

A WATER PRACTITIONER'S GUIDE: **IMPLEMENTING INNOVATIVE SOLUTIONS AND SUPPLY CHAIN MANAGEMENT**



**WATER
RESEARCH
COMMISSION**

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TABLE OF CONTENTS

LIST OF ABBREVIATIONS.....	04
INTRODUCTION	05
THE SUPPLY CHAIN MANAGEMENT MODEL IN SOUTH AFRICA	06
PUBLIC PROCUREMENT MODEL IN SOUTH AFRICA.....	06
COMMON MISCONCEPTIONS ABOUT SCM	07
ESTABLISHMENT OF A LIST OF APPROVED SERVICE PROVIDERS.....	08
TYPES OF CONTRACTS	09
DIFFERENCE BETWEEN RFP AND RFQ	10
KEY RECOMMENDATIONS FOR PRACTITIONERS	10
DEVELOPMENT OF INTERNAL INNOVATION POLICIES	11
CAPABILITY DEVELOPMENT FOR SOURCING INNOVATIONS.....	11
MAKING THE BUSINESS CASE FOR PROCUREMENT	11
VALUE FOR MONEY	12
PILOTING PROJECTS AND THE DEVELOPMENT OF TECHNICAL SPECIFICATIONS ...	12
SUCCESS CRITERIA AND DEMONSTRATING IMPACT	12
PARTNER WITH SCM	13
GATHERING MARKET INFORMATION	13
IMPORTANT PARTNERS	13
AN ALTERNATIVE MODEL FOR THE PROCURING INNOVATIONS	14
THE STRATEGIC SOURCING PROCESS	14
MULTI-STAGE BIDDING.....	15
TWO-STEP BIDDING	16
 LIST OF TABLES	
TABLE 1: TYPES OF CONTRACTS.....	09
 LIST OF FIGURES	
FIGURE 1: ELEMENTS OF SUPPLY CHAIN MANAGEMENT	06
FIGURE 2: TENDER PROCESS FLOW CHART	07
FIGURE 3: STRATEGIC SOURCING PROCESS	14
FIGURE 4: MULTI-STAGE BIDDING PROCESS	15



LIST OF ABBREVIATIONS

BBBEE:	Broad-based black economic empowerment
CMA:	Catchment management agencies
CSIR:	Council for Scientific and Industrial Research
DBSA:	Development Bank of Southern Africa
DFIs:	Development finance institutions
DSI:	Department of Science and Innovation
DWS:	Department of Water and Sanitation
EOI:	Expression of interest
EWS:	eThekweni Water and Sanitation
IDP:	Integrated development plan
MFMA:	Municipal Finance Management Act
PFMA:	Public Finance Management Act
PPPs:	Public-private partnerships
RDI:	Research, development and innovation
RFI:	Request for information
RFP:	Request for proposals
RFQ:	Request for quotation
SALGA:	South African Local Government Association
SASTEP:	South African Sanitation Technology Enterprise Programme
SCM:	Supply chain management
TIA:	Technology Innovation Agency
UKZN:	University of KwaZulu-Natal
WADER:	Water Technologies Demonstration Programme
WB:	Water boards
WRC:	Water Research Commission
WSA:	Water service authorities
WSP:	Water service providers



INTRODUCTION

The purpose of this booklet is to guide practitioners in public water sector institutions, including municipalities, to more effectively procure innovation that will make water and sanitation services delivery more effective, efficient, sustainable and cost effective to consumers.

Public sector procurement practices in South Africa is required by Section 217 of the Constitution to, be fair, equitable, transparent, competitive and cost-effective.

Various other pieces of legislation define this further, most notably the Public Finance Management Act (PFMA) and Municipal Finance Management Act (MFMA) and various guidelines and notes published in terms of these. The legislative framework and environment in spirit as noted by from the wording used in legislation and assumes innovation to improve services delivery and procurement related to it, though it does not specifically encourage the uptake of innovation.

Each institution that is governed by the PFMA or MFMA is required to develop a procurement and supply chain management policy and system that conforms to the requirements of the constitution and other legislation. It is here where institutions need to be intentional to plan for uptake of innovation in such policy and system.

This guide aims to assist practitioners in institutions to practically improve uptake of innovation based on research commissioned by the Water Research Commission.



THE SUPPLY CHAIN MANAGEMENT MODEL IN SOUTH AFRICA

PUBLIC PROCUREMENT MODEL IN SOUTH AFRICA

The public sector procurement framework contains the elements as outlined in the diagram below.

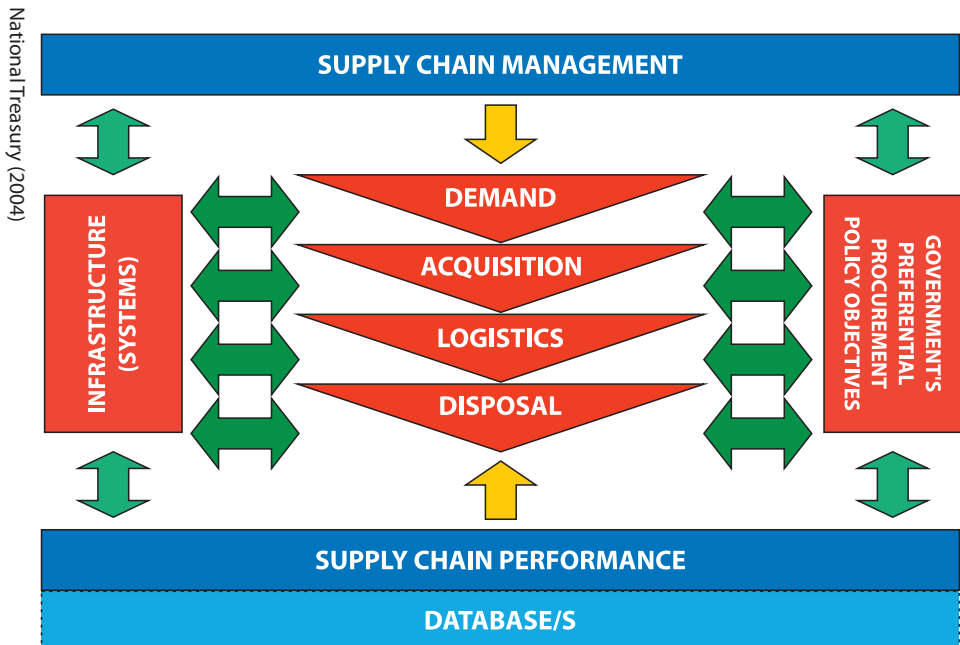


Figure 1. Elements of supply chain management

It is important to note that demand management is the first component of the supply chain management (SCM) process and should be used as the planning phase for procuring a good or service. Acquisition management refers to the manner in which the market is approached to provide a required good or service. The process flow for the acquisition phase is outlined on the next page.

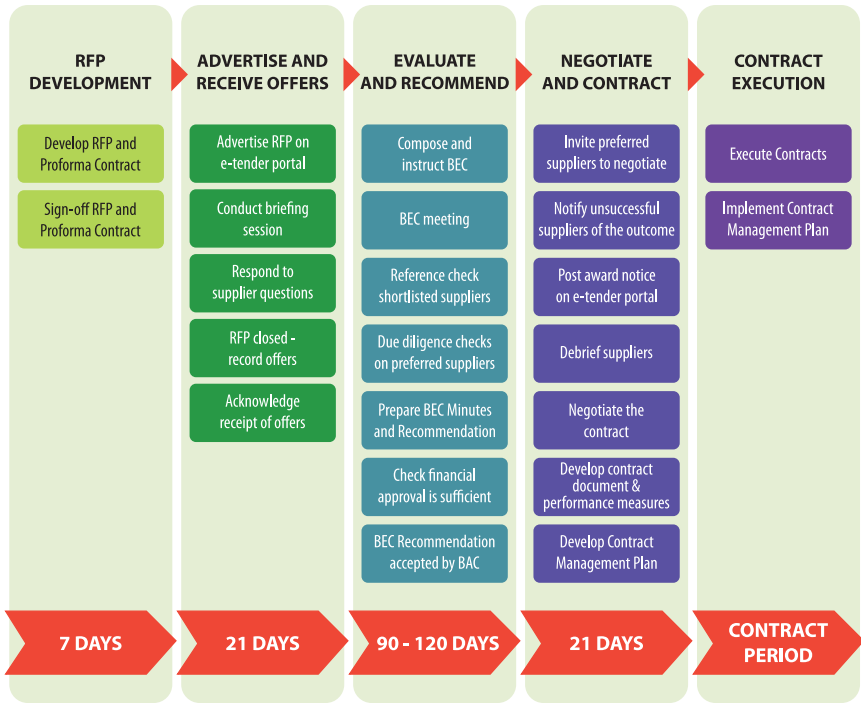


Figure 2. Tender process flow chart

The *SCM Guide for Accounting Officers/ Authorities* was developed by National Treasury in 2004 with the intention to illustrate the philosophy behind the adoption of an integrated SCM function across government and assist stakeholders to understand the responsibilities that are implied. The document provides a comprehensive overview of the way in which the SCM Process in local government (MFMA) should work and can be found [Here](#). Similarly the *Guide for Accounting Officers for the PFMA* can be found [Here](#).

COMMON MISCONCEPTIONS ABOUT SCM

During the research, some stakeholders stated the understanding that single and source quotations are not allowed by the MFMA. However, Section 4.7.8 of the SCM Accounting Officers Guide specifies that competitive bidding includes single and sole quotations, though this must be justified by a thorough analysis of the market and ensuring that the reasons for limited competition are understood.

Some practitioners also presented a view that the MFMA does not allow for contracts longer than three years. However, Section 33 of the MFMA outlines the process to be used for a contract that will impose a financial obligation on the municipality for a period beyond three years.

The SCM process is often perceived as being long and onerous. However, thorough planning for the procurement of innovation is important to confirm the value proposition to the institution and confirm the business case. It is important to ensure that public funds are spent in the best interests of the communities served.

There is a perception that bids must be readvertised if less than three quotations are received. However, there is no reason to readvertise if the competitive bidding process was complied with and tenderers were provided sufficient time (minimum of 21 days for RFP) to prepare a response. The reasons must be documented by the municipality and records maintained for audit purposes.

Understanding among some practitioners were reported as value-for-money equating to lowest capital cost and the cheapest quote. This is seen to be an issue of practice and the incorrect application of the value-for-money principle. Value-for-money refers to the best available outcome when all relevant costs and benefits over the procurement cycle are considered. The principle of Total Cost of Ownership or Lifecycle Costing should be considered. As an example, a good that costs R100 but would need to be replaced every two years does not offer better value-for-money compared to a good that can deliver the same service but costs R150 and would only need to be replaced after five years.

ESTABLISHMENT OF A LIST OF APPROVED SERVICE PROVIDERS

As per *Supply Chain Management – A Guide for Accounting Officers / Authorities* published by National Treasury in 2004, services may be required on a recurring basis and a panel of consultants/list of approved service providers for the rendering of these services may be established. These panels/lists should be established through the competitive bidding process, usually for services that are of a routine or simple nature where the scope and content of the work to be undertaken can be described in detail.

Section 36 of the MFMA regulates deviation from the SCM policy for emergencies. However, SCM practitioners have advised that some 'emergencies' could have been foreseen and that Section 36 should not be used as justification for poor planning. Therefore, the use of panels for 'frequently occurring emergencies' could be used to appoint service providers in these instances.



TYPES OF CONTRACTS

Various contract types and terminology are sometimes used interchangeably, which is not always correct, so it is important to define the various types of contracts and their application to procurement of innovations:

Table 1. Types of contracts

Terminology	Comment
Term tender	<p>Tender for provision of goods and services based on guaranteed availability and costs of such goods and services over the time period.</p> <p>Municipalities and other utilities often such tenders to outsource the stores function to suppliers to save costs and reduce risk of shrinkage.</p>
Term contract	<p>Agreement between a customer and supplier that sets out terms of their relationship to specify goods and services to be supplied, price, the delivery schedule, and any other terms and conditions of the agreement.</p> <p>A term contract follows from procurement of a term tender.</p>
Transversal contract	<p>Put in place by national or provincial department for use by any institution.</p> <p>Type of goods and services determined in definition and purpose of the contract.</p>
Panel or database appointment	<p>Appointment of a selection of providers of goods and services that qualify on the set conditions, which excludes specific tasks and costs.</p> <p>After that, bids / tender are requested only from those on the panel to be adjudicated based on specified goods and services and costs for these.</p>

Such contracts are typically put in place for a period of three to five years.



DIFFERENCE BETWEEN RFP AND RFQ

A request for a quotation (RFQ) is a business process in which a business solicits quotes from suppliers and contractors for a specific task or project. When the quantity for a standard product is known and needs are ongoing. The contract will generally be awarded to the vendor that meets the minimum qualifying criteria and presents the lowest bid.

An RFQ is usually the first step in submitting a request for proposal (RFP). These two documents are similar as they provide details of the project or services required, but RFQs generally ask for more comprehensive price quotes. Also, businesses usually design RFQs for generic products in which the quantity needed is known, and RFPs are for unique, niche projects where quantities and specifications are unknown.¹

Cost value limits are generally set in procurement systems to allow for easier and quicker procurement of goods and services of lesser value. The limits are set based on nature of the business and the nature of the goods and services that needs to be procured. The values of limits varies between institutions, even where such institutions provide similar goods or services. Variances may depend on local costs and conditions and the nature of the business.

KEY RECOMMENDATIONS FOR PRACTITIONERS

Throughout the course of the research, key learnings have been identified and these recommendations are based on such learnings and is aimed to benefit practitioners to foster innovation uptake internally and effectively work towards innovation adoption processes. These learnings encompass the development of capabilities required to source, pilot, demonstrate, work with SCM, gather market information, create internal policies, and establish internal success criteria. These are initial steps to enabling innovation adoption within the public sector.

An overarching lesson from the research is the need to be deliberate and to persevere. The innovation procurement process can be challenging, especially in the initial stages. However, it becomes progressively easier as practitioners gain experience and build relationships with key partners. Once the process is undertaken several times, it becomes much more standardised for the organisation in the long term.

¹ [https://www.investopedia.com/terms/r/request-for-quote.asp#:~:text=A%20request%20for%20a%20quote,request%20for%20proposal%20\(RFP\).](https://www.investopedia.com/terms/r/request-for-quote.asp#:~:text=A%20request%20for%20a%20quote,request%20for%20proposal%20(RFP).)



DEVELOPMENT OF INTERNAL INNOVATION POLICIES

South Africa's public sector institutions, primarily municipalities responsible for water and sanitation services, face a pressing challenge in the form of inadequate innovation policies and procedures. The lack of formalised institution-wide processes and policies inhibits the large scale uptake of innovations. To address this issue, the proposed interventions developed through this research focuses on bolstering the development of internal innovation policies and procedures. This involves collaborating with the South African Local Government Association (SALGA) to create comprehensive innovation policy sessions, tools, and guides, including a step-by-step policy development guide and related case studies.

Additionally, partnering with the Department of Water and Sanitation (DWS) to evaluate and recognise institutions that implement innovation policies supporting quality, infrastructure and service improvements is vital. Furthermore, we emphasise research and knowledge sharing through WRC-funded research projects to explore the role of innovation policies in advancing innovation uptake within the South African water sector.

Lastly, capacity building initiatives, spearheaded by the Water Institute of Southern Africa (WISA) will empower water sector professionals with the necessary skills to effectively implement these innovation policies. The principles underpinning these policies include the imperative to enhance service delivery, recognise the practicality of large-scale innovation uptake, manage associated risks, and integrate innovation into the normal business operations of institutions.

CAPABILITY DEVELOPMENT FOR SOURCING INNOVATIONS

Practitioners are encouraged to work with national partners in building their internal capabilities and technology information base that will aid in identifying, engaging on, and sourcing innovations. This involves actively seeking out innovative solutions that address specific challenges within the water sector. Key partners and resources made available by innovation partners (e.g. TIA, WRC's WADER and SASTEP, CSIR's Water Centre and Smart Places, and the Innovation Hub) can play a pivotal role in facilitating access to innovative technologies, solutions and sharing of experiences in the innovation adoption domain.

MAKING THE BUSINESS CASE FOR PROCUREMENT

The business case must include the financial implications associated with a solution but could also include regulatory and environmental compliance, as well as strategic municipal and national targets. This would enable decision-makers to make decisions that are aligned to strategic goals while understanding that a slight premium on capital expenditure is required (as an example).



As an example, a connection to a bulk sewer connection could be a lowest total cost option, as compared to a non-sewered sanitation system (NSSS), but the bulk sewer connection could only be completed in four to six years. Decision-makers may be willing to pay a slight premium to implement a NSSS solution at a school as this can be implemented in three to six months and process access to an acceptable level of sanitation service.

In many innovations that are being developed, the value proposition is often the financial and environmental savings that are realised over the operations of the innovation. Thus it is important that the business case specifies the operational model that will ensure that the unit is operated as intended over the expected useful life of the asset.

VALUE FOR MONEY

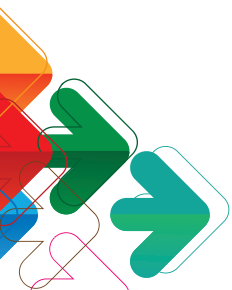
Value for money is often perceived as lowest cost. This is, however, the incorrect application of the principle. Value for money should include total lifecycle costs, revenue savings, opportunity costs, as well as, the externalised costs of pollution, negative impact on public health and strategic benefits that a solution may provide. This will ensure the holistic evaluation of the solution and not the lowest cost that may actually result in a higher cost over the longer term.

PILOTING PROJECTS AND THE DEVELOPMENT OF TECHNICAL SPECIFICATIONS

Piloting of technologies and innovations helps build internal processes and key capabilities. In addition to improving internal know-how and operations, the pilot process and acting as a test bed helps utilities better understand their needs to develop clearer technical specifications in the demand planning phase. Practitioners should acquire the ability to define precise requirements and technical parameters for innovations to ensure compatibility with existing infrastructure and alignment with strategic objectives.

SUCCESS CRITERIA AND DEMONSTRATING IMPACT

An important part of the innovation adoption process is determining what you would like to achieve at the close-out of projects and initiatives. These could include key efficiencies, integration, data for decision-making etc. This allows practitioners to build credible internal motivations for further support, budgets and human resources. Demonstrating the impact of innovations is essential for gaining buy-in and support from stakeholders. Practitioners should ensure SMART success criteria that enable objective assessment and guide decision-making throughout the innovation process.



PARTNER WITH SCM

SCM is a critical internal partner in supporting critical, new and general operations. Internal workshops that include SCM in the innovation planning, policy and process development would be wise. This will enable technical teams to better understand SCM and SCM to better advise on the interpretation and application of, amongst others, the PFMA and MFMA in supporting innovation. SCM should transition towards an enabler for the implementation of innovations that assists the organisation meet their business objectives rather than focus only on compliance.

GATHERING MARKET INFORMATION

Having market information that advises on customer needs, technology scanning/availability and a good understanding of how the technology and innovation can improve operations and service delivery supports the internal business case required. This includes continuous monitoring of market trends, emerging technologies, and potential suppliers to ensure the organisation remains at the forefront of innovation.

Phase 2 of the Strategic Sourcing Process provides an indication of the methods and approaches that can be used to undertake a market study for required goods and services before engaging the market through an RFI process. This can be found on page 14 of this document.

IMPORTANT PARTNERS

The publicly funded organisations listed below are involved in the development of emerging water and sanitation innovations that could assist practitioners with identifying and supporting practitioners in implementing solutions.

- TIA: support for technology development and commercialisation.
- WADER: research and innovation support in water technology.
- SASTEP: research and innovation support in sanitation technology.
- CSIR: research institution that collaborates on innovative projects.



AN ALTERNATIVE MODEL FOR THE PROCURING INNOVATIONS

The definition of competitive bidding includes both multistage (as well as single- and sole-source bidding), though from the research it seems that many perceive competitive bidding as only complete open tendering. Multistage billing does comply with the constitutional requirements of transparency and open and competitive bidding.

THE STRATEGIC SOURCING PROCESS

The strategic sourcing process (SSP) is a collaborative and structured approach to analysing government spending to acquire commodities and services effectively. The SSP is not intended for the purchase of good and services on a day-to day basis. It is rather a long-term and all-encompassing means of achieving procurement and strategic business goals. The uptake of innovation within the water sector is a strategic objective and is therefore aligned to the Strategic Procurement Process. (OPCO - NT, 2016).

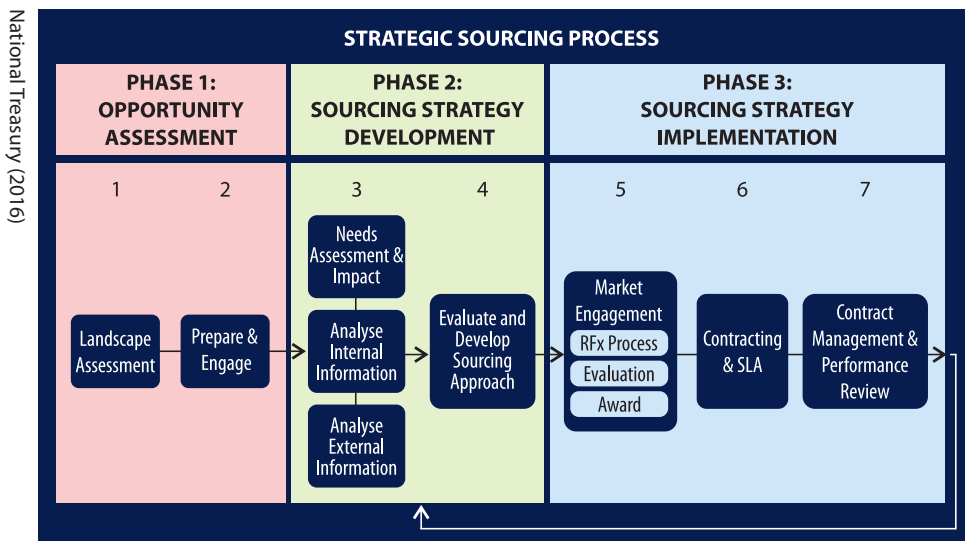
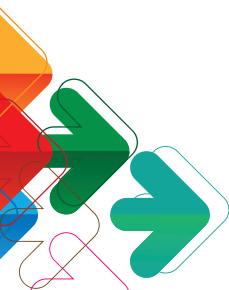


Figure 3. Strategic Sourcing Process



The SSP provides a structured approach to analyse which areas of the water and sanitation business can innovate and determine the optimal implementation strategy for the innovation using an evidence-based approach. The SSP includes the analysis of supplier markets and the development of a business case. A complete overview of the SSP is available [Here](#).

The methodology includes information for each step of the SSP outlined in the diagram and includes:

- Best Practice Guide
- Tools
- Templates
- Outputs

MULTI-STAGE BIDDING

The multi-stage bidding process has emerged as a possible procurement (acquisition) method for emerging water and sanitation innovations. This approach should be confirmed by making use of the Strategic Sourcing Process during demand management process. The diagram below provides an indication of a procurement process that could enhance the uptake of innovation.

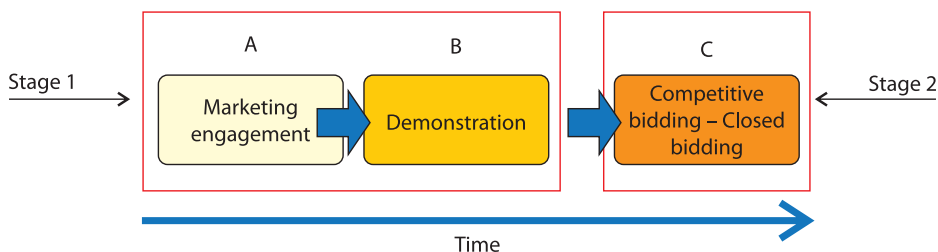


Figure 4. Multi-Stage bidding process

The diagram above indicates the potential to invite innovators using an EoI process to demonstrate a particular group of innovations. However, the EoI would also specify the performance criteria that will be used to evaluate the innovations during the demonstration phase, as well as the quantities required to be supplied post the demonstration phase. Thereafter, innovators that meet the performance criteria will be invited to respond to an RFP process to provide solutions at a larger scale. The RFP process will also be for innovators to provide a price for solutions once the demonstration phase has been completed.

The provision of the performance criteria in the EOI for the evaluation of the innovations in the demonstration phase and the quantities to be provided during the broader scale-up ensure that the principles of transparency and fairness would be met. This process also allows for progression from demonstration to bidding for implementation at scale without the need to advertise to parties that had not participated during the demonstration phase.

It is envisaged that the process outlined above could be implemented with various partners during the demonstration and implementation. However, it is important to ensure the demonstration and implementation components of the process are included in the different organisations planning and budgeting processes. It may also be possible to make use of an Implementing Agent or Programme Manager during the implementation phase if organisational support or additional capacity is required.

TWO-STEP BIDDING

A two-step bidding process is often followed internationally when appointing a professional services provider. This usually consists of an Expression of Interest (EOI), from which a short list of services providers are selected for the next stage. In the following stage, a Request for Proposals (RFP) are requested from the selected short list of service providers, with the selected shortlist typically being between three and six providers.

This has the benefit to both the tendering entity and the prospective tenders in that it reduces the resources required to compile and adjudicate tenders:

- Compiling an EOI is not resource intensive since it usually consists of company and proposed team profile, track record and project experience, while evaluating these are also easier since an EOI does not include a method and budget.
- Compiling an RFP is a resource intensive task, but is worth the effort for a shortlisted provider, while evaluating a full proposal is resource intensive, but this is much reduced since it is only for a limited number.
- It is administratively easier for the institution that has issued the advert to evaluate the responses to the EOI rather than having to evaluate a RFQ submission from each potential tenderer.



This proposed alternative model for procuring innovations has been extensively investigated in this project through engagement with the literature, interviews and surveys with water sector practitioners, guidance from the reference group, which included partners from SALGA and DSI, National Treasury, the municipal and utility environment, etc. Please refer to the full report for a more detailed unpacking of this practitioner's guide. This proposed alternative model for procuring innovations has been extensively investigated in this project through engagement with the literature, interviews and surveys with water sector practitioners, guidance from the reference group, which included partners from SALGA and DSI, National Treasury, the municipal and utility environment, etc. Please refer to the full report for a more detailed unpacking of this practitioner's guide.







