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BIG Energy Upgrade: Procurement and Supply Chain report – Green Deal and Energy Efficiency Retrofitting Supply Chains Delivery



EUROPEAN UNION
Investing in Your Future

European Regional
Development Fund 2007-13

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Dr Andrea Genovese
Dr Adolf Acquaye**

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EXECUTIVE SUMMARY

This report presents an assessment of the procurement practices in six Local Authorities (LAs) in the Yorkshire and Humber region, summarises best practices and recommends future collaboration and improvement on public procurement. This work was undertaken as part of the BIG Energy Upgrade Programme a project part financed by the European Union through the European Regional Development Fund (ERDF) for the Yorkshire and Humber Programme 2007 - 13.

Public procurement is increasingly playing a key role in the way LAs in the UK deliver their objectives of promoting regional businesses and economic growth as well as obtaining best value (financial and non-financial goals) in the procurement process. Aligning with the shift of financial power from Whitehall to local authorities within the City Deals announced in July 2012 as well as the Department of Energy and Climate Change (DECC)'s Green Deal policy, this report contributes to the preparation of the local authorities to respond to this change and demand.

A thorough literature and policy review, along with an extensive field analysis in regional LAs have been conducted. As a result of this coordinated effort we were able to establish that despite most LAs' procurement practice and procedures appear to be aligned to national and international guidelines, there is still significant scope and opportunities to embed best practice approaches in LAs' procurement strategies. The critical areas in which LAs need to focus on in the development and enhancement of their procurement strategies include: tender document preparation, tender evaluation, housing stock management and work planning, involvement of local SMEs, configuration of their supply chains and the adoption of framework agreements.

The report shows that by adopting best practice approaches in their procurement strategies, LAs would be able to achieve more easily:

- Best value (financial and non-financial) outcomes,
- Reduced CO₂ emission,
- Involvement of regional SMEs' in their procurement process; and
- Use procurement as a leverage for regional economic growth and job creation to stimulate the Energy Efficiency Retrofitting Services (EERS) and Green Deal supply chains.

Introduction and Background

1. INTRODUCTION AND BACKGROUND

Energy efficiency improvement has been an important phenomenon in the global energy balance over the past 30 years. Without energy efficiency improvements, the OECD nations would have used approximately 49% more energy than was actually consumed as of 1998 (Geller et al., 2006). Optimising energy efficiency improvement can be examined via focusing on the high energy consuming industries such as steel, cement, chemical, construction and housing. Currently, energy efficiency improvement in housing stock is one of the key strategies of the UK's efforts to meet its carbon emissions reduction target (DECC 2010). Indeed, a number of policies are in place to drive improvement in the housing stock over the period to 2020 (Gaterell and McEvoy 2005; Communities and Local Government 2007). Principal among these are the requirement for energy suppliers to support energy efficiency improvement in the existing housing stock, in order to deliver certain energy or carbon saving targets and, in the new build sector, the tightening of the building regulations (in line with the Code for Sustainable Homes) (Communities and Local Government 2008).

In the last years, government institutions have launched several initiatives for improving housing energy efficiency (Communities and Local Government 2008), such as:

- A requirement for all new built homes to be zero-carbon as soon as practically possible and preferably by 2016;
- Improving the efficiency of consumer electronics and domestic appliances, and the possible phase-out of inefficient light bulbs by around 2011.
- Increasing the Carbon Emission Reduction Target for the electricity and gas industries for 2008-2011.
- A requirement that new domestic electricity meters should have real time displays from 2008, and a commitment to upgrade existing domestic meters on request.
- A large number of grant schemes, driven by local authorities and central governments, targeted specifically at the fuel poor and low income existing households and a variety of financial incentives for various energy efficiency retrofitting technologies (including the forthcoming Green Deal).
- In particular, programs and schemes are focused on the installation of the energy efficiency retrofitting measures reported in Table 1.

The great attention and the wide spectrum of initiatives devoted to energy efficiency by government bodies and institutions are generating an increase in demand for Energy Efficiency Retrofitting Services (EERS) in existing housing stocks, including brand new ones. The EERS sector is a multifaceted sector that includes the design and construction of homes and buildings, and the installation, use, and maintenance of high-efficiency equipment in homes, buildings, and industrial processes. At present, EERS does not constitute an independent industry because activities of the EERS sector consist typically of a change from standard practice to a more energy-efficient approach to the design, construction, equipping, and operating of buildings. Hence, the rationale for using the term "Energy Efficiency Retrofitting Services Sector" rather than Energy Efficiency Industry (Goldman, Fuller et al. 2010; Goldman, Peters et al. 2010) in this report.

In order to define the boundaries of EERS sector, measures reported in Table 1 (and partitioned into four main categories) have been identified as being directly related to Energy Efficiency Retrofitting in Social Housing and within the BIG Energy Upgrade programme.

However, the Department of Energy and Climate Change (2012) also published the list of energy efficiency measures that are to be included in the Green Deal (see Table 2). These clearly show a significant gap between measures being implemented within the BIG Energy Upgrade programme and the Green Deal. The significant growth and development in the EERS within the Green Deal

means that the Yorkshire and Humber region must prepare in terms of leadership and filling the knowledge gap in terms of skills, labour and research.

Category	Measure
Insulation	Cavity Wall Insulation
	Solid Wall Insulation External
	Solid Wall Insulation Internal
	HEA Under floor insulation
	Flat roof insulation
Traditional Wall / Windows	Glazing / Windows
	Draught Proofing
Heating Systems	Fuel Switching
	Heating Controls
	CHP Wood Pellet Boiler
	Air Source Heat Pump
	Boiler Replacement
	Ground Source Heat Pump
Renewables	Solar Water Heater
	Domestic Wind Turbines
	Solar Power Photovoltaic Panels

Table 1: Energy efficiency retrofitting measures list

Previous reports (DTI/DEFRA 2006; Shell Springboard 2006; DTZ 2009) give estimates for the UK EERS sector market of around £2bn in 2010; recent estimates claim the market to be worth £8bn nationally (DECC 2012). Despite this growth, academic, practitioner and market research into the EERS sector has historically been limited. It is predicted that the demand growth in the UK EERS sector will have a significant impact on job creation prospect, especially for small and local businesses operating in the EERS sector (DECC 2011). Indeed EERS sector accounts for a relevant quota in the green jobs market and, in particular, building retrofitting constitutes the majority of these jobs (Devonish 2009; Koh, Genovese et al. 2010). Retrofitting and construction projects often rely on labour-intensive, locally-implemented projects and can improve unemployment rates (DECC 2011). For example, the insulation segment accounts for 27,000 jobs in the UK (DECC 2011). Simply retrofitting houses or buildings with 'standard' energy efficiency measures have a different kind of challenge as compared to installing innovative energy efficiency technologies, which require a high level of expertise for their development, implementation and skills.

In turn, the procurement and the related supply chain to deliver the retrofitting services would need adaptation. The need for such an adaptation drives the exploration of innovative procurement best practices and supply chains in this research.

Procurement has increasingly taken up a strategic role in organisations (Moorhouse 2006) and often related not just to obtaining value for money, but also inherently linked with the delivery of the organisation's strategic goals (Loader 2010). Public procurement has also become an instrument of policy used as an agent of change or influence on many issues at all levels of governance (Bovis 2007). This can be attributed to the fact that it forms a central part of supply chain management (Andersen and Rask 2003; Presutti Jr 2003) and can therefore affect all the various actors, processes and products throughout the value chain. Furthermore, the value and size of the procurement market particularly of public institutions is considerable (Rolfstam 2009). For instance, the national costs of public procurement is estimated to be 13% of GDP or £150 billion per year (Local Government 2010). The Local Authority costs of public procurement is £50 billion per year (Public Service 2011) and £1.25 billion per year in the Yorkshire and Humber region (Proactis 2012). Hence efficiency savings in public procurement will bring significant cost reduction.

Green Deal Approved Measures (DECC 2012)	
Air source heat pumps	Loft or rafter insulation (including loft hatch insulation)
Biomass boilers	Mechanical ventilation with heat recovery systems
Biomass room heaters (with radiators)	Micro combined heat and power
Cavity wall insulation	Micro wind generation
Chillers	Oil-fired condensing boilers
Cylinder thermostats	Photovoltaics
Draught proofing	Pipe work insulation
Duct insulation	Replacement glazing
External wall insulation systems	Radiant heating
Fan-assisted storage heaters	Room in roof insulation
Flue gas heat recovery devices	Roof insulation
Gas-fired condensing boilers	Sealing improvements (including duct sealing)
Ground source heat pumps	Secondary glazing
Heating controls for wet central heating systems or warm air systems	Solar blinds, shutters and shading devices
Heating ventilation and air-conditioning controls (including zoning controls)	Solar water heating
High performance external doors	Transpired solar collectors
Hot water controls (including timers and temperature controls)	Under-floor heating
Hot water cylinder insulation	Under-floor insulation
Hot water showers	Variable speed drives for fans and pumps
Hot water systems	Warm-air units
Hot water taps	Waste water heat recovery devices attached to showers.
Internal wall insulation systems (for external walls)	Water source heat pumps
Lighting systems, fittings and controls (including roof lights, lamps and luminaires)	

Table 2: Energy efficiency retrofitting measures list approved within the Green Deal

Public procurement has been suggested as a driver of many policy agendas including sustainable development (Preuss 2009), innovation (BIS 2012), growth of Small and Medium-sized Enterprises (SME) (Berlak and Weber 2004; DECC 2009), regional development (Peck and Cabras 2008), green business (Michelsen and de Boer 2009), corporate social responsibility (Mike, Jane Carlton et al. 2006), etc. However, detailed information on how these procurement processes should operate is often sketchy and difficult to find (McCrudden 2004).

Specifically on the role of public institutions using public-private procurement partnership as a leverage to involve SMEs' in the procurement process and driver of regional growth, certain practices in public procurement are sometimes in conflict with certain procurement strategies. For instance, the development of procurement policies has seen the adoption of strategies such as Private Finance Initiative (Hodkinson 2011), Public-Private Partnerships (Hodge and Greve 2007) which have in-turn placed emphasis on larger, strategic suppliers, and trying to rationalise and reduce the number of suppliers with whom only small sums are spent. This growing trend towards supplier reduction programmes and strategic relationships with only a few key suppliers does not in general work in favour of SMEs and may thus hinder the use of procurement as leverage for SMEs involvement in the procurement supply chain and as a driver for regional economic growth and development. As such, when developing procurement strategies with the aim of involving SMEs to drive regional economic development, public institutions such as Local Authorities particularly need to consider this within an era when procurement strategies are evolving.

This is particularly relevant in the context of the EERS supply chain as the national government

has recently launched the Green Deal, designed to revitalise and drive a competitive and enduring market for energy efficiency. The scale of the opportunity is great. The global market for low carbon technologies is estimated to reach £4 trillion by middle of this decade (DECC, 2012). The size of the energy efficiency market in Great Britain has been estimated to be over £8 billion (DECC, 2012). There will be opportunities for companies operating under the Green Deal providers in the Green Deal supply chain to market, sell and install a broad range of measures under the Green Deal. For example, there are still between 7 and 8 millions of properties with solid walls which have not been insulated. There is also great potential for newer and emerging energy efficiency technologies and innovation in the Green Deal supply chain. The ambition of Green Deal is to enable as many of the 26 million households and 4.5 million businesses as possible in Great Britain to benefit from energy efficiency improvements in the most cost-effective way. In line with this ambition, the Green Deal is designed to finance a broad range of energy efficiency improvement. In this context, Local Authorities may play different roles in the Green Deal supply chain. Indeed, they can be involved in the Green Deal as direct providers, raising finances by themselves (controlling strategic planning and local delivery to address specific local priorities through local supply chains, creation of local training and employment opportunities) or by forming public-private partnerships with one or more Green Deal providers. In both cases, the procurement and supply chain elements may play a pivotal role in the way the whole initiative is rolled out.

These evidence and its potential impact on the regional economy of Yorkshire and Humber, together with the scoping study (Koh et al. 2010) led to the subsequent development of Work-Package 2 within the Energy Innovation for Deprived Communities – Big Energy Upgrade (EIDC – BEU) programme. This report illustrates the early findings within this initiative.

The remainder of this report is structured as follows:

Section 2

Green Deal opportunity and market failure which drive the need to identify best practices and areas for improvement in the current procurement procedures adopted by LAs in the region are discussed in addition to the critical research questions which arose from the scoping study and the first workshop with partners.

Section 3

Participatory users approach is employed in this study embedding questionnaire survey, various rounds of interviews and focus groups with LAs' and their housing partners.

Section 4

Extensive literature and policy review of procurement practices with highlights of the role of procurement in supply chain management, procurement policies, approaches in developing procurement strategies, principles in developing procurement best practices and the use of procurement as a leverage for promoting SME involvement in the supply chain and regional growth and development.

Section 5

Analysis of field work which highlights the current situations, current practices and potential best practices in procurement by the LAs.

Section 6

Conclusions and recommendations based on the analysis and discussion from previous sections, supporting the preparation to respond to Green Deal more effectively and efficiently.

In the next steps of this project, further research will be conducted to monitor the implementation of the suggested recommendation(s) in the LAs.

Green Deal Opportunity and Market Failure

2. GREEN DEAL OPPORTUNITY AND MARKET FAILURE

Our research has found much ineffectiveness of local and regional policies in promoting sufficiently the supply chain capacity so that it would meet the demand of Energy Efficiency Retrofitting Services. The poor understanding of the mechanisms through which the supply chain and its stakeholders operated has resulted in the overall loss of the economic benefits that could have derived to local communities by the procurement of large-scale energy efficiency retrofitting projects. More specifically, this has resulted in the failure to meet the objective of creating jobs within the regional contexts (Koh et al. 2010). Moreover, the new and intrinsically fragmented nature of the EERS sector supply chain in Yorkshire and Humber region, coupled with the prevalence of micro-businesses in terms of number of firms (Koh et al. 2010) added to the risk to the region of not being able to seize on future development opportunities, such as responding to the Green Deal. Indeed, the regional supply chain does not seem to be prepared to accommodate the increased levels of demand and larger suppliers as it is the case for other, more economically buoyant regions (Koh et al. 2010).

Most of the EERS work currently undertaken in the region is delivered by large general building contractors and these are mainly national rather than regional companies; moreover, national players which are usually appointed as main contractors have very often their own preferred sub-contractors and suppliers; therefore, involvement of local SMEs, even at a sub-contracting level, may be difficult. Local firms often face difficulties in bidding and participating in publicly funded energy efficiency large-scale projects. Key barriers to SMEs engagement include, among the others (Koh et al. 2010):

- lack of information about opportunities and of bidding competencies;
- lack of capacity to cope with large-scale projects;
- too onerous and complicated pre-qualification schemes.

Therefore, procurement procedures can largely affect the supply chain configuration and determine the level of involvement of local businesses and SMEs in large scale publicly funded EERS projects.

Local Authorities and their respective housing partners (Arms Length Management Organisations – ALMO - or Social Housing Providers) are well aware of the issues mentioned above as highlighted in the general discussion in the 16 February 2011 procurement workshop at the University of Sheffield. Below are a few quotes from the workshop:

- *“Procurement is key to the success of building the EERS supply chain, which in turn will support the Green Deal supply chain in the region”,* said a Procurement Manager from a Council in Yorkshire and Humber region.
- *“There are some additional tender requirements that eliminate opportunities for SMEs: financial checks, ISO standards and diversity issues can make it almost impossible for a small company to engage”,* said a Procurement Manager from a Council in Yorkshire and Humber region.
- *“Currently, there are no standardized procedures on procurement”,* said a Technical Manager from one of the ALMOs in Yorkshire and Humber region.
- *“We should revise procurement practices in order to involve local businesses. But we have to bear in mind that we can’t violate European fair competition rules. Recently, a big player sued a LA in the region for similar procurement issues”,* said a Procurement Manager from a Council in Yorkshire and Humber region.

Local Authorities and ALMOs know that, though fulfilling existing regulatory constraints, more can be done to improve the situation. In the following, some quotes reported from the above-mentioned workshop help identify areas for improvement needed in the existing procurement practices.

- *“We should ask to each bidder what are they going to do to promote growth within the region. This should be a core requirement in a revised procurement framework”,* said a Procurement Manager from a Council in Yorkshire and Humber region.
- *“Allowing for smaller work-packages or partitioning the work-packages (for example, by housing*

blocks) could be a solution for involving smaller businesses, as these kind of projects are attractive for small businesses", said a Strategy and Planning Manager from a Council in Yorkshire and Humber region.

- "A move towards elemental procurement of specialist items would help; the new elemental-framework procurement process is much more open, and pre-qualification can be completed in just 1 hour", said a Procurement Manager from a Council in Yorkshire and Humber region.

LAs and ALMOs have also expressed the need for revising tender proposal, performance evaluation (including ex-ante evaluation for proposals, ex-post evaluation, for completed projects, and evaluation for on-going projects) and their planning procedures for delivering energy efficiency works.

DECC's flagship energy efficiency policy, i.e. Green Deal is a key driver of our focus in this research. The Green Deal market is estimated to be worth £8bn nationally (DECC, 2012). The Green Deal supply chain is not fully prepared. Although a list of approved Green Deal providers and approved Green Deal energy efficiency measures have been announced by DECC, the demand for Green Deal is still uncertain due to uncertainty in the financial and business model, and the readiness of the market and supply chain to support its roll out and sustainability. To help support the Green Deal delivery, this report has also considered some of these challenges and contextualized the analysis accordingly, particularly in the context of Green Deal supply chain configuration.

Building from the previous work on the analysis of the energy efficiency supply chain (Koh et al. 2010), the subsequent debate with all project partners (February 2011 procurement workshop) and the Green Deal supply chain opportunities, procurement has been identified as a critical issue that has the highest impact on the Green Deal and energy efficiency supply chain. It is for this reason that procurement procedures for energy efficiency retrofitting work for existing buildings in Yorkshire and Humber, and their supply chain configurations have been chosen as the main focus of this report. The following stages of the procurement process will be discussed in detailed in the rest of the report:

- Preparation of invitation to Tender documents;
- Tender Evaluation processes;
- Housing stock management and workload planning;
- Local SMEs involvement in public procurement exercises;
- Use of framework contracts;
- Supply Chain configurations.

The report seeks to identify best practices and areas for improvement in the current procurement procedures adopted by LAs in the region, with the aim of promoting local growth, emergence of regional supply chain in the EERS sector, preparing for a stronger Green Deal supply chain and involvement of local communities. To this aim, the alignment of current procurement procedures to guidelines provided by national and international bodies (obtained through an appropriate policy analysis) will also be evaluated. The results of this analysis may be adaptable to other procurement conditions across various types of projects.

Methodology, Policy Analysis & Field Analysis

3. METHODOLOGY

In this study, a hybrid methodological process was adopted. Delphi-like method was deployed during the scoping study (Koh et al. 2010). This is then expanded with the integration of participatory users research methodology, which operates collaboratively with users in identifying the best practice in actual situation. Figure 1 shows the rigorous hybrid methodological framework followed in this research. In this study, we will refer to this novel framework as – public-private procurement (PPpro) research methodology.

PPpro research methodology consists of the following steps:

- Phone and one-to-one interviews, web questionnaires and database analysis of regional businesses on the supply side which includes private sector SMEs and the supply chains.
- Phone interviews on the demand side of the procurement supply chain, which includes Local Authorities (public sector) and ALMOs.
- Focus Groups in which the results of the previous steps were further discussed and the research questions for further research were formulated.
- Focus group inducted research questions were then used as the basis in co-designing two questionnaires with partners and users. The first questionnaire (web-based) was sent to procurement contacts in Local Authorities and their housing partners.
- A second questionnaire was sent to Local Authorities and their housing partners. The questionnaire addressed the key issues arising from the earlier Focus Group and focused on current procurement procedures in place in their respective organisations.
- Initial analysis of the questionnaire responses was followed by face-to-face interviews in which findings from the questionnaire analysis were discussed in detailed with partners.
- A user participatory workshop with all the involved partners was then organised (1 May 2012) in order to reach a joint agreement on the findings, to exchange procurement best-practices and to gain further insights.

The PPpro research methodology evolved from this research process simultaneously and hence it has been demonstrated simultaneously in actual environment. This co-evolutionary phenomenon has been a highlight showcasing the methodological complexity in undertaking real scale energy efficiency retrofitting research. The PPpro research methodology can be adapted to other complex public-private operating environment in order to maximize validity and confidence of qualitative research findings.

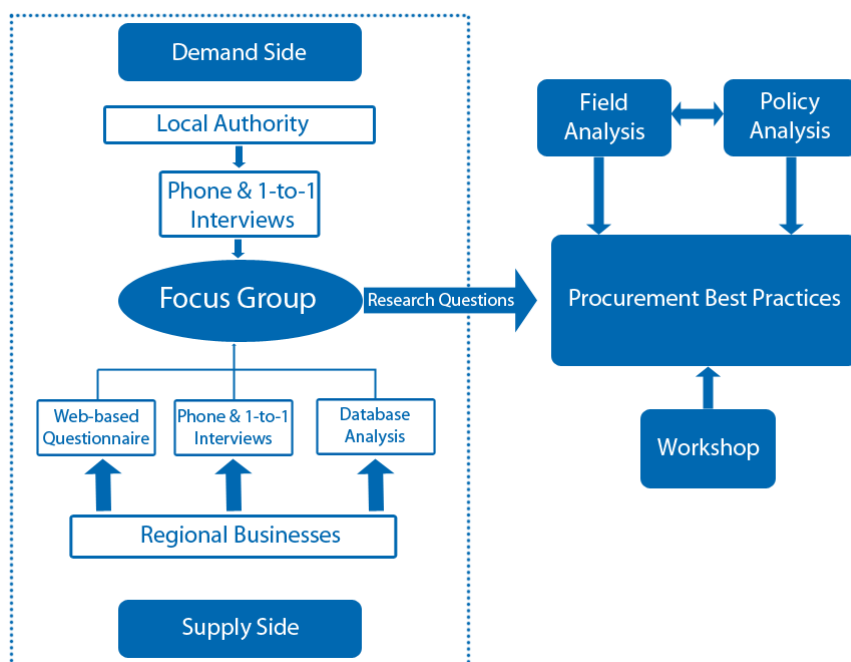


Figure 1: Public-private procurement (PPpro) research methodology

4. POLICY ANALYSIS

Procurement is a process of activities that involves the following stages. (UN Office for Project Services 2010):

- Planning, forecasting and identification of needs;
- Sourcing and solicitation of offers;
- Evaluation of offers;
- Review and award of contracts, contracting process
- Contract administration until delivery of the goods, the end of a contract or project, or the useful life of an asset.

Procurement therefore embraces not only sourcing activities, but also a wide range of preparation activities and management tasks. Inputs that are sourced within the procurement process are generally grouped into three broad categories, namely:

- Civil works: built infrastructure, retrofitting, housing energy efficiency upgrades, etc;
- Goods: equipments, supplies, etc;
- Services: training, consulting, technical assistance, etc

Procurement officers in the public, private and not-for-profit organisations are under increasing pressure to deliver improvement and to achieve financial savings through more efficient and coordinated service delivery. Indeed, procurement services have been recognised as an important source of organisational savings and improvement in operations efficiency particularly in the public sector such as in Local Authorities (Gershon 2004). The recently held 2012 Public Sector Efficiency Expo (2012) highlights the growing trend in the public sector where there is renewed interest in delivering better services through innovation and best practice. The national costs of public procurement is estimated to be 13% of GDP or £150 billion per year (Local Government 2010). The Local Authority costs of public procurement is £50 billion per year (Public Service 2011) and £1.25 billion per year in the Yorkshire and Humber region (Proactis 2012). Hence efficiency savings in public procurement will bring significant cost reduction.

Procurement forms a central part of supply chain management (Hugos 2011). Effective and efficient procurement practices are therefore integral to contemporary value creation within organisations. The adoption of supply chain management and related principles such as lean supply chain management (Wincel 2004) and green supply chain management (Michelsen and de Boer 2009; Crespin-Mazet and Dontenwill 2012) have transformed procurement practices across various organisations especially as the integration of procurement efforts and supply chain management offers sustained cost reduction and profit improvement (Wincel 2004). It is therefore important that, an evaluation of procurement practices within the organisations such as Local Authorities is undertaken from a supply chain management perspective. There is indeed a strong body of academic, policy and practitioner-based evidence that suggests that good practices in supply chain management can benefit all participants in the procurement process (Li 2007; Monczka, Handfield et al. 2010). Hence, in this respect, Local Authorities should have a stronger engagement with the supply chain that forms part of their procurement process.

There are many definitions of supply chain management (Houlihan 1985; Handfield and Nichols 1999; Mentzer, DeWitt et al. 2001; Power 2005) as this a term which has taken on a broad umbrella meaning, covering a set of practices from ensuring the cost-effective flow to the inventory of materials and the finished products throughout the value chain from point-of-origin to point-of-consumption. While supply chain management (driven by strategy, customer and market demand) refers to the end-to-end processes of all goods (services and information flows from suppliers to customer) procurement, on the other hand, is about ensuring that those goods or services get to the customer at the right time, price, quality, quantity, and place.

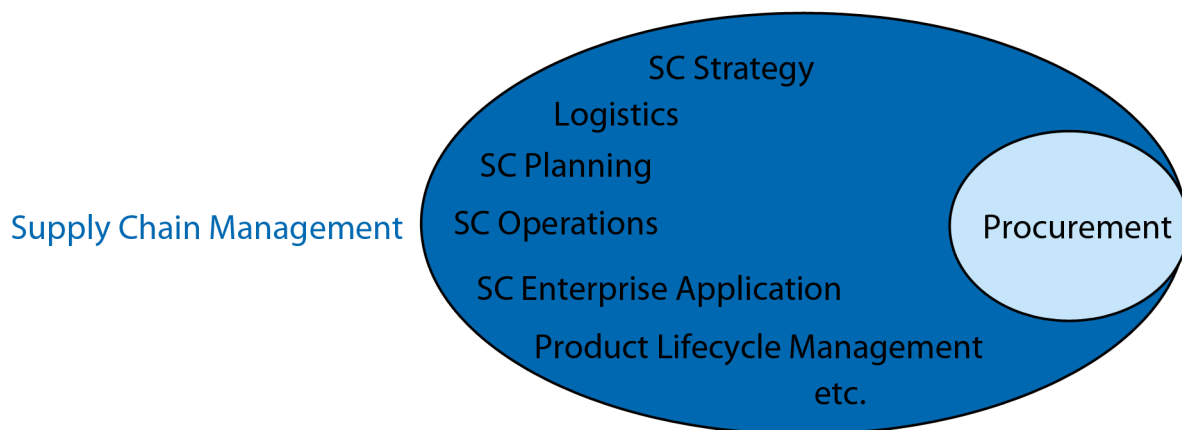


Figure 2: Supply Chain management components (Adapted from IBM (2006))

Procurement is therefore a sub-set of supply chain management (as shown in Figure 2) and involves a series of activities known as procurement procedure/process which have to be executed in the same manner in order to obtain identical results under the same circumstances. These processes are governed by protocols or conditions (known as procurement modalities) that regulate the conduct of procurement activities (UN Office for Project Services 2010).

4.1 Supply Chain Management (SCM) and Procurement

A strong Supply Chain Management (SCM) can offer many benefits to the Local Authorities procurement activities. These benefits can lead not only to value for money and improved operational efficiency within Local Authorities (on the demand side) but can also bring benefits to those who supply the procured services (the supply side). Table 3 outlines some of the benefits SCM can offer to procurement processes.

SCM benefits to Procurement	Reasoning
Better Risk Allocation and Management	As a result of the Local Authorities' improved understanding of the way procurement requirements can be delivered, they can assess risks more effectively and therefore they can allocate and manage them better across the whole supply chain. For instance, SCM allows improved ability to identify risks or bottleneck (Harland, Brenchley et al. 2003; Manuj and Mentzer 2008) in the delivery of contracts by ensuring greater awareness of how the contract will be delivered and of any key SC dependencies.
Greater opportunities for Innovation	An effective SCM offers opportunities for suppliers' innovation which when released in the supply chain can benefits all partners. Suppliers' innovation in the supply chain can contribute to better quality of products and services (Claudine, Soosay et al. 2008), faster delivery (Bovet and Martha 2000) and reduction in supply costs (Kim 2000) of procured projects.
Increased Competitiveness and Dynamism	SCM offers increased visibility of sub-contacting opportunities during the procurement process to a wider range of potential businesses along the supply chain. This increases the potential for competitiveness (Kumar 2001) and dynamism (Koh, Genovese et al. 2010); that is, the involvement of companies with unique and useful skills sets and the involvement of smaller supply chain actors such as SMEs'.
Better defined Requirements	By involving the supply chain in the early stages of the procurement process, Local Authorities are better placed to define and establish project requirements and set in place approaches to meet those requirements during the preparation of tenders. For example, by adopting a systematic and consistent approach to engaging the markets on which the procurement process depends early on, the contracting body can identify a range of different options for satisfying their requirements. According to Sustainable Construction innovation Network (2011) through Early Market Engagement (activities undertaken by public authorities to engage the market before commencing a procurement process), intelligence on innovations, new processes, project feasibility and market capacity/capability can then be factored into options appraisal, specification and procurement of projects.

Table 3: Benefits of Supply Chain Management to Procurement process

4.2 Procurement Process

The procurement process can generally be described by the life cycle stages that begin with determining the requirements, proceeds through activities involved in the actual acquisition of a product or service, and is completed as the terms specified in the contract are fulfilled. Metaphoring procurement as a life cycle, Local Authorities may develop and implement each step of this cycle by using standardized procurement processes that embed best practice approaches. The life cycle stages of the procurement process fall under three distinct phases (PATH 2009), namely:

- Programme Planning:
 - Project requirement
 - Supplier and market research
- Procurement stage:
 - Prepare tender document
 - Publish and receive tender
 - Short-listing, supplier selection and negotiation
 - Contract
- Performance Monitoring:
 - Delivery of project, goods or service and monitoring of their performances.

These three distinct phases can subsequently be broken down into different elements of the procurement process each of which represents an important step of the procurement life cycle. Outline in Figure 3 is the detailed breakdown of the complete procurement life cycle.

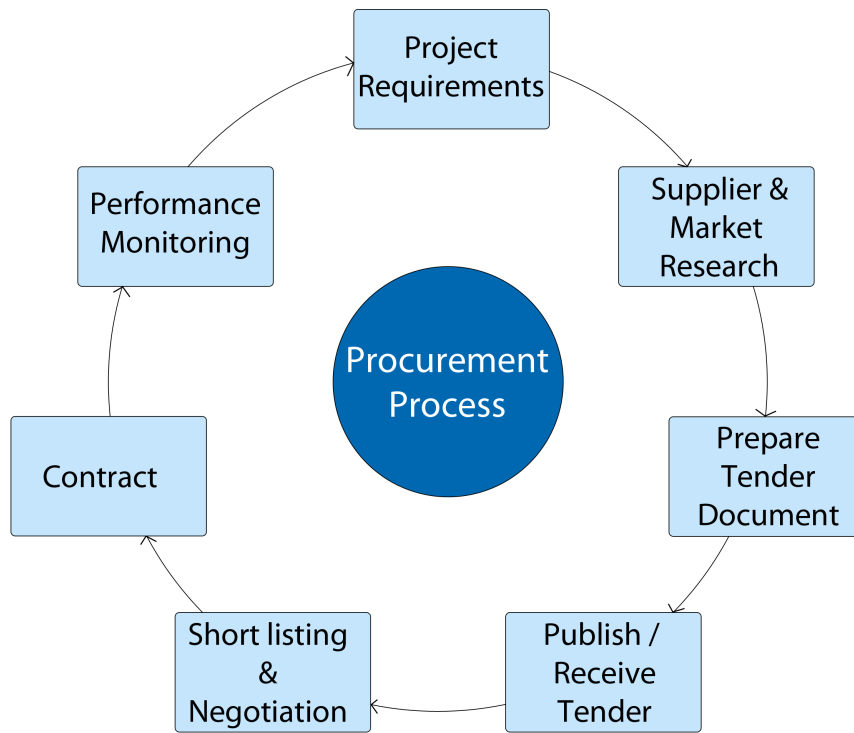


Figure 3: Procurement Process Lifecycle

The following aspects should be considered when developing a procurement process:

Project Requirements

- The project's scope and specification should be clearly defined and executed before commencement
- All agreements that cover the commencement of the project should be in place
- Ensure appropriate internal and/or external authorizations have been secured
- Set up a project team

Supplier and Market Research

- Research the market and supply chain to gather intelligence on innovative solutions which are currently available, and on market capacity/capability. This would ensure that best available technology and solutions would be specified in the tender and in the tender advertisement.

Prepare Tender Document

- Prepare contract
- Prepare tender questionnaire
- Develop Key Performance Indicators (KPIs) and set adjudication and evaluation criteria
- Tender should be prepared in conformity with national and EU regulations

Publish and Receive Tenders

- Publish, send and receive tender documents in a secure, transparent and fair manner

Short-listing and Negotiation

- Set up a team to evaluate and assess tenders
- Undertake short-listing exercise
- Analyse tender documents received against KPIs and set criteria
- Undertake negotiations
- Propose recommendations

Contract

- Award and sign-off contract
- Build supplier and supply chain relationships. This may benefit the LA in achieving efficiencies, flexibility, and sustainable competitive advantage (Nyaga, Whipple et al. 2010).

Performance Monitoring

- Put in place a monitoring system to ensure adherence to contract
- Put in place risk mitigation plan

4.3 Procurement Policy

The procurement policy for a Local Authority (and indeed by any organisation) should be governed by its vision and objectives and should reflect the comparative buying power that it possesses within a defined market (DFID 2011).

Developing procurement policies can be time consuming and can place additional burden on already under-resourced public bodies. However it should also be recognised that by developing a procurement strategy public bodies will have the opportunity to integrate best practice approaches to managing the procurement process and so achieving more efficiency. An example of this is the attempt to go beyond the customary practice of using standard scoring matrix to assess significant procurement decisions (DFID 2011) given that tender evaluation has been recognised to be of significant importance and interest to organisations responsible for delivering project outcomes (Watt et al. 2010). The achievement of best practices in the procurement exercise should not only be closely tied to the Local Authorities procurement strategy but also benchmarked against the best-in-order to ensure continuous improvement (BIS 2009). Indeed, to also achieve efficiency savings, there should be a better alignment between procurement strategy and best practice procurement (Kirklees Council 2007).

Four critical dimensions can be aligned when developing a procurement strategy (DFID, 2011), as outlined in Figure 4 below:

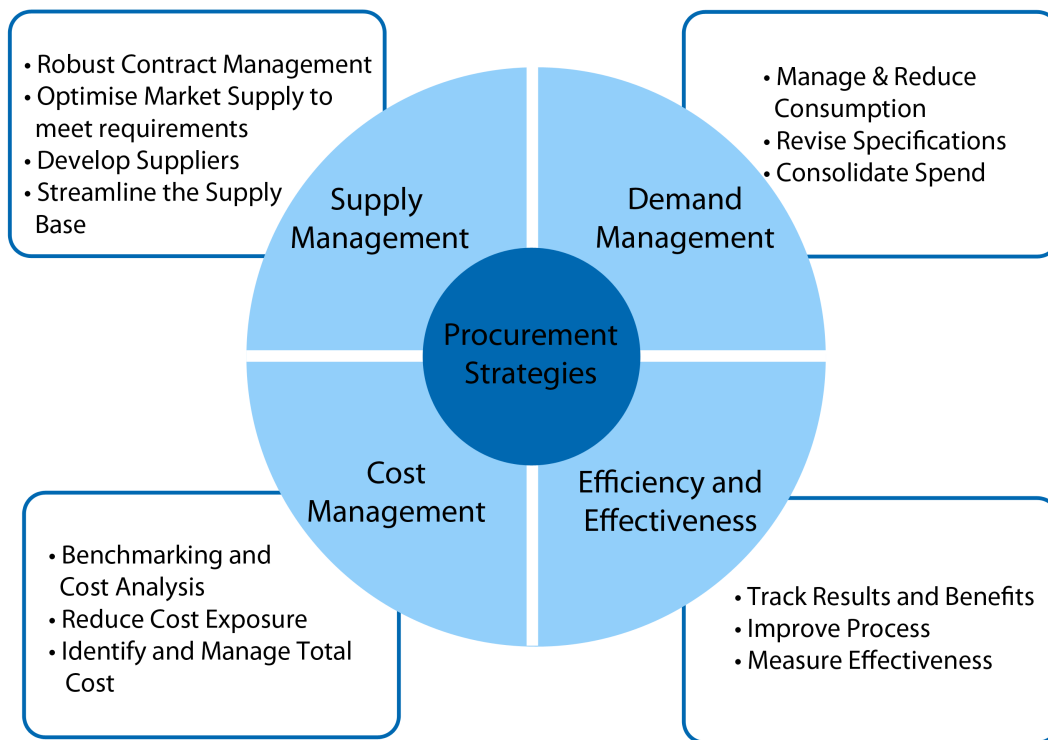


Figure 4: Four critical dimension of procurement strategies

Supply Management

This focuses on the direct relationship with suppliers and emphasises the need for continuous contract management. Classically, procurement activities are driven by suppliers providing the lowest price (Gadde and Håkansson 1993), but recently, a transition towards more collaborative relationships is encouraged (Araujo, Dubois et al. 1999; Chen, Paulraj et al. 2004) and even towards longer-term strategic partnerships (Shin, Collier et al. 2000) because it can directly affect the bottom-line. An essential part of this would involve nurturing a true partnership with suppliers. By creating strategic partnerships, the LAs would not just be focused on their own success, but would also actively be involved in contributing to the success of their supplier as well. Supply management is therefore about using key suppliers and working with them to make their supply base ever more efficient. The Supply Chain Management approach provides opportunities for Local Authorities to enhance the relationships with existing suppliers (e.g. by improving pricing agreements) as well as allowing Local Authorities to build and develop closer supply chain collaborations and information sharing (DFID 2011).

Demand Management

Demand management is a key lever in the procurement process in reducing costs by managing requirements, controlling demand and distinguishing between wants and needs (Moreira 2009). Demand management involves managing requirements to ensure that procured goods and services are needed rather than just wanted. This does not necessarily mean buying at least cost but buying the appropriate quality at the most economically advantageous price. According to Lambert and Cooper (2000) a good demand management system also reduces supply uncertainty and provides efficient flows throughout the supply chain. Through Demand Management, Local Authorities can coordinate the procurement process on an organization-wide basis. For example, using demand management, an LA can target amount spent on technology and communication by all departments by instilling a culture of monitoring, transparency and cost control on new acquisitions.

Cost Management

This focuses on the overall cost of goods and services which may include both unit costs and discounts for bulk buying. It should however also include an assessment of the cost of a Local Authorities' own internal procurement systems and processes (DFID 2011). Cost Management in procurement also involves making increased use of market intelligence and setting baselines for specific goods and services in order to drive down costs or get better quality for the same price (Baily et al. 2005). For example, information gathered from market intelligence can inform LAs on their spending strategy, in identifying alternative suppliers or products, and in creating an advantage in negotiations with contractors or suppliers.

Efficiency and Effectiveness Management

Efficiency and Effectiveness management addresses the relationship between input, output and outcomes of an organisation. Whereas efficiency may be concern with the internal performance measure of the procurement process, effectiveness would relate to external performance measure of procurement process output or quality (PSU 2003). Efficiency and Effectiveness management therefore addresses the steps that can be taken to improve quality of both internal procurement systems and procedures, and those of its suppliers, to maximise impact achieved by the first three dimensions (that is, Supply Management, Demand Management and Cost Management) (DFID 2011). Local Authorities can implement this by focusing on reducing the costs associated with the internal procurement process and those of contractors. Local Authorities can measure the performance of their procurement system by developing performance measurement matrices based on efficiency indicators (for example, time and cost) and on effectiveness indicators (for example, lead time for procurement, client satisfaction, etc).

4.4 Procurement Principles

The procurement of goods and services is guided by principles and to a large extent, these principles provide the guide to best practices in the procurement process when properly applied (ACB Foundation 2003). Characteristics of procurement principles from some selected sources are outlined in Table 4.

Source	Characteristics of Procurement Principles
The UN Office for Project Services (2010)	<i>Based on Concept of Stewardship:</i> that is, best value for money, fairness, integrity and transparency, effective competition and the best interest of its clients
Arrowsmith et al. (2011)	<i>Three Principles:</i> transparency, competition and equal treatment.
Fitzpatrick (2001)	<i>Founding Principles for Supplier Selection:</i> security, transparency, objectivity, fairness and measurement, especially in the tendering process
Department for International Development (2011)	<i>General Principles:</i> transparent, open and fair, ensure appropriate quality, have an effective contract management that ensures clear accountability, promote integrity, combating corruption in procurement by maintaining a clear separation of duties and avoiding conflicts of interest.
Institute of Public Procurement, (2012)	<i>General principles:</i> Accountability, Ethics, Impartiality, Professionalism, Services, Transparency

Table 4: Some of the characteristics of procurement principles

The principles of public procurement outlined above are not the only ones that regulate the way procurement is conducted. In the case of Local Authorities, for example, other key principles such as involvement of stakeholders, streamlining of the procurement process, collaborating and aggregating demand with other organisations that have similar requirements, engagement with the supply chain market, sustainability issues, innovation of goods and services, contract law and procurement management are all principles on which procurement strategies are developed

(Department for Education, 2012).

Literature and policy review provide many characteristics describing the principles of procurement but it is generally centred on the need to achieve economic benefits and efficiency in both public and private sector operations, and transparency and accountability in public administration such as Local Authorities. In general, the procurement principles of a LA will inform the way the procurement strategies or policies are developed.

4.5 Generalities on Procurement Best Practices

Over the past two decades, economic forces and technological advances have combined to increase the impact of procurement on the profitability and long-term success of public institutions such as Local Authorities. As such procurement process is being used to gain competitive advantage and achieve best practices. It should however be noted that because every Local Authority is unique and different in its own right, there are no *cookie-cutter* approaches to best practices in procurement across Local Authorities (Fitzgerald 2002). However, according to the Aberdeen Group (2005) best in class procurement performers have long-term, well thought out procurement strategies. Other dominating factors that are usually or always present in the successful development and deployment of one or more procurement best practices have also been highlighted in Table 5 (Fitzgerald 2002; García 2009; Molenaar, Sobin et al. 2010; Sollish 2010).

Dominating Factors affecting Procurement Best Practices	Reasoning
Active support from top management	Local Authorities that develop best practices often have support from other departments who have a full understanding of supply value, good relations with their peers at strategic supplier companies and recognize the potential value that lies in their supply chains, and actively support (and fund) supply management efforts. Indeed, top management support is critical to best practice approaches in procurement since this may involve change management and a level of investment needed to gain cost savings, process efficiencies, etc. (Aberdeen Group 2005)
Deep understanding of cost drivers	Understanding the details of all elements of cost structure and the causes of these costs is important when trying to realising best practice in procurement. Indeed, it is important for Local Authorities to understand the forces and components that determine the total cost of their procurement processes. Understanding these cost drivers (such as cost of operating a full time procurement office) is an important first step that must take place before new best practices can be developed and implemented (Reinhart 2011).
Cooperative supplier relations	Suppliers offer value that is not present in Local Authorities; thus building long-term business partnerships and establishing relationships based on common aims can help achieve best practice approaches through the willingness to work together to find answers to problems and a desire to continuously improve product and services (Burbes and Dale 1998). By building supplier relations, Local Authorities may integrate strategic suppliers into programs that involve supply, such as new product development, cost reduction, and logistics operations. They also understand that suppliers must achieve profit margins sufficient for them to meet their own business plans and to invest in new technologies, facilities, equipment, and talented people.
Culture of continuous improvement	To achieve best practice in procurement, Local Authorities should continuously innovate and encourage creativity in procurement processes and to drive a culture of continuous improvement (DFID 2009). In order to derive maximum benefits from procurement activities, procurement must embrace a culture of strategic and continuous improvement and must be able to demonstrate efficiency and effectiveness at all levels (The Scottish Government 2009)

Dominating Factors affecting Procurement Best Practices	Reasoning
Cross-functional approach	Approaches to developing best practice in procurement must involve the strategic decision to involve other departmental functions from Local Authorities who will add value through their interaction with suppliers and in procurement-related decision making (Aberdeen Group 2005).
Appreciation of advanced communications technology	While technology by itself will do nothing to improve procurement or supply management operations, intelligent deployment of advanced technologies within the confines of a superior supply strategy can reap great value. Indeed, the effective use of technology such as E-Procurement (that is Supplier and Contract Management System (SCMS) used by Local Authorities) should be at the heart of procurement reform (The Scottish Government 2012)
Investment in procurement/supply management	Although investment in personal staff in supply chain management does not automatically lead to the development of best practices in procurement, it provides the capacity in the form of procurement-specific professional development which will be central to develop best practice approaches

Table 5: Dominating factors affecting Procurement Best Practices
(Fitzgerald 2002; García 2009; Molenaar, Sobin et al. 2010; Sollish 2010)

4.6 Emerging Principles of Procurement Best Practices

Procurement services in the public sector are under increasing pressure to deliver performance improvements and to achieve Best Value Outcomes through more efficient and coordinated service delivery. Best Value Outcome in public procurement represents the following (The Scottish Government 2008):

- The provision of value-for-money procurement service which deliver financial savings
- The provision of quality advice and contracts which deliver quality products and services
- The procurement of goods and services in a lawful and ethical manner which encourages participation and sustainable economic growth

The public procurement landscape is changing and with it the emergence of procurement best practices (DECC 2009; BIS 2011). The meaning of best practice can be relatively interpreted (Daniels and Bizar 2005) but it generally captures the knowledge that underpins examples of excellence (SECBE 2012). Best practice in procurement can therefore be defined as a procurement policy that at any given point in time, is generally regarded as the practice that delivers the optimal outcome, such that they are worthy of adoption.

Measuring performance of any activity is fundamental to making changes and improving performance because it is generally accepted that what cannot be measured cannot be improved. Effective measurement of procurement performance is therefore essential to achieving best practice. In the publication: Best Practice Indicators for Public Procurement in Scotland, the Scottish Governments (2008) presents a methodology of measuring best practice performance in public procurement. It presents a process of identifying which aspects of public sector procurement performance needs to be improved and should be measured as well as outlining how best to measure those aspects of performance.

Procurement best practices can vary across different Local Authorities and their supply chains. This work adapts from literature (NZCIC 2006) and presents an interlocking model that can drive the procurement process towards best practice (see Figure 5). Within such a model, Best Value is not just achieved by the Local Authorities but financial and non-financial benefits can also be derived along the procurement supply chain. Furthermore, based on the literature and policy reviews, broad

suggestions for developing Best Practice procurement procedures for use in large scale projects are also recommended.

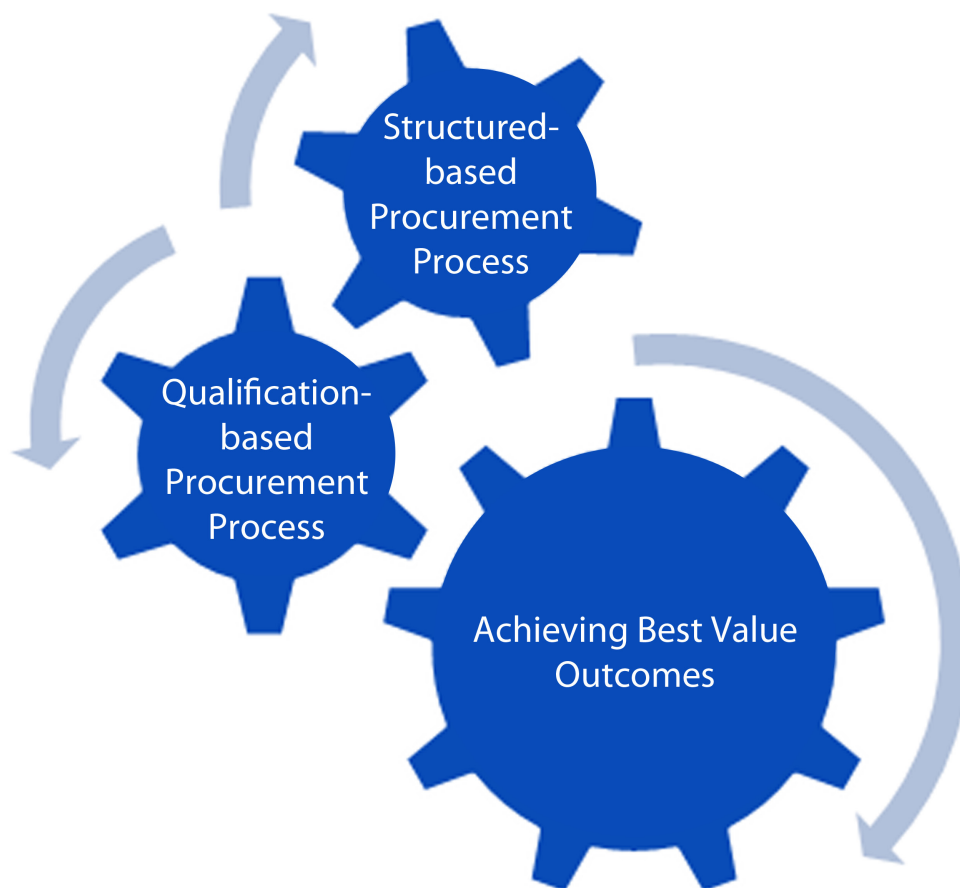


Figure 5: An interlocking model for Procurement Best Practice

Structure-based Procurement Process:

A structure-based procurement process will help drive the procurement process towards best practice because it helps provides a framework that can produce sustainable savings in most procurement initiatives (SourceOne 2007), it simplifies the documentation process and allows for efficiency and effectiveness through computerization and helps to successfully contract out the desired services at a reasonable cost (OECD 2010). In a structured-based procurement process:

- The procurement method to be used should be clearly defined including specification of the particular project requirements and/or scope in general form. The procurement methods are defined by the Public Procurement Law (Office of Government Commerce. 2008) and can be classed as formal or informal tendering methods (Arrowsmith et al. 2011) depending on whether specifications are formulated or not.

- Formal Procurement Methods include:
 - i. Open Procedure
 - ii. Two-Stage Procedure
 - iii. Restricted Procedure

- Informal Procurement Methods include:

- i. Request for Proposals
 - ii. Competitive Negotiation
 - iii. Request for Quotations
 - iv. Single Source Procurement
- A structure-based procurement process should also include the evaluation of the various procurement methods to determine which best suits the requirements of the project or services being procured (Office of Government Commerce 2002) to match the procurement method and to establish which route is likely to be the most attractive to the local authority. This is because by using suitable procurement method, LAs will increase the likelihood of achieving the appropriate level of competition in the procurement process. The LA should undertake a robust business analysis or investment appraisal including the development of a business case that clearly sets out the key elements of the process and criteria for decision-making (Local Partnerships 2004), including:
 - i. The business need for the service or project,
 - ii. The procurement options considered
 - iii. The indicative costs and importantly, the value for money and affordability of the project to the local authority.
 - The specifications of the procurement (functional, performance-oriented, technical or a combination of these elements) should also be clearly, concisely, logically and accurately defined. This is because it is probably the most critical stage of procurement process particularly when requirements are complex. It also allows for the suppliers performance to be measured against it (The Scottish Government 2002). The specifications should highlight details such as: length of term/contract duration, risk, pricing incentives, Key Performance Indicators (KPIs, namely, strategic performance measures), inputs and outputs, etc.

Qualification-based Procurement Process (Refer to Fig. 5):

Qualification-based selection is a negotiated procurement process whereby service providers are selected on the basis of qualifications for a particular project rather than price factors. Hence only after selecting the best qualification is a fee considered and negotiated and contract offered (Qiao and Cummings 2003). Based on qualifications and competence (AGCA 2009), a qualification-based procurement process can help achieve best practice because it emphasize the quality of the project or products and the qualifications of the contractors ensuring that the LA end up with the best quality outcome. For example, in instances where the quality and value of a contract is paramount to the LA compared to price, a qualification-based procurement process can be used because it represents an alternative procurement process which may be beneficial to LA with demands not available generally in the market place.

When LAs adopt qualification-based procurement process as a means of facilitating best practice in procurement, the following practices can help drive the procurement process to achieve best value outcomes:

- The process for selecting suppliers to meet the specified requirements and add value as well as the evaluation systems and criteria to be used should be clearly and transparently defined (UN Procurement Capacity Development Centre 2007).
- For larger projects, suppliers should be pre-qualified based on attributes and in part on their implementation of best practice, where responsibilities are written into tender and contract

documents, and where tender submissions are evaluated, based in part, on best practice standards.

- The fees involved in the award of the procurement contract should be fair and such that the scope and quality of work (both in the delivery and staff) is not compromised and reduced.
- Supplier selection should be based on quality as it contributes to Best Value outcomes.

Achieving Best Value Outcomes:

Best value outcomes defined within the context of best practice in procurement refers to the most favourable financial and non-financial criteria (see Figure 6) from the procurement process. Best value outcomes are therefore the optimal combination of whole-of-life costs and quality criteria of the good or service needed to meet the user's requirement (HM Treasury 2006). For example, the LA may not specify only financial criteria or price (indicated as Capital Investment in Figure 6) as the basis for awarding of contract because traditionally contracts generally tends to be on the basis of lowest price (Local Partnerships 2004). Instead. The LA should incorporate quality factors into the specifications by considering non-financial criteria such as impact of the contract on the local community (Community and Environment), use of best available technology (Innovation and Design Integrity), sustainability factors (Whole-life-Considerations), etc.



Figure 6: Best Value financial and non-financial criteria for Best Practice in Procurement.

These criteria outlined in Figure 6 are based on the principle of best practice to achieve best value outcome. The Best value outcomes consisting of both financial and non-financial criteria are so because purely financially-based criteria may erode value in the long term. Hence, the principles of procurement best practices reported apply when purely financially-based procurement techniques may not be the most appropriate option (for example in cases where LAs require quality and reliable fit-for-purpose products and services) but rather both financial and non-financial benefits are required.

Local Authorities can maintain or enhance best value outcomes by adopting and integrating these principles in their procurement strategies:

- Allowing for sufficient flexibility in the contract to capitalise on any favourable changes that may arise in the marketplace or supply chain; for instance, allowing for flexibility in specifications can allow a contractor for an LA to change a sub-contract to one who may offer more innovative solutions on a particular project. Adopting performance monitoring systems or methodologies to actively manage the contract for time, cost and quality. An LA for instance may develop a performance measuring system for procurement based on a framework covering: Obtaining value for Money; Market considerations; Efficiency of procurement procedure and Compliance with procurement procedure (NZTA 2009). This would inform and improve decision making and facilitate continuous improvement in the procurement practice
- Creating sufficient incentives within the contract specifications to encourage innovation and efficiency in delivering the outputs. For example, when innovative solutions are offered by a contractor, references of previous experience of doing business in the public sector must not be used as it may deter innovative suppliers (UK Parliament 2011)
- Encouraging collaborative processes within the supply chain and between suppliers and purchasers since it has been established that collaborative relationships and procurement practices impact on the supply chain performance of all actors (LAs and those involved in the procurement process) involved (Ntayi and Eyaa 2010)
- Setting the contract term to account for changes in technology and best practices. Given that technology and/or best practice solutions may change, Local Authorities should protect their interest by (for example) by inserting a clause in contracts that requires best available technology/solution to be implemented by the contractor.
- Developing contract management skills and expertise for example through thro programmes to ensure that value for money spent is maintained or enhanced.

4.7 Broad suggestions for developing Best Practice Procurement procedures

Within the context of best practice in procurement based on the Structured-based Procurement Processes, Qualification-based Selection Processes and Achieving Best Value Outcomes, the following elements should also be considered in the drive towards Procurement Best Practice (see Table 6).

Other elements of best practice consideration	Reasoning
Nature of Relationships	Through a cohesive and collaborative relationship between LAs and partners within the procurement supply chain, the procurement parameters such as reduction in total cost, improved quality, innovativeness, project delivery, etc. can be better enhanced compared to a fragmented relationship.
Training and Education	Training programs (such as CPD programmes) for the procuring team and supply chain partners on industry best practices, innovations should be provided. Evaluation of completed contracts with full disclosure must be provided to identify and inform stakeholders where performance issues arose and what improvements should be made.
Health and Safety	Incorporation of Health and Safety elements throughout the life of the project, supplier selection meeting required regulation and industry best practices.

Other elements of best practice consideration	Reasoning
Environmental and Sustainability Outcomes	<p>Contract specifications should include best practice in environmental best practices, green strategies and green purchasing.</p> <p>Consideration should be given to the impact of the procurement process on economic, social and environmental sustainability issues in order to enhance the procurement and supply chain practices.</p>
Monitoring and Accountability	<p>Performance measurement indicators and the use of tools such as value and risk management and whole-life costing are identified and adopted. Measurement of quality, cost and time dimensions should be integrated into the procurement process and these performances compared with similar projects to identify scope for improvement.</p>
Probity	<p>The selection, evaluation, implementation, management, monitoring and review processes are completely transparent throughout the procurement process.</p> <p>Expert peer review processes may be included in evaluation, management, and monitoring and review processes.</p>

Table 6: Other Best Practices considerations

(Adapted from (Fitzgerald 2002; García 2009; Molenaar, Sobin et al. 2010; Sollish 2010))

4.8 Procurement as leverage for promoting SMEs involvement and innovation in Supply Chain and Regional Growth and Development

Although procurement is seen as an enabler to support SMEs and the improvement of service delivery (Loader 2007), challenges facing SMEs and businesses involved in regional procurement supply chains have been well documented (Berlak and Weber 2004; Koh et al. 2010). Indeed, the European Union published a non-binding document (European Code of Best Practices facilitating access by SMEs to Public Procurement Contracts (2008)) aimed at allowing Member States and their contracting authorities to fully exploit the potential of the Public Procurement Directives in order to ensure a level playing field for all economic operators wishing to participate in public procurement exercises. The report stresses that changes to procurement strategy are needed to facilitate the implementation of best practice and to ensure competitiveness, innovation and growth of regional economies. The European Union (2010) again recently published the document: Evaluation of SMEs' Access to Public Procurement Markets in the EU; to test the effectiveness and efficiency of SME policy considerations in relation to European public procurement policy. The report concluded that SMEs are on average under-represented in public procurement and that member states must take action to create a level playing field to enable SMEs to secure a 'fair share' of public contracts.

With SMEs generally considered to be the backbone of the EU economy (European Union 2009) and public procurement making up 16% of the EU's GDP (Rolfstam 2009), to make the most of SMEs' potential in terms of job creation, economic growth and development and innovation, SMEs' access to public procurement markets should be facilitated through the adoption of appropriate Procurement Best Practices. The argument therefore is that, if Procurement Best Practices allow SMEs to better participate in the procurement process and they become successful in winning contracts, then they will be competitive, grow as business and contribute economically to the region in which they operate in (Loader 2007; Murray 2009).

In the UK, the role of SMEs to the economy in terms of contributions to local economies and job creation cannot be over emphasized. In fact, there are 4.5 million SMEs in the UK, constituting 99.9 per cent of all enterprises and employing 58.8 per cent of the private sector workforce and are responsible for 48.8 per cent of private sector turnover; estimated at £1.48 trillion (HM Treasury 2008; BIS 2011). To improve SMEs participation in public procurement, the UK Government has set an "aspirational target" that 25% of government contracts should be awarded to SMEs (current

statistics indicate that direct procurement from SMEs (not including through the supply chain) was set to rise from 6.5% in 2009/10 to 13.7% in 2011/12) (UK Parliament 2012). This it hopes can be achieved by developing procurement strategies based on the principles of Transparency, Simplicity and Strategic Procurement; that is, making opportunities as open and transparent as possible, making the procurement process equitable and as simple as possible and managing procurement strategically to encourage innovation, procurer capability and ensuring a fair deal for SMEs that participate in the supply chain. Indeed, the Department for Business Innovation and Skills (2012) stresses that the way in which the public sector conducts its procurements and engages with the supply base can have a significant impact on economic growth. As such procurement strategies should be well developed towards best practice since it can positively and negatively influence the degree of competition in a sector and affect the bottom line of businesses (BIS 2012).

4.8.1 Procurement (Public-Private Partnership)-Innovation-Regional Development

Greater inclusion of regional and SMEs involvement in the public procurement process is seen as a way of driving innovation through greater competition and choice, and to stimulate growth in the economy by supporting entrepreneurial businesses (HM Government 2012). As shown in Figure 7, innovation is a major driving force of economic development of most economies (developed and developing) with SMEs playing a pivotal role because of their flexibility and responsiveness to changes in the market place (APEC 2005). SMEs involvement in the public procurement can therefore drive innovation and consequently regional economic growth.

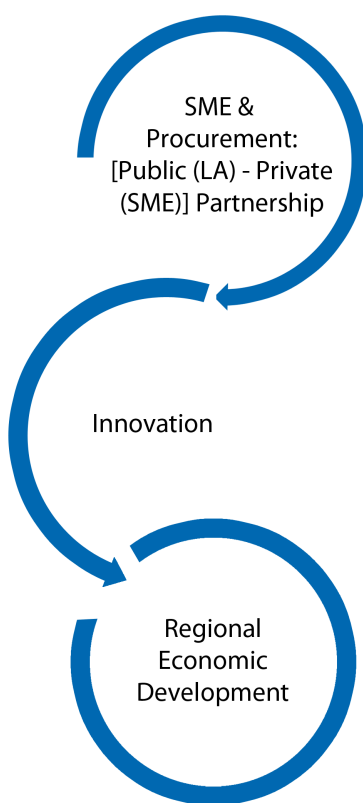


Figure 7: Chevron Process Diagram: Procurement as a means of driving Innovation to stimulate Regional Economic Development

There are diverse economic theories and models of growth, but they converge in putting innovation at the core of growth (BIS 2011). In fact, North et al. (2000) report that the key factors influencing the success of regional and local economies have been the emphasis placed upon innovativeness within SMEs. Asheim (1996) also argues that competition through innovativeness has become increasingly important compared to competition based on productivity growth such that the competitive advantage of a regional or local economy depends to a considerable extent on the ability of the SMEs within it to make innovations, not only to their products and processes, but to

other aspects of the business as well. It can therefore be concluded that procurement delivered through public-private partnership can provide the opportunity for SMEs to be innovative and help to stimulate and drive regional economic growth.

The importance of public-private partnerships in helping SMEs to participate and innovate in the procurement supply chain was strongly on the agenda when the Cabinet Office (HM Government 2012) hosted the inaugural Public Procurement Briefing 2012: 'Driving a Culture of Innovation and Enterprise with SMEs. For example SMEs involvement in the LA procurement contracts can help drive enterprise and innovation by increasing competition in the LA market and offering more flexible solutions in an innovative and cost effective ways.

Tables 7 (Part 1) and 8 (Part 2) shows the code of best practices, facilitating SMEs in the procurement supply chain. These strategies, possible actions and solutions can be integrated into the procurement strategies to achieve procurement best practice (European Union 2008). These strategies towards best practice are broadly grouped into eight clusters as outlined in Tables 7 (Part 1) and 8 (Part 2).

Code of Best Practices facilitating access by SMEs to Public Procurement Contracts	Solutions
Overcoming difficulties relating to the Size of Contracts	<p><i>Sub-dividing contracts into lots:</i></p> <p>Given that Public Procurement Directives (Article 9(5) of Directive 2004/18/EC and article 17(6) (a) of Directive 2004/17/EC.) allow contracts to be awarded in the form of separate lots, SME can therefore better access procurements both quantitatively (the size of the lots may better correspond to the productive capacity of the SME) and qualitatively (the content of the lots may correspond more closely to the specialised sector of the SME). Furthermore, this broadens competition in the tender process.</p> <p><i>Combining Economic and Financial Capabilities</i></p> <p>Public Procurement Directives (Article 47(2) and (3) of 2004/18/EC and 2004/18/EC) allow for companies to combine with other companies in order to meet financial or technical requirements set in the procurement tender. This should therefore allow SMEs to form co-operations and get the necessary resources to be competitive.</p> <p><i>Framework Agreements with several Economic Operators :</i></p> <p>Public Procurement Directives (Article 32 of Directive 2004/18) allows for the possibility to conclude a framework agreement with several economic operators. This ensures that SMEs can compete for contracts which they are in a position to perform</p> <p><i>Improving visibility of sub-contracting opportunities and ensuring equal terms for subcontractors:</i></p> <p>Subcontracting opportunities should be made more visible to SMEs through improved publications and demonstration by main suppliers to demonstrate their track record in achieving value for money through the effective use of their supply chain, including how SMEs can gain access to their subcontracting opportunities</p> <p><i>Improvements offered by e-procurement:</i></p> <p>E-procurement promotes competition, as it allows easier access to the relevant information on business opportunities (Gunasekaran and Ngai 2008) and should be integrated within the procurement process through publication of public procurement notices online, use of a single centralised web site, electronic tendering facility, multi-functional search engine, etc.</p> <p><i>Information Centres:</i></p> <p>Information centres (by phone or in person) can set up to offer free advice to SMEs on services such as: general information on public procurement law, information on award procedures and offer consultation and training.</p> <p><i>Feedback to Tenderers:</i></p> <p>Providing feedback to businesses that have had a tender evaluated is extremely useful as it enables them to know which aspects of its bid were considered strong and what the weaknesses were. In some specific projects, the LA may provide support in tender preparation.</p> <p><i>Training and Guidance for Contracting Authorities:</i></p> <p>Increase professionalism in the procurement process through specialized training (such as CPD programmes) for contracting authorities can lead to better design of an award procedure in a way that ensures that SMEs can participate on an equal footing with large enterprises.</p> <p><i>Training and guidance for SMEs on drawing up their tenders:</i></p> <p>SME have lower specialized administrative capacities that are well acquainted with public procurement formalities and procedures. Through training and guidance (conferences, seminars and training sessions, and maintain a helpdesk service), SMEs can improve their capacity and be competitive in the procurement process.</p>
Ensuring access to relevant Information	<p><i>Information Centres:</i></p> <p>Information centres (by phone or in person) can set up to offer free advice to SMEs on services such as: general information on public procurement law, information on award procedures and offer consultation and training.</p> <p><i>Feedback to Tenderers:</i></p> <p>Providing feedback to businesses that have had a tender evaluated is extremely useful as it enables them to know which aspects of its bid were considered strong and what the weaknesses were. In some specific projects, the LA may provide support in tender preparation.</p> <p><i>Training and Guidance for Contracting Authorities:</i></p> <p>Increase professionalism in the procurement process through specialized training (such as CPD programmes) for contracting authorities can lead to better design of an award procedure in a way that ensures that SMEs can participate on an equal footing with large enterprises.</p> <p><i>Training and guidance for SMEs on drawing up their tenders:</i></p> <p>SME have lower specialized administrative capacities that are well acquainted with public procurement formalities and procedures. Through training and guidance (conferences, seminars and training sessions, and maintain a helpdesk service), SMEs can improve their capacity and be competitive in the procurement process.</p>
Improving the Quality and Understanding of the Information Provided	<p><i>Training and Guidance for Contracting Authorities:</i></p> <p>Increase professionalism in the procurement process through specialized training (such as CPD programmes) for contracting authorities can lead to better design of an award procedure in a way that ensures that SMEs can participate on an equal footing with large enterprises.</p> <p><i>Training and guidance for SMEs on drawing up their tenders:</i></p> <p>SME have lower specialized administrative capacities that are well acquainted with public procurement formalities and procedures. Through training and guidance (conferences, seminars and training sessions, and maintain a helpdesk service), SMEs can improve their capacity and be competitive in the procurement process.</p>

Table 7: Code of Best Practices facilitating access by SMEs to Public Procurement Contracts (part 1)

Code of Best Practices facilitating access by SMEs to Public Procurement Contracts	Solutions
Setting proportionate qualification levels and financial requirements	<p><i>Keeping selection criteria proportionate:</i> Keeping selection criteria proportionate is of core importance for SMEs, since fixing too high capacity and ability levels exclude de facto a high proportion of SMEs from participating in tender procedures.</p> <p><i>Combining Economic, Financial and Technical Capabilities.</i> By pulling resources together through collaborative networks, SMEs be better placed to be competitive by improving their economic, financial and technical capabilities.</p> <p><i>Requiring only Proportionate Financial Guarantees:</i> Disproportionate financial guarantees required by contracting authorities (usually to cover project risk) may pose a huge barrier to SMEs as they may fail to meet such requirements. To overcome this, financial guarantees may be made a non-automatic requirement but rather considered on the basis of risk assessment.</p> <p><i>Minimization of Administrative Requirements:</i> Administrative requirements should be kept to a minimum as SMEs' usually do not or have limited administrative capacity (for example, man-to-van SMEs'). For example, full declaration and showing of evidence should be limited to only the tenderer who has made the best offer and not every bidder.</p>
Alleviating the administrative burden	<p><i>Evaluation on the basis of Lifecycle Cost:</i> Public Procurement Directives (Article 53(1) of Directive 2004/18/EC) offer the possibility to award contracts either on the basis of the lowest price or on the basis of the economically most advantageous offer. Hence, contracting authorities have the opportunity to evaluate not only the direct costs of a purchase, but also its life-cycle costs. Given that the SME sector is a source for innovation and R&D, considering elements such as quality, technical merit, functional characteristics, running costs, cost-effectiveness, after-sales service and technical assistance etc. in the evaluation give SMEs' a competitive advantage.</p> <p><i>Providing more scope for Innovative Solutions:</i> With the flexibility of contracting authorities defining the scope of procurement specifications, it should reflect the diversity of technical solutions (functional requirements) in the market place and not just the technical specifications. Such an output-oriented approach will benefit particularly innovative SMEs' whose solutions may not yet have standard board's approval but produce solutions that meet the functional requirements.</p>
Placing emphasis on value for money rather than on price	<p>Allowing enough time for advertisement and then submissions of tenders will allow SMEs' with little administrative capacity to submit competitive bids.</p>
Allowing sufficient time to draw up tenders	<p>Payment terms and conditions should be improved by contracting authorities to alleviate the financial burden on SMEs' by including clauses in contractual documents to ensure that their suppliers pay their subcontractors on time and that payments flow down the supply chain and setting a 30 days or earlier payment deadline as a default, having a default level of interest for late payments and recovery procedures for claims.</p>
Ensuring that payments are made on time	

Table 8: Code of Best Practices facilitating access by SMEs to Public Procurement Contracts (part 2)

5. FIELD ANALYSIS

Having presented some generalities regarding the procurement processes and some emerging best practices from literature and policy reviews, this section will highlight some key findings of procurement procedures and emerging best practices in the surveyed local authorities. The areas of interest are:

- Invitation to Tender documents preparation processes;
- Tender Evaluation processes;
- Housing stock management and workload planning
- Local SMEs involvement in public procurement exercises;

The section identifies best practices and areas for improvement in the current procurement procedures adopted by LAs in the region, with the aim of promoting local growth, emergence of regional supply chain in the EERS sector and involvement of local communities.

In addition, it will also analyse the preparedness of the current supply chain configuration to respond to large scale EERS project (such as the forthcoming Green Deal), by understanding the current status quo and ways to maximize its performance employing identified best practices; furthermore, the role of framework contracts will be explored.

Local Authority's procurement procedures are the same across different types of projects, thus the results of this analysis are generalisable but also valid outside the EERS sector, unless where specific reference is provided to EERS projects. In each sub-section, the Current Status Quo will be presented; also, if available, emerging best practices will be discussed. Emerging best practices are summarized in Table 9.

Area	Best Practices
Invitation to Tender documents preparation processes	High level of customization of Invitation to Tender documents
Tender Evaluation processes	Definition of a clear, transparent and publicly available evaluation strategy, defining weights to be assigned to the different dimensions.
	Inclusion in the evaluation exercise of a monitoring and post-project evaluation on some distinctive dimensions related to local development.
	Utilisation of Pre-Qualification Questionnaires (PQQs)
Housing Stock Management and Work Planning	Use of IT systems providing updated information on properties' components, devices and installations (kitchens, doors, windows, insulation materials) and their useful life, providing alerts and planning on required interventions.
Local SMEs involvement in public procurement exercises	Use of e-procurement platforms for improving transparency about procurement exercises
	Offering advice services related to specific questions on procurement documents, and making this information available on their LAs websites.
	Performing of Open Suppliers Meeting
	Using Joint Contracts Tribunal (JCT)-approved contracts
	Lowering financial requirements

Table 9: Best Practices Emerging from Field Analysis

5.1 Tender Document Preparation

5.1.1 Current Status Quo

Local Authorities (LAs) are currently under pressure due to funding cuts which have resulted in loss of staff through redundancy and retirement. As a result LAs cannot devote sufficient time and

resources to Tender Document preparations.

In one of the surveyed Housing Partners, the procurement office which was set up in 2011, employed only 2 staff. This situation is common to smaller Housing Partners where there is not even a separate procurement office. The same situation is shared in larger organization. For instance one of the largest surveyed LAs has seen the procurement team in their ALMOs merged and reduced to a smaller procurement team.

As a consequence of the staff reduction, more and more LAs have to resort to the use of off-the-shelf procurement approaches (for example, by recycling and adapting existing documents and evaluation procedures or joining framework programs). The direct consequence of using existing tender documents is that often the evaluation criteria are not tailored to each specific project and even less so take into consideration the related supply chain. In this scenario it could be difficult maximising the benefits to local businesses and communities.

5.1.2 Current Best Practices

In this context, job cuts (in terms of resources that can be devoted to the preparation of tender documents) are a strong constraint. However, some LAs still think that a way to achieve a better degree of contribution to the local economy (in terms of growth and job creation) for large scale publicly funded projects would be reformulating these issues in a creative way. For example, mentioning, as a requirement, lowering carbon emissions from transportation could be a way of encouraging more local involvement. This can be considered as an example of best practice, as it allows for a more customized tender document preparation for each specific tender exercise.

Currently, some LAs, on smaller lots projects (that have not to go through the Official Journal of the European Union process) are adopting similar approaches that also include customer feedback. Negative customer feedback may become a constraint, in the sense that firms whose performance, which have been rated as 'poor' or 'not satisfactory' may be prevented from bidding for future projects. These approaches require bespoke tender documents to be prepared for each specific project.

5.2 Tender Evaluation

5.2.1 Current Status Quo

In the current economic climate, Local Authorities must procure with a view to demonstrating Value for Money for the tax payer. In this context, the UK Government offers the following definition for the concept of Value for Money:

“Value for Money usually means buying the product or service with the lowest whole life costs that is ‘fit for purpose’ and meets specification. Where an item is chosen that does not have the lowest whole life costs, then the additional ‘value added’ benefit must be clear and justifiable.”

In the procurement carried out under the EU public procurement rules, there is scope to take into account non-price or quality factors in the evaluation of tenders and award of contracts. These principles are also reflected in other international trade agreements such as General Agreement on Tariffs and Trade (GATT) and also found in many non-EU administrations). A supplier may be selected either on the lowest price tender, or on a basis known as Economically Most Advantageous Tender (EMAT).

Most of the Local Authorities surveyed in this study (5 out of 6) adopt an EMAT framework in which Price and Quality are used as macro-dimensions. The weights assigned to the two macro-dimensions are heavily dependent on the nature of each tender. The weighing strategy used by Local Authorities is generally not disclosed.

The use of EMAT framework allows the buyer to incorporate extraneous, non-price factors, often referred to generically as “quality factors”, such as technical solutions; management capability;

social, economic and environmental sustainability; innovation; superior performance & delivery; customer engagement; results of site visits; information provided about sub-contractors; health & safety improvements; or risk, where these are relevant to the procurement at hand. Each bidding firm will get a score for the tender.

Some criteria may involve qualitative and subjective judgments. For example, in one case, the Customer Care sub-criteria (under the Quality criteria) is included in the scoring system by requesting the submission of a case study to the bidder. Other elements that can be added are, for instance, site visits. Environmental criteria (for instance, Waste Management Systems) are usually assessed through the Pre-Qualification Questionnaire, therefore being a general requirement to be allowed to participate in further stages of the procurement exercise.

All these measures are brought together in a final score (which is usually a weighted average) that is the composition of all these sub-criteria. Table 10 shows the dimensions, criteria and sub-criteria used by one of the surveyed Local Authorities, and their related weights. In this specific case, the final score is computed by multiplying each sub-criteria score by the related weight and summing up the resulting figures obtained for each sub-criteria.

Dimensions	Major Criteria	Sub-Criteria	Weights
Price	Price	Technical Survey and Reports	8%
		Base of Standard Job Tables	13%
		Extra Cost	13%
		Ancillary Works	6%
Quality	Quality of Work	Procurement and Supply of Materials	2%
		Quality of Workmanship	6%
		Materials	5%
		Guarantees/Warranty	4%
	Technical Survey and Report	Cavity Wall	5%
		Virgin Wall & Loft insulation Top Up	5%
	Quality Control and Managing Risk	Relating Practice to Procedure	2%
		Independence of checks	3%
		Identifying and Remedying Failure	4%
		Asbestos Management	3%
		Risk Management	3%
		Securing Sites and Notifications	2%
	Capacity	Ordinary Operations	2%
		Invitation to Agree Purchase Orders	3%
		Acting in Good Faith	3%
	Customer Care	Property Occupier Knowledge	2%
		Evaluating Customer Satisfaction	5%
		Equality and Diversity	1%

Table 10: Weights assigned to Price and Quality sub-criteria by one of the surveyed councils

In the EMAT framework, by far the most frequently-used methodology amongst the LAs included in this study, there are a number of subjective criteria which raises questions on its overall effectiveness. This is because the weights assigned to the Quality and Price dimensions are arbitrary; the selection

and weighting of criteria are subjective as it is the assessment of quality (generally performed by employing a 5-point Likert Scale). These factors, when coupled with crude scoring and ranking of price, can in some situations lead to perverse outcomes which contradict the Value for Money principle (see also Sykes, 2012). The example shown in Table 11 highlights the arbitrary weighting and scoring which could lead to ill decision. Indeed, under a 50-50 weighting policy, the lowest cost proposal is selected, that also returns a satisfactory quality level. If a Quality is awarded the 60% of the weight, proposal D is selected. This proposal returns a better quality level; however, it is much more expensive, and the aggregate score is not very different from the one reported by proposal E (the lowest price one). This is because, given the subjectivity associated with the choice of the weighting and scoring methodology, even small variations may produce substantial differences in the final outcome. The result of the selection process could bring to the identification of the best tender that in reality deviates substantially from the original value-for-money principle. Furthermore, very close results deriving from non-transparent weighting and scoring procedures, may result in litigation procedures.

	Quality	Q u a l i t y Score	Bid Price (£m)	Price Score	Global Score (50P/50Q)	Global Score (40P/60Q)	Global Score (60P/40Q)
A	65	69	11.4	97	83	80	86
B	86	91	12.5	89	90	90	90
C	71	76	12.1	92	84	82	85
D	94	100	14	79	90	92	88
E	80	85	11.1	100	93	91	94
F	77	82	12	93	87	86	88

Table 11: Example of problems with EMAT frameworks

Surveyed LAs strongly agree on the fact that weights should be assigned in a dynamic way, depending on the specific project and its strategic importance and on contextual issues. Furthermore, there is a strong agreement on the need for more transparent and participatory processes for weights determination that should involve not only procurement officers but a wider range of managers, to ensure that all the relevant aspect (beside cost) are taken into due consideration in performing the evaluation exercise. Publicity of these procedures could avoid potential litigations arising on these issues.

An example of an open strategy for weights determination is the one used by Wakefield Council (See Figure 8), which is publicly available on the council's website. The strategy classifies projects according to two dimensions, namely:

- Risk, by categorising projects into low risk and high risk.
- Value, by categorising projects into low value and high values.

As a result, four classes of projects (Routine, Bottleneck, Strategic and Leverage) given by the different combinations of the two dimensions, can be obtained (see Figure 8). Accordingly, different weights for the Quality and Price dimensions are assigned to projects belonging to different classes.

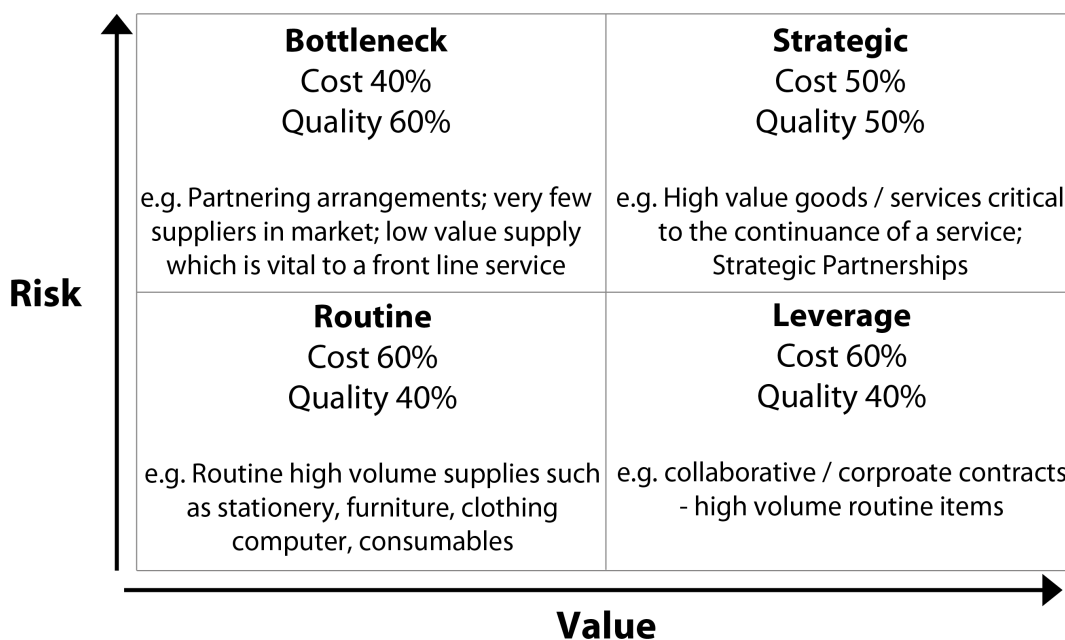


Figure 8: Weighting strategy for LA procurement (Wakefield Council, 2010)

Similarly, the Scottish Government produced some guidelines for weighting in procurement exercises utilizing EMAT frameworks, as shown in Table 12. In the same ways, projects are classified in 5 different categories (based on their degree of innovation and risk); accordingly, weights for Quality and Price dimensions are suggested; furthermore, different weights are proposed for projects involving consulting organisations and generic contractors.

Type of project	Indicative Quality/Price Ratio	
	For Consultants	For Contractors
Feasibility Studies	80/20 to 90/10	N/A
Innovative Projects	70/30 to 85/15	20/80 to 40/60
Complex Projects	60/40 to 80/20	15/85 to 35/65
Straightforward Projects	30/70 to 60/40	10/90 to 25/75
Repeat Projects	10/90 to 30/70	5/95 to 10/90

Table 12: Guidelines for weighting in procurement exercises expressed by the Scottish Government

There are also other methodologies (not currently used by surveyed LAs, but in use by other UK LAs) to evaluate tender proposals. The Fixed Price methodology, for instance, requires that bidders provide a description of what they can offer given a fixed tender value. In this approach, 100% of the evaluation weight is assigned to the quality dimension. However its drawback is that LAs may end up paying more if they do not undertake a thorough initial market research to determine the tender value.

5.2.2 Current Best Practices

From the above-mentioned discussion, it emerges that the definition of a clear, transparent and publicly available evaluation strategy, defining and disclosing weights to be assigned to the different dimensions for different kind of projects can be considered an example of best practice.

Furthermore, one of the best practices observed during the fieldwork survey was the inclusion in the evaluation exercise of a monitoring and post-project evaluation on some distinctive dimensions related to local development.

Indeed, the inclusion of post-project evaluation in the project briefs allows for the impact of the project on local growth and employment to be evaluated despite these two aspects cannot be used at proposal selection stage due to restrictions on EU regulations on free market and competitiveness. Therefore, these dimensions do not necessarily represent a constraint on the tender submission but they will become part of the historical track record of a given contractor. Indicators such as Local employment (as percentage of total jobs created by the project) and Local Growth (for example, as a percentage of sub-contracting that goes to local firms and percentage of the expenditure that is retained within the district) can be indirectly incorporated in the selection process. Also, KPIs may include aspects related to tenant evaluation (for example, asking tenants of the properties to provide feedback on the delivery of the project on several dimensions).

Through this approach, councils and housing providers try to adopt a collaborative strategy with the contractor that has been awarded the project for achieving the best possible performance on these indicators; such cited KPIs are constantly monitored even when the project is still on-going, in order to suggest appropriate corrective actions. We deem this a dynamic collaboration in public-private partnership. This can be seen as an effective way to favour involvement of local suppliers, at least at the sub-contractor level.

There are other cases in which LAs have integrated in tenders a system of monitoring KPIs and assess projects performance in terms of impact on local communities. Despite knowing that EU regulations are strong constraints, the “localization” theme is taken into account by employing other criteria in the tender exercise. For example, mentioning, as a requirement, lowering carbon emissions from transportation could be a way of encouraging more local SMEs involvement. This is a way of making the procurement process more creative and incorporating strategic goals into the procurement system. The use of this approach is more easily applicable to on smaller projects that under the threshold for the EU regulations. Another example of criteria that can work in favour of local firms is the inclusion of customers’ feedbacks in the monitoring exercise. Indeed, local firms can have a better knowledge of the local communities and their specific needs. In this way continuous feedback throughout the life cycle of the procurement supply chain and the project can be considered dynamically for continuous improvement.

Generally, all the LAs think that the use of KPIs for monitoring and post-project evaluation is useful. Some LAs use specific questions in the form of case studies to investigate and evaluate softer issues (like Corporate Social Responsibility, Environmental Awareness, Commitment to Local Communities, Minorities and Diversity issues) in tender evaluation. These issues are particularly relevant in social housing projects, where the social dimension is prevalent. Furthermore, by means of these questions (that tend to investigate the knowledge of local community issues by the bidding firms) local SMEs may provide better responses. However, the evaluations of case studies responses need to be taken with care. Indeed, especially large firms (often by employing professional bid-writers) can put together responses that look brilliant on paper but that can be hardly implemented.

The use of Pre-Qualification Questionnaires (PQQs) is perceived as a best practice. Indeed, PQQs are used as a preliminary step, to screen and provide a first evaluation of firms interested in bidding for opportunities. It is a questionnaire assessing the suitability of the organisations commercial, technical and financial capabilities and provides a method of short-listing interested parties meeting the required minimum qualification criteria. This aids the contracting authority in controlling the cost of the tendering process. Firms meeting the minimum criteria will then be invited to tender. Generally, PQQs may include:

- Financial statements may be required as part of the tender submission where there may be a risk to the County Council.
- Equal Opportunities/Health and Safety questionnaire should be completed and policy submitted for evaluation.
- Environmental questionnaire which asks about the environmental practice used and copies of the environmental policy submitted for evaluation.

- Supplementary/Additional Quality/Technical questions

Therefore, PQQs are seen as a helpful tool in filtering proposals and reducing the administrative burden to the evaluation teams, especially when the number of bidders for a given tender is extremely high and procurement and evaluation teams are constituted by a small number of people.

5.3 Housing Stock Management and Work Planning

5.3.1 Current Status Quo

A better planning of the activities and of the works to be performed on the properties by Councils and respective housing partners may result in substantial savings through supply chain consolidation and economies of scale mechanisms. Indeed, better planning of the activities to be performed on the housing stock means better forecast of the materials and services that will be requested to suppliers and sub-contractors, who may use this information to undertake, in due course, required capital and HR investments to cope with LAs demand. Currently, several LAs have been experiencing delays in the installation of EERS devices due to lack of readiness in the supply chain. On the other hand, regional firms in the supply chain highlighted the need for better planning from LAs as this would result in a smoother workload for them and in an increased ability to participate in public tender exercises (see also Koh et al., 2010).

Currently not all the surveyed LAs have a clear and updated visibility of the status of their housing stock. Improving this aspect would prevent them from facing problems on material shortages and increased lead times due to the lack of demand planning.

5.3.2 Current Best Practices

Two of the surveyed LAs (through their housing partners) have implemented an IT system, whose working principles are very similar to the ones behind Enterprise Resource Planning (ERP) and Kanban systems (Monckza, 2010). This provides updated information on properties' components, devices and installations (kitchens, doors, windows, insulation materials) and their useful life, providing alerts and planning on required interventions. As a result, ALMOs can plan well in advance the works that are required to keep properties and health and safety and energy consumption profiles (for example, due to boilers age or insulation materials to be replaced) at a decent standard. This enables a very good visibility of future requirement (in terms of skills, materials and supply chain support) and strategy formulation (with respect to procurement aspects).

5.4 Local SMEs involvement

5.4.1 Current Status Quo

Previous work (see Koh et al., 2010) has identified a number of barriers that are preventing local SMEs from involving in large-scale publicly funded Energy Efficiency projects. These barriers can be summed up as follows:

- a. Lack of information about opportunities
- b. Lack of competencies about the bidding process
- c. Cost of bidding opportunities are too high
- d. Lack of support/assistance
- e. Financial appraisals when bidding are too rigorous
- f. Health and safety issues
- g. Corporate Social Responsibility (CSR) issues
- h. Lack of capacity

As regards barriers a (lack of information about opportunities) and d (lack of support/assistance), the council stated that this can be a real problem, especially because most of the SMEs' are not registered on the Supplier and Contract Management System SCMS, the new E-Procurement platform that is being used by most of the LAs in the Yorkshire and Humber region.

Also, with regards to barrier b (lack of competencies about the bidding process), most of the surveyed LAs have very large volumes of small businesses engaging with the pre-qualification stage of the procurement bidding process. However, most of these companies tend to get lower scores during the tender evaluation because parts of the tendering document are not completed (or properly completed). This may be due to the lack of time and human resources in the SMEs which results in poor standard of the submitted proposals. The absence of tendering/bid writing skills is also a factor in determining the low success/poor engagement of SMEs in the tendering process.

"The typical Man-and-Van company that installs solid wall insulation completely is not aware of putting together a tender document", said the Procurement Officer of one of the surveyed ALMOs.

Most of the LAs recognised that barrier c (cost of bidding opportunities are too high) is still an issue for SMEs. There is also a time constraint issue since SMEs find it frustrating to invest more time in new bids if they have previously been unsuccessful. Sometimes getting the required accreditations could be quite costly for the suppliers. Large companies exercise their muscles over SMEs to avoid competition is also an issue. Such a pressure in a supply chain is very typical in private sector and will be more so in the public-private sector. An LA reported that they have experience of a large contractor asking two SMEs to pull out of a competitive tender because effectively the large contractor was the pay-master of the SMEs. However, there is also an optimistic feeling:

"10 years ago, I could have understood this, however, now with the use of SCMS, things are getting better. A regional pre-qualification questionnaire across different local authorities would also help", said a Senior Procurement Officer at one of the interviewed LAs.

Concerning barriers b (lack of competencies about the bidding process) and d (lack of support/assistance), some of the interviewed officers pointed out that the lack of skill refers not only to the tendering process:

"There is a general lack of business skills. For example, the Man-and-Van company that installs solid wall insulation completely is not aware of putting together a tender document. A solution could be having Chambers of Commerce and local colleges to help by playing a middle man role", said an interviewed procurement officer at one of the interviewed LAs.

Regarding barrier e (financial appraisals when bidding are too rigorous), LAs recognize that payment methods can be an obstacle in this market, because works are paid on completions which can take up to 90 days. This can cause serious cash flow issues to SMEs' that prefer not to be involved in this kind of projects, because they think financial appraisals will be too rigorous and cash flow and liquidity are paramount to SMEs' survival. Moreover, insurance costs can especially be a relevant barrier as they can be higher than needed for small contracts.

LAs insist that no compromises can be made on barrier f (health and safety issues) as this may significantly affect the quality of the work environment, whilst they appreciate that barrier g (CSR issues) can create some problems, given the novelty of these issues and the fact that small companies may not have the need to have CSR policies in place.

"I would expect this kind of companies to be aware about CSR issues. Furthermore, weightings are not high on this dimension. However, if a company is too small there could be problems in answering to questions related to CSR issues", said a Senior Procurement Officer at one of the interviewed LAs.

According to the most of the surveyed LAs, barrier h (lack of capacity) reflects, first of all, on the quality of the tender documents. Indeed, SMEs lack resources to properly submit a high standard and professional tender. However, the lack of capacity is a big issue also for standardization purposes. Indeed, it would not be practical to have a lot of SMEs installing components and materials with different standards and specifications. For example, for boiler replacements, it would be very difficult to manage a large number of boiler types.

There is general consensus on the fact that the lack of capacity of local SMEs is the main barrier. Indeed, LAs felt that SMEs lack the scope and size to deal with continuous work flows and large number of properties deriving from large scale projects. In the past, some of the surveyed ALMOs used to work with local SMEs. However, some of these SMEs have been recently acquired by larger firms; some of them have gone out of the market. This reinforces the perception that there is a general trend towards concentration of supply chain in the construction market.

"The big is wanting the big. Big organizations, like ALMOs in big districts, managing large portions of housing stock, tend to achieve economies of scale and savings. This can only be achieved by awarding contracts to larger organizations that have the right capacity, capitals and supply chain capabilities", said a Technical Manager in one of the surveyed ALMOs.

"Some of the main contractors are based in the county. However, there are many problems regarding the involvement of local SMEs at a sub-contracting level. The main problem is represented by the capacity of these SMEs. Indeed, on large scale projects the target for a sub-contractor is installing measures in 30-40 properties. Local SMEs are often 'Man-and-Van' companies. This implies that they can just work on 2-3 properties per week. These small capacities also reflect on cost: usually local suppliers tend to be more expensive". said a Procurement Officer in one of the surveyed ALMOs.

The lack of SMEs involvement in the supply chain is clearly a barrier, evidenced by real insights from the LAs and ALMOs. This presents a challenge in finding innovative ways to involve SMEs in the procurement supply chain, especially in preparation to respond to the Green Deal and build the EERS sector.

5.4.2 Current Best Practices

Surveyed LAs are employing several measures to improve the access of local SMEs to publicly funded initiatives, and, in particular, projects related to energy efficiency. Addressing barrier a (lack of information about opportunities), all LAs list their opportunities on SCMS hence making them available to local suppliers.

"SCMS is an encouraging approach as it could provide a centralized pot of information for local suppliers. However, some small firms still have some lack of understanding about the process", said a Procurement Manager at one of the surveyed LAs.

Most of the LAs and Housing Partners agreed that e-procurement systems such as SCMS are very useful but reiterated that some SMEs may not be aware of such systems.

Moreover, to support small businesses (and other potential bidders) most of the LAs offer advice services related to specific questions on procurement documents. This information is also made available on their websites.

Another best practice to remove barriers a (lack of information about opportunities), b (lack of competencies about the bidding process) and d (lack of support/assistance) is related to the performing of Open Supplier's Meeting (also known as a bidder's conference). In these meetings, all potential tenderers are invited to attend at the same time and venue to address areas of which may require clarification, so ensuring that all potential tenderers receive identical information. Several LAs in this consortium host these meetings.

As a general advice, if an Open Supplier's Meeting is arranged this must take place not too soon after the Invitation to Tender issue and not too close to the tender return date. If it takes place too soon suppliers will not be prepared, if it takes place too close to the return date, sufficient time will not be available to tenderers to take account of outcomes of Open Supplier's Meetings. An Open Supplier's Meeting will not be necessary for every tender exercise. A judgment will have to be made by the project team, prior to the issue of the Invitation To Tender (ITT), whether or not such a meeting is required, in order that it may be planned into the procurement timetable. A LA affirmed that although Open Suppliers Meeting can be very useful some companies may be reluctant to disclose too much information at such meetings to prevent losing their competitive advantage. Companies can also get further insight and information into an ITT and may pull out because they found it unsuitable to proceed with a bid and so save time.

With respect to barrier e (financial appraisals when bidding are too rigorous), all the LAs and ALMOs understand that cash flow issues can cause problems especially to SMEs. For this reason, some councils use Joint Contracts Tribunal (JCT)-approved contracts and payment terms (under JCT contracts, the timescale between date of issue of certificate and final date for payment is only 14 days).

Some other councils seem to be taking advantage (knowingly or unknowingly) of Article 189 of the EC Treaty¹ which provides that directives are binding on Member States as to the result to be achieved (for example equal terms for all companies), but leaves to the national authorities the choice of forms and methods to be employed. In this instance, councils sometimes lower the bar for the financial commitment required by companies. This is to ensure that smaller companies with lower financial clout can engage with the procurement procedure.

As regards barrier h (lack of capacity), some councils and ALMOs have tried to deliver works in smaller work-packages in order to favour local SMEs in their bidding. However, this should be done carefully in order to ensure the possibility of achieving economies of scale is not jeopardized.

The LAs and Housing Partners generally accepted that setting different financial threshold depending on different procurement exercises may be a good way of increasing SMEs participation in the procurement supply chain. However, strict financial procedures have been set by LAs which may hinder the implementation of such procedures.

5.5 Supply Chain Configurations

5.5.1 Current Status Quo

The supply chain configuration for large scale projects related to energy efficiency retrofitting is illustrated in figure 9. Previous studies have coined this configuration as the 'power house' (see also Koh et al., 2010). This complex supply chain configuration involves multiple stakeholders, each playing a key role at specific tiers in the supply chain of the EERS sector. The key stakeholders include:

- The interested Local Authorities;
- ALMOs or Housing Partners, that manage the housing stock;
- The program sponsor, providing funding to cover (partially or totally) the cost of the project;
- Procurement consultancy firms or organisations, that often provide external services to ALMOs

1. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:12002E249:EN:NOT>

and Local Authorities;

- Tier-one contractors, that are awarded the contract and the responsibility to complete the works;
- Tier-two sub-contractors that are awarded smaller pieces of works by the main contractors.
- Materials suppliers, that provide products (for example, insulation materials) to be then installed in the properties to be targeted;
- Distributors, that buy bulk quantities of products to be then delivered to main contractor or sub-contractors.

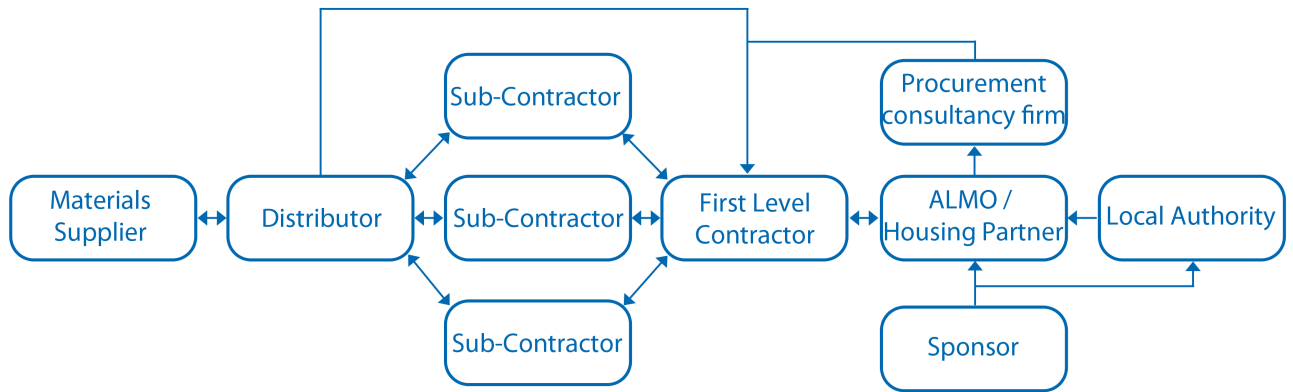


Figure 9: Supply chain configuration in the EERS sector: the 'power house'

In the 'power house', public and private 'partnership' is crucial and each plays their specific 'power tune'. 'Power tune' refers to the roles of the stakeholders orchestrated for procurement and EERS delivery. However, the 'power fulcrum' is driven by the LA, ALMO, procurement consultancy firms and tier-one contractor. 'Power fulcrum' refers to the key decision makers in the supply chain. Tier-two sub-contractors often do not have any power at all and are frequently discriminated in winning contracts (e.g. not in the contractors list, not qualified for ISO standard, not having a well established informal relationship and so on). Furthermore, scale and size issues may prevent them from engaging at a higher level.

It should be noticed that a similar supply chain configuration could emerge if Local Authorities want to undertake the Green Deal roll out as direct providers or in partnership with one of more Green Deal providers (public-private partnership), raising finances by themselves (or by the partnership or Green Deal providers) and controlling strategic planning and local delivery to address specific local priorities through procurement and supply chains. In doing so, LAs should be aware of the risks related to this supply chain configuration.

5.5.2 Current Best Practices

Significant challenges are posed to LAs when employing a Power-House configuration for managing large-scale energy efficiency retrofitting projects. Indeed, very often these projects (like the forthcoming Green Deal) include, among their objectives, local growth and community involvement (namely, a sufficient degree of "localisation" and an involvement of local SMEs). In order to achieve a decent performance under these dimensions, and avoid the risks related to the typical Power-House supply chain configuration, some best-practices could be employed, such as:

- Even though, under current EU procurement regulations, it is not possible to include local labour and sourcing requirements in tender documents, some LAs incorporate some post-project evaluation Key Performance Indicators, that try to measure the effect of the project in terms of

local growth, employment and local SMEs involvement at the sub-contracting level. This can become then part of the historical record of the appointed main contractor and used for future negotiations. This measure can improve the involvement of local firms and reduce the influence of the barriers that prevent their engagement in large scale projects.

- Some LAs promote early local contractors workshops when a large-scale project is launched, in order to publicly present the tender document and explaining its requirements; this is oriented to maximise the chance of involvement for these businesses, and to cope with some of the barriers pointed out by regional businesses in this study (lack of information).
- Furthermore, some LAs provide extensive feedback about unsuccessful bids to SMEs who are willing to know how to improve their bid-writing skills. Again, this can be seen as a measure to cope with some of the barriers pointed out in the previous sections of this study (lack of competencies in bidding process).
- Some LAs have adopted smaller work-packages for allowing local SMEs to bid, relaxing the requirements in terms of capital. However, this can affect the performance of the supply chain as regards standardisation and economies of scale. For this reason, sometimes LAs may also consider centralising the purchase of materials and components to be installed, just tendering the installation bit to local SMEs.

5.6 Framework Agreements

Framework agreement are employed by the LAs to engage with a number (one or more, usually minimum of three) of providers of goods or services by establishing the terms, such as price, quality or quantity, under which specific purchases, i.e. awards of contracts, can be made during the term of the agreement. Framework agreements and contracts (like EN Procure and YORBuild) are seen as a fast-track, low-cost, low-risk procurement route for public sector bodies.

5.6.1 Current Status Quo

Most of the LAs use pre-existing contracts and frameworks as a means of delivering significant efficiency savings through economies of scale for the LAs. They base on the fact that by aggregating demand extremely competitive prices can be achieved. Additionally, the LAs reason framework agreements allow them to re-use previously developed specifications and contracts instead of reinventing the wheel.

However, LAs reported that although framework agreements are normally put in place to achieve efficiency saving through economies of scale, this may not always be the case because the pricing for these framework contracts may include management overheads normally of the region of 30-40%.The LAs also agreed that framework agreements are not a “one size fits all” approach and so to get SME involved, the size of these framework agreement contracts should be closely looked at.

One LA also reported that they are moving away from framework agreements to more traditional forms of procurement because it will allow them to properly integrate innovative approaches into their procurement processes instead of re-using previously developed specifications and contracts.

Recommendations & Conclusions

6. RECOMMENDATIONS

This section provides some recommendations emerging from the field analysis that could be useful for LAs in responding to future challenges related to the EERS supply chain, such as the forthcoming Green Deal. In particular, this section will provide:

- A proposal of a new form of EESR supply chain for supporting large scale projects (such as the forthcoming Green Deal)
- Some recommendations, based on emerging best-practices, about pre-requisites to support the GD and EESR supply chain.
- Some recommendations, based on emerging best-practices, on procurement and supply chain management in the context of public-private collaboration in the management of large scale projects.

A new form for GD and EERS supply chain

Improving SMEs and local firms involvement in the EERS supply chain (see figure 10) in which the Council (through the Housing Partner and, potentially, the procurement consultant) directly acquire the materials to be installed from the distributor (that will source them from a supplier).

In addition, the LA will only tender the installation of the acquired measures. This would help the involvement of SMEs, as this supply chain configuration does not require massive amount of capital to be invested by the contractors and sub-contractors (that are just providing workforce resources).

“This model would allow more SMEs to bid. Indeed, they should not be worried about capital costs required to buy materials to be installed. Furthermore, this process would also be beneficial from a standardization point of view: everybody would be installing the same materials and components that would reduce maintenance costs. However, there are some obstacles. Indeed, this process will require lot of labour for supply chain planning and warehousing capacity for storing materials. At the moment, the council is not prepared to face this challenge and risk”, said a Procurement office at one of the surveyed ALMOs.

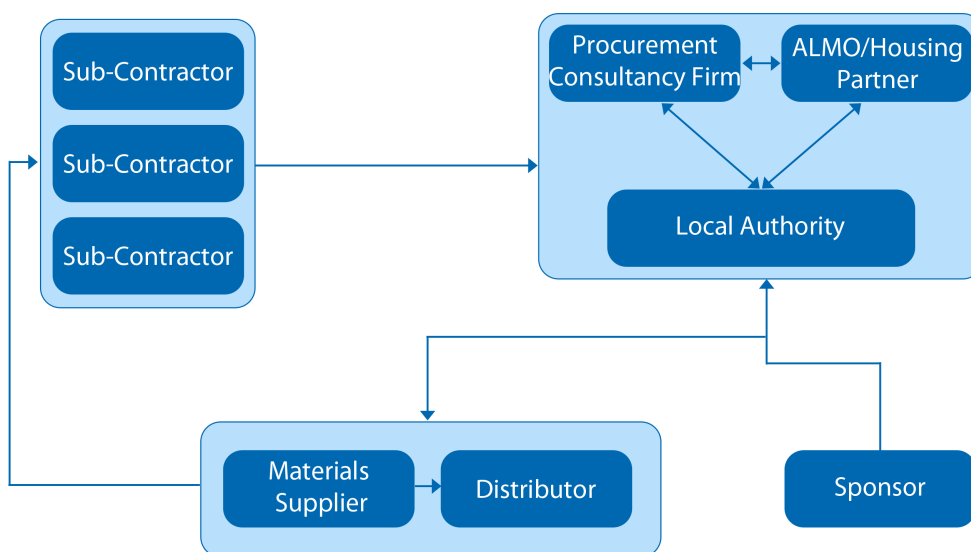


Figure 10: Potential revised 'power house' supply chain configuration

"This configuration allows buying at excellent prices. Then the installation bit may be contracted. It sounds great in principle. In practice, it may be more difficult, as responsibility issues may arise. For example, what happens if an installed boiler has to be replaced soon? Does this fall under Council or contractor responsibility? In the past, several litigations have been arising because of this", said a Procurement Officer from one of the surveyed LAs.

In the context of the Green Deal supply chain, the direct procurement of energy efficiency measures by LAs through the procurement firm can be financed as part of a Green Deal public-private partnership between the LAs and Green Deal provider(s). This will de-risk the business model, leverage strengths of Green Deal providers working with LAs, and at the same time, involve SMEs along the supply chain. In addition, similar form of Green Deal Alliance could also be considered, enabling a more robust business model.

Prerequisites to support the GD and EESR supply chain

- Providing appropriate training to tap into the skills gap on energy efficiency. This includes skills throughout the supply chain from installation to R&D. Low carbon skill is in great demand and of great shortage. With the expected increased of Green Deal roll out throughout the supply chain, it is important to prepare for the skills supply and training at all levels. The Government recently announced City Deals include skills need and investment. Involvement of school kids, to apprentice, to high level skills are required. Multi-skilled labour will also play a key role in ensuring enough qualified Green Deal installers are available to meet with the demand. Green Deal or EERS (or similar) training centres are envisaged. Innovation in energy efficiency measures will also play a key part, and this will require increased investment in R&D at University and Research Centres.
- Investing in infrastructures to support delivery from design, build, logistics, installation, maintenance and repair. Green Deal and EERS supply chain provide great opportunities to invest and renew the infrastructures required for their delivery. The range of infrastructures include micro generation for decentralisation of energy supply, heat network, control systems, to service centre of energy advice. This calls for change towards an end-to-end energy supply and demand service chain delivered locally (e.g. mini energy centre).
- Implementing IT systems capable of providing updated information on properties' components, devices and installations (kitchens, doors, windows, insulation materials) and their useful life, providing alerts and planning on required interventions. As a result, ALMOs can plan well in advance the works that are required. This enables very good visibility of future requirements (in terms of skills, materials and supply chain support) and strategy formulation (with respect to procurement aspects).

Procurement and supply chain best practices in the context of public-private collaboration

- Producing (when possible, given the context of scarce resources in LAs) specific and dedicated tender documents for each project, limiting the use of off-the-shelf procurement approaches.
- Breaking down the size of the framework contracts into smaller contracts so that SMEs who may not have the capacity in terms of technical and finance will be able to bid for smaller sized contracts. This is in line with the Public Procurement Directives (*Article 9(5) of Directive 2004/18/EC and article 17(6) (a) of Directive 2004/17/EC.*) allowing contracts to be awarded in the form of separate lots.
- Incorporating some post-project evaluation KPIs that try to measure the effect of the project in terms of local growth, employment and local SMEs involvement at the sub-contracting level. This can become then part of the historical record of the appointed main contractor and used for future negotiations. This measure can improve the involvement of local firms and reduce the influence of the barriers that prevent their engagement in large scale projects.

- Promoting early local contractors workshops when a large-scale project is launched, in order to publicly present the tender document and explaining its requirements; this is oriented to maximise the chance of involvement for these businesses, and to cope with some of the barriers pointed out by regional businesses in this study (lack of information).
- Adopting an articulated and transparent procurement evaluation strategy, involving multiple dimensions and criteria and assigning them appropriate weights, coherently with the strategic value of the project.
- Adopting pre-qualification questionnaires as a way to reduce the administrative burden for both bidding firms and procurement teams.
- Providing extensive feedback about unsuccessful bids to SMEs who are willing to know how to improve their bid-writing skills. Again, this can be seen as a measure to cope with some of the barriers pointed out in the previous sections of this study (lack of competences in bidding process).

7. CONCLUSIONS

As part of Work-Package 2 of the University of Sheffield involvement in the Energy Innovation for Deprived Communities – The BIG Energy Upgrade Project, an assessment of the procurement practices in six Local Authorities (LAs) in the Yorkshire and Humber region has been conducted, including an extensive literature and policy review on public procurement.

The goal of this exercise was to gain an in-depth insight into current procurement practices and strategies that have been implemented in the LAs and to identify best practices example and opportunities for improvements.

Given that public procurement has become an important issue for LAs in the UK since procurement strategies are intrinsically tied to the LAs' objectives for promoting regional businesses and economic growth as well as obtaining best value (financial and non-financial goals) in the procurement process, findings convey practical relevance and several implications.

After a thorough literature and policy analysis, and supported by field analysis, this report was able to establish that although some current practices in the LAs' procurement procedures are potentially aligned to guidelines emanated from national and international bodies, there exist a significant scope and opportunities for the LAs to further develop their procurement strategies to embrace best practice approaches. Some of the critical areas which were identified in the study which the LAs needs to focus on in the development and enhancement of their procurement strategies are: Tender Document Preparation, Tender Evaluation, Housing Stock Management and Work Planning, involvement of Local SMEs, the configuration of their Supply Chains and the adoption of Framework Agreements.

In addition, the report has also provided linkages between the Green Deal and the energy efficiency retrofitting supply chains. Several recommendations, including some innovative and ground breaking thinking and prerequisites to Green Deal roll-out success have also been suggested. The study shows that by adopting best practice approaches in procurement, LAs can develop procurement strategies that will enable them achieve Best Value (financial and non-financial) Outcomes, involve regional SMEs' in their procurement process and use procurement as a leverage for regional economic growth.

In the next steps of this project, further research will be undertaken to the monitoring of the implementation of the suggested recommendation(s) in the targeted LAs.

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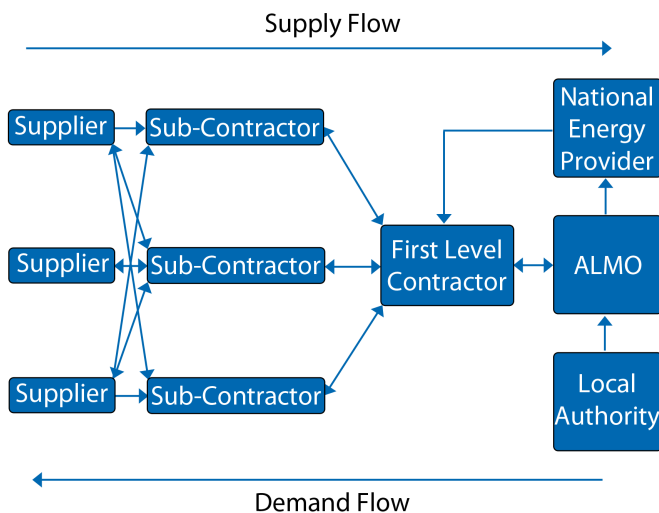
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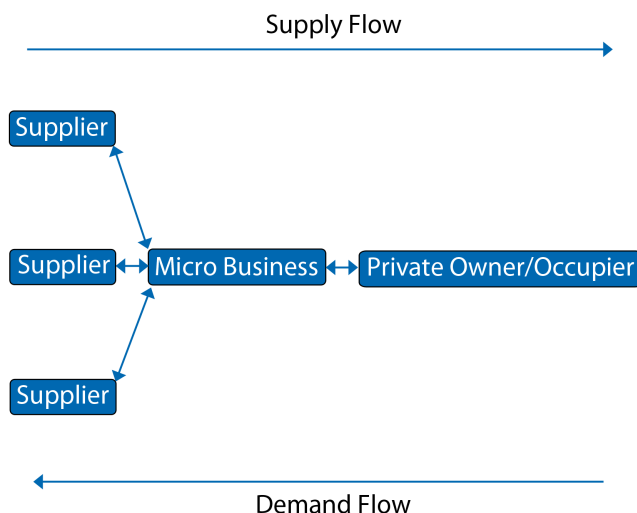
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Appendix – Partners’ Interview Questionnaire

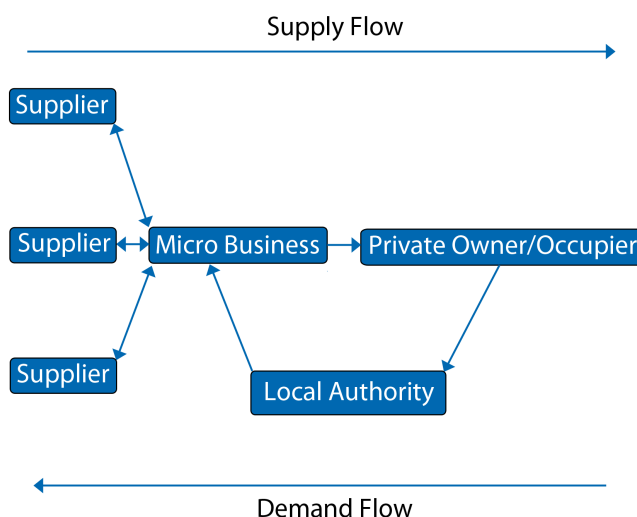
1. In the Scoping Study that University of Sheffield performed on behalf of Yorkshire Forward, three different Supply Chain configurations that have emerged for the Energy Efficiency retrofitting services regional supply chain. We would like to discuss them with you and getting your insights.



Supply chain configuration in the EES sector: The *'power house'*



Supply chain configuration in the EES sector: The *'duet'*



Supply chain configuration in the EES sector: The *'trio'*

2. Could you provide us with a detailed description of the currently employed procurement methodologies for Energy Efficiency large scale projects? In particular:

- Who is responsible for issuing and managing competitive tenders?
- How proposals are evaluated and scored? Do you use any particular methodology? What are the “dimensions” on which the evaluation is conducted?

3. We would like to review the most recent projects your LAs and ALMOs have launched in the EE retrofitting field. In particular, for each project we would like to understand:

- Size of the project (in terms of treated dwellings)
- Involved measures
- Winning firms (acting as main contractors)
- Involvement of regional suppliers

4. In your opinion, what is preventing local SMEs from being involved in large scale energy efficiency projects you are performing?

- a. Lack of information about opportunities
- b. Lack of competencies about the bidding process
- c. Cost of bidding opportunities are too high
- d. Lack of support/assistance
- e. Financial appraisals when bidding are too rigorous
- f. Health and safety issues
- g. CSR issues
- h. Lack of capacity

5. Which aspect of your procurement methodologies could be revised for delivering local growth and local jobs creation?

6. Are you aware of organizations like Yorkshire Purchasing Organization and YORBuild? What has been your interaction with them? What do you think could be their impact on the growth of the regional supply chain? Do you think they can provide benefits to local firms in terms of aggregation of purchasing power?



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