Annexure A: Constitutional imperatives for the procurement system

Section 217 of the Constitution establishes requirements for an organ of state's procurement system. All organs of state are bound by the Bill of Rights in the Constitution. Accordingly, the following Acts which give effect to certain rights included in the Bill of Rights apply:

- Promotion of Administrative Justice Act (Act no 2 of 2000), which gives effect to the right to administrative action that is lawful, reasonable and procedurally fair.
- the Promotion of Equality and Prevention of Unfair Discrimination Act (Act no 4 of 2000), which gives effect to the right to equality before the law and equal protection and benefit from the law;[8]
- the Promotion of Access to Information (Act 2 of 2000) which gives effect to the right of access to any information held by the State.[9]

Public administration is governed by the basic values and principles set out in Section 195 of the Constitution which national legislation must promote.

To align with the aforementioned Constitutional imperatives, an organ of state's procurement system needs to:[10]

- be fair, equitable, transparent, competitive and cost effective[11];

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[8] The Promotion of Equality and Prevention of Unfair Discrimination Act prohibits the state or any person from unfairly discriminating "*against any person on the ground of race, including the denial of access to opportunities, including access to services or contractual opportunities for rendering services for consideration, or failing to take steps to reasonably accommodate the needs of such persons.*"

[9] The Promotion of Access to Information Act requires that the access to a record of a public body be granted if the requester complies with all the procedural requirements in the Act and access is not refused in terms of any ground for refusal provided in the Act. In M & G Limited and Others v 2010 FIFA World Cup Organising Committee South Africa Limited and Another (09/51422) [2010]) the court ordered all records in respect of all tenders awarded, including advertisements and letters of award and those relating to the award of the tenders, including but not limited to the providers it was awarded to, the price to be paid and the contracts entered. The appeal following this judgement was dismissed.

[10] The Constitutional Court (Allpay v SASSA 2014 (1) SA 604 (CC); 2014 (1) BCLR 1 (CC) (29 November 2013)) has pointed out that "*Section 217 of the Constitution is the source of the powers and function . . . . . It lays down that an organ of State in any of the three spheres of government, if authorised by law may contract for goods and services on behalf of government. However, the tendering system it devises must be fair, equitable, transparent, competitive and cost-effective. This requirement must be understood together with the constitutional precepts on administrative justice in section 33 and the basic values governing public administration in section 195(1).*"

[11] The objective of ISO 10845 international standards for construction procurement is to provide a generic and standard set of processes, procedures and methods for a procurement system that is fair, equitable, transparent, competitive and cost-effective and which can be used to promote objectives additional to those associated with the immediate objective of the procurement itself. ISO 10845-1:2020 describes the basic procurement system requirements as follows:

Attribute	Basic system requirement
Fair	The process of offer and acceptance is conducted impartially without bias and provides participating parties simultaneous and timely access to the same information. Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Equitable	The process of offer and acceptance is fair and just. The only grounds for not awarding a contract to a tenderer who complies with all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Transparent	The procurement process and criteria upon which decisions are to be made are publicized. Decisions (award and intermediate) are made publicly available, together with reasons for those decisions. It is possible to verify that criteria were applied. The requirements of procurement documents are presented in a clear, unambiguous, comprehensive and understandable manner.
Competitive	The system provides for appropriate levels of competition to ensure fair and cost-effective outcomes.
Cost-effective	The processes, procedures and methods are standardized with sufficient flexibility enabling best-value outcomes in respect of quality, timing and cost and least resources to effectively manage and control procurement processes. Decision making focusses on the attainment of value for money through the evaluation of relevant costs and benefits together with the assessment of risks.
Promotion of other objectives	The system may incorporate measures to promote objectives associated with a secondary procurement policy subject to qualified tenderers not being excluded and deliverables or evaluation criteria being measurable, quantifiable and monitored for compliance.

- embrace a procurement policy providing for categories of preference in the allocation of contracts and the protection or advancement of persons, or categories of persons, disadvantaged by unfair discrimination and implement it in accordance with the provisions of the Preferential Procurement Policy Framework Act (Act 5 of 2000).[12]

- promote the efficient, effective and economic use of resources in an accountable and development orientated manner; and

- enable administrative action is lawful, fair and reasonable i.e.:

    - decisions taken are procedurally fair, without bias or reasonable suspicion of being biased, and not taken arbitrarily, capriciously or in bad faith, or for an ulterior purpose or motive, because irrelevant considerations were taken into account or relevant considerations were not considered;
    - actions taken are not unreasonable and are rationally connected to the purpose for which they are taken, the purpose of the empowering provision, the information before the administrator or the reasons given for it by the administrator;
    - actions comply with mandatory and material procedures or condition prescribed by an empowering provision;
    - the methodology for evaluating and awarding a contract is publicly accessible; and
    - written reasons are given for the administration action that is taken.

[12] The Constitutional Court found in *Minister of Finance v Afribusiness NPC [2022] ZACC 4* found that the Preferential Procurement Regulations 2017 "*are meant to serve as a preferential procurement policy*" . . . . *if each organ of state is empowered to determine its own preferential procurement policy, how can it still be with the Minister to also make regulations that cover that field?*" . . . . *this is a vires (power) issue: does the Minister have the power to make regulations of this nature? I say not, and the matter ends there.*" Accordingly, each organ of state needs to determine its preferential procurement policy and implement and implement it within the prescribe framework as set out in Section 2 of the Preferential Procurement Policy Framework Act of 2000.

Annexure B: Infrastructure procurement strategy

B1 Legislative requirements

National Treasury issued during May 2019 a Framework for Infrastructure Delivery and Procurement Management (FIDPM) through Treasury Instruction 3 of 2019/2020 issued in terms of Section 76(4)(c) and (g) of the PFMA. Treasury Instruction 3A of 2019/2020 confirmed its applicability to:

(a) all departments, in so far as it regulates Infrastructure Delivery and Infrastructure Procurement;

(b) constitutional institutions and public entities listed in Schedules 2 and 3 to the PFMA, in so far as it regulates Infrastructure Procurement.

FIDPM defines the following terms:

- **Infrastructure:** a) Immovable assets, which are acquired, constructed or result from construction operations; or
  b) Movable assets, which cannot function independently from purpose-built immoveable assets.

- **Infrastructure procurement**: The procurement of goods or services including any combination thereof associated with the acquisition, refurbishment, rehabilitation, alteration, maintenance, operation or disposal of infrastructure.

- **Procurement strategy:** Selected packaging, contracting, pricing and targeting strategy and procurement procedure for a particular procurement.

FIDPM requires that an Infrastructure Procurement Strategy (IPS) be developed, updated annually and approved by a delegated person or body in an institution at a procurement gate. Such an IPS *shall at least include a list of programmes and projects covering the prescribed planning period and include the following minimum contents:*

a) Delivery Plan

b) Contracting Arrangements

c) Procurement Arrangements

FIDPM established the minimum requirements of the procurement gate relating an IPS:

- *Decide on procurement strategies.*

- *Establish opportunities for promoting preferential procurement in line with legislative provisions and the Construction Sector Code.*

- *Establish contracting and pricing strategy comprising of an appropriate allocation of responsibilities and risks and the methodology by which contractors are to be paid.*

- *Establish procurement procedures*

B2 Guidance on the development of a procurement strategy

B2.1 Overview

ISO 22058:2022, *Construction procurement- Guidance on strategy and tactics*, provides guidance on:

a) *options for engaging the market in satisfying a client's need for new or refurbished construction works;*

b) the development of procurement strategies for one or more projects involving the acquisition of goods, services or any combination thereof, irrespective of complexity, size, duration or life cycle stage;

c) the formulation of procurement tactics which enable identified procurement strategies to be effectively implemented.

ISO 22058[13] provides:

a) options for engaging the market for new or refurbished construction works (see Figure B1); and

b) a framework for developing a procurement strategy which provides for a number of options (see Figure B2).

B2.2 "Buy" or "make" decision

The choice of "buy" or "make" when engaging the market for new or refurbished construction works determines the number of contracts that need to be procured and directly overseen as well as the capacity and capabilities of the client delivery management team (see Figure B3) which needs to be put in place to oversee the delivery of the required construction works.

The client's involvement in the delivery management of a project where the market funds the project is generally limited. In procurements of this kind, a client may need to appoint a transaction advisor as the other party to the contract oversees or has already overseen the delivery of the project. A client nevertheless needs to undertake a procurement process or negotiate a contract to acquire the outcomes associated with the selected project delivery route. Furthermore, clients need to source some professional capacity to ensure that due diligence is undertaken at an appropriate level to confirm that the requirements of the contract are delivered in accordance with the terms of the contract.

The financing of the project on a "make" basis, on the other hand, requires the client to directly pay all contractors for the goods and services associated with the delivery of the project incrementally as the works proceeds. It also requires that the client plays an active role in the delivery of the project and to make decisions regarding the allocation of design and interface management responsibilities between the parties to a construction contract. A client needs to appoint professional service providers to undertake design and interface management responsibilities which it has retained.

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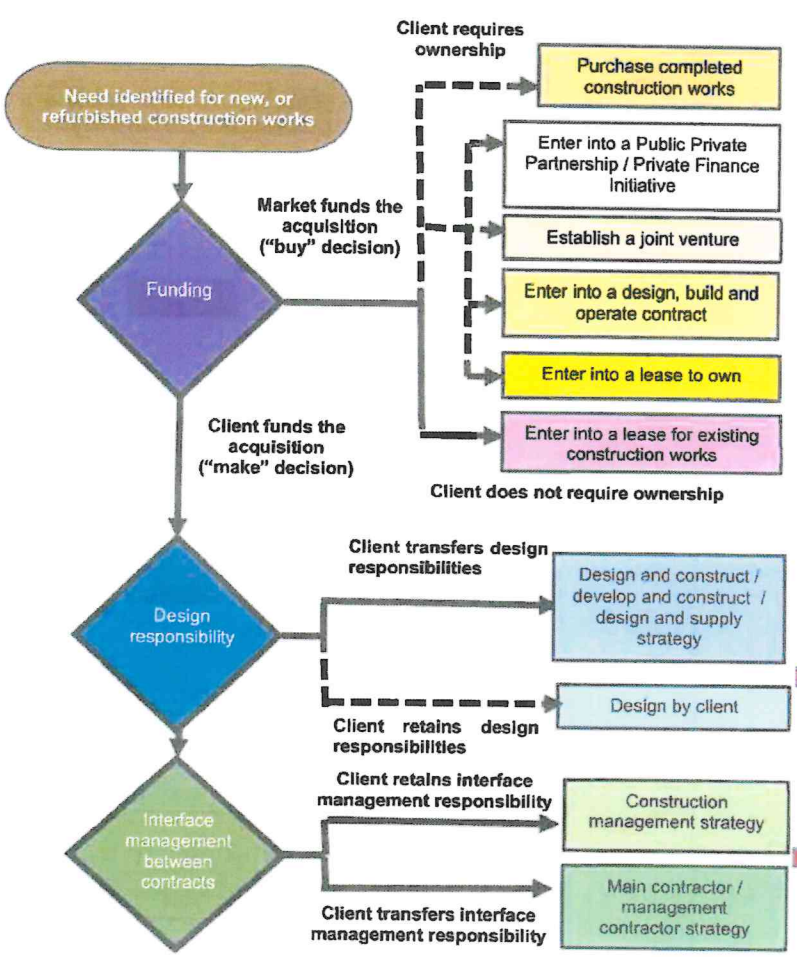
[13] ISO 22058 draws extensively upon the content of the ebook Watermeyer, R. (2018) Client Guide for Improving Infrastructure Project Outcomes. School of Construction Economics and Management, University of the Witwatersrand and Engineers Against Poverty. ISBN 978-0-620-79293-6. This document in turn built upon the content of CIDB (2011). Delivery Management Guidelines Practice Guide 2 - Construction Procurement Strategy. Construction Industry Development Board and National Treasury.



Strategy	Appropriate usage
Design by client (contractor undertakes construction on the basis of production information issued by the client)	Where one or more of the following applies • the client wishes to make significant technical inputs into the design process and design details, • the client requires flexibility in the development of the design, • reasonable certainty in cost and time is required before a commitment to proceed to construction is made, • independent design advice is required, or • the flow of outstanding production information after the formation of the contract can be tightly managed
Develop and construct (contractor completes the production information based on a scheme design provided by the client and constructs it)	Where • the client requires integrated detailed design and construction, based on the client's design development report, and single point responsibility, • standard designs exist which need to be made site specific, or • the works need to be priced and commence before the production information has been completed
Design and construct (contractor designs the works based on requirements established by the client and constructs it) Design and supply (provides a solution to the client's requirements and manufactures and installs the required works or component thereof)	Where the client requires • integrated design and construction and single point responsibility, • that design risks lie with the contractor in return for price certainty, or • that the cost and completion date be agreed when a decision to proceed with the project is made

Construction management strategy	• client is responsible for the planning and managing of all post contract activities for work packages which have dependencies due to interfaces
Main contract / management contractor strategy	• contractor subcontracts parts of the work or most of if not all the works to others

Figure B1: Options for engaging the market for new or refurbished construction works (after ISO 22058:2022)

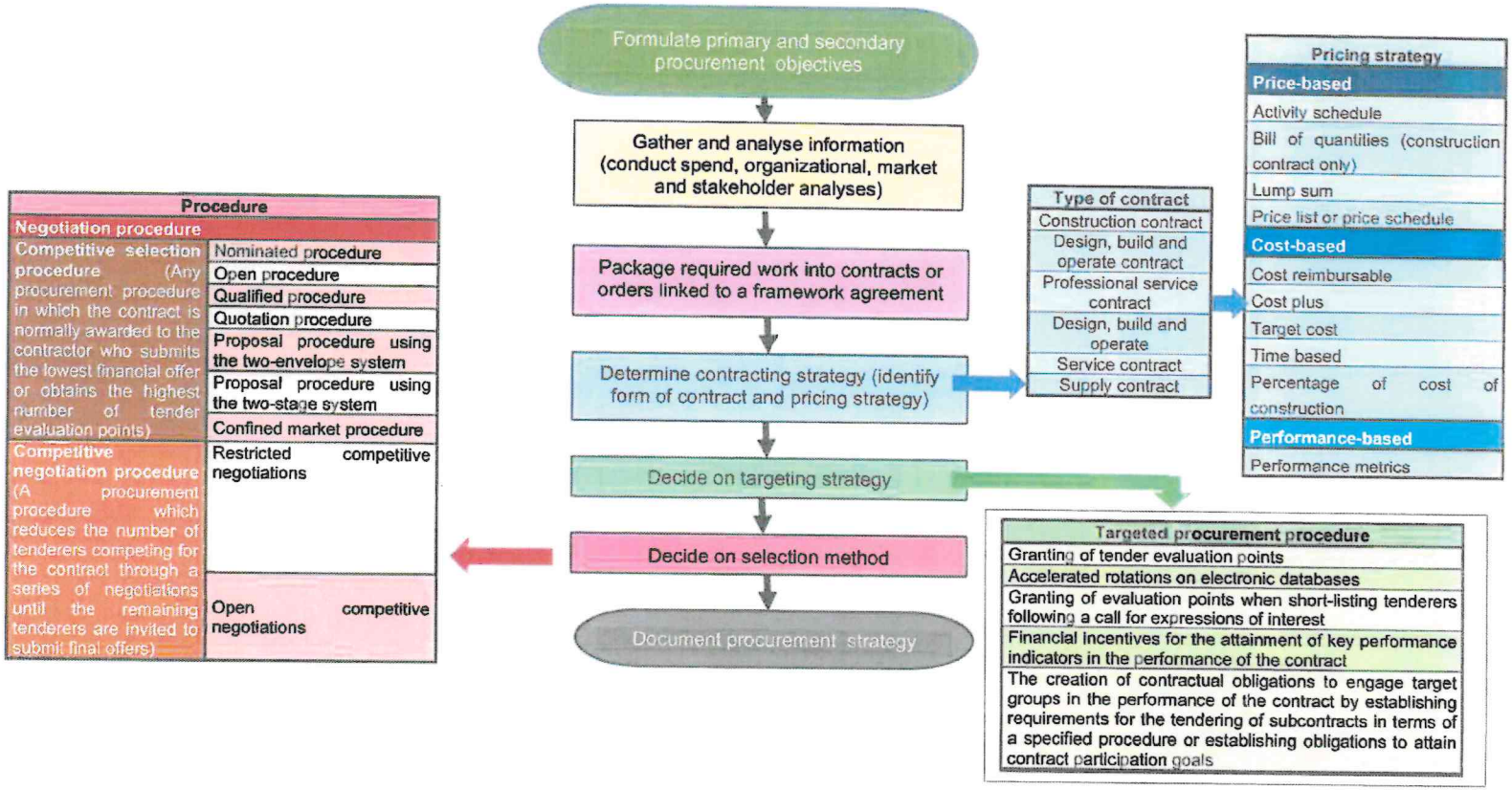


Figure B2 — Options provided within the framework for the development of a procurement strategy

B2.3 "Buying" and "supply" functions

The physical delivery of construction works necessitates that a delivery team be put in place using an organization's own resources or contracted resources. This team performs a "supply" function and carries out project management and design functions, provides professional support services and manufactures, maintains, constructs, installs, provides, alters, rehabilitates, refurbishes or alters construction works. A client delivery management team, led by a client delivery manager, also needs to be established to provide effective leadership and direction to the delivery team and meaningfully engage with internal and external stakeholders. This team, which performs a "buying" function, needs to own the business case, procure and pay the resources to deliver the project, lead the project, manage relationships, oversee aspects of delivery and provide client direction (see Figure B3).

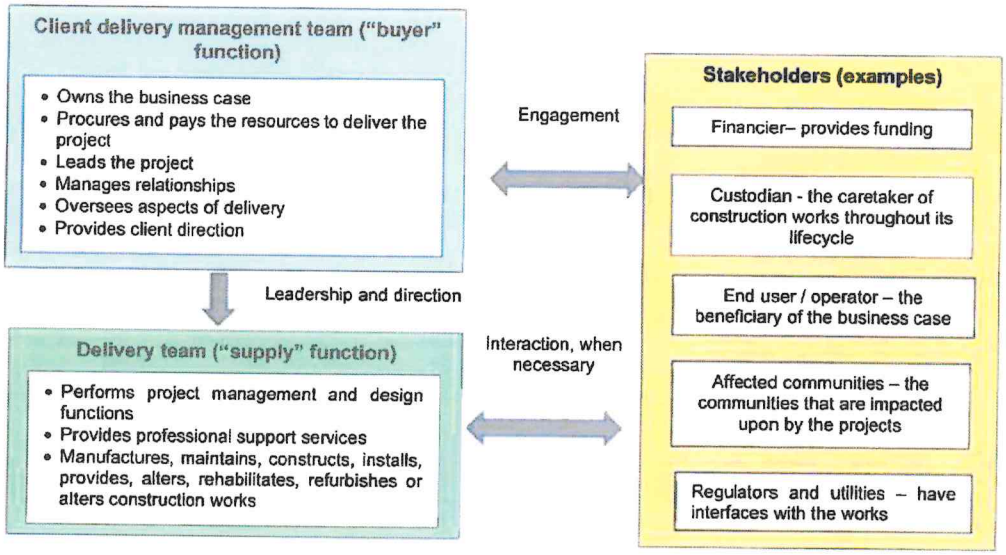


Figure B3: The principal role players in the delivery of construction works projects

A client delivery manager needs to be held accountable for project outcomes. Such a manager also needs to lead the client team with single point accountability and have direct access to senior client management when decisions regarding a significant departure from the plan or budget need to be taken. The client delivery manager needs to be supported by both a technical team and an administrative team. The technical team may be required to provide advice on a range of matters, gather, process and store information that is necessary to manage the delivery of projects, manage activities associated with the initiation of projects, formulate, shape and document the client's specific requirements, monitor and evaluate the outputs of the delivery team, establish financial and cost controls and reporting systems and procure the resources which are necessary to deliver the project. The administrative team needs to prepare the necessary documents for payment and to develop and maintain and keep up to date several registers for project governance purposes which capture information such as that relating to planned procurements, contractual commitments, contracts, payments and purchase orders.

B2.4 Framework for the development of a procurement strategy

The framework as set out in Figure B2 enables choices to be made and aligned with procurement objectives in the development of a procurement strategy. The application of the

framework can rationalise the delivery of projects within a programme or portfolio of projects and minimise the contractual relationships which are entered into. This can be used to address capacity constraints in spending public sector budgets as it reduces the number of contracts that need to be procured and managed and tap into the resources of the private sector without compromising objectives.

The application of the framework can also be applied in support of the delivery culture which the client wishes to pursue in delivering the project e.g. long-term collaborative relationship.

Procurement strategy is formulated around procurement objectives which may relate to either the delivery of the product (primary objectives) and what can be promoted through the delivery of the product (secondary objectives) i.e. broader societal objectives. Procurement strategy is also informed by spend, organizational, market and stakeholder analyses.

A spend, organizational, market and stakeholder analysis provides a backdrop against which all decisions are made. Accordingly, such analysis should be in sufficient detail to enable informed decisions to be made, based on identified strengths and weaknesses and the appetite for transferring or accepting risks. Such an analysis should identify what internal skills, capabilities and resources are available or can be committed by the organization to deliver the project. Use of external expertise may be required. The option to engage the market needs to be decided upon where projects involve the provision, alteration, refurbishment or rehabilitation of construction works before procurement strategy can be formulated (see Figure B1).

The components of a procurement strategy for a particular procurement commonly includes the development of (see Figure B2):

- a packaging strategy which focuses on the organization of work into contracts or orders issued in terms of a framework agreement;
- a contracting strategy which focuses on the selection of a suitable form of contract including the basis for remunerating contractors, which, if relevant, is informed by decisions made when selecting the option to engage the market;
- a targeting strategy which identifies the procedures for promoting secondary procurement objectives;
- a selection method which identifies the methodology by which tenderers are solicited from the market.

Procurement tactics on the other hand commonly relate to what needs to be done to successfully implement procurement strategies.

B3 Selection of a suitable form of contract

The selection of a standard form of contract for an infrastructure project is made by the client, particularly where competitive tenders are called for. The scope and nature of the project affects the selection of the type of contract. Some standard forms of contract are drafted around specific contracting strategies, such as design by employer with bills of quantities, and as such do not offer flexibility in the allocation of risks. Other standard forms of contract, as do families of standard contracts, cover the full range of risk allocations and pricing strategies and permit flexible allocations of risk.

The selected standard form of contract needs to support the selected contracting strategy.

Early contractor involvement in construction contracts, with or without design responsibilities, can be achieved through the selection of a cost-based pricing strategy. For example, a contractor can be appointed on a target contract basis whereby the contractor can be contracted on the basis of their cost parameters and a target cost can be negotiated when there is sufficient production information available to agree a target cost. Escape clauses can be inserted into design and construct contracts to enable the client to use the designs and approach the open market in the event that agreement cannot be reached regarding the target cost.

The standard forms of contract which have been recommended for use in the public sector are outlined in Table B1.

B4 Procurement tactics to implement a procurement strategy

Procurement tactics are required to successfully implement procurement strategies and in so doing improve project outcomes. They also impact upon the cost effectiveness of specific procurement transactions.

Procurement tactics commonly relate to:

- the publicity to attract the right level of interest from the market;
- the sequencing and timing of the issuing of tenders and orders; and
- the setting up of procurement documents to solicit tender offers and to enter into contracts, focusing on the selection of a contractor (the other party to a contract) who is most likely to provide the most advantageous combination of factors such as financial offer, quality and expertise to meet procurement objectives or deliver a cost-effective solution through the performance of the contract and the setting up of the terms and conditions of contracts to not only allocate specific risks between the parties to a contract but also to incentivize performance to achieve best results.

The tactical variables included in the standard conditions for calling for expressions of interest and the standard conditions of tender contained in ISO 10845-4 and ISO 10845-3, respectively, are indicated in Table B2. Tactics should be directed towards the selection of a contractor who is most likely to provide the most advantageous combination of factors such as financial offer, quality and expertise to meet procurement objectives through the performance of the contract, life cycle costs of what is offered, the availability of spares, operation and maintenance requirements etc.

Time and effort are required by interested parties in responding to requests for expressions of interest and making tender submissions. The amount and type of information requested for return by clients should be appropriate and not be overly elaborate.

Tender assessment schedules may be required to reduce tender offers transparently to a comparative basis, particularly where pricing parameters are tendered which allow the price to be developed once the work is identified using a cost-based pricing strategy or to determine the cost of changes in requirements or events for which the contractor is not at risk.

Standard forms of contract are drafted around significantly different objectives and principles e.g. master-servant relationships or collaboration between two experts, risk sharing or risk transfer, independent or integrated design, short-term relationships based on one-sided gain or long-term relationships focused on maximizing efficiency and shared value, etc.

Table B1: Standard forms of contract used in the public sector

Form of contract	Code	Intended usage	Standard pricing arrangements
Construction Industry Development Board (CIDB)			
CIDB Standard Professional Service Contract	SPSC	Professional services	No standard provisions
CIDB General Conditions of Purchase	-	An order form type of contract for low-value goods without any incidental work or services on or before a specified date being required.	Prices or rates
CIDB Contract for the Supply and Delivery of Goods	-	Simple, regional purchase of readily available materials or commodities which require almost no management of the buying and delivery process, minimal testing, installation and commissioning on delivery.	No standard provisions
CIDB General Conditions of Service	-	An order form type of contract where low-value services on or before a specified date are required.	No standard provisions
International Federation of Consulting Engineers (FIDIC)			
FIDIC Short Form of Contract	Green Book (1999)	Building or engineering works of relatively small capital value, or for relatively simple or repetitive work, or for work of short duration. Use for design by employer- or contractor-designed works.	Lump sum price Lump sum price with schedule of rates Lump sum price with bill of quantities Remeasurement with bill of quantities Cost reimbursable
FIDIC Conditions of Contract for Construction for Building and Engineering Works designed by the Employer	Red Book (1999)	Building or engineering works designed by the employer. (The works may include some elements of contractor-designed works.)	Bill of quantities
FIDIC Conditions of Contract for plant and design-build for electrical and mechanical plant, and for building and engineering works, designed by the contractor	Yellow Book (1999)	The provision of electrical or mechanical plant and the design and construction of building or engineering works.	Lump sum
FIDIC Conditions of Contract for EPC Turnkey Projects	Silver Book (1999)	The provision on a design and construct (turnkey) basis of a process or power plant, of a factory or similar facility, or an infrastructure project or other type of development.	Lump sum contract price
FIDIC Conditions of Contract for Design, Build and Operate Projects	Gold Book (2008)	"Green field" building or engineering works which are delivered in terms of a traditional design, build and operate sequence with a 20-year operation period. (The contractor has no responsibility for the financing of the project/package or its ultimate commercial success.)	Amounts submitted by the contractor
South African Institution of Civil Engineering (SAICE)			
SAICE General Conditions of Contract for Construction Works	GCC 2015	Engineering and construction, including any level of design responsibility.	Fixed price contract (lump sum) Remeasurement contract (bill of quantities)
Joint Building Contracts Committee (JBCC)			
JBCC Principal Building Agreement	PBA 2014	Buildings and related site works designed by the employer.	Lump sum priced document Priced bills of quantities
JBCC Minor Works Agreement	MWA	Buildings and related site works of simple content designed by the employer.	Lump sum priced document Priced bills of quantities

Form of contract	Code	Intended usage	Standard pricing arrangements
Institution of Civil Engineers (ICE)			
NEC3 Engineering and Construction Contract	ECC	Engineering and construction including any level of design responsibility.	Option A: Priced contract with activity schedule Option B: Priced contract with bill of quantities Option C: Target contract with activity schedule Option D: Target contract with bill of quantities Option E: Cost reimbursable contract Option F: Management contract (cost plus)
NEC3 Engineering and Construction Short Contract	ECSC	Engineering and construction which do not require sophisticated management techniques, comprise straightforward work and impose only low risks on both the employer and contractor.	Price list
NEC3 Professional Services Contract	PSC	Professional services, such as engineering, design or consultancy advice.	Option A: Priced contract with activity schedule Option C: Target contract Option E: Time based contract Option F: Term contract (time based and task schedule)
NEC3 Professional Services Short Contract	PSCC	Professional services which do not require sophisticated management techniques, comprise straightforward work and impose only low risks on both the client and consultant.	Price list
NEC3 Term Service Contract	TSC	Manage and provide a service over a period of time.	Option A: Priced contract with price list Option C: Target contract Option E: Time based
NEC3 Term Service Short Contract	TSSC	Manage and provide a service over a period of time, or provide a service which does not require sophisticated management techniques, comprises straightforward work and imposes only low risks on both the employer and contractor.	Price list
NEC3 Supply Contract	SC	Local and international procurement of high-value goods and related services, including design.	Price schedule
NEC3 Supply Short Contract	SSC	Local and international procurement of goods under a single order or on a batch order basis and is suitable for use with contracts which do not require sophisticated management techniques, and impose only low risks on both the purchaser and the supplier.	Price schedule
NEC4 Design Build and Operate Contract	DBOC	Appointment of a contractor with responsibility for the design, construction or modification and operation of assets necessary to meet the client's operational requirements	Price list

Table B2: Examples of tactical variables included in standard conditions for the calling for expressions of interest or tenders (ISO 22058:2022)

Standard conditions	Example of tactical variables	Commentary
Conditions for the calling for expressions of interest (see ISO 10845-4)	Eligibility criteria	Eligibility criteria can be used to — introduce minimum qualification or pre-qualification criteria to screen out unsuitable respondents prior to the evaluation of submissions on a compliance / non-compliance basis, or — allow capability and capacity to deliver the required goods, services and construction works to be evaluated in two stages or to be omitted in the evaluation of tender offers during the second stage.
	Clarification meetings	Clarification meetings can be used to interact with and to communicate specific requirements, innovations etc. associated with a procurement to respondents and to familiarise potential tenderers with unusual or not well understood procurement strategies
	Procedure for the evaluation of submissions	Respondents can be evaluated in terms of their capability and capacity to perform the contract in terms of a scoring system, with or without minimum qualifying thresholds, to reduce the number of respondents invited to submit tenders (usually not less than three) to make the tender process more manageable and attractive to prospective tenderers The scoring criteria can be formulated in such a manner so as to favour those respondents who are most likely to contribute to the client's objectives for the procurement
Conditions of tender (ISO 10845-3)	Eligibility criteria	Eligibility criteria can be used to introduce minimum qualification or pre-qualification criteria to screen out unsuitable tenderers prior to the evaluation of submissions on a compliance / non-compliance basis
	Compensation of tenderers for preparing aspect of the tender	Incentives for quality submissions can be provided, e.g. the awarding of cash prizes in design competitions or the payment of a lump for submitting a tender where tenderers are required to design the proposed construction works
	Clarification meetings	Clarification meetings can be used to interact with and to communicate specific requirements, innovations etc. associated with a procurement to tenderers and to familiarise I tenderers with unusual or not well understood procurement strategies
	Alternative tender offers	Main tender offers are not required to be submitted together with alternative tenders. This can be used to encourage innovation in certain circumstances
	Tender submission	Tenderers may be permitted to offer parts or the whole of the goods and services that are solicited. This can be used to make the contract more attractive to smaller or specialist contractors who may not be able to provide the full range of goods and services that are required
	Procedure for the evaluation of responsive tenders	Tender offers can be evaluated in terms of two or three variables, namely financial offer, preference and quality in terms of a points scoring system which include weightings to weight the relative importance of the evaluation criteria and sub-criteria (see ISO 10845-1 and ISO 10845-3) Minimum quality thresholds can be set to ensure that tenderers who are evaluated satisfy a minimum acceptable quality threshold and therefore compete on a "level playing field" basis
	Reducing tender offers to comparative offers	The reduction of tenders to a common basis can be based on life cycle costs e.g. the cost divided by the service life (see (see ISO 10845-1 and ISO 10845-3)

Annexure C: Framework agreements

C1 Introduction

Framework agreements are described differently by various organisations, For example::

- Chartered Institute of Procurement and Supply (CIPS) - *framework arrangements . . . represent a 'smarter' way of purchasing than placing 'one-off' orders for recurrent contracts for works or supplies . . . . .key aim of a framework agreement should be to establish a pricing structure; however this does not mean that actual prices should be fixed but rather that there should be a mechanism that will be applied to pricing particular requirements during the period of the framework*;

- The International Federation of Consulting Engineers (FIDIC) - long-term agreement between an employer and contractor which incorporates "*agreed specifications for work packages to be carried out as and when instructed by the employer.*"

- Constructing Excellence (CE) - *an agreement with suppliers to establish terms governing contracts that may be awarded during the life of the agreement. In other words, it is a general term for agreements that set out terms and conditions for making specific purchases (call-offs).*

Regulators have viewed framework agreements as:

- Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC – *an agreement . . . . the purpose of which is to establish the terms governing contracts to be awarded during a given period, in particular with regard to price and, where appropriate, the quantity envisaged.*

- UNCITRAL Model Law on Public Procurement 2014 - *an agreement . . . . . concluded upon completion of the first stage of the framework agreement procedure*

- The World Bank Procurement Regulations for IPF Borrowers 2016 - *an agreement . . . that establishes the terms and conditions that will govern any contract awarded during the term of the framework agreement (call-off contract)*

There is much agreement at a conceptual level as to what a framework agreement intends to achieve, namely, to enable a client to procure work on an as-instructed (call-off) basis over a set term without necessarily committing to any quantum of work. There is also general agreement that framework agreements recognise that the parties have not come to a final agreement on all matters relevant to the relationship between them but have come to agreement on enough matters to move forward with the relationship, with further details to be agreed to in the future. There is less agreement on how to put in place and manage framework agreements, particularly in relation to infrastructure delivery.

Clients need to be clear on the reasons for wanting to enter into framework agreements when delivering infrastructure and what they wish to achieve. Thereafter they need to design processes and procedures to enable such agreements to be implemented around the outcomes that they seek.

C2 Reasons entering framework agreements for infrastructure delivery

The rationale for entering into framework agreements on infrastructure projects, particularly where projects are governed by public sector rules, may include some or all the following:

1) the provision of programming flexibility to manage expenditure relating to the delivery of projects over time, particularly where there is a fixed annual budget allocation;

2) the reduction in the client's need to approach the market for goods and services and the number of relationships to be managed with a concomitant reduction in administration costs;

3) continuity of supply over a number of years at known or predictable prices;

4) capacity to deliver an infrastructure project within specified time frames;

5) a rapid response is required to deal with emerging requirements as and when they arise, particularly those relating to the maintenance of infrastructure or consulting services;

6) the enabling of:

   a) collaborative relationships which deliver better value and project outcomes;
   b) lessons learned in one order to be taken to the next order;
   c) a delivery team to work together on an integrated approach over a period of time;
   d) an incremental approach to the delivery of goods, services and works overtime; or
   e) early contractor involvement (the practice of appointing a contractor before the design of construction works is complete) linked to a design by client or develop and construct strategy whereby the client retains design responsibilities;

7) the provision of contractors with an opportunity to improve their internal management systems, develop their supply chains and improve their performance in delivering projects including their attainment of client objectives additional to those associated with the immediate objective of the procurement itself (secondary objectives), during the term of the contract, through continuity of work over a longer term than is the case in non-framework contracts; and

8) supplier / contractor development through continuity of work over time which may be increased as capacity to execute an order develops.

Many of the aforementioned reasons for entering into framework agreement for infrastructure delivery focus on value for money i.e. the optimal use of resources to achieve intended outcomes or the promotion of the efficient, economic and effective use of resources. Some of the other reasons relate to performance improvement over time either in terms of:

- primary project objectives i.e. tangible objectives such as budget, schedule, quality / performance characteristic and rate of delivery, environmental and health and safety objectives and intangible objectives such as buildability, relationships, client involvement in the project, end user satisfaction and maintenance and operational responsibilities; or

- secondary policy objectives (broader societal issues) which may relate to the promotion of sustainable development objectives including the provision of work opportunities to the vulnerable, improving the sustainability of small or local businesses, local economic development and the transfer or development of skills.

Time to issue an order (i.e. commence work with the required capacity) can also be a motivator for framework agreements, particularly where there are interdependencies and interfaces between contracts, continuity of work and avoidance of risk pricing are very important considerations in the pursuit of value for money. Accordingly, those responsible for the procurement of framework agreements for infrastructure projects need to have not only an understanding of the market in which they are operating and how competitive pressures work in that market but also the necessary procurement skills to develop suitable procurement documents and to conduct the required procurement processes.

Accordingly, framework agreements are appropriate where (see ISO 22058:2022):

- the available budgets and the detailed scope of work are uncertain;
- the need for goods or services involves repetitive work of a similar nature over a period of time;
- a quick response time is required; or
- long-term relationships (e.g. to 5 year) are desirable to achieve efficiencies or desired project outcomes.

They also are appropriate where the client wishes to foster collaborative relationships and wishes to move away from a delivery model based on a series of isolated, highly transactional relationships

C3 Appraisal of different approaches to framework agreements

Framework agreements fall within one of two basic categories - those that establish all the terms that are applicable and those which do not establish them all, viz:

- single stage framework agreements establish all the terms and are legal instruments under which the terms applicable to any orders under this type of framework agreement are set out in a binding manner and there is therefore no need to establish further agreements between the parties prior to the issuing of orders;
- two stage framework agreements do not establish all the terms and are therefore incomplete and require further agreement between the parties before proceeding to the issuing of an order.

The two-stage approach to framework agreements is in effect very similar to the following procurement procedures:

1) the establishment of a panel or a database following a call for expressions of interest from which quotations are invited; and
2) the application of the proposal procedure using the two-stage system in terms of which non-financial proposals are asked for during the first stage and financial proposals during the second stage.

The benefits of the two-stage approach in the delivery of infrastructure projects are limited. It may save some time in prequalifying tenderers and the negotiation of bespoke contracts. However, it may be argued that it may well be quicker and more effective in most instances to approach the market using an open selection method with stringent eligibility criteria, suitable evaluation criteria and standard forms of contract. Accordingly, two-stage framework

agreements are generally not well suited to the delivery of infrastructure projects within an organisation. They are better suited to bulk purchasing of goods across several organisations. Single stage framework agreements are well suited to infrastructure projects where there are interfaces and dependencies between contracts and work packages and time to issue an order is critical.

C4 Framework agreements as provided for in ISO 10845-1:2020

C4.1 General

ISO 10845-1:2020, *Construction procurement - Part 1: Processes, methods and procedures.* is based on a procurement system which is fair, equitable, transparent, competitive and cost-effective and which can be used to promote objectives additional to those associated with the immediate objective of the procurement itself. This international standard supports a single stage agreement designed around the specific needs of infrastructure projects.

ISO 10845-1:2020 defines the following terms:

- **framework agreement** - *an agreement between an employer and a contractor, the purpose of which is to establish the terms governing orders to be awarded during a given period, in particular with regard to price and, where appropriate, the quantity envisaged.*

- **order** - *instruction to supply goods, carry out construction works and/or provide services under a framework agreement.*

Accordingly, framework agreements as provided for in ISO 10845-1:2020 recognise that the parties have not come to a final agreement on all matters relevant to the relationship between them but have come to agreement on enough matters to move forward with the relationship, with further details to be agreed to in the future. They only establish the boundaries of the scope of work as the detail is contained in the orders that are subsequently issued. Furthermore, they have a zero contract value at award as the scope of work is established and priced in an order, based on the parameters agreed to in the framework agreement.

C4.2 Key features of framework agreements

The key features of the framework agreement provisions of ISO 10845-1:2020 are as follows:

1) The term of a framework agreement is not to exceed the period stated in the employer's procurement policy which typically should be between 3 and 4 years.

2) Framework agreements that are entered into may not commit the employer to any quantum of work beyond the first order or bind the employer to make use of such agreements to meet its needs – the client is free to approach the market whenever better value in terms of time, cost and quality can be obtained.

3) Orders may:

   a) only cover goods or services, or any combination thereof, falling within the scope of work associated with the agreement which may not be amended for the term of the agreement;
   b) not be issued after the expiry of the term of the framework agreement (see Figure C.1); and

c) be completed even if the completion of the order is after the expiry of the term (see Figure C.1).

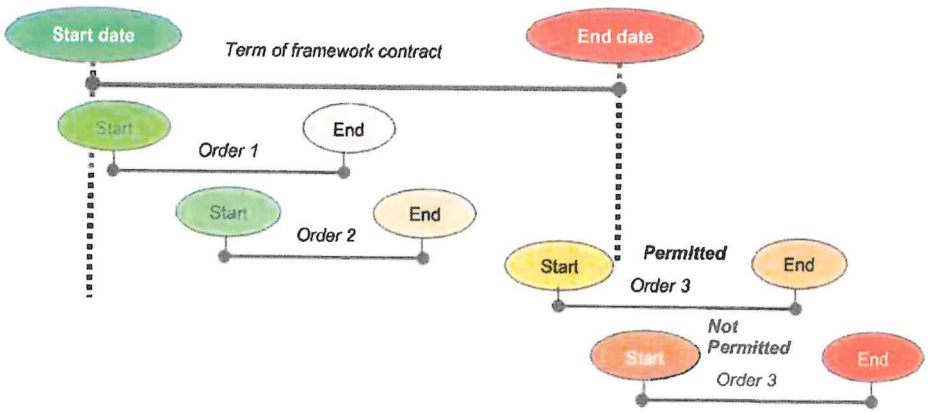


Figure C1: Timing of call offs in a framework agreement

4) Framework agreements covering the same scope of work may only be entered into with a limited number of contractors (typically not more than 3 but certainly not more than 5), based on the projected demand and geographic location for such goods, services or works.

5) The issuing of orders from framework agreements where several framework contractors have agreements covering the same scope of work may be made with and without requiring competition amongst such contractors.

6) Competition amongst framework contractors for orders needs to take place where:

a) there is no justifiable reason for issuing an order to a particular framework contractor such as:

- the framework contractor provided the most economical transaction when the financial parameters included in the contract are applied, and has the capacity to deliver;
- the required goods, services or works cannot technically or economically be separated from another contract or order previously performed by a specific contractor;
- the service or works being instructed are largely identical to work previously executed by that contractor;
- the value of the order is less than the threshold for the quotation procedure;
- the schedule for delivery necessitates that each of the framework contractors be issued with orders on a continuous basis; or
- capacity to execute the order;

b) the terms in the order are insufficiently precise or complete to cover the particular requirement, e.g. delivery time scales or time estimates to complete the order (productivity); or

c) a better quality of service can be obtained through a competitive process.

C4.3 Putting in place a framework agreement

ISO 10845-1:2020 permits framework agreements to be entered into following the implementation of an appropriate selection method i.e. negotiated, competitive selection or competitive negotiation using:

- a suitable contract for the required work, and
- stringent eligibility and evaluation criteria to ensure that contracts are entered into with only those who have the capability and capacity to provide the required goods, services or works.

Framework agreements are put in place using the normal procurement procedures; the only difference being that a framework agreement has a zero value at the award of the framework contract.

The success of a framework agreement is dependent on the contracting with framework contractors who are able to deliver on the employer's expectations. Procurement strategy and tactics are required to ensure that this occurs. Accordingly, a tender process needs to be designed to arrive at a cost effective outcome with an attractive partner

C4.4 Putting in place an order

Those administering framework agreements require authorisation to issue an order for three basic reasons:

- authority to incur the required expenditure as authority was only granted to put in place a framework agreement
- confirmation that the goods, services or works fall within the scope of the framework contract approved at the time that the framework contract was entered into; and
- where more than one framework agreement covers the same scope of work, the acceptability of the reasons for selecting a particular framework contractor i.e. the reasons are justifiable.

Authorisation in terms of an organisation's governance system is required to issue orders under a framework agreement as orders are treated as a separate "contract" and the scope of work and price associated with the order need to be agreed to. Accordingly, framework agreement gates are required to manage the issuing of orders as indicated in Figure C2.

C4.5 Identifying a suitable standard form of contract

Framework agreements need to contain terms which establish:

- the rights and obligations of the contracting parties and the agreed procedures for the administration of the contract and the issuing of orders;
- the term of the agreement during which an order may be issued;
- the scope of work which may be included in an order to enable decisions to be made as to what is covered in the agreement and what needs to be procured outside of the agreement, and

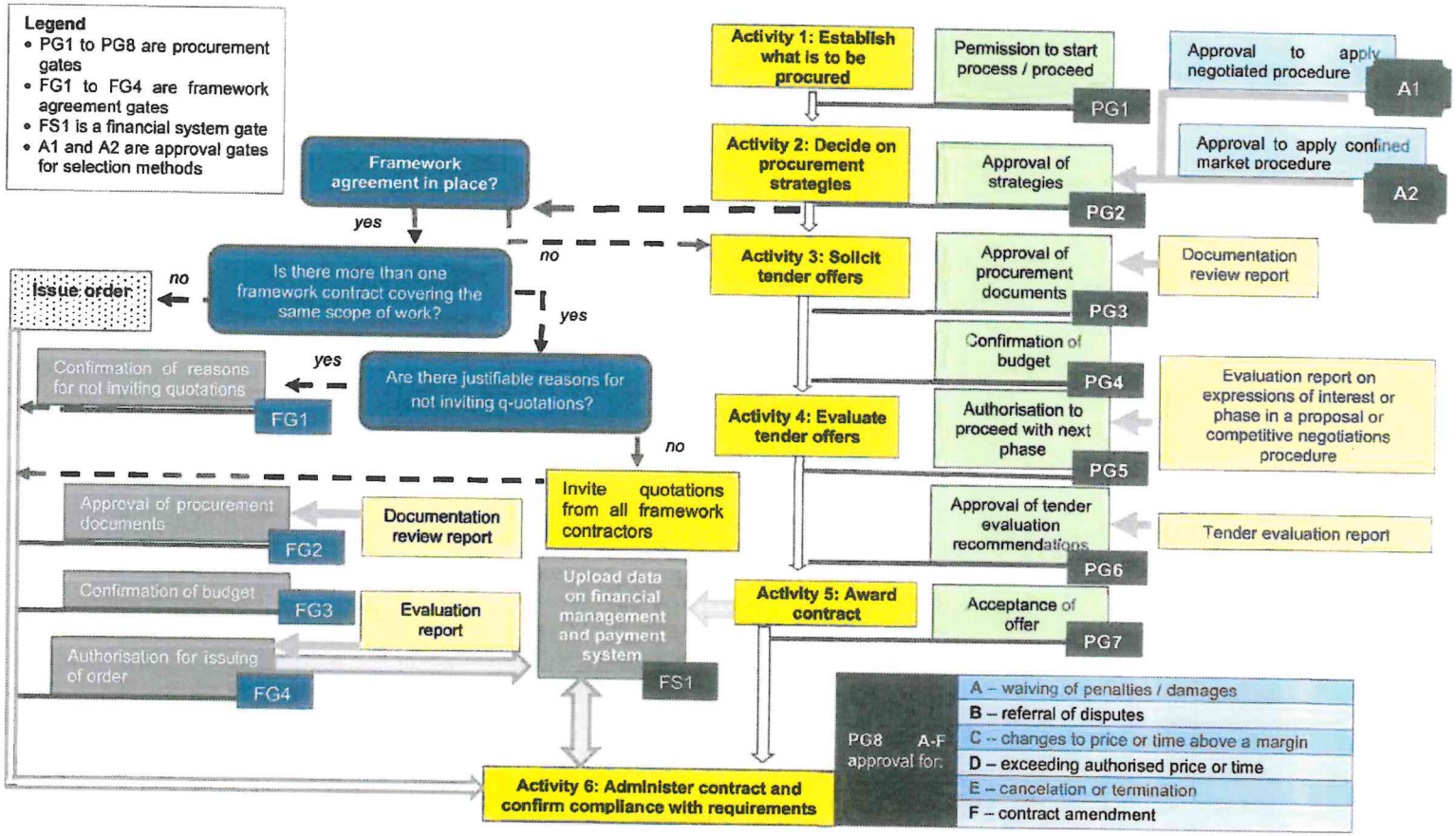


Figure C2: Control framework for procurement

- the basis by which contractors will be remunerated for work performed in terms of an order, when such an order is issued.

It is relatively straight forward in the supply of basic goods or the provision of routine and repetitive services to establish framework agreements as the price for the goods or services or work done can be a quantity multiplied by a rate. It is more challenging to put an effective framework agreement in place where the price for the work relates to a scope of work which is yet to be defined in sufficient detail to enable it to be priced. It is more difficult where there are significant site establishment and de-establishment costs and there is little or no repetition in work of a similar nature under uniform conditions.

Cost reimbursement contracts which are based on "*cost expended*", where cost may be regarded as "*the amount paid (or to be paid) by a purchaser for material, a product, service or completed work* (ISO 6707-2), provide complete flexibility. However, cost reimbursement contracts raise questions relating to value for money as payment is not related to productivity.

Accordingly, the key questions that need to be answered when developing a framework agreement are:

- how do you sensibly price for the work not yet scoped or incapable of being precisely priced when a framework agreement is entered into i.e. the unknown?

- how do you transparently determine the price of items that are not included in price lists / pricing schedules at the time of tender?

- how do you control costs in cost reimbursable contracts?

Put differently the key questions that need to be asked in different types of contracts are as follows:

• **Goods**	How do you add similar items that are not priced? How do you deal with the size and frequency of orders?
• **Services**	How do you add similar items that are not priced?
• **Professional services**	How do you remunerate consultants before the extent of the works which are to be constructed, rehabilitated or refurbished is known?
• **Construction (development of a product (works) on a site)**	How do you remunerated contractors for broadly defined work which is usually not sufficiently scoped to enable it to be priced at the time when the framework agreement is entered into? How does one deal with general items e.g. site establishment, management of the works, equipment requirements etc which vary significantly from site to site?

The starting point in answering the aforementioned questions is to look at the available options to secure financial offers and to remunerate a party to the contract (contractor) in terms of the contract as indicated in Table C1. What is immediately apparent is that:

- price based strategies are suitable in situations where basic goods are supplied or routine or repetitive services are provided; and

- cost based pricing strategies are required where a scope of work is yet to be defined in sufficient detail to enable it to be priced.

Table C1: Pricing options

Pricing strategy	Payment arrangements	Suitability in framework agreement applications
Price based		
Lump sum	A lump sum is paid to perform the contract. Progress or interim payments can be made to provide a cash flow to the contracting party	If derived from cost parameters
Bill of quantities	A bill of quantities (BoQ) lists the items of work and the estimated / measured quantities and rates associated with each item to allow payment at regular intervals equal to the agreed rate for the work multiplied by the quantity of work actually completed. (A BOQ is prepared in accordance with a standard system of measurement. The contractor is not a risk for increases in quantities and mistakes / omission, departures from the rules of measurement, ambiguities and inconsistencies)	Doubtful - standard forms of contract entitle an adjustment in rates if significant changes in quantities occur
Price list / price schedule	Payment equates to the price for each lump sum item in the price list / schedule that has been completed and, where a quantity is stated in the price list / schedule, an amount calculated by multiplying the quantity which the contractor has completed by the rate. (The contractor is only not at risk for increases in quantities)	Possible
Activity schedule	The scope of work is broken down into activities which are linked to a programme, method statements and resources and each activity is priced as a lump sum. Payment is due upon completion of the activity. The total of the activity prices is the lump sum price for the contract work.	If derived from cost parameters
Cost based		
Cost reimbursable	Payment is based on cost which is expended	Questions over productivity
Cost plus	Payment is based on cost which is expended plus a fee	Possible
Target cost	Payment is based on cost which is expended. A target price is estimated and on completion of the work the difference between the target price and the cost which is expended is apportioned between parties to a contract on an agreed basis	Possible

What is required is a flexible standard form of contract which:

- provides a transparent means in priced based contracts to arrive at prices for items not priced at the start of the contract in a transparent manner;
- provides cost based contracting options which enable costs to be controlled;
- compensates contractors for events which occur after the formation of the contract;
- enables risks to be proactively managed and mitigated

The NEC3 and NEC4 family of contracts are suitable for use as a base document in framework agreement contracting arrangements as they make provision for both price based and cost based pricing strategies and assess compensation events (risk events which are not at the contractor's risk) on the basis of cost as defined in the contract plus a percentage agreed at the time of contract formation which covers profit, overheads, finance charges, insurances etc.

Annexure D: Step changes necessary to develop institutional capacity to delivery infrastructure

D1 Introduction

The National Infrastructure Plan 2050 (NIP 2050) places a top priority on the strengthening of institutions responsible for infrastructure planning and delivery. The plan requires "*a step change in institutional capability that drives material progress in South Africa's infrastructure ambitions. Planning, procurement and execution systems and capabilities will be operating at the highest global standard commensurate with the country's significant infrastructure transformational agenda. . . to align delivery with the Constitutional imperative (section 195) to promote the 'efficient, economic and effective use of resources' and to ensure that public administration is 'development orientated.' "* This plan also envisages robust and ever developing partnerships and alliances between public and private sectors as a significant feature in infrastructure delivery.

The vision for large-scale public network infrastructure projects recognises that a differentiated approach to charting their delivery needs to be pursued since they continuously experience risk events over the course of their protracted delivery periods. Furthermore, their scale and complexity require "*high-impact evidence-based decision-making with very material implications for costs and outcomes. The buyer-supplier relationship therefore differs from most other government projects in that the buyer or "client" function requires significant professional capability throughout the process of conceptualisation to implementation and maintenance, that is through the full life-cycle of the project."*

NIP 2050 requires government to become a "sophisticated client" in "*its procurement of infrastructure, operating at a global standard commensurate with the significance and complexity required to deliver on South Africa's long-term economic imperatives. There must be continuous improvement in its Infrastructure Procurement and Delivery Management (IPDM)."* This plan in recognising the need to strengthen institutions for delivery has identified the following conditions to be met to achieve the 2050 vision:

1) *Public sector competencies must operate at a high professional level.*

   - *Competence to procure and deliver must be high in respect of ability, knowledge and skill.*

2) *The regulatory framework must enable network infrastructure procurement and delivery.*

   - *The regulation of SCM for infrastructure must enable integrated projects (to include demand, acquisition, logistics, disposal and risk management), with built-environment professionals playing a significant role. SCM for infrastructure must be handled as a strategic function, not simply a financial one.*

   - *The procurement of infrastructure must be differentiated from that of other goods and services.*

3) *A strategic approach must be taken to infrastructure procurement.*

   - *Value for money must be a focus and prioritised over lowest cost. This must include robust cost-benefit analysis.*
   - *There must be trust and understanding with suppliers.*
   - *IPDM will be de-linked from centralised purchasing and led by a chief procurement officer and/or high-level office specifically mandated and capacitated with built-environment professionals to procure and deliver infrastructure*

4) *Infrastructure delivery must be managed as an "enterprise" and not an ad hoc collection of projects.*

- *Systems of accountability will become aligned with effective infrastructure delivery.*

5) *The asset management function must be robust.*

6) *The environment for public infrastructure delivery must be safe, secure and ethical.*

- *There will be significant attention to reducing crime and corruption and mitigating its impacts on public infrastructure delivery, especially in relation to: corruption in infrastructure procurement; extortion, political violence and unrest that halts infrastructure project progress; and vandalism and theft of infrastructure assets.*

D2 Value for money in an infrastructure context

Value for money in common language usage refers to something that is well worth the money spent on. Value for money has in various national and international publications been described as:

- *"optimum combination of whole-life cost and quality to meet the user's requirement*";
- "*the optimal use of resources to achieve intended outcomes*" where optimal is understood to be the most desirable possible given expressed or implied restrictions or constraints;
- "effective, efficient, and economic use of resources".

It should be noted that Section 217 of the Constitution requires that the procurement system be cost effective. Cost effective can be viewed from two perspective (SANS ISO 10845-1), namely:

1) the processes, procedures and methods are standardized with sufficient flexibility enabling best-value outcomes in respect of quality, timing and cost and least resources to effectively manage and control procurement processes;

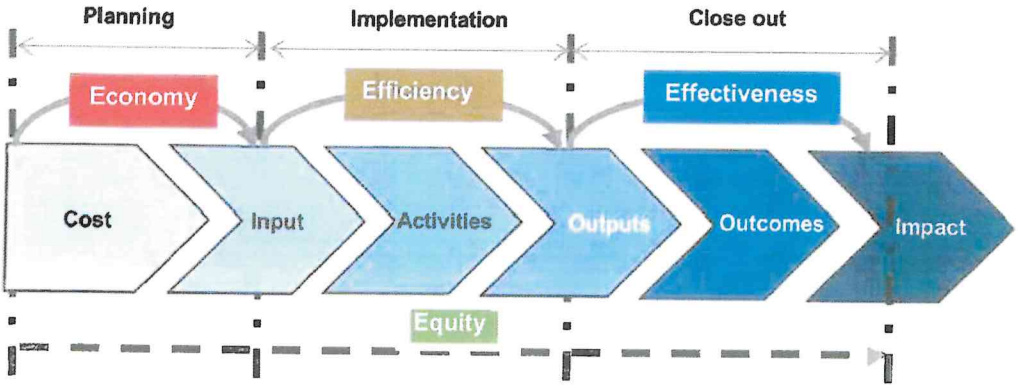
2) decision making focusses on the attainment of value for money through the evaluation of relevant costs and benefits together with the assessment of risks.

Section 195 of the Constitution (see Annexure A) requires that the efficient, economic and effective use of resources in an accountable, ethical and development orientated manner be promoted.

Accordingly, value for money in an infrastructure delivery context can be regarded as the most desirable possible outcome from the use of resources (finances, people, equipment, plant, materials etc.) that can be drawn upon, given expressed or implied restrictions or constraints such as risks and costs. Value for money is realised when the value proposition that was set for the project at the time that a decision was taken to invest in a project is as far as possible realised. It is about maximising actual outcomes and impacts and spending money well and wisely.

Underlying value for money is an explicit commitment to ensure that the best results possible are obtained from the money spent or maximum benefit is derived from the resources available. It is about striking the balance between the three "E's", namely, economy, efficiency and effectiveness, whilst being mindful of a fourth "E" – equity – as indicated in the results chain as presented in Figure D1. Economy, efficiency and effectiveness relate to the primary objectives of a project whereas equity relates to the

secondary objectives of the project i.e. what can be promoted or leveraged through the delivery of the project.



	Economy (cost)	Efficiency (productivity)	Effectiveness (impact)	Equity
Objective	Obtain the right inputs at the right cost (obtain a good deal)	Obtain the most from the inputs (obtain a lot for the efforts).	Obtain the expected results from the outputs (do the right things)	Promote business, employment and skills opportunities for target groups
Focus	Reducing / minimising the cost of resources	Minimise waste and maximise value in the converting of resources (inputs) into results (outputs)	Achieving targets and ensuring the right work is being completed	Leverage business, employment and skills opportunities for target groups through the project
Key question	What is the cost of the resources consumed and the value of the output delivered?	How resourcefully are inputs converted into outputs and subsequent outcomes?	What is the gap between what has been achieved and what was intended?	What legacy does the project leave behind?

Figure D1: The relationship between the four "Es" in the value for money concept

The critical starting point in delivering value for money through infrastructure projects is, in the first instance, to align such projects with strategic objectives, priorities, budgets and plans. Thereafter, during the planning phase, objectives and expected outcomes need to be clearly articulated, as well as parameters such as the timelines, cost and levels of uncertainty i.e. the value proposition or promise of measurable benefits resulting from the project. This frames the value-for-money proposition that needs to be implemented at the point in time that a decision is taken to proceed with a project, i.e. it establishes "economy" and identifies "equity". The end point is to compare the projected outcomes against the actual outcomes to confirm the "effectiveness" of the project in delivering value for money.

Implementation sits between "economy" and "effectiveness" in the results chain framework. It needs to be executed "efficiently" to minimise time delays, scope creep and unproductive costs, and to mitigate the effects of uncertainty on objectives so as to maintain the value proposition formulated at the outset of the project. This necessitates that the client exercises due care and reasonableness during implementation. Failure to do so may result in substandard or unacceptable performance, which results in a gap between intended and achieved outcomes. This gap puts value for money for a project at risk.

D3 Infrastructure procurement and delivery management concepts

Infrastructure delivery may be regarded as the combination of all planning, technical, administrative and managerial actions associated with the construction, supply, maintenance, refurbishment or disposal of

infrastructure. Infrastructure delivery embraces a "buying" and a "supply" function. The buying function focuses on the following client delivery management practices:

- **plan**: decide on what needs to be done, how it is to be resourced and achieved and in what time frames, and set a budget;
- **specify:** define the client's functional and other requirements for the project clearly and precisely;
- **procure:** obtain project resources (internal and external) to execute project activities with care and effort; and
- **oversee delivery:** observe and define the execution of the project to realise the client's value proposition associated with a business case (promise of measurable benefits resulting from the project).

The supply function on the other hand focuses on the management and integration of the resources required to deliver the project. The supply function involves, as necessary, detailed planning, design development, manufacturing, construction, installation, fabrication and commissioning activities to deliver the project. It may also extend to the operation of the infrastructure that is delivered. The supply function is commonly performed through a supply chain (network of suppliers) and can be performed with internal or external resources or any combination thereof.

Delivery management is the critical leadership role played by a knowledgeable client to plan, specify, procure and oversee the delivery of infrastructure projects. Delivery management as such includes knowledgeable leadership, consistent governance and systematic administration of procurement, contracts and project finances. Delivery management activities include planning at a programme and project level and the procurement and management of a network of suppliers including, as necessary, professional services, contractors and subcontractors to design, detail and deliver infrastructure projects on a site.

Procurement is the process which creates, manages and fulfils contracts. Procurement commences once a need for goods and services or any combination thereof has been identified and it ends when the goods are received and the services are completed and contracts closed out. There are accordingly three phases to the procurement process associated with infrastructure (see Figure D2), namely:

- a **planning phase** during which decisions are made as to what, where and when goods and services are required, how the market is to be approached and what is the number, type, nature and timing of the required contracts;
- an **acquisition phase** during which contracts are entered into following the development of procurement tactics enabling a procurement strategy to be effectively implemented and the execution of a selection procedure; and
- a **contract administration phase** during which compliance with requirements, changes in requirements and risk events which manifest during the execution of contracts are managed, the works are commission and contracts are closed out.

Infrastructure projects are identified during strategic planning processes or through the identification of critical infrastructure needs identified within an asset management system. Thereafter projects need to be motivated by considering the benefit of the project and / or consequences of not undertaking the

project. Projects are admitted to a pipeline of infrastructure projects which then need to be prioritised, financed, prepared, delivered and ultimately admitted to or updated in the owner's asset management system. Projects within a pipeline range from simply having been identified to being ready to progress towards implementation (see 1 Initiate (strategic planning) in Figure D2).

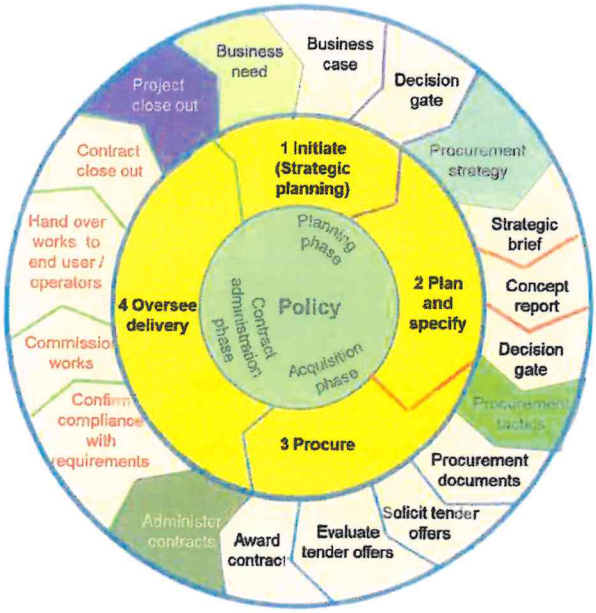


Figure D2: Infrastructure procurement cycle (Source: ISO 22058:2022)

Procurement strategy is required to engage with the market commencing with a "make" or "buy decision" and if the decision is to "make", whether design and interface management responsibilities are to be retained or transferred (see 2 plan and specify in Figure D2.) The choice of "buy" or "make" determines the number of contracts that need to be procured and directly overseen as well as the capacity and capabilities of the client delivery management team which needs to be put in place to oversee the delivery of the required construction works.

During the planning and specifying stage, a strategic brief which defines project objectives, needs, acceptance criteria and client priorities and aspirations, and which sets out the basis for the development of a concept report is developed. A concept report is then developed which sets out a viable solution to the strategic brief. A decision is then made to implement the project. A gateway review or financial feasibility studies may be required to inform this decision.

During the acquisition phase procurement tactics are developed to effectively implement the adopted procurement strategy and procurement documents are developed (prior to approaching the market for the services of a contractor. Tender offers are then solicited and evaluated and a contract is awarded to the successful tenderer.

The delivery of construction works needs to be overseen during the contract administration phase where contracts are administered in accordance with the administrative procedures included in the conditions of contract and compliance with the requirements of the contract is confirmed. The commissioning of the works, the handing over of the works to the end user or operator and the close out of the contract needs to be overseen (see 4 Oversee delivery in Figure D2).

D4 Core infrastructure delivery system

Infrastructure delivery is intrinsically linked to four core systems, namely a planning and budgeting, an asset management, a delivery management and a procurement system. Figure D3 indicates the workflows (sequence of activities with explicit start and end points) associated with these systems which have forward and backward linkages. The boundaries at the interfaces between systems are not that clear and are blurred as organisations may allocate tasks within different systems to different units within their organisation, depending upon where staff capabilities and capacity lies. Nevertheless, the activities associated with the tasks within all the systems need to be performed.

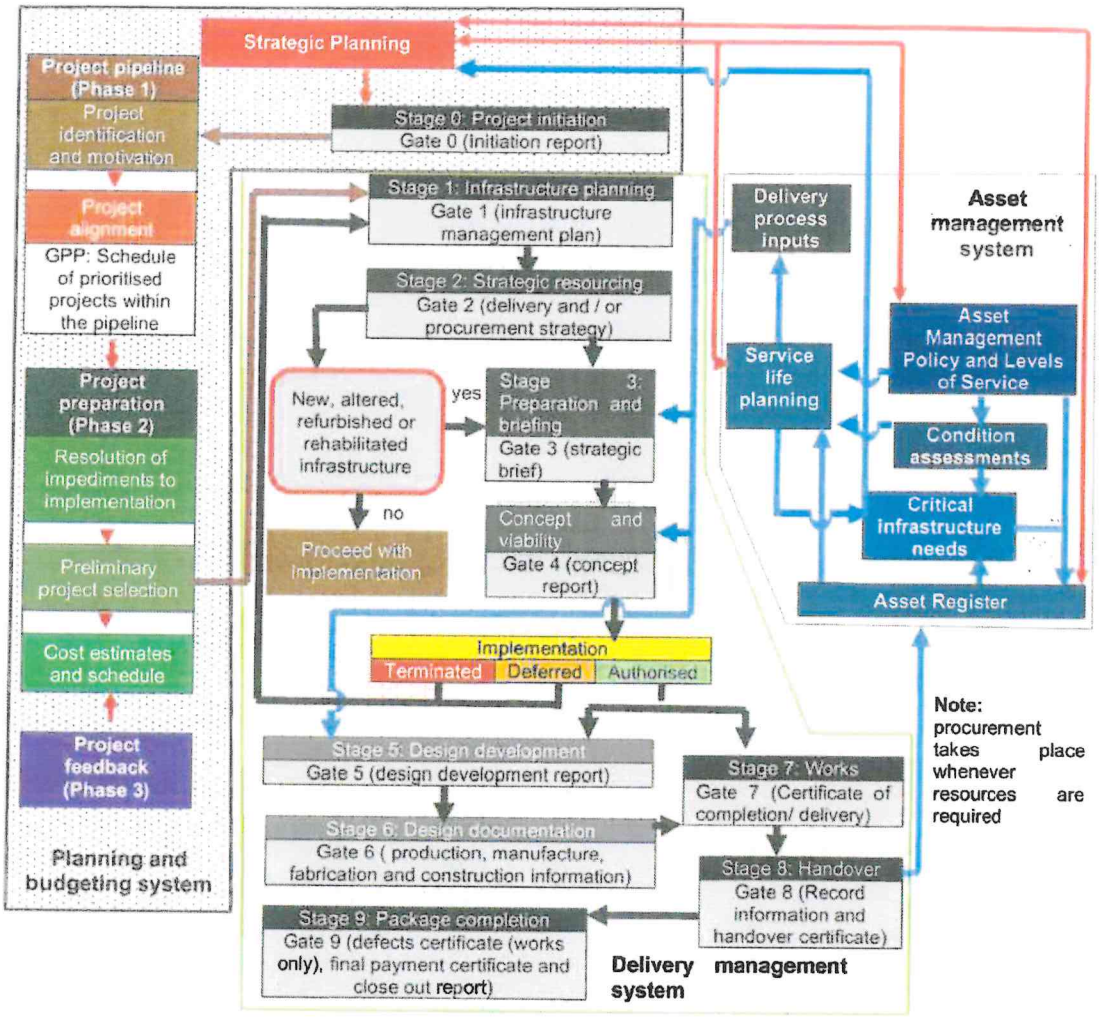


Figure D3: Systems and workflows associated with infrastructure delivery

Delivery management is linked to an asset management system and a budgeting and planning system. The asset management system informs demand management. The planning and budgeting system prioritises projects and releases funding for projects. Procurement takes place whenever resources are required to provide goods, services or works.

A planning and budgeting system for infrastructure projects comprises activities which can be grouped together into 4 basic sets of tasks or components, namely, strategic planning, project pipeline, project preparation and project feedback. Projects in the first instance need to be identified during strategic planning processes or the identification of critical infrastructure needs identified within the asset management system. Thereafter projects need to be motivated by considering the benefit of the project and / or consequences of not undertaking the project. Decisions relating to the initiating and implementing of infrastructure projects need to be based on a business case which addresses at a high level the business needs that the project seeks to meet. Once the project pipeline has been established and prioritised, alignment with broader and strategic planning processes needs to be confirmed and impediments to implementation identified. The annual outcome of the planning and budgeting process is an updated infrastructure management plan which, as a minimum, summarises the service life plans, provides a credible forecast of current and net demand for infrastructure or requirements for functionality and prioritises projects against a forecasted budget over a 3 to 5 year horizon.

Asset management for infrastructure considers the entire lifecycle (service life) of the asset and the associated costs, from the identification of a need through to the final decommissioning of the asset. Asset management is a strategic approach to infrastructure provision that provides direction on decision making throughout the infrastructure planning, delivery, operation and disposal processes. It follows a risk-based approach in all asset management decisions to achieve a balance between cost, risk and performance. An asset management system for infrastructure, which feeds into the demand management component of a delivery management / planning and budgeting system, comprises a number of activities which can be grouped together into 6 basic sets of tasks or components, namely asset register, asset management policy and levels of service, condition assessment, service life planning, critical infrastructure needs and delivery process inputs.

Critical and important assets can be identified by considering the consequences of failure in terms of health and safety incidents, additional costs of deferring repairs and maintenance, impact on the business and image of the organisation and the effect on the environment. Identified critical work then needs to be fed into the planning and budgeting process to be prioritised together with any proposed new capital work. There also needs to be alignment between those that design and construct infrastructure with those that subsequently occupy, use and manage it.

Delivery management activities commence with the initial, and subsequent recurring updating of planning processes at a portfolio level flowing out of an assessment of needs for more infrastructure or to modify or to maintain the functionality of existing infrastructure to support an organisation's business objectives. Thereafter it involves, in the case of the provision, rehabilitation, refurbishment or alteration of infrastructure, planning at a project level, and the procurement and management of a network of suppliers, including subcontractors, to deliver, rehabilitate, refurbish or alter construction works on a site. Detailed design processes may be required thereafter.

The work flow associated with the planning, design and execution of infrastructure projects (the project life cycle) is broken down into stages (collections of logically related activities in the delivery cycle) that culminate in the completion of a major deliverable as indicated in Figure D3. Each of these stages are linked to tasks which the supply chain is required to deliver. Decisions need to be taken on the acceptability of each end of stage deliverable. The stages are structured in such a manner that the viability of a project may be tested and monitored and controlled by the client delivery management team (those assigned to perform the "buying" function) as it progresses.

D5 Unpacking the necessary step changes to improve infrastructure delivery

D5.1 Adopting a strategic approach to procurement

Procurement is the strategic process of sourcing a product or service which includes the identification of a specific product or service requirement, the establishing of payment terms, the putting in place and administration or management of contracts, the minimisation of risks, identification of measures to secure cost savings, while focusing on value and return on investment. Purchasing is commonly a back office or administrative function often linked to a finance department whereas procurement is a front office or strategic function which needs to be linked to the department or directorate responsible for delivering projects and services. The handling of procurement by a specific purchasing resource or department rather than being a central competency within portfolio, programme and project management frequently in complex projects leads to unforeseen issues developing which inevitably lead to time cost and quality over runs.

The PFMA and MFMA locates overall responsibility for governing procurement within National Treasury This is understandable given the nature of the treasury function within government, namely to secure and allocate a budget, oversee the execution of a budget and account for expenditure within an annual cycle. One of the basic underlying causes of problems associated with the South African public procurement system is that procurement has been misplaced within financial management structures and processes which has led to an excessive compliance orientation at the expense of value for money. Procurement has for quite some time been subsumed under financial management and not viewed as a management speciality. The procurement function ought to be much closer to the primary competences which it supports rather than put aside at a distance. This would enable technical line departments or end-user professionals to play an active role in procurement. Procurement powers are currently located with financial officers, supply chain management units, and bid committees. The net result is that public procurement is a financial-clerical function distant from rather than closely supportive to operational needs. Procurement in the delivery of infrastructure needs to be driven by line managers and not SCM units (buying departments). Nevertheless, reporting to the relevant treasuries needs to be done through units within the office of the chief financial officer's office.

A strategic approach to infrastructure procurement and delivery management necessitates amongst other things:

1) the ending of the fragmentation and deskilling of the infrastructure procurement and delivery management processes and responsibilities, to support an administrative supply chain management paradigm which is best suited to a "back office" transactional buyer approach to the procurement of well-defined goods and services for consumption;

2) the correction of the misplacing of supply chain management for infrastructure as a financial function as opposed to a strategic operational function and the division of responsibilities into financial and operational responsibilities;

3) the moving of the procurement function for infrastructure projects much closer to the primary competences which it supports rather than put aside at a distance;

4) establishing an infrastructure procurement system (policy, process, procedures and control framework) which provides for a range of approaches to packaging, contracting, pricing, targeting

and procurement methods, underpinned by governance which enables alignment of choices with organisational strategic objectives and values, enabling:

a) the formulation, adoption and implementation of suitable infrastructure procurement strategies and tactics for different categories of infrastructure expenditure to achieve value for money;

b) the focus to be on likely outturn cost (final costs) rather than on lowest starting price;

c) delivery models which are characterised by collaboration and an equitable distribution of risk which represent a shift away from a highly transactional supply chain which promotes adversarial behaviours and poor allocation of project risks;

d) the engagement of the private sector at an early stage of a project to tap into their intellectual capital to improve procurement outcomes;

e) the entering into longer-term relationships in order to take the learnings from one project to another and to improve procurement outcomes;

f) the prioritisation of whole life benefits over lowest capital cost;

g) the application of reasoned professional judgement in the evaluation of tenders in order to minimise the outturn costs and to achieve best value procurement outcomes;

h) the application of national and international standards which are aligned with the constitutional imperatives for the procurement system;

i) the application of standard forms of contract which enable a range of different risk allocations to be applied between the parties to a contract; and

j) flexibility in promoting secondary or developmental objectives including government's empowerment objectives and the legacy that a project leaves behind;

5) makes appropriate use of the skill and expertise of built environment professionals in the management and mitigation of risks associated with infrastructure delivery; and

D5.2 An enabling regulatory framework

A principles-based, flexible and enabling approach aligned to the Constitutional imperatives (see Annexure A) to the regulation of infrastructure procurement needs to be pursued. Such an approach must not preclude the application of sound procurement practices to achieve desired outcomes and value for money. The regulatory environment needs to be interpreted in the light of the Constitutional imperatives within an infrastructure delivery context.

Procurement and delivery management is regulated not only through legislation but also through organisational policies. Organisational policies supported by suitable processes, methods and procedures and control frameworks need to:

1) differentiate procurement from other goods and services including the bid specification and bid evaluation committees;

2) delink the supply chain for infrastructure (infrastructure procurement and delivery management) from the supply chain for general goods and services.

3) approach infrastructure procurement as a central competency of those responsible for delivering infrastructure programmes and complex infrastructure projects;

4) base the curbing of corruption on an infrastructure procurement system that is capable of being audited, contains rigorous and documented processes, develops comprehensive and complete procurement documents and evaluation reports, discloses information at key points in the process, has in place infrastructure specific codes of ethics, etc.; and

5) make the SCM unit under the CFO responsible for the co-ordination and management of the interface between the institution and the relevant treasury enabling budget execution to be overseen and expenditure to be accounted for.

D5.3 Managing infrastructure delivery as an enterprise

Project governance describes the way in which projects are authorised, conducted and overseen. It provides a way for executive managers and senior management and notable stakeholders to exercise oversight and ensure that the institution's strategic outcomes are realised. It sits above and outside of the project management domain and provides the framework within which project decisions are made. Institutions need to put in place flexible control or project governance frameworks to manage infrastructure delivery. At the same time, clear delegations of authority need to be put in place which support line-function infrastructure delivery decisions and institutional accountability.

There are several moving parts associated with the governance of an institution which need to be integrated and aligned in a way which supports the attainment of strategic objectives. There are different ways in linking these parts together. One way of doing so is indicated in Figure D4.

Cost and time overruns on infrastructure projects do not appear overnight. Their genesis starts well before they manifest. The infrastructure procurement system in addition needs to provide real time reporting to mitigate this risk. Key metrics need to be established at the outset of a project and need to be reported on at regular intervals to those responsible for infrastructure delivery and the accounting officer / authority.

The management of infrastructure delivery an "enterprise" and not an ad hoc collection of projects necessitates that:

1) infrastructure delivery is underpinned by effective governance processes which ensure that (see Figure D4):

   a) the client organisation takes ownership of infrastructure delivery;

   b) there is proper management and control of infrastructure;

   c) all the various parts of the organisation which play a role in infrastructure delivery work together in a coordinated, efficient and effective manner; and

   d) infrastructure delivery is, wherever possible, managed as a long term and strategic system of individual yet interlinked projects aimed at meeting the organisation's objectives;

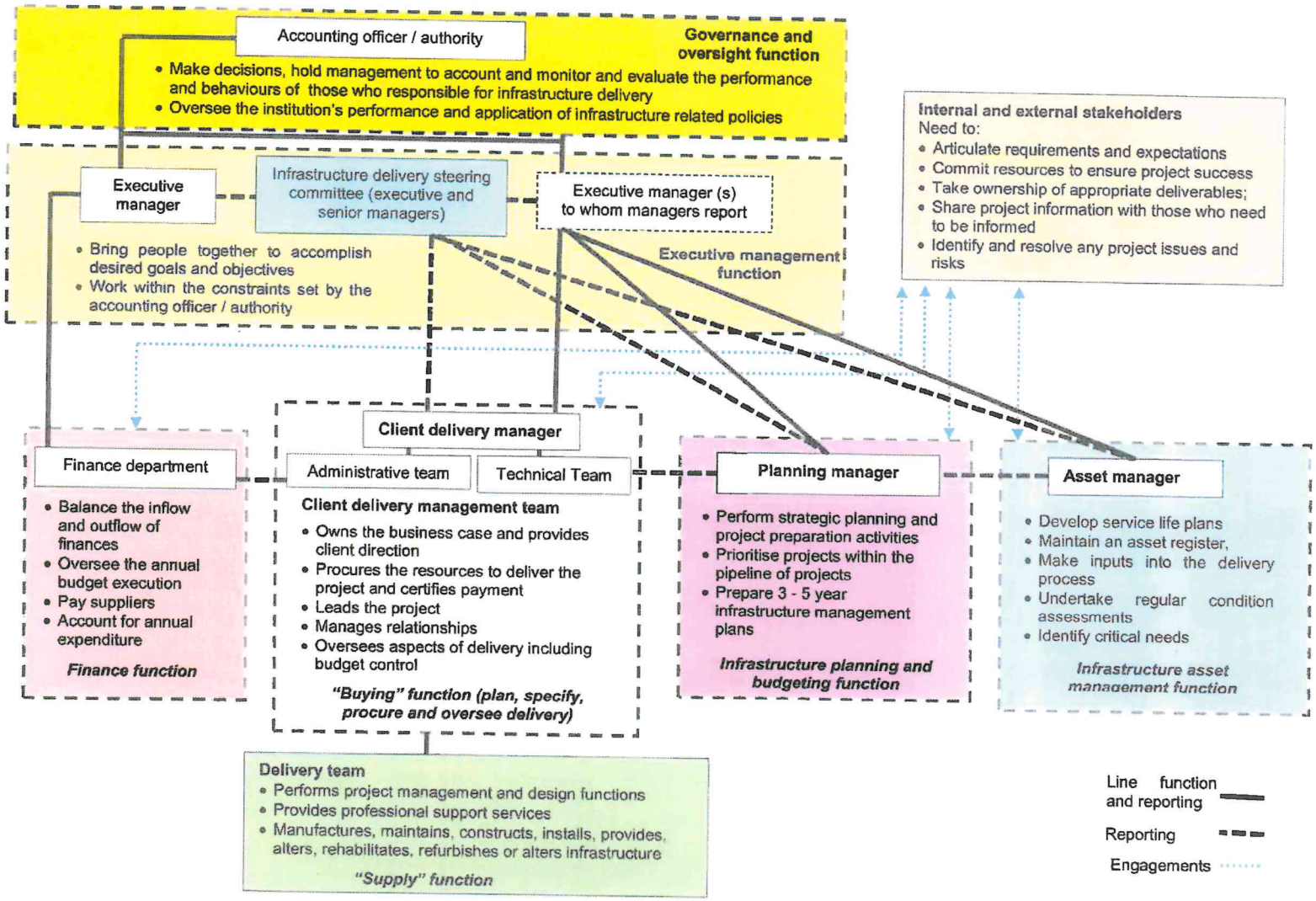


Figure D.4: Aligning infrastructure delivery with institutional governance arrangements

2) clear delegations of authority are in place which enable timeous decision making and organisational accountability for infrastructure delivery;

3) a client delivery manager (see B2.3), within a line department in a senior management position who has single point accountability provides executive level leadership at both a project and programme level in the planning, specifying, procuring and overseeing of delivery including contract administration; and

4) infrastructure procurement and delivery management policies and associated procedures which support and do not frustrate effective, economic and efficient infrastructure delivery and provide norms and standards for the management of the organisation's infrastructure.

Effective project governance can be achieved through:

- the establishment of an infrastructure delivery steering committee comprising senior management and those responsible for infrastructure delivery to (see Figure D4):
    - enable the organisation in its entirety to own the vision and business case for infrastructure delivery;
    - support project prioritisation, expenditure and oversight:
    - maintain full accountability for delivery and exercise project and budget control at a programme level; and
    - receive reports from the client delivery manager on progress made, and challenges faced, and advise accordingly.
- planning and oversight of infrastructure delivery to (see Figure D4);
- the establishment of appropriate control frameworks (decision gates) within which decisions are made in the delivery of infrastructure to enable risks to be appropriately and proactively managed and render the system capable of being audited (see Figure D3);
- the approval by the accounting officer / authority of annual infrastructure management plans which identify and prioritise projects and packages against a forecasted budget over a period not less than 3 years which provide a high-level scope of work for each project, the proposed time schedule, the estimated total project cost and annual budget requirement, the geographical location, any known encumbrances and estimated timeframes for removing these encumbrances; and
- the submission to the accounting officer / authority of quarterly reports against an annual implementation plan which provides a baseline against which annual performance can be measured in progressing projects identified in the infrastructure management plan.

Use should be made of digital technologies to share, interpret, store and archive project data and documents.

D5.4 A robust asset management system

The key objective of asset management for infrastructure is to meet a desired level of service in the most cost effective manner for present and future stakeholders. All too often the focus is on the delivery of new infrastructure. The focus needs to shift to what is done after initial "delivery" (ie commissioning of the infrastructure) to ensure sustained service? i.e. replacement, refurbishment, planned maintenance, repair of damage/breakdown and the management thereof (operation).

The asset management system should operate in accordance with the following principles:

1) Infrastructure needs to be used efficiently and reconfigured or, where practical, disposed of if it does not support the organisational objectives.

2) Infrastructure needs to be maintained and operated in such a way as to minimise lifecycle costs.

3) Life-cycle infrastructure asset management planning needs to be carried out for large individual assets or groups of infrastructure assets, which include operation, maintenance and refurbishment requirements to inform major refurbishment or upgrading requirements which are incorporated into the annual infrastructure management plan.

4) Risks relating to the ownership, use and operation of infrastructure need to be managed as follows:

   a) the possible consequences of failure of infrastructure needs to be identified and mitigated in a cost-effective manner;

   b) critical infrastructure should be identified using a risk-based approach by assessing both the probability of failure and the potential impact on the organizational and stakeholder operations;

   c) high risk infrastructure needs to be prioritised, especially if this is potentially life threatening or poses a risk to the achievement of the organizational and stakeholder core objectives; and

   d) the organisation's liability in the event of infrastructure-related claims needs to be minimised.

5) Periodic condition assessments of infrastructure need to be undertaken, the results of which need to be captured on the infrastructure asset register and used to inform infrastructure plans and budgets.

6) Periodic assessment of the levels of performance and service that infrastructure delivers needs to be undertaken, and these should be analysed against the requirements and expectations of users and stakeholders.

7) There needs to be a system or process for prioritisation of repairs.

8) There needs to be a system for handling of complaints and responding to requests from infrastructure users, which should include standards for reasonable response times.

D5.5 Competencies to deliver

It is widely acknowledged that the role of the client is the single most important factor in determining the success of construction projects and capital works programmes, regardless of their size, complexity and location. Accordingly, capacity building needs to start with the accounting officer / authority to ensure that the entire entity takes ownership of infrastructure delivery as an important component of its service delivery mandate. Such capacity building should focus on exposing staff engaged in the management or overseeing of infrastructure delivery to the fundamentals of infrastructure procurement and delivery management. This will provide them with the necessary competencies to actively engage in the decision making processes and to insightfully perform their duties.

Staff with built environment qualifications or experience should be provided with opportunities to participate in IPDM university short courses and qualifications and industry continuous professional development events to build their competencies and broaden their horizons.

Decision making within an organisation needs to be supported through inputs and strategic advice from credible and experienced built environment professionals. Ideally, such inputs should be obtained from staff with suitable skills and experience. Given that there is limited built environment expertise capable of providing such inputs and advice within many organs of state, the public sector should be able to access credible and experienced specialist know-how from the private sector, typically on a part time basis. This can be done by contracting individuals at market related rates to provide the necessary technical inputs and advice to support their "buying" and infrastructure ownership functions. Contracted individuals who function as advisors to the client delivery manager should be prohibited from providing normal built environment professional services associated with the "supply" function on projects where they function as advisors. They should also be required to mentor staff built environment staff members to develop organisational competencies.

Annexure E: Framework agreements to improve municipal water infrastructure

The Municipal Infrastructure Support Agency (MISA) developed in 2016 a procurement strategy to improve the capacity of municipal water and sanitation infrastructure. A review of the challenges facing municipalities and the nature of the water and sanitation infrastructure owned and maintained by municipalities in support of their service delivery mandates suggests that framework agreements having the coverage and high-level scope of work identified in Table E.1 are feasible; and most likely to have a significant impact on service delivery.

Table E1: Types of framework agreements

Coverage area		High level scope of work
G	**General**	
G1	Project planning for municipal water and waste water projects	The services over the term relating to water and sanitation projects may include: a) establishment of operation and maintenance objectives, policy and requirements; b) the development of an initiation report which outlines the high level business case together with the estimated project cost and proposed schedule for a single municipal water or sanitation project or a group of such projects having a similar high level scope (stage 0 (Project initiation) of the SIPDM); c) the preparation of an implementation plan which identifies and prioritises projects and packages against a forecasted budget over a period of at least 5 years (stage 1 (Infrastructure Planning) of SIPDM); d) undertaking condition assessment of the related water and waste water engineering works and the development of pre-feasibility and feasibility reports (stages 3 (pre-feasibility) and 4 (feasibility) of the SIPDM); e) the preparation of applications and reports for funding e.g. from the Municipal Infrastructure Grants, donor funding etc. f) the development of a strategic brief which defines project objectives, needs, acceptance criteria and client priorities and aspirations and which sets out the basis for the development of the concept report for one or more packages (stage 3 (concept and viability) of the SIPDM); g) the obtaining of the necessary permits and statutory permissions to implement projects; h) providing advice and specifying procedures relating to the maintenance and repair of water and wastewater engineering works or parts thereof; and h) assistance in the compilation of tender documents and evaluation of tender offers.
W	**Water infrastructure**	
W1	Service life cycle planning for municipal water infrastructure	The services over the term may include: a) the identification of municipal water infrastructure and the gathering of data for asset register purposes; b) system modelling and strategic planning including water conservation and demand management; c) the preparation of record information; d) the assessment of the current performance of municipal water infrastructure against desired levels of service or functionality; e) the undertaking of a needs analysis informed by factors such as policies, norms and standards, condition assessments, functional performance, demographic trends, current and forecasted levels of optimisation; f) the development of cost estimates for the life cycle activities comprising acquisition, operations, maintenance, refurbishment, rehabilitation or alteration as relevant, over a minimum period of 5 years; g) the development of service life plans; and h) the provision of data for inclusion in infrastructure plans which provides a credible forecast of current and net demand for services or requirements for functionality over a period of not less than 10 years and are required to secure multiyear budgets for municipal water infrastructure projects.

Coverage area		High level scope of work
W2	Maintenance, repair and operation of municipal water infrastructure	The services over the term may include: a) the maintenance and repair of: 1) water treatment and desalination plants; 2) water pipelines and reservoirs network infrastructure; 3) pumps and pump stations; 4) metering, monitoring and control mechanisms; 5) infrastructure for water capture, abstraction and storage e.g. dams, boreholes, weirs, rainwater harvesting, wells etc; 6) household water systems including leaking toilet cisterns. b) the refurbishment, rehabilitation or alteration of the existing water installations other than water treatment plants; c) minor extensions to the water installations other than water treatment plants; d) the refurbishment, equipping of boreholes and appurtenant works; e) the installation and replacement of water metering, monitoring and control mechanisms, and f) the operation of municipal water infrastructure other than water treatment plants.
W3	Design and construction or installation of new municipal water infrastructure other than water treatment plants	The services over the term may include: a) the design and construction of new municipal water pipelines, control mechanisms including telemetry, reservoirs and pump stations from point of abstraction to point of consumption excluding water treatment plants; and b) the design and installation of leak detection and water loss control measures.
W4	Design, construction, refurbishment, rehabilitation, alteration or operation of water treatment plants	The services over the term may include: a) the design and construction, refurbishment, rehabilitation and alteration of water treatment plants; b) monitoring the quality of water by performing all the necessary tests including bacteriological, chemical and other tests of the process water to comply with regulations; c) ensuring that the flow of water and waste water through the works is maintained unhindered d) storing of chemicals (e.g. chlorine) in accordance with prescribed standards; e) ensuring that the works site is suitably cleaned and properly maintained; f) ensuring that all mechanical and electrical equipment are functional and that certificates of compliance required by law are updated; g) undertaking of regular inspections of concrete and other structures to check for water leaks, movement of structures, etc; h) ensuring that the operators office is clean and contains all the required manuals, emergency procedures, telephone numbers of stand-by personnel, equipped with safety medical kit; and i) ensuring the proper management of waste e.g. debris, cloths and excess sediments from the works
W5	Hydrogeological services	The services over the term may include: a) identification of acquifers; b) verification of water demand and existing sources; c) identification of the required rehabilitation or test pumping of existing boreholes; d) supervision of pump testing of equipped and unequipped existing or new bore holes, the rehabilitation of existing boreholes and the drilling of exploration or new boreholes; e) assessment of potential quality and quantity of groundwater resources and investigation of prioritised exploration targets for point source; f) selection of borehole sites; g) technical reporting; h) development, implementation and maintenance of groundwater development plans; and i) assessment of groundwater resource potential.
W6	Construction and rehabilitation of boreholes	The services over the term may include: a) the construction of boreholes including the drilling of the borehole, the installation of casing, recovery of steel casings from unsuccessful or abandoned boreholes, data recording and reporting, and b) the rehabilitation of existing boreholes including the basic cleaning out, redevelopment of an existing borehole, the reaming and subsequent reinstallation of the casing,
W7	Quality control and laboratory services for water	The services over the term may include: a) water quality testing b) calibration of meters c) test pumping of boreholes

Coverage area		High level scope of work
W8	Supply of selected water related goods	The supply of goods over the term may include: a) chemicals for water treatment plants b) mechanical and electrical components for common items of plant (pumps and water treatment) c) bulk, district , zone and domestic meters
S	**Sanitation infrastructure**	
S1	Service life cycle planning for municipal sanitation infrastructure	The services over the term may, with respect to municipal sanitation infrastructure, include: a) the identification and the gathering on data for asset register and asset management purposes; b) system modelling and strategic planning; c) the preparation of record information; d) the assessment of the current performance against desired levels of service or functionality; e) the undertaking of a needs analysis informed by factors such as policies, norms and standards, condition assessments, functional performance, demographic trends, current and forecasted levels of optimisation; and f) the development of cost estimates for the life cycle activities comprising acquisition, operations, maintenance, refurbishment, rehabilitation or alteration as relevant, over a minimum period of 5 years; g) the development of service life plans; and h) the provision of data for inclusion in infrastructure plans which provides a credible forecast of current and net demand for services or requirements for functionality over a period of not less than 10 years and are required to secure multiyear budgets for municipal water infrastructure projects.
S2	Maintenance, repair and operation of municipal sanitation infrastructure	The services may include: a) the maintenance and repair of 1) wastewater treatment plants; 2) sewer pipelines and reservoirs network infrastructure; and 3) meters and control mechanisms 4) sewer pumps and pump stations; b) the refurbishment, rehabilitation or alteration of the existing sewer installations other than wastewater treatment plants; c) minor extensions to the sewer installations other than wastewater treatment plants; d) the desludging of Ventilated Improved Toilets (VIP), septic and conservancy tanks or similar; and e) the operation of municipal sanitation infrastructure other than waste water treatment plants.
S3	Design and construction or installation of new municipal sanitation infrastructure other than waste water treatment plants	The services may include: a) the design and construction of new municipal sanitation infrastructure other than wastewater treatment plants; b) the design and installation of pump stations; and c) the design and installation of on-site and decentralised sanitation systems. d) the desludging of wastewater treatment works and sludge drying beds.
S4	Design and construction, refurbishment, rehabilitation, alteration or operation of wastewater treatment plants	The services over the term may include: a) the design and construction, refurbishment, rehabilitation and alteration of wastewater treatment plants; b) monitoring the quality of water by performing all the necessary tests including bacteriological, chemical and other tests of the water discharge from the works to comply with regulations; c) ensuring that the flow of waste water through the works is maintained unhindered; d) storing of chemicals (eg chlorine) in accordance with prescribed standards; e) ensuring that the works site is suitably cleaned and properly maintained; f) ensuring that all mechanical and electrical equipment are functional and that electrical certificates of compliance required by law are updated; g) undertaking of regular inspections of concrete and other structures to check for water leaks, movement of structures, etc; h) ensuring that the operators office is clean and contains all the required manuals, emergency procedures, telephone numbers of stand-by personnel, equipped with safety medical kit; and i) ensuring the proper management of waste eg sludge, debris, cloths and excess sediments from the works
S5	The provision of on-site sanitation	The services include the provision and installation of on-site sanitation including: a) VIP toilets b) septic and conservancy tanks
S6	Quality control and laboratory services for waste water	The services may include: a) effluent quality testing b) calibration of flow meters c) pollution control detection and testing

Coverage area		High level scope of work
S7	Supply of selected waste water goods	The supply of goods may include: a) chemicals for wastewater treatment plants b) mechanical electrical components for common items of plant (pumps and wastewater treatment) c) flow meters d) prefabricated VIP toilets

The areas identified in Table E1 can be broken down into types of contracts as indicated in Table E2.

The developers of the strategy recognised that design responsibilities for W3, W4, S3 and S4 can be assigned to either contractors or to professional service providers (consultants). They furthermore combined some of the overlaps in the development of the procurement strategy.

Table E2: Classification of areas into contract types

Type	Definition	Type of coverage (see Table E1)	Comments and observations
Engineering and construction contract	Contract for the provision of a combination of goods and services arranged for the development, extension, refurbishment, rehabilitation or demolition of a fixed asset, including building and engineering infrastructure	W3: Design and construction or installation of new municipal water infrastructure other than water treatment plants	Design responsibilities may be assigned to a contractor. Alternatively a professional service providers may be appointed separately. The NEC3 Engineering and Construction Contract (ECC) is suitable for engineering and construction works, including any level of design responsibility. It is not possible to price the works as the location, quantum and duration of the works is unknown. The NEC3 ECC contains two cost based pricing options which enable productivity to be controlled, namely, Option C (Target Contract with activity schedule) and Option F (Management Contract).
		W4:Design, construction, refurbishment, rehabilitation, alteration or operation of water treatment plants	
		S3: Design and construction or installation of new municipal sanitation infrastructure other than waste water treatment plants	
		S4: Design and construction, refurbishment, rehabilitation, alteration or operation of the wastewater treatment plants	
		S5: The provision of on-site sanitation	
Professional service	Service contract which requires the use of the skill and care normally used by professionals providing similar services	G1: Project planning for municipal water and waste water projects	Service not required for W2, W3, S3 and S4 if design responsibilities are assigned to a contractor. The NEC3 Professional Service Contract (PSC) is suitable for professional services, such as engineering, design or consultancy advice. Option G makes provision for payments either on a time basis or a lump sum basis. Provision can be made for payment based on the cost of construction by converting the total amount derived from this approach into a lump sum.
		W1: Service life cycle planning for municipal water infrastructure	
		W3: Design and construction or installation of new municipal water infrastructure other than water treatment plants	
		W4:Design, construction, refurbishment, rehabilitation, alteration or operation of water treatment plants	
		W5: Hydrogeological services	
		S1: Service life cycle planning for municipal sanitation infrastructure	
		S3: Design and construction or installation of new municipal sanitation infrastructure other than waste water treatment plants	
		S4: Design and construction, refurbishment, rehabilitation, alteration or operation of the wastewater treatment plants	
Services	Contract for the provision of labour or work, including knowledge-based expertise, carried out by hand or with the assistance of equipment and plant	W2:Maintenance and repair of municipal water infrastructure	The NEC3 Term Service Contract (TSC) is suitable for use to manage and provide a service as opposed to a project over a period of time. A service maintains an existing state A for a period of time. Contracting to achieve a state B when the present state is state A is not a service – it is a project. However, a modest amount of improving the condition of an asset can be included. The NEC3 TSC has a cost reimbursable contracting option (Option E). The NEC3 Term Service Short Contract does not require sophisticated management techniques, comprises straightforward works and imposes low risks on both the Employer and the Contractor.
		W7: Quality control and laboratory services for water	
		S2: Maintenance and repair of municipal sanitation infrastructure	
		S6:Quality control and laboratory services for waste water	
Type	Definition	Type of coverage (see Table 1)	Comments and observations

Supply	Contract for the provision of goods, including materials or commodities made available for purchase and, where relevant, associated services	W6: Construction and rehabilitation of boreholes	The NEC3 Supply Contract (SC) is suitable for the procurement of high value goods and related services including design. The NEC3 Supply Short Contract is suitable for the procurement of goods under a single order or on a batch order basis which do not require sophisticated management techniques and impose only low risks on both the Purchaser and the Supplier. Payment is by means of a Price Schedule.
		W8: Supply of selected water related goods	
		S7: Supply of selected waste water goods	