of design may depend upon information (eg the identity of the ultimate user) that is not available at the start.

The optimum contract structure therefore depends on the characteristics of the project. More generally, though, it also depends on the client and sometimes on the market. Some procurement routes (eg mediated routes where the client is the co-ordinator) make more demands on the client, who will need both capability (skills, experience) and resources (time) to use them effectively. As an example of a market factor, a high demand for a particular specialist trade may result in a decision to move to separate trades contracting rather than general contracting, in order to defer contracting with that trade until it is required, in the hope of obtaining a better price. Chapter 5 (see below) considers more fully the guidance produced in different countries on the choice of contract structure.

'Framework agreements' establish a relationship between the client and a one or a set of suppliers, covering a period of years and more than one project. They may take the form of contracts, and may include work that is not defined at the time the agreement is made. Alternatively, they may just establish the contract conditions, leaving the actual choice of supplier for a late decision. Such agreements are claimed to promote investment in training and in understanding of client needs. They have been widely used in some countries (eg the UK) while others have considered them outside the scope of EU procurement Directives.

'Partnering' is a term used to cover a range of approaches to producing collaborative and more productive relationships in a project, the interpretation of the term differing across countries. It may involve a special form of contract, but normally takes the form of a non-contractual agreement to seek to work harmoniously. Partnering is often associated with

team-based financial incentives such as the sharing of savings if the project is completed at lower cost.

Chapter 5 summarises the information obtained from the various countries, and relates it to their construction business systems. The marked difference in practice at the governance level between France and Belgium and the other countries has been noted earlier. Other principal conclusions are:

- There is a great deal of experience, in countries whose construction business systems are broadly similar to that in the Netherlands, on the use of contract structures which can match the match the circumstances of the individual project. These structures offer the client different combinations of certainty in costs, predictability of completion and the ability to influence the final output in the course of the project. However, there appears to be almost no data on the volume of construction procured through each route.

- There are good examples of guidance over the choice of these systems, in particular from countries (eg Australia) where construction procurement has been a subject of great political and public concern. The guidance shows a considerable degree of consensus over the characteristics and merits of the various routes, and the factors that should be taken into account in their selection. The principal factors are:

    - Cost – both the level of the final cost and the certainty with which the cost can be determined at the time of making a contractual decision
    - Time constraints – some procurement routes potentially deliver more quickly than others
    - Client influence – the degree to which the client wishes and is able to influence the outcome following the award of the contract
    - Complexity and uncertainty – the degree to which the final output is undefined at the time of the contract
    - Significance – the degree to which the success of the project is critical for the client.

- However, there is also consensus that each project is unique and therefore the weightings to be awarded to the various factors have to be determined for every individual project in the light of the circumstances and the priorities of the client.

- It is widely accepted that greater integration of project teams, and the introduction of 'partnering' principles, raises the probability of successful project outcome, and therefore better use of resources. One reason for this is clearly that the early formation of a project team enables all parties – and particularly the contractor – to contribute to the project from an early stage, thus reducing the risk of unforeseen problems once on-site works have commenced. More generally, the creation of a 'team' culture, whether or not reinforced by tangible team-based incentives for success, appears to promote a desire to overcome any problems rather than to reactive negatively to them and create a 'blame culture'. As noted earlier, different countries have approached these issues in different ways, some employing new forms of contract while others have relied upon team-building measures to change attitudes. The way in which these changes are introduced will depend on culture, experience and the circumstances of the project.

- EU Directives are not a significant constraint on the choice of funding or contract strategy. Some countries within the EU have successfully utilised approaches (eg 'framework' contracts) that others have considered to be outside the scope of the Directives. Other countries have limited their choice of routes (for example, by not employing private finance) because of local cultures expressed in political view and legislation, not because of constraints set by the EU. Each European country appears to have taken the relevant Directives into its own legislation without amendment. The impact of EU Directives is principally felt once the procurement route has been determined, in governing tendering procedures and the selection of project partners.

Chapter 6 considers the relevance of the 'Kraljic' model for construction procurement. It concludes that the model – which relates procurement strategy to market conditions - is not well suited to construction. The outputs of construction are, in general, complex and are not fully defined at the point when the decision to proceed is made. The principal difference between projects that determines procurement strategy is the degree of complexity of the project, not the structure of the supply market, since construction projects do not in general depend on expertise which is available from only a few suppliers (unless constraints are introduced, such as a desire to use local suppliers) . An alternative matrix is proposed which better reflects the factors in construction procurement but this is only an initial guide to the types of procurement route that may be suitable.

Finally, Chapter 7 reviews the main findings and emphasises that the construction business system in each country provides the context for understanding current attempts to improve procurement processes and why different procurement routes have been developed. As a consequence of traditional institutional structures, the various actors (designers, contractors, clients etc) in the construction business system will hold particular attitudes and posses certain skills that stem from their initial education and their experience in the system. These will not be changed overnight, nor can different actors suddenly bear different responsibilities. Any reform of procurement must start from an understanding of this context, and must build upon the skills and capabilities of different parties, seeking to extend these and to change attitudes to and relationships with the other parties, rather than discarding the expertise that exists within the industry.

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Final Report

Prepared by Roger Courtney, Suraya Ismail and Graham Winch

1. Background

This report stems from a commission placed by the Knowledge Centre for Public Procurement in the Netherlands (letter of 10th November 2004, reference 2004.109667). In response to a letter of invitation dated 31st August 2004 (reference 2004072871) from Dr Wim Bremer to Professor Graham Winch, two of the authors (RC, GW) submitted a proposal on 19th October 2004 and this was accepted by the Agency.

The Knowledge Centre requested a study of the use of different construction procurement routes by both public and private sectors in five European countries and one non-European country, and of the factors that clients took into account in selecting the appropriate route for a particular project. They further asked that:

- The study should consider whether the findings were consistent with a model of procurement strategy put forward by P Kraljic[1] which was employed by some Dutch public sector bodies.
- It should set the findings in the context of the 'construction business system' (ie the normal system of relationships employed in construction procurement) in each country and summarise the strengths and weakness of that system.
- It should provide case studies of the use of non-traditional procurement routes, preferably from both public and private sectors.

In supplementary communications (14th December 2004 and 9th March 2005), Dr Bremer invited the study team to comment on the way in which the requirements of the EU Public Procurement Directives had been implemented in the European countries and whether there was any observed difference in guidance or practice between the procurement of buildings and of civil works.

In response to early sight of some of the country reports, Dr Bremer (16th March 2005) indicated that the report might also draw conclusions relating to various other aspects of procurement, including tendering, efficiency, process control, transfer costs and the use of lifetime costs. To the extent permitted by the information collected, these have been addressed.

The original proposal commented on the study requirements and objectives, the principal observation being that there was unlikely to be a single 'national' approach to the selection of procurement routes in the countries studied, although there could well be national guidance, at least for public sector bodies. The information collected would therefore reflect the practices of specific clients and the guidance that they issued. This observation has been borne out in practice.

An interim report was submitted on 2nd December 2004. This confirmed the choice of countries to be studied that had been put forward in the initial proposal and made observations on the information available, based on preliminary enquiries. The report indicated that visits and discussion would need to play a larger part in the data collection

[1] Purchasing must become supply management. P Kraljic. HBR Sept-Oct 1983 pp109-117

process than had been envisaged in the original proposal. This report was accepted by the Agency (communication of 14th December 2004 from Dr Bremer). A draft final report was submitted on 18th March 2005 and comments were received on 18th April 2005.

This final report is presented in two parts:

Part 1: The main report

Chapter 1 presents the background the study

Chapter 2 briefly summarises the study methodology

Chapter 3 considers 'construction business systems' and their characteristics

Chapter 4 presents an overview of construction procurement routes and their principal characteristics

Chapter 5 discusses the findings of the country reports, considering the use of different procurement routes, and the advice provided on their selection, against the background of the construction business systems. It also considers the way in which different countries have interpreted the requirements of EU Directives and comments on other matters raised by Dr Bremer.

Chapter 6 considers the extent to which the findings match the principles of the 'Krajic' model.

Chapter 7 draws overall conclusions for the Netherlands

Part 2: Country reports

These summarise the findings from each country, with case studies.

2. Study methodology

On receipt of the informal acceptance of the proposal, enquires were initiated amongst contacts in the proposed target countries (other than the UK). A typical letter of enquiry is at Annex A. In addition, the study was discussed with persons known to the authors who, because of their role in international networks and organisations, were in a position to advise whether other countries should be considered as alternatives. In view of the specific reference to Canada in the original invitation letter, an enquiry was made of Canadian contacts. The information gained through these initial enquiries confirmed that the countries put forward for study in the original proposal appeared the most useful.

Further enquiries were then initiated, with the following aims:

(a) to deepen understanding of the use of alternative procurement procedures in each country, against the background of its normal procurement relationships or 'construction business system'
(b) to obtain examples of official and other guidance on the selection of procurement routes
(c) to identify potential case studies

The enquiries took the form of:

- Written communications with government, industry and academic contacts
- Telephone discussions
- Searches of relevant government and other Websites
- Visits

Visits outside the UK proved particularly fruitful and the authors wish to express their gratitude to those who gave their time to discussions. The visits were as follows:

15th December	Copenhagen	Discussion of Danish practice
21st December	Brussels*	Discussion of Belgian practice
30th December	Stockholm	Discussion of Swedish practice
27th January	Brussels	Meeting: industry representatives
1st February	Gothenburg	Discussions of case studies
24th/25th February	Paris	Discussions of French practice

*combined with discussions in connection with other projects

In the UK, personal knowledge was supplemented by documentation derived from examination of relevant Websites and by telephone discussions.

Some case studies were drawn up from material supplied against a list of headings provided by the authors; others were derived from discussions or from published material.

The information obtained from each country was summarised in a draft country report which was then sent to principal contacts for comment. Similarly, individuals concerned with the case study projects were invited to comment on those in draft.

Once most of the material had been assembled, and patterns were emerging, preparation of the final report commenced. The country reports, case studies and final report were revised in parallel in the light of further information and analysis.

The information collected varied considerably among the countries, both for reasons of availability and of resource. More detailed comments are as follows:

- Most of the information collected stemmed, as expected, from the public sector. The private sector typically operates through less structured but, it appears (eg from Swedish studies), often more integrated procurement selection systems.

- There was an almost total absence of quantitative information on the use of different procurement routes, and so it was not possible to compare this in the different countries

- The guidance documentation is intended for local use; it is rarely available in other than the local language; hence only the most relevant parts of the documentation were normally examined.

Acknowledgement

The authors are indebted to the principal contacts named at the end of each country summary, without whom this report could not have been produced. Subject to the views of RGD, it is hoped that the report may be made available to them since the study attracted wide interest.

3. Construction Business Systems

The national construction business system is the distinctive configuration of actors and institutions which the construction sector in each country has evolved historically. The actors are different types of supply side firms (architects, contractors, specialist trades contractors etc) and clients (other firms, government agencies, utility companies etc) while the institutions are the bodies that regulate or otherwise control the practices of the industry and its interactions with its clients. These may be state bodies, bodies created by the industry for self-regulation purposes or other forms of independent regulatory and control bodies. National construction business systems exhibit many of the same features as the business systems that operate in other industry sectors in the same country. These features (eg the particular role played by specific institutions such as government, or by a class of firms such as contractors) serve to distinguish national construction sectors.

National construction business systems provide the 'institutional' context in which construction procurement takes place. Clients operating within a specific construction business system then have a suite of procurement routes from which to select the most appropriate for the particular project they are promoting. These procurement routes: how they vary nationally and the factors that influence their choice, are the focus of this report. This is the 'governance' level of construction procurement

The operation of a particular procurement route on a particular project is then influenced by the values and behaviours of those working on the project. The actors, because of tradition and education, and through experience, will approach the project with certain perceptions and practices. This 'behavioural' level is that which is addressed by 'partnering' initiatives.

The framework is illustrated in Figure 3.1, taken from as forthcoming book[2], which shows these three levels as interacting layers within the national construction business system where each layer both helps to shape and is shaped by the ones above and below.

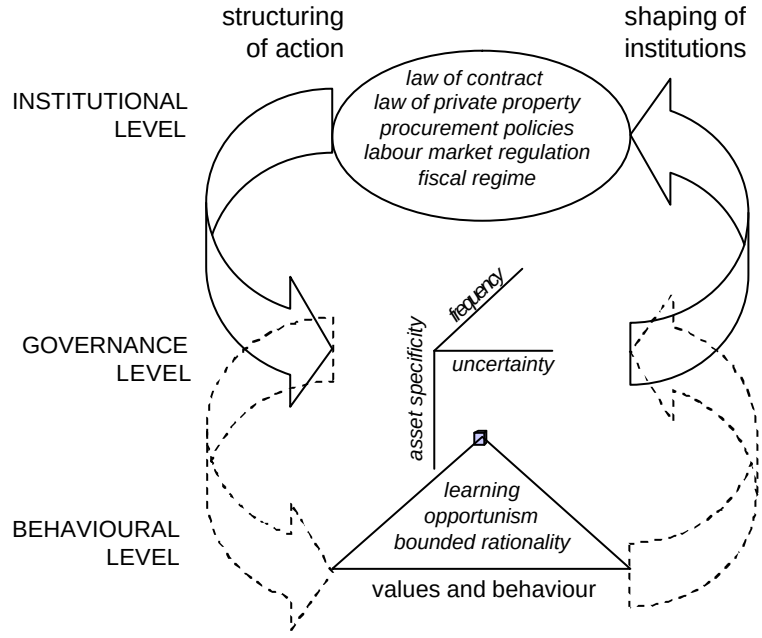

Figure 3.1. The levels of a construction business system

[2] Winch G. M. (*forthcoming*) The Governance of Project Coalitions : Towards a Research Agenda. In : Peter Fenn, Roine Leiringer and David Lowe (eds.) *The Commercial Management of Complex Projects: Defining the Discipline* Oxford, Blackwells

The construction business systems in the countries covered by this report fall into three types; indeed one of the factors in the choice of countries was because they came from these different traditions. The underlying business systems may be identified as:

- Anglo-Saxon (as in the UK and Australia)

  This is based on liberal market values and on the stock market for industrial finance. It has a relatively low level of state intervention and of worker protection.

  In construction, it is marked by a strong separation between design and construction activities, with designers (architects, civil engineers, building services engineers etc) being grouped into a set of self-governing professional bodies and, at least in the building sector, an almost complete separation of background, education and culture between these professional groups and the contractors. In civil engineering, there is greater sharing of backgrounds, since many contracting firms are led by civil engineers. These differences influence both the procurement systems that exist at the governance level and the attitudes that are shown at the behavioural level.

  A distinctive feature of the system is the role of independent advisors on construction costs ('quantity surveyors'). These have traditionally provided measured 'Bills of Quantities' which have been sent to potential contractors with the design drawings when tenders were invited. Contractors were asked to provide not only an overall price, but also a price per unit for each item of the Bill (eg m^3 of concrete) in order that any subsequent variations could be priced. With the advent of CAD systems capable of producing such data automatically, quantity surveyors have developed new roles as cost consultants and project managers.

  The system produces high-status, innovative and world-competitive design professionals and, as a result, arguably a more interesting and higher quality built environment. By contrast, contractors have a lower status and have more difficulty attracting the calibre of intellectual and management skills required for complex projects. Moreover, the overall construction process is highly fragmented, offering scope for failures of communication, 'boundary' disputes uncertainty over responsibilities, differences in objective and failure of cost control. These problems have stimulated the development of a wide range of procurement routes, each of which attempts to address the interconnected issues of design, construction and project co-ordination in a different way.

- Corporatist (as in Sweden and, to a lesser extent, Denmark)

  The corporatist system depends more on negotiated coordination between 'social partners', with the government showing a greater willingness to intervene in the open market to protect social values. It has a greater reliance on banks for industrial finance and relatively high levels of worker protection. The Dutch *poldermodel* is a variant of the corporatist approach.

  In construction, it is manifest in generally high levels of cooperation among actors in the construction process and a more equal relationship between designers and contractors. Contractors take a more prominent position (*viz* the growth of Skanska in international markets and the dominance of three contractors in the Swedish home market). Prominent designers exist, but do not provide the 'public face' of construction as in the Anglo-Saxon model. In Denmark, the system tends to be more like the Anglo-Saxon model than in Sweden or Germany.

  The evidence from this study is that countries with this system appears to be familiar with most of the procurement routes that have been developed in the Anglo Saxon system, although perhaps fewer are used to any extent. They are, though, are still concerned about fragmentation of the process, and alignment of objectives, and have been particularly keen to explore partnering concepts.

- *Étatique* (as in France and, to a lesser extent, Belgium)

  The *étatique* system has more extensive coordination of the economy by the state and a greater reliance on the state for industrial finance. It has a relatively high level of worker protection and a desire to promote national champions in various industrial sectors. Also significant is the high degree of interchange at management levels between state and private bodies, facilitated both by state ownership of important industry and commercial functions and by the common educational background of the senior executives in both sectors.

  In construction, it is marked by government control of what in the UK would be 'professions', through the educational system of *grandes écoles,* and contractor leadership of construction, stemming from the historical relationship between construction and a state which required both military and civil/industrial works. (In contrast, the civil and industrial works that were constructed during the Industrial Revolution in the UK were financed by the private sector.) Design as a separate activity is more focussed at the 'conceptual' level, particularly in France. At the detailed design level, practice varies; design firms do undertake it but contractors also undertake much detailed design. Architects and engineers have formal design responsibilities, with all application for building permits having to be submitted by a registered architect. This leads in France to the 'signature architect' who submits the design to the authorities for building approval.

  In Belgium, where detailed design preceding the award of a contract for construction is more common, there is concern that the extent of redesign by the contractor is wasteful, although some observers with knowledge of the different systems argue that the ease with which revised designs can be accepted, through the *bureaux de contrôle* (see below) facilitates innovation and the introduction of design changes to accommodate unforeseen problems following the commencement of site works. By contrast, in the Anglo-Saxon system any such changes have to be agreed with the designer, who may be unwilling to take the accompanying risk.

  Bureaux de contrôle provide independent technical approval of the works, notably for larger projects. In many projects (notably those in the public sector), these are associated with decennial project insurance arrangements which indemnify the client from the consequences of technical failures in the first ten years of operation, without the client needing to prove negligence on the part of the designer or contractor. The need for such proof leads to extended disputes and legal proceedings in the UK.

  The *étatique* system is, more than the others, focussed on delivery. While judgements are difficult, it is arguable that the resulting built environment is optimised for delivery rather than for interest or for its end-users. Certainly, it is notable that internationally renowned architects tend to come from the other systems. By being focussed on delivery, the system appears (at least in France, although there is some concern in Belgium) not to have stimulated the same concerns over fragmentation, cost over-runs and poor performance (and the project insurance arrangements may have served to insulate clients from some of the consequences of technical failure).

  As a consequence, the system has not developed the range of procurement routes manifest in the various contract forms known in other systems. The relationship between the client and the contractor is set out in a traditional manner, and after the contract is signed the parties make it work though their greater shared backgrounds and perspectives, some of this stemming from the fact that much public procurement takes place at local level.

  As a consequence again, there is little or no guidance on the selection of procurement routes in the *étatique* countries.

However, there have been concerns in France over the potential for malpractices in the award of contracts, and changes in public procurement policy in recent years have tended to introduce greater separation of roles in the overall process.

Overall, therefore, the issues in choice of procurement route in any country stem from the construction business system and, behind that, the national business system. The underlying traditions and culture are powerful influences, and will determine (as in the UK) where the greatest talent and competences will lie. 'Risk management', which is at the heart of procurement selection, has to take into account the abilities of different actors to discharge the roles assigned to them. If these roles are to be changed, care will be needed not to overload the capabilities of different parts of the system.

4. Overview of procurement routes

4.1 Introduction

The creation and delivery of constructed works involves many activities and a range of actors. A construction procurement route is in effect a 'package' which summarises the responsibilities for those activities and the relationships between the actors. The complete specification of a procurement route will therefore include:

- Funding
- Initial and final ownership
- Contract structure, which sets the responsibilities for
  - Design and other professional inputs
  - Construction
  - Project co-ordination
- Tendering and selection of the project participants
- Payment systems

This study has essentially concentrated on the more strategic issues of funding, ownership and contract structure, rather than tendering or payment. These are the aspects of procurement that are most influenced by the construction business system and the characteristics of the project. In recent years, there has been much attention to these issues in some countries, in order to overcome perceived inefficiencies and shortcomings in traditional procurement.

However, some aspects of tendering have been included, for example the use of 'Framework Agreements' as a means of promoting closer relationships and reducing the need for repeated tenders. It is also noteworthy that in Europe the Public Procurement Directives specify tendering procedures in some detail; indeed it is at this level that they have the greatest impact.

4.2 Funding decisions

The choice of funding route is of course a significant decision for all construction clients. This study has not sought to investigate the detailed options open to private sector (see Annex UK1 to the UK country report for a categorisation of possible options) but some of the guidance material obtained from different countries has covered the 'macro' decision faced by public sector clients of whether they should use public funding to acquire an asset, or should enter an arrangement with private sector interests to procure a service from that asset. In the latter case, the decisions over contract structure are then for the private sector partners to make, not for the public client.

The use of private funding is often a subject of political controversy, and the variation in practice across countries reflects their differing political outlook. Where the choice is available, it is normal for a comparison with public financing to be required. Many of the risks that would fall to the client can be avoided by the use of 'Extra-Integrated' (see below) contract structures, but the need to define in considerable detail the level of service required and the circumstances in which shortfalls may be permitted raises the cost of tendering considerably, while the process of making changes to requirements during the contract period may be complex and expensive. The extra complexities of private finance are not likely to be worthwhile for smaller projects. A suggested minimum contract size in the UK is £20m or around 28m Euros.

As well as the obvious financial and political advantages, in smoothing public expenditures and enabling projects to proceed which otherwise might be delayed, private financing brings to the fore issues of whole-life performance and costs, since the annualised price for the service includes operating costs. For that reason, it may lead to better solutions than traditional approaches. Certainly, advocates of 'concession' contracts point to French

motorways as demonstrations that this form of procurement stimulates investment in research to improve performance and reduce maintenance costs. But experience with private funding of public buildings (eg hospitals) is too recent for any conclusions to be drawn.

Private finance may be introduced in different ways, ranging from total 100% privatisation of private debt/equity, to different ways of sharing public and private finance. For the purposes of this report these will be grouped together under the term 'PPP' (Public-Private-Partnership). This therefore includes contact forms such as Build-Own-Operate-Transfer (BOOT).

4.3 Contract structure

From the perspective of the public sector client, the choice of a specific contract structure is predicated on the earlier decision about funding. Figure 4.1 expresses this hierarchy of decision-making. It poses the first choice as the choice between procuring an asset and procuring a service, and then the next choices as a selection from different contract structures or PPP financing options (which are not further considered) .

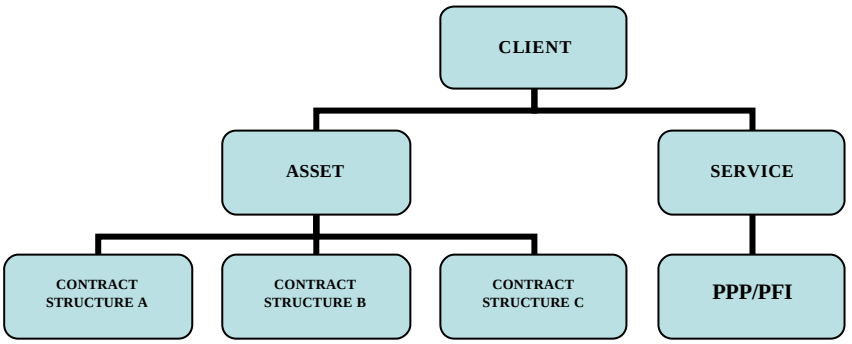

Figure 4.1 Procurement of an asset or a service – the initial decision

In countries with Anglo-Saxon or corporate business systems, a range of contractual options are open to the client, the key differentiating elements being the degree of separation between responsibilities for design, project co-ordination and actual construction. Broadly, four groupings of contract structure can be identified:

Traditional

This group covers contract structures where design and construction are formally separated, but where there is no separate contract for project co-ordination. The way in which different trades are contracted in varies. General Contracting, where the contractor takes responsibility for appointment and co-ordination of the specialist trades, is normal in the UK. Elsewhere, there is greater use of Separate Trades Contracting where each specialist trade is contracted by the client (termed 'divided' contracting in Sweden). The client then acts as the project co-ordinator.

Such systems enable the client to have considerable input to and influence on the design, since the client must approve it as a basis for seeking tenders for construction. Further, since the design is determined before the contract(s) for construction is placed, there is normally a high level of price certainty, and the principal risks lie with the contractor However, if there is a need to introduce variations during the construction phase, these may be the source not only of extra costs but also of disputes about the level and the responsibility for the changes required. And the contractor has little opportunity or incentive to propose design changes that will simplify and speed up construction.

Traditional structures are therefore suitable when the project is well-characterised and variations are minimal (but there may then be a preference for more integrated contract structures) and for 'signature' projects where the design requires a high level of input from the client or is otherwise very significant for the client (eg for its symbolic

qualities). They are not suited to complex projects where the design of one part depends upon the final design for another, which might be settled only during construction.

Mediated

In these, explicit project co-ordination responsibility is placed with a party other than the client or main contractor. The group therefore includes Construction Management, Management Contracting, Design and Manage etc.

Mediated contracts generally imply the use of separate trades contracting, with the various contractors either being appointed by the client (Construction Management) and then placed under the Project Manager, or by the Project Coordinator (Management Contracting). They therefore enable the appointment of contractors to be phased according to the progress of the project, and this may permit design to proceed in parallel with construction, thus saving time. Alternatively, they may enable the later contracts to be placed with greater certainty, either because the early works have revealed the need for design changes which have then been made or because uncertainties over eventual use have been resolved.

In principle also, mediated contracts allow the optimum price to be obtained for each trade package, rather than the price for the whole contract being determined at the start. They should lead to a lower overall price than general contracting traditional routes. However, against that, the final price is not known at the point of commencing construction, since not all tenders will have been awarded. and so the client is incurring a greater risk that the final cost will exceed the project budget.

Mediated contract structures are more suited to projects with considerable technical or user uncertainties, where the design will evolve as circumstances change and implementation needs to be flexible.

Integrated

These have unified responsibility for design and construction (and by implication project coordination also) and go under different names, rather according to the particular sectors in which they are employed: Design and Build, Develop and Construct, Turnkey etc. The contractor may be appointed on the basis of an output specification, supplemented by an outline design.

The advantage to the client is that the price of the delivered product is known, and that there is only one point of responsibility if any performance targets are not met. There can be no 'passing the buck' between designer and contractor. On the other hand, the client's influence on the design is small and if changes are required, they may be expensive. The design will be optimised for delivery and is unlikely to be architecturally exciting – but that may not be an important criterion in many situations.

As with traditional contract structures, integrated routes work best for well characterised client needs and construction solutions.

Extra-integrated

In these, there is single-point responsibility that extends to an initial (or extended) period of operation, but with ownership of the facility remaining with the client. Prime Contracting, Design-Build-Operate and 'Concession' contracts fall into this category. Prime Contracting has been favoured by some clients in the UK with the prime contractor being seen as an 'agency' capable of leading long-term supply chains for delivery and operation of a facility.

By extending the contract to cover the performance of the final project, the client has more direct leverage on the contractor over shortfalls in performance, with the advantages of single-point responsibility being retained. Depending on the length of the contracted operating period, the client may bear little risk from operating deficiencies. But in that case, as with PPP projects, there may also be little scope for

changing the contract requirement, whereas a short period of contracted operation allows for subsequent changes as needs change.

These four groups are therefore marked by increasing integration of responsibilities for design, project co-ordination, construction and (at least initial) operation, but in contrast with the 'PPP' option the client retains ownership in all cases.

Overlaid on these main approaches at the 'governance' level of the construction business system are several other arrangements which may influence both the contract form and, more particularly, the way that the contract is discharged in practice, ie the 'behavioural' level of the system. These are 'framework agreements' and 'partnering'.

Framework Agreements

A Framework Agreement is an arrangement whereby a client undertakes to place work with one or more suppliers on pre-agreed terms, over a period that extends for more than one project. Indeed, the projects may not be specified or even conceived at the time the agreement is formed. It is in effect a pre-tendering action which to a greater of lesser degree defines the selection and terms of subsequent project actors. Framework agreements have become popular in some countries (eg the UK) while in others they have until recently been regarded as falling outside the terms of the Public Procurement Directive, except perhaps for 'term maintenance' contracts.

A Framework Agreement can in principle be implemented through any contract form, since the terms of the contract will be likely to be set out in the Agreement. As practised by leading clients, they also contain regularly monitored performance measures and incentives which substitute for tendering processes in maintaining pressure for high and improving levels of performance.

The claimed advantages of Framework Agreements are that they provide a higher degree of assurance for suppliers that they will receive business from the client, and therefore provide a foundation for firms to invest not only in expertise and technology but also in understanding of the client's requirements and mutual learning. They also reduce tendering costs. On the other hand, they can become 'cosy' unless rigorously monitored and the client has less assurance that each job is being performed by the optimal team and has the best value solution.

Many private sector firms have long-standing arrangements with construction supply interests which are in effect informal framework agreements, and the concept of long-term supply partnerships is widely practised in other industry sectors.

Partnering

Partnering is a term used in different ways in the countries studied. The common theme is that the parties to a construction project seek to develop co-operative relationships with alignment of objectives around the focus of completing a successful project and, ideally, zero disputes. A 'minimal' view of partnering is taken in Denmark, where it means that the contractor, and perhaps other key suppliers, are appointed at an early stage of the contract, and then workshops are held and other measures taken to promote the growth of team-building. In the UK, this approach would be described not as partnering but as the creation of an integrated team. 'Partnering' in the UK implies a more formal relationship between the parties, either the signing of a non-contractual 'partnering agreement' which commits them to working harmoniously and to resolving disputes by negotiation or arbitration, or the use of a tailored 'partnering contract' which covers all the parties. In each case, there will be specific incentives to promote a team-based approach to the project. These may include shared financial reward if the project is completed early or under budget. A 'maximal' approach to partnering is exhibited in, for example, some Australian projects where the partners – including the client - form a special legally constituted organisation to create the project. This is known as 'alliancing'.

Partnering arrangements normally cover the principal parties, and ideally should also extend to their sub-contractors and suppliers, although this is often not achieved. It is generally accepted that early appointment of the main parties is an essential first step, with the contractor being involved perhaps on a 'fee-paid' or even unpaid basis until there is a sufficiently well developed design for a contact (which may be of any of the forms outlined above) to be awarded. The way in which this early appointment is made is therefore a matter of some care and sensitivity, but it is clearly possible to make such an appointment under EU rules, as evidenced by practice in the UK and Denmark.

Broadly, partnering will offer the greatest benefits in projects suited to mediated and integrated forms of contract structure. The benefits come from encouraging (and incentivising) all parties to contribute as a team to the solution of design and construction issues, particularly those that emerge in the course of construction, rather than defending their individual positions. Hence larger, more complex projects, and those where time is at a premium, will benefit from partnering; straightforward projects will offer less opportunity for return on the investment required in teambuilding, workshops etc. Similarly, the benefits of partnering will be greater if the project is one of a number that could be undertaken by the same team. These considerations are reflected in the guidance on partnering, eg from Denmark (see the country report in Part 2).

Partnering may be facilitated by devices such as workshops and training courses. It is also underpinned by the use of performance measures that relate to all parties (eg the sharing of savings by comparison with a target cost through an agreed formula) and by formal methods of mutual decision-making. These approaches may be incorporated in a 'partnering contract' or superimposed on otherwise conventional contracts.

Partnering may extend for a single project ('project partnering') or over a number of projects ('strategic partnering'). The latter is in effect a combination of the Framework Agreement and partnering approaches.

Experience with partnering is relatively recent in conventional construction although the approach has been used for several decades in engineering construction (eg in the off-shore industry). Generally, the experience is positive - measures to create better relationships lead to more successful project outcomes - and the case studies in Part 2 include several examples of partnering in practice. As with Framework Agreements, though, partnering demands rigour on the part of the client – thus, for example, the initial target cost must be realistic, and not an 'easy' target that will help to create apparent savings.

The Country Reports in Part 2 make a number of references to the use of framework contracts and to partnering since these are areas where countries differ considerably in the experience and attitudes. And they are areas of considerable current interest. However, they are not (in general) contract forms in themselves, and therefore are best regarded as devices for securing better performance at the behavioural level of procurement, rather than means of matching the governance system to the characteristics of the project.

4.4 Characteristics of contract structures

There is (particularly in the 'Anglo-Saxon' countries) an accumulated body of knowledge on the way in which different contract structures perform, and their suitability for different types of project. This may be found in 'standard' textbooks and articles[3] but is also reflected in the guidance issued by public and other bodies and in publications from other sources (eg the studies of client perceptions and behaviour carried out in Sweden reported in Part 2). It may be presumed that that this guidance is found to be generally valid, across different countries.

Some of this knowledge has been reflected in the comments on each type of structure in the previous Section. A fuller summary is presented in Table 4.1.

[3] For example Bennet and Jayes. Trusting the Team (1995); Franks. Building Procurement System (1998); Masterman,. Building Procurement Systems (2001), Skitmore and Marsden,. Towards a universal procurement selection technique. Construction Management and Economics (1998)

Group	Advantages	Disadvantages
Traditional	• Provided that the design has been fully developed, tendering costs are minimised and the final project cost will be lower • The existence of a priced bill of quantities enables interim valuations to be assessed easily and variations to be quickly and accurately valued by means of pre-agreed rates. • The use of this method provides a higher degree of certainty that quality and functional standards will be met than when using other routes.	• Where tenders are obtained on the basis of an incomplete design the bids obtained can only be considered as indicative of the final cost and the client is thus vulnerable to claims for additional financial reimbursement from the contractor. • The sequential nature of the system can result in lengthy design and construction periods. • There is tendency for relationships to become confrontational owing to the absence of a 'team' approach and the dynamics of mixed objectives. • Project risks lie with the contractor who may include a price premium to cover them
Mediated	• It enables site work to be commenced earlier then when using traditional routes. • Early advice can be obtained from the contractor/manager on design and construction expertise. • It has a high degree of flexibility to allow for delays, variations and rescheduling of work packages. • The financial failure of any works contractor will only have a limited effect on the total progress of the project owing to fragmented financial structure of project. • The use of individual works packages ensures highly competitive construction costs.	• The majority of project risks rest with the client, who is liable for the cost of remedying any defects from the sub-standard performance of any works contractor who is unable to rectify his faults. • The client does not have a firm tender price available before commencing work.
Integrated	• The single point contact enables the client to deal with one single organisation that is responsible for all aspects of the project • Provided that the client's requirements are accurately specified, certainty of the final budget can be achieved at an early stage • The use of this route enables design and execution to be overlapped and should result in improved communications, shorter project periods and higher economic efficiency.	• If the client's brief is ambiguous, great difficulty can be experienced in evaluating tender submissions • The absence of bills of quantities makes the valuation of variations extremely difficult and restricts the freedom of clients to make changes to the design of the project during the post-contract period
Extra-integrated	• Single-point responsibility for concept, execution and operational delivery. • The contractor is an 'agency' capable of leading long-term supply chains.	• The client must be able to produce clear output specifications, and there is a risk of being over-prescriptive which reduces the flexibility of service providers to innovate.

	• Improved working relationships through the integrated working teams and supply chain management • Focuses on satisfying output specifications (functional requirements) of the facility and not merely on meeting technical specifications • Whole life costs and performance are managed	• Very costly bidding exercise for contractors • Less flexibility to accommodate changes during operation of facility or substantial extra costs for client
PPP	• Smoothes public expenditures and introduces greater certainty. • Brings private sector disciplines into conception and management of public facilities • Enables whole life costs management and performance to be considered • Improved working relationships through the integrated working teams and supply chain management	• Needs comparator exercise to justify private finance • Very costly bidding exercise for promoters • Difficulties in regulating the operations of facility within the stipulated time frame in order to satisfy public accountability • May be expensive to negotiate variations in service level following changes in requirement

Table 4.1: Assessment of procurement routes

4.5 The client's perspective on contract structures

A brief listing of the client's potential concerns would include

- A low level of initial cost
- Certainty of initial cost – ie the minimisation of cost risks
- Time to completion/occupation – sometimes there is a severe constraint
- Certainty of delivery - ie the potential impact of financial failures etc
- Ability to influence the final output, to ensure that it matches requirements
- Ability to control the design – eg for a 'prestige' project
- Flexibility in the design process
- Predictability of Whole-Life Costs
- Flexibility in operation
- Ability to cope with technical uncertainty

The different routes address these concerns to varying degrees. As noted earlier, each involves trade-offs. Some guidance material expressly states that the aim is to minimise risk to the client and to place risk with the parties best able to bear it. This will, though, involve compromise with other objectives; for example, cost certainty will imply a higher level of cost, since the party accepting the risk will add a premium to their charges.

Some clients have other concerns, for example:

Promoting Innovation

In principle, the more integrated the route the more it should foster innovation, since integrated routes enable parties to benefit from new ideas introduced earlier in the process. Experience with 'concession' contracts in France suggests that this can happen but in other countries, there is little evidence form recent PPP projects that innovation actually occurs, because the more integrated routes involve risk transfers which may encourage conventional, proven solutions.

Fostering of local skills and employment

Local skills will be promoted by adopting a contract structure that is accessible to local interests; this may point to smaller individual contracts and the adoption of construction management or separate trades contracting

Creating an 'iconic' building or structure
As was discussed in Chapter 3, striking design tends to be the product of systems where the designer is prominent; in contract terms, this favours a traditional contract structure or at least (as in one of the Swedish case studies) one where an early stage is an architectural competition.

Table 4.2 presents a broad-brush assessment of the potential of different contract structures to address issues of concern to the client, based on the guidance material form different countries. It should be noted that this table reflects normal practice; thus, for example, the judgements relating to initial cost reflect the fact that traditional, mediated, etc processes normally focus on this cost rather than whole-life costs. Of course it is in principle possible to use them with an explicit focus on whole-life-costs, but this is not normal.

Client concern	**Procurement route**				
	Traditional	Mediated	Integrated	Extra-integrated	PPP
Achieving low initial cost level	M/H	H	M	M or N/A	N/A
Certainty in initial cost	M	L	H	H	N/A
Short time to Completion	L	H	H	M	M
Certainty of delivery	M	H	M	H	H
Ability to influence design	M	M	L	L	M
Control over design input	H	M	L	L	L
Flexibility in design process	H	M	L	L	L
Certainty of Whole-Life Costs	L	L	L	H	H
Flexibility in operation	H	H	H	L/M	L
Ability to cope with technical uncertainty	L	H	M	H	H

Ability to meet client concern: H= High, M= Medium, L= Low N/A = not applicable

Table 4.2: A broad assessment of how different procurement routes meet client needs

This overview of different routes is inevitably generic. The actual way in which the parties to a project meet these concerns will depend heavily on the attitudes of individuals – hence the significance of partnering in promoting collaborative behaviour.

Finally, it should be noted that the table makes no reference to the characteristics of the project. It indicates how different routes perform against certain client criteria. The weight to be attached to each criterion depends on the circumstances of the project; as indicated in Section 4.3, some routes are more suited to complex projects because in such projects there will be considerable weight on 'flexibility in the design process'. Others will place weight on the time to completion, or the ability of the client to influence the design. Every project takes place against an individual set of background circumstances, and therefore it is generally accepted that the factors that the client will need to take into account when selecting a contract structure will vary from one project to another. It is notable that none of the guidance material identified has suggested what those weightings should be.

5 Selection and use of procurement routes in the study countries

5.1 Overview of country studies

The information gained on the use of different procurement routes, and the guidance available on their selection, in each of the countries studied is brought together in a Country Report in Part 2. This Chapter presents an overview of the findings and sets them in the context of the construction business systems in the countries concerned, which were discussed in Chapter 3..

Table 5.1 presents some of the principal features of procurement and recent developments in the countries, distinguishing, insofar as the information allows, between public and private sector practice.

Country	Public Clients	Private Clients
Australia (specifically NSW and Queensland)	• Emphasis on use of public procurement as an instrument for construction reform. • Development of formal guidance on use of a wide range of contract forms, backed by central advice and control • Much attention to 'alliancing' and use of more integrated contract structures • Private finance not widely used. • Explicit adoption of 'Best Value for Money' and rejection of 'lowest first cost' as criterion for supplier selection.	• Selection guide produced by Australian Contractors Association mirrors public guidelines, but not clear the extent to which these are followed.
Belgium	• Pressure for change not widespread • Clients protected by insurance system. • A strong drive to use private finance for public projects. • Clients unwilling to be more heavily involved in details of project because of potential exposure to risks • Framework agreements not favoured	• Design-build recognised but statutory responsibilities for architects have to be observed • Pressure group for change examining partnering – interpreted as early appointment of contractor
Denmark	• Impetus for partnering (early appointment of contractor, development of incentives etc) now promoted in official guidance • Emphasis on creating a harmonious supply-side team, for input of expertise at appropriate phases • Otherwise a cautious approach to non-traditional systems, framework agreements, and private finance. • Regard the EU Procurement Directives as (until recently) restrictive	• Relatively limited range of contact structures used. • Clients (public and private) not willing to take further risks. • Do not have specialist project management firms. • Many firms with continuing relationships with suppliers in negotiated contracts.
France	• Central place of legal instruments, not accompanied by formal guidance. • Little pressure for change - contract forms are a framework, not a constraint.	• Codes and Standards for procurement promulgated by AFNOR but not clear the extent of use.

	• Project Insurance cover for many clients • Recent changes affecting the balance in responsibilities with the overall effect of creating greater separation of design from construction - response to concerns over corruption. • History of 'concession' contracts now being revived in different PPP forms	
Sweden	• Wide range of contract forms recognised. • Some pressure for change to introduce partnering, against a background of a collative culture. • Private finance not favoured for public projects.	• Tendency to use more integrated systems.
United Kingdom	• High pressure for change, resulting extensive use of more integrated procurement routes and framework arrangements, to the exclusion of traditional contract forms • Private finance a favoured option • 'Best Value for Money' explicitly adopted • 'Partnering' advocated and special partnering forms of contract developed	• Wide range of procurement routes recognised • Many firms have continuing relationships, now formalised for some quasi-public bodies in framework arrangements

Table 5.1 Some principal features of the countries studied

Overall, the picture that emerges is consistent with the appraisal of construction business systems presented in Chapter 3. Principal conclusions are:

- The countries that have, by tradition, the more fragmented systems have developed a range of contract structures to overcome the boundary problems inherent in the traditional model of responsibilities. This range is not found in France and Belgium, where the contractual framework is determined by the State. As a consequence, there is little or no guidance in the latter countries on the choice of procurement routes.

- The project insurance arrangements in France and Belgium provide a degree of protection for clients, against both technical and financial failures. It proved difficult to determine exactly how significant these were; to an observer from the UK, they seem to offer a powerful tool for supporting a mutual search for solutions by removing or reducing individual liabilities. It did not appear that they were regarded as so significant in the countries concerned. However, they may be one of the background factors that explain the relative lack of pressure for change form clients in France and Belgium, in contrast to the other countries studied.

- The use of some forms of procurement is strongly influenced by national cultural attitudes, which are themselves manifest in business systems.. Thus the relatively low use of private finance in Sweden and Denmark is entirely consistent with their 'corporatist' cultures. Australia presents an interesting alternative picture, in that while the business system is Anglo-Saxon, there is also relatively low use of private finance. The explanation lies in the fact that the Australian culture (and business system) is in fact more corporatist than that of the UK, as evidenced by the retention

of substantial direct client responsibilities in the public sector and the more prominent role played by trades unions in Australian society.

- At a more detailed level also, the contract structures reflect inherent cultural attitudes in the country. For example, the development of construction management in the UK, with specialist firms offering this service, is a *de facto* separation of professional co-ordination activities from trades contracting. The firms can then project themselves to clients and potential staff as professional contributors to construction. In France, contractors have not needed to make this separation to achieve a higher status.

- Where there have been changes, they are acting to reduce the differences between the systems. The changes in French statutes have introduced a rather greater role for designers, and somewhat more separation of design from construction. They have been introduced as a response to perceived risks of lack of control and corruption in fully integrated systems. By contrast, the changes in other countries are tending to introduce a greater integration and to engender collaborative attitudes, in part through framework arrangements; the prime concern has been to improve overall performance. The framework of audit and political controls in those countries is considered capable of accepting the risks inherent in such changes.

Recognition of contract structures

Since the tasks to be performed in construction works are the same in each country, it is perhaps not surprising that there is considerable commonality in the range of procurement options at the 'governance' level found in each, at least in the 'Anglo-Saxon' and 'corporatist' countries. Table 5.2 shows the routes that have been found. It distinguishes between:
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Use: the route is recognised in the country and
Guidance: it features in the guidance material obtained from that country.

The table utilises the broad headings defined in Chapter 4 for the procurement routes.

Country	**Procurement route**				
	Traditional	Mediated	Integrated	Extra-integrated	PPP
Australia					
Use	Y	Y	Y	Y	Y
Guidance	Y	Y	Y	Y	Y
Belgium					
Use	Y		Y		Little
Guidance(1)					
Denmark					
Use	Y	Y	Y		Little
Guidance(2)	Y				
France		little	Y		Y
Use	Y				
Guidance					
Sweden					
Use	Y	Y	Y		Little
Guidance	Y	Y	Y		
UK					
Use	Y	Y	Y	Y	Y
Guidance	Y	(3)	Y	Y	Y

Table 5.2 Experience of different routes

Notes:

(1) the assessment reported in the country report shows that there is awareness of different routes but it is not clear that they are used, and there is no guidance on their use.
(2) There is also guidance on partnering as an 'overlay' to conventional contract structures
(3) Mediated routes are not referred to in official guidance as they are not preferred by the public sector client – they are widely used by private sector clients.

Factors determining the procurement route

There is also considerable overlap in the guidance issued n different countries on the factors that should be taken into account in selecting the procurement route. Table 5.3 illustrates this; it contains no entries for France, for the reasons discussed in Chapter 3. As in other tables, for ease of presentation some factors have been grouped:

Cost:
Includes both the influence of the procurement route on the overall final cost and the degree to which the cost is fixed at the time of a contractual decision.

Time to completion:
Some routes are potentially capability of delivering more quickly than others

Influence of client:
The degree to which the client wishes to affect the final output during the course of the project

Complexity/uncertainty:
The final output is, to an abnormal degree, undefined at the time the project is commissioned. There may be unsolved problems, which a contractor would be best placed to address. Alternatively, the circumstances of the project may change (eg the final user may not be determined) and so changes may be required during the course of the project.

Significance:
The degree to which the success of the project is critical for the client

Country	**Influencing factors**				
	Cost	Time to completion	Influence of client	Complexity/uncertainty	Significance
Australia	Y	Y	Y	Y	Y
Belgium(1)	Y	Y	Y		
Denmark	Y	Y	Y	Y	
Sweden	Y	Y	Y	Y	Y
UK	Y	Y	Y	Y	

(1) informal assessment reported in Country Report

Table 5.2: factors in procurement selection decisions

Some guidance introduces other factors. Examples are:

Australia

- Ease of communications among the project parties, or alternatively the risk of delays owning to poor communications
- The potential for industrial relations problems
- Whether technological changes will affect the final output (an aspect of uncertainty)
- Ability to be sensitive to local or political issues

UK

- Reduction in disputes and in-house costs owing to single point responsibility
- Ability to control sustainability issues

And studies in both Sweden and the UK have concluded that the previous experience of the individuals responsible in client bodies will be an important factor in the selection of procurement routes almost irrespective of the characteristics of the project.

Summing up, we identify similarities and differences of four types among the countries studied:

Experience of different procurement routes

As noted above, there is a marked difference between those countries that have a more fragmented construction business system (UK, Australia, Sweden, Denmark) and those (France and to a lesser extent Belgium) which have inherited a more unified model. Broadly, the former have developed a wider range of contractual models (ie the variants on design-build, construction management etc) in order to provide enhanced co-ordination of design and construction. By contrast, the latter seem to have relied more on their traditional systems, although these are now being questioned (as in Belgium) and recent changes in France have introduced greater separation of roles.

Use of private finance

Attitudes to the use of private finance for public projects vary widely, and stem from fundamental cultural and political aspects of the countries rather than from any assessment of their effectiveness. For that reason, the divide does not follow that of the construction business system. The UK has been prominent in the use of private finance, and has accepted that the need for investors to make a profit is an intrinsic part of the process, even though that profit stems from the delivery of public services. France has an even longer history of 'concession' projects. Other countries have been less ready to go down this route, reflecting a view that public ownership and funding should continue to be the source of public facilities.

Commonality of guidance

Those countries which have developed a range of procurement routes exhibit strong commonality of view over the factors that determine the choice of route, and the merits and drawbacks of individual routes. The principal factors are clearly:

- Whether there is a time constraint
- The complexity of the project and therefore the importance of bringing all relevant expertise to bear as part of the risk management process
- The degree of certainty required in the final cost
- The desire and ability of the client to influence the final outcome

Different guidance documents express these in different ways, and some add other factors (eg the significance of sustainability issues or interactions with the public). But all essentially cover these factors.

And there is also commonality in the absence of any rules or guidance on the relative weighting of these factors. It is accepted that weightings will be required, but these will depend on the project.

Partnering and integrated teams

One particular aspect of the 'commonality of guidance' is the guidance on partnering. There is a uniform view that 'partnering' principles – whether incorporated in a special form of contract or expressed informally as a statement of intent by the parties – are a better foundation for project relationships than the rather adversarial relationships that have historically marked construction in may countries. The early creation of the 'integrated project team' and establishing its common objectives is seen to be desirable in countries which have the more fragmented construction business systems[4].

At the same time, there is a danger that this view will restrict choice and introduce a 'one size fits all' philosophy. In the UK, public clients are strongly constrained to three types of integrated procurement and major organisations are setting up systems which in effect pre-determine how projects will be procured, and in some cases determine also the firms that will be used, irrespective of local preferences or requirements. It is arguable that this overall produces the best outcome, because of the expertise offered by the framework consortia and the stringent monitoring of their performance. But it does have the effect of reducing the scope for determining a procurement route that will best suit the individual project.

We comment now on various issues raised by RGD in the course of the study.

5.2 Conformity with EU Procurement Directives

Public sector construction procurement is governed by the EU Directives[5]. Each of the European countries covered in the study had incorporated previous versions of the Directives into their own legislation although not all had yet implemented the latest version; this would happen in 2005. As far as could be judged, the national legislation reflected exactly the wording in the Directive. The general pattern is for there to be a central body, closely linked with or within the Ministry of Finance, which is responsible for the preparation of guidance on the interpretation of the Directives and which is then a source of advice on specific procurement decisions.

In principle, therefore, every European country is working within the same framework. Interpretation, however, has varied widely. This reflects both national (political) attitudes to different forms of procurement and in some cases some bad experiences. It is clear that the UK has taken a very liberal view of what is permitted under previous versions of the Directive, and has fully exploited a range of procurement options, notably through extensive use of PPP/PFI arrangements and 'framework' contracts. By contrast, as noted previously, private financing had featured only rarely in some other countries (eg Sweden) because of an inherent preference for public facilities to be funded from public sources. And the view was expressed elsewhere (eg Denmark) that earlier versions of the Directive had not permitted framework contracts.

[4] There is not the same exploration of partnering in France and Belgium. Since the construction business system in those countries is contractor-led, with the contractor either taking responsibility for final design (France) or commonly carrying out elements of re-design in order to improve constructability (Belgium), it already accommodates contractor input to design and is inherently more integrated – around the contractor - than the systems in the other countries. Some observers have argued that this leads to more effective delivery, but the data on this point are not conclusive (a current EC-funded study is attempting to establish whether there are significant differences in the performance of different national construction sectors.)

[5] The most recent 'Works' Directive is Directive 2004/18/EC, 31st March 2004. The 'Utilities' Directives are also relevant.

Some national legislation was more restrictive than the Works Directive (for example in the requirement in Denmark that all construction contracts had ultimately to be for a fixed price, whatever the process that led up to that point). And certainly national guidance can be constraining - as for example in the UK where there is now a strong preference for non-traditional routes.

Overall, through, the fact that some countries have utilised a wide range of procurement routes leads to the conclusion that the Works Directive does not of itself impose great constraints on the selection of an appropriate contract structure. Its principal concerns are the processes that need to be followed after that structure has been determined, ie the ways that the contracts required are advertised and the parties to the project are selected. The Directive does not exclude any of the normal routes, including PPP, partnering and framework contracts, even when these include works that are not defined at the time of placing the contract, such as the framework contracts placed by Defence Estates in the UK.

The Works Directive does not therefore inhibit suppliers (once selected) from investing time and resources in the development of mutual understanding between client and suppliers, developing innovative solutions to clients' needs, each of which may require conditions of some certainty in future relationships.

5.3 Selection of procurement routes for civil works

The study has not produced any evidence to suggest that the factors taken into account in the procurement of civil works differ significantly from those for building works. The case studies included in the county reports cover both civil projects and building contracts and it is possible to see the same considerations applying in both. In general, the guidance material (eg that from the Office of Government commerce in the UK) covers both categories and where it originates from a body concerned with only one category (as in Queensland) the similarity of the factors is clear.

Since both categories involve the same types of activity (design, construction, co-ordination), this similarity is not surprising.

Of course the relative weightings of the factors may differ; the ability of a procurement route to accommodate technical problems may be more significant in a major civil engineering project than in most buildings, although the technical issues in, for example, large cultural arts centres, are substantial.

There may be a difference in practice in the proportion of works carried out by different routes. Civil engineering contractors tend (at least in the UK) to have a greater proportion of professionally qualified staff than building contractors. This might favour the use of more integrated procurement routes. But the study team did not identify any data to enable this hypothesis to be explored.

The only comment that has emerged which indicates a difference in approach is one from New South Wales, where an experienced government client observed that it had proved rather easier to introduce 'alliancing' in civil engineering projects owing to their having fewer significant partners. But this did not necessarily mean that the factors that favoured this approach were different for building projects, only that they needed to be rather stronger in order to compensate for the extra resource required to create and manage the alliance.

5.4 Efficiency and process control

'Efficiency' can relate to the overall use of resources in the project, or to the more limited issue of efficiency of resource usage in the procurement process. We have commented previously that some procurement routes may trade certainty for economy. The risks in the project need to be assessed and an appropriate balance found, as part of the procurement strategy.

In the more limited context, some routes undoubtedly make more demands on the client than others. This has featured as 'degree of client input' and the corollary is that a client that is willing to make that input has also to be competent to do so (a factor identified in Denmark in the discussion of partnering). That input, of course, is aimed at securing the best outcome for the client; expenditure of a small extra resource during design may have a large return in the form of a facility that offers much greater functionality. That is a judgement that has to be made for each project, again as part of the procurement strategy. A team at the University of Reading have recently carried out a large review of the costs of different procurement systems[6] , including tendering costs, but this has yet to be published.

In the same manner, control of the process has appeared in the factors to be taken into account. The more integrated contractual structures offer less scope for client control (notably of design). Where client control is essential, the traditional separations offer scope for that, but at the expense of the problems of fragmentation and delivery that have been too familiar. One of the Swedish case studies illustrates how a client was able to have a large influence on the outcome while working in what was eventually a PPP contract, but this was achieved in the first place by having a architectural competition and so having, at least initially, a clear separation between design and other aspects of the project.

5.5 Whole life costs

It is clear from the country studies that there is a general trend towards seeking 'Best Value' solutions based on whole life assessments. This is the explicit basis for procurement in the UK and Australia, for example, and is enshrined in the Works Directive. This is not a principle that points to one procurement route rather than another. At one extreme, detailed designs may be formulated against WLC criteria and then a contract placed for construction of the resulting design. At the other, a BOOT or concession contract may be placed, the successful tender being judged on WLC and other criteria. The difference lies in the level of certainty over the costs. In the former case, there is no certainty since the client is (subject to legal recourse) taking all the risk associated with changes in use, unexpected deterioration of building elements etc. In the latter, the annual cost is agreed and the operator takes the risk.

Contract forms that extend into an operating period in principle optimise WLC and encourage innovation to reduce it. There is little experience so far to indicate whether this is borne out in practice.

[6] Procurement in the construction industry; impact and cost of alternative market and supply processes, W Hughes *et al* (To be published)

6. Discussion of the 'Kraljic' model

The 'Kaljic' model stems from a paper in the Harvard Business Review by Peter Kraljic[7]. It relates the procurement strategy to the complexity of the supply market and the significance of the product being purchased for the purchasing firm. For example, a product which is very significant for the success of the firm, but which is available only by a single supplier, needs to be procured through some form of partnering arrangement, which provides assurance to both parties. By contrast, a standard product available from many sources and not critical for the firm may be procured as required through lowest-price tendering.

RGD have observed that public agencies in the Netherlands employ this model in purchasing strategies and one of the remits of this study is to examine whether it is relevant to construction procurement.

Overall, the conclusion must be that it has limited relevance. The basic problem is that most – if not all – construction falls within one box (materials management) of the model as put forward in the HBR article. and therefore the model does not discriminate to the degree required for the selection of a procurement route.

There is clearly a read-across between the concept of 'significance' in the Kraljic model and the importance to construction clients of having a project completed and operational at the required time. The significance may be financial (eg a retail centre should be operating in the pre-Christmas period). Equally, though, it may be political (eg the opening of a new road or bridge before an election) or related to civic prestige (a new public facility). The threat posed by non-delivery to the client's finances or reputation is certainly be a factor in the choice of procurement system, and features explicitly in some of the guidance material reviewed in this study.

However, the complexity of the market is not a factor in most construction procurement decisions. Few construction projects rely on the expertise of single suppliers, or even of a small number of suppliers. There may be local considerations – such as a desire to provide opportunities for local or national firms – that will influence the form of procurement. From the client perspective, there is also a need to maintain adequate competition and there are examples (eg in Denmark and Sweden) where contracts have been packaged in ways that will make them more accessible to a suitable number of firms. But these are the exception, not the rule.

It is the complexity of the final <u>product</u>, rather than the <u>market</u>, that is the main influence on construction procurement.

This is because constructed products are complex assemblies, created by putting together many thousands of bought-in units – some specially manufactured – in a way that may never previously have been attempted. They are site-dependent and the critical skills are those of interpreting the requirements of the client while respecting the opportunities and the constraints presented by the site, and then optimising both the physical outcome and the process through which it is constructed. Some solutions may be 'standard'; others require a great deal of original input both in design and execution. That is why 'design' is a distinct aspect of construction procurement (as it is in shipbuilding, IT systems and other 'complex product' industries). By contrast, in most industry sectors design is not a distinct procurement activity; the final product is already defined and designed before the procurement decision is made.

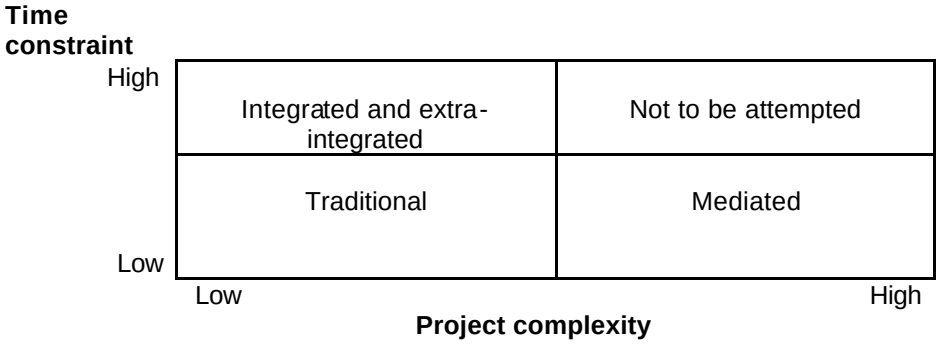
As is evident from the discussion in Chapter 3, construction procurement systems differ markedly in their allocation of design responsibilities and therefore in the allocation of the associated risks. The systems can be characterised by the way in which they relate design and execution. These are not issues considered by Kraljic.

8. Purchasing must become supply management. P Kraljic. HBR Sept-Oct 1983 pp109-117

Then there are the project constraints that Kraljic does not consider, such as those of time or of the client's capability for influencing the outcome. To some extent, these may be considered aspects of risk – a severe time constraint increases the risk of non-delivery. But it is clear that time plays a part in construction procurement which is very different from that in most procurement decisions, because of the long period over which projects run. Client input is another factor which is connected with the 'complex assembly' aspect of construction and the fact that the product is largely undefined when the procurement decision is made..

Certainly there is a parallel between the Kraljic discussion of risk to the organisation and the way that some of the selection guidance approaches the issue of design input. A major, high-profile, complex project is likely to be delivered more successfully through some form of partnership relationship, where there are mutual benefits in solving problems expeditiously. In this situation, the risk of lengthy arguments and delays with a rigid contractual approach will be high. A standard project, on the other hand, may be procured through traditional means or a fixed-price design-build contract.

This discussion leads to the conclusion that In place of the Kraljic matrix, it would be more appropriate to propose a matrix of the following form:



However, this is only an initial approximation. The selection systems summarised in the country reports illustrate the range of other factors that enter construction procurement decisions. Each can be weighted to reflect the circumstances of the specific client and project. It is arguable that construction – because the product is not defined when the procurement decision is made - presents purchasers with a more complex set of decisions than other forms of procurement, and the models used to guide the selection of construction procurement routes reflect this complexity.

7. Conclusions

The construction business system in the Netherlands has elements both of the Anglo-Saxon and corporatist models. Common to both is a traditional separation between design and construction and therefore 'fragmentation' is one of the characteristics of the system. In addition, the industry has in recent years needed to move away form some traditional and distinctively Dutch practices in procurement, under which contractors were able to collaborate in setting bid prices.

From the perspective of the Netherlands, the conclusions of this study are:

- There is a great deal of experience in other countries on the operation of construction procurement systems which, set within a broadly similar tradition, offer the client different combinations of cost certainly, time predictability and the ability to influence the final output, to match the circumstances of the individual project. At this level, there is considerable discretion over the route that will provide the required degree of efficiency and control.

- There are also good examples of guidance over the choice of these systems, in particular from countries (eg Australia) where construction procurement has been a subject of great political and public concern. This guidance exhibits consensus over the characteristics and desirability of the various routes, and the factors that should be taken into account in their selection. It may be considered founded in wide experience. But each project is unique and the weightings to be awarded to the various factors have to be determined in the light of the circumstances and the priorities of the client.

- There is a widely accepted view that greater integration in project teams, and the introduction of 'partnering' principles, raises the probability of successful project outcome, and therefore better use of resources. However, the way in which these changes are introduced will depend on culture, experience and the circumstances of the project.

- EU Directives are not a significant constraint on the choice of funding or contract strategy; their impact is principally at the level of tendering and the selection of project partners. Each European country appears to have taken the relevant Directives into its own legislation without amendment.

- The 'Kraljic' model is not well suited to construction procurement. An alternative matrix can be proposed which better reflects the factors in construction procurement but this is only an initial guide to the types of procurement route that may be suitable.

The construction business system in each country provides the context for understanding current attempts to improve procurement processes and why different procurement routes have been developed. The actors in the construction business system will carry attitudes and skills that stem from their education and their experience in the system. These will not be changed overnight, nor can different actors suddenly bear different responsibilities. Reform of procurement in the Netherlands must start from an understanding of this context.

New procurement routes and appropriate guidance can undoubtedly be informed by the experience and the guidance available in other countries. Moreover, there was considerable interest in the study in the countries covered and a willingness to share information. Better construction procurement is undoubtedly a subject of considerable international interest.

In this context the creation of the International Forum for Construction Clients[8] is particularly

[8] At a meeting of clients and client representative bodies from around 12 countries held in The Hague in September 2004, those present agreed in principle to establish a Forum which would facilitate the exchange of views and experience amongst its members through annual meetings and other measures. The Secretariat for the Forum is held by CIB and the next meeting is provisionally planned to take place in Cape Town in October 2005.

timely. It reflects the desire in many countries that the market power of major clients should be used to improve industry performance and thereby to secure greater value from expenditures on construction. The study team have been greatly assisted by some of the Forum's members and look forward to the development of greater international exchanges on these issues. They hope that this report might provide the basis for such exchanges.

Roger Courtney
Suraya Ismail
Graham Winch

4th May 2005

Annex A

1st November 2004

Dr Henrik Bang
Head of Secretariat
Bygherreforeningen
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1300 Copenhagen K
Denmark

Dear Henrik

Selection of Procurement Routes for Construction Projects

You may remember that at the Clients' Platform meeting in The Hague I mentioned that Graham Winch and I had received an enquiry about procurement practices in different countries and that if this turned into a definite study, I would value your guidance on the Danish situation. You kindly offered assistance.

This study is now proceeding. Its main focus is to provide information on the criteria and procedures used in different countries for selecting the most appropriate procurement route for a construction project, but there are various other aspects to the study.

To consider first the central focus, the selection of a preferred procurement route from among different options. We are not expecting there to be any 'national' model for this (although it would be interesting if there were); rather, we think that there are likely to be one or more of the following:

a) National guidance issued by the government, which will provide a framework for procurement processes in the public sector (eg ensuring that these comply with the EU Public Procurement Directive). It is possible that this documentation will set out criteria or will give guidance on the suitability of different procurement routes for different types of project. It may even set out a selection process.

b) Guidance or procedures developed within the public sector that applies to a particular class of public client (eg to municipalities or to universities). This may set out more detailed criteria and processes.

c) Guidance or procedures developed by associations such as your own, for the benefit of their members in both private and publics sectors

d) Procedures developed by individual clients, whether in the public or private sectors (eg by members of your Association).

At the moment, our main concern is to identify the existence and sources of such documentation, so that we can confirm that Denmark should be included in the study. This is where we would particularly value your assistance. If any of the information is in English, this would of course be very useful, but if need be I could make a visit to Denmark to go through Danish practice with appropriate people.

We wish to set any information in context, and so we are also aiming to cover the following:

- A description of the 'construction business system' in Denmark (ie the traditional pattern of relationships and responsibilities in construction projects). You may remember that Graham edited two special issues of *Building Research and Information* which contained articles about the construction business systems of different countries, although not Denmark.

- A review of the current position over the use of non-traditional forms of procurement (design-build, partnering, etc) with if possible an estimate of the value of the works being commissioned through each of the different routes. We would like also to include one or two case studies of projects commissioned by non-traditional routes.

- A discussion of the particular features of Danish practice in both the construction business system and non-traditional routes and how these influence competition, innovation etc.

There may be published articles, statistics etc which cover these points.

The aim is to assemble this sort of information for around five European countries and one or two from outside Europe. Clearly, the UK will be one of the European countries covered and then elsewhere we are examining countries that we know have been looking closely at procurement practices, or where different methods of procurement are being employed. That is why we thought Denmark would be a good country to study. I think Sweden would also be useful and at the Hague meeting I mentioned the study to Stefan Sandesten also.

The report should be available early next year and perhaps in due course it could be made available to the members of the Clients' Platform. But first we have to assemble the information!

I would be very grateful if you could consider the topics that I have summarised above and how the practices of your members, and of Denmark generally, might be reflected in the study. As I said, at the moment the main point is know that relevant information is available; after that, I can make more detailed enquiries and liase with people over discussions etc.

Do let me know if anything is unclear. I look forward to hearing from you and it would be very helpful if I could have a response by around 11th November.

I know that Ib Steen Olsen is deeply interested in these matters and so I am copying to him and would be grateful if he could point to relevant material.

With best wishes

Yours sincerely

Roger Courtney

cc Ib Steen Olsen
Graham Winch