

MEASURING VALUE FOR MONEY ON MINISTRY OF DEFENCE MINOR NEW WORKS PROJECTS

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For the UK Ministry of Defence, value for money (VFM) provides a key measure essential to proving probity in the expenditure of public money. The research is specifically focused upon Minor New Works (MNWs) in the UK defence estates sector, managed by Defence Estates (DE). Historically, a significant annual expenditure of approximately 10% of estate budget is spent on minor new works. Assessing VFM on minor new works projects presents a major challenge as it is in the nature of small projects to be fragments of existing operations with unique factors and as a result, there are few financial and technical benchmarks that can be reliably used. The research and discussion explores the drivers behind minor new works on the MOD estate and ascertains whether there are ways that VFM can be measured in a uniform and practical manner. There are five key elements in DE's two-stage MNW VFM method. Although there is an element of qualitative assessment linked to identify and interpreting users' key drivers and cost benchmarking, the approach is dominated by hard measures. Further development of the method should emphasize softer aspects such as stakeholder attitudes and risk sharing.

Keywords: ministry of defence, minor new works, value for money.

INTRODUCTION

Value for money (VFM) is a much-flaunted term in all sectors of public and private expenditure but one that is often misused or misinterpreted to mean 'cheapest price'. It is sometimes used as shorthand in a negative sense to cast doubt on the magnitude of an expenditure as in 'this is not value for money' but with scant recognition of what the term means. Value ranks almost as a metaphysical concept rather than a concrete measure. Times are changing; the current fiscal climate has driven budget holders towards a greater endeavour to cut down inputs and to provide more prudent outputs. This has created a surge in demand for solid evidence that VFM is actually being achieved. The target is to achieve evidence-based methods of ascertaining VFM that can be used across project programmes consisting of varied procurement routes.

Arising from of the UK defence sector budget are capital projects of varying sizes. Defence Estates (DE) manage these projects through a variety of frameworks and stand-alone contracts, most notably through prime contracting. Regional Prime Contracts (RPCs) are frameworks which deliver response maintenance and life-cycle works, known as Core Services, across Great Britain with a total spend estimated at around £3.5bn between 2003 and 2012. RPCs are capable of absorbing projects of up

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to £15m works value, whilst even larger projects are procured using competitively tendered, stand-alone prime contracts. In both of these cases, significant resources are applied to check and verify VFM using well-established techniques.

Projects below £100k, however, are known as Minor New Works (MNWs). These small works are of a size and pace that cannot support the levels of VFM activities performed in relation to larger projects. Yet, historically, up to 10% of the annual estate development budget has been spent on MNWs and DE is obliged to demonstrate that these provide VFM. Additionally, MOD must respond to public sector cost rigour whilst acting to maintain a highly diverse estate; the cost of which is difficult to benchmark. So how is it possible to muster such a large organization effectively to measure VFM on such a variety of small undertakings? The efforts of DE to answer this question and the theoretical background that supports DE's task are examined in this paper. This is a difficult subject area because there is so little available in terms of directly relevant literature or technical and financial benchmarks.

METHOD AND HYPOTHESIS

This paper outlines and examines the method being developed by DE for measuring VFM on MNWs, and to combine this with a literature review of relevant papers and articles on VFM. In discussion is an examination of the empirical data gathering mechanism of Time, Cost, Quality and this is contrasted with qualitative issues arising from the perceptions and roles of stakeholders. In addition to the information supplied by DE for this paper, non-structured interviews with DE and supply chain members has assisted understanding and fed into the resulting discussion. The hypothesis is adapted from Defence Estates own proposed definition of VFM, namely:

VFM is a consistent way of showing the efficient use of resources, measured against best standards achievable in comparable circumstances and demonstrated by objective evidence.

WHAT IS AN MNW?

There are two basic procurement routes for delivery of construction works on the MOD estate. Large projects (as a yardstick, over the EU threshold) are known as Core Works, which are procured either:

- on a stand-alone basis using either design and build (Defcom 2000 form of contract) or prime contracting, or;
- as a regional or functional prime framework core works contract.

All prime core works contracts are managed by DE using a seven-stage process with the Final Price payable to the prime contractor being ascertained by using the MOD's Maximum Price Target Cost (MPTC) procedure (Simpson and Dye, 2008).

Projects that exceed £100k but are regarded as too small to be managed as Core Works are subject to a cut-down version of the process, sometimes referred to 'mini-MPTC'. The shorter process is condensed into three procurement stages in recognition of the lower levels of input needed to procure and manage such projects. Where these works are procured under an RPC framework, they are referred to as Core Services Projects (CSPs). MNWs are usually awarded under RPCs unless a location (unit) is not covered by such a contract, in which case the MNW will be let through a local supply chain.

A current, generic process map for delivering an MNWs is shown at Figure 1. All MNWs start life as a need identified by a unit through the Head of Establishment (HOE), who works with the Site Estate Team Leader (SETL) to develop a Statement of Need (SON), a Statement of Requirements (SOR) and a Rough Order of Cost (ROC). The purpose of a ROC is, in combination with other ROCs, to establish a local programme within affordable parameters. A ROC price within +/-40% of the tender price is regarded as acceptable. Together, these documents form the starting point for procurement of a project.

Projects up to £100k are locally controlled by the site estate team but those over £25k are grouped together to form a national programme of MNWs under the annual Integrated Estate Management Plans (IEMPs). Below £25k the MNWs are wholly managed by local estate management teams within defined governance rules.

LITERATURE REVIEW OF VFM IN MINOR WORKS

A literature search concerning the terms minor works and value for money illustrated the varying definitions and aspects of both terms. Available literature reflects a wider class of projects generically known as ‘minor works’ rather than the DE term ‘minor new works’ (MNW), both terms are used interchangeably in this review depending upon context.

The nature of minor works has a large impact upon the procurement and measures for best value, minor works are usually of simple nature and of short duration, normally procured as a lump sum based upon a schedule of rates, drawings and specification (Ramus and Birchall 2001). Minor works tend to have urgency about them; in the construction industry they are notoriously unpredictable and lack comprehensiveness (Ramus and Birchall 2001). In DE, MNWs are usually injected into RPC frameworks on an annual basis with some being regarded as ‘urgent state requirements’ (USRs), and they differ from the usual ROC work requirements in that they are not planned or responsive maintenance; USRs are ordered in reaction to operational imperatives and bypass the usual VFM processes. This begs investigation into the effect of MNWs on cost, efficiency, risk and finally how to collate objective evidence or proof for value for money.

Definitions of value for money included the differing concepts of economy (GlaxoSmithKlein 2005, MOD 2010), efficiency (OGC 1998), effectiveness (NAO 2004) and innovation (Simpson and Dye 2009). The three emergent themes of economy, efficiency and effectiveness were also considered in combination and interdependence (University of Warwick 2009, NAO 2004). Barina (2009) analysed two differing dimensions of value, the objective, requiring measurement (i.e. benchmarking) and perceptual, an awareness of the beliefs of value by all stakeholders involved. There was also an awareness of wider aspects worthy of discussion such as strategy and its impact upon the drivers of value for money (Llewellyn and Tappin 2003), the identification of different audiences, such as end users and budget holders (Aritua *et al.* 2009).

Efficiency is a corner stone of value for money and it is suggested that to improve learning and feedback, efficiencies should be benchmarked (OGC 1998) and disseminated. The process of efficiency, for the public client, is often to streamline the procurement process (Aritua *et al.* 2009), and the experience and knowledge gained, which exhibits efficiency, should be shared. Another important factor is the efficient

communication of the strategic objectives (OGC 1998, Llewellyn and Tappin 2003), which also requires benchmarking.

Best standards is a term used by DE, which can be interpreted as a clear comparison with other products or services delivered, both to other projects within the framework and to similar works of a minor nature, whilst achieving output specifications and environmental standards. This would indicate that the brief or SON/SOR is an essential focal point at the commencement and handover of the works, enabling a uniform view on best standards gathered empirically. Best standards are achieved by insisting on an initial, clear vision of the services required and by translating that vision into subsequent strategy. Both qualitative and quantitative evaluation criteria must necessarily be explicit at the commencement of any procurement (CBI 2006). This is further supported by the NAO (2004), which states that it is imperative in achieving best standards to have a clear understanding of a project's requirements. Best Standards can also be retrospectively influenced by the subjective demands of customer satisfaction and as Barina *et al.* (2009) points out, the measurement of value needs to be carried in two ways, empirical and ideological or rather in this case, from the perspective of the end users' key drivers.

Egan (1998) emphasized the importance of improvement and the sharing of those improvements and efficiencies within the construction industry, leading to the introduction of key performance indicators (KPIs) to a construction sector in need of significant change. Within construction, benchmarking is widely used for a number of clients most notably the air and pharmaceutical industries. Benchmarks allow the involved parties to measure both internally and externally the notions of what is best in class, who is best in the area being measured and how to make improvements (Green S *et al.* 2004). DETR (2000) introduced benchmarking as a method to measure VFM; it includes time, cost, quality and efficiency improvements as aspects to explicitly look at value.

The Department for Business, Innovation and Skills (DBIS) collects industry KPIs and holds data gathered since 1999 and these data fall into strategic and operational camps. The most applicable KPIs for minor works fall in the 'All Construction' category (DBIS 2009), which covers inter alia client satisfaction, defects, cost and time. The client satisfaction section then drops down further into satisfaction with product, service and value for money. When reviewing the figures posted by DBIS for the period up to 2009, there has been an improvement of client satisfaction in all areas where 80% and above were satisfied in all areas measured. These figures are reflective of larger projects and are not so easily transferred to works of a minor nature, especially as most MNWs are using injected funds into Core Service frameworks and are mostly critical 'urgent state requirements', which tend to bypass many validating processes including VFM.

DEFENCE ESTATE'S PROPOSED APPROACH TO MNW VFM

This paper now focuses on the gathering of objective evidence in an empirical manner, as expressed by DE. This is similar to the primary aim of Barina *et al.* (2009) of benchmarking in a hard data format. To be able to benchmark there must be consistency in the manner in which data is gathered, however consistency is a problem with MNWs, especially those of an urgent or injected nature, as standardization is a constant challenge. DE have chosen to use the cost, time, quality triangle as the main generic elements to sample and form the structure of their benchmark exercise. As with all minor works the variety of projects, locations, quality levels, sizes and

degrees of urgency will vary, therefore, it is eminently sensible to default to time, cost and quality as standard measures.

Bearing in mind the need to achieve best standards and client satisfaction, the communication of requirements at the start of procurement is essential. What has been mooted is the development of a weighted scorecard which will produce a “before and after” snapshot of empirical hard data to be used as objective evidence. This data gathering, to be meaningful, needs to take place over a realistic period of time to enable trends to be spotted and actions to be implemented.

DE’s definition (the basis of the hypothesis above) concentrates on five key tests in demonstrating VFM:

- consistent method across all projects regardless of procurement route (note this would entail taking the VFM methods beyond capital works and into response and life-cycle works, known as Core Services);
- efficient use of resources: lean and standardized methods and reporting hierarchies;
- measurement against best standards: selectivity of standards using industry-wide benchmarking, taking account of affordability, the quality and function of outputs, and environmental requirements;
- objective evidence: factual comparison of cost information against benchmarks, programme and functionality baselines, and verification by appropriate professionals;
- comparable circumstances: ascertaining client’s weighting of ‘key drivers’ and procurement variability.

Both the VFM of a project and the method of examining it need to abide by these principles. In the method, a number of processes are adopted to collect VFM evidence and reports are delivered at two stages (see Table 1):

- Stage 1 – prior to funding approval, and;
- Stage 2 – project completion.

The balanced scorecard approach commences with the initial VFM analysis at Stage 1 for each project, when the components of time, cost and quality are each marked out of 10 in terms of stand-alone significance and then subjected to a percentage weighting to ascertain their relative importance. Each score is monitored during the works, included in the monthly site and cost reports, collated in a global DE quarterly report and finally evaluated at Stage 2, project handover. This final evaluation is intended to form part of a body of evidence for external consideration. By combining the scores into a single exercise, the process is effectively a form of KPI. However, it must be borne in mind that this final evaluation is still presented in numerical/statistical terms and does not include subjective evaluation.

Table 1: Summary of VFM report components

Stage	Resource	Process	Tools/Records
1. Pre-Funding Approval	Cost	Production of a comparative cost analysis	Previous project records Price books Elemental analysis Bills of Quantities Maintenance costs Rough Order of Cost Affordability Annuality
		Procedures to ensure visibility and transparency of cost information	Target cost analysis Risk register
	Quality	Resource proposal	Previous project records Top down comparisons
		Build/Workmanship	Industry standards Output specifications Client expectations Design reviews Sustainability requirements Operational need
Time	Functionality	Draft Programme Final Programme Fit into programme	Rough Order of Cost Final price SEDG timetable compliance
2. Completion	Cost	Monitoring of comparative costs	Outturn costs Final price Annuality
		Ensure visibility and transparency of costs	Time records Supply chain invoices Audit
	Quality	Build Quality/Workmanship	Project records Visual inspections Defects lists KPIs
		Functionality	Compliance Customer satisfaction
Time	Outturn programme by target dates	Milestones by target dates	As-built programme Delay analysis As-built programme

DISCUSSION

The primary concern of and major constraint on the public sector client is how to prove that a price is value for money (OGC 2006, NAO 2004, CBI 2006). Public accountability demands this and the end user also needs to be able to evaluate the relative value of their expenditure as this relates directly to client satisfaction. Within large projects this is fairly well explained and explicit, costs can be broken down and investigations made (Simpson and Dye 2008). However, MNWs are not as simple to investigate due to the manner in which these works are injected into a larger framework contract.

DE method uses benchmarks (CBBP 2006, DETR 2000) to assist in the demonstration of VFM, using the categories cost, time and quality. However, ascertaining the level of client satisfaction at commencement and then again at completion of an MNW is a more complex manner. To overcome this difficulty the DE are drawing up a matrix of client expectations at commencement of project based not only on time, cost and quality but also with additional weighting to these categories. These matrices are unique to each contract and client but it is hoped that when sufficient data has been gathered more definite conclusions can be drawn making benchmarking a more

accurate tool. This quantitative approach attaches a numerical value to subjective measures, providing a concrete basis from which to measure outcomes.

Despite the strides taken by DE to move forward with MNW VFM techniques, there remain challenges that do not fit conveniently into the benchmarking and KPI agenda. The first of these is the misunderstanding of risk by the supply chain leading to Final Prices significantly below Target Costs. At one level, this is a practical issue insofar that governance rules dictate that funding of a project is transferred in full at the level of Target Cost from the client to DE. Any under spend is kept by DE after payment of any gain share to the supply chain, referred to as the purple pound. This situation leads clients to consider the price of an MNW as being not-VFM regardless of the actual Final Price.

The supply chain on the other hand is using risk management principles either based on already tired existing paradigms and crudely at that, or merely adding in risk 'as seen'. The latter is a matter for education using knowledge gleaned from benchmarking and KPIs arising from a database of Final Prices. The former issue runs much deeper in the industry and is epitomized in the common interpretation of risk registers as catalogues of frequency rather than considered degrees of belief (Ramsey 1926). Arguably, the real aim should be a more sophisticated approach to risk management at Stage 1 which would yield greater price realism, cost certainty and in turn, VFM. These areas deserve further study.

A further challenge is primarily behavioural insofar as the way that funding is allocated against a wish list represented by a body of ROCs. This creates the tendency for HOEs to store potential projects to the very last minute and only release them for procurement when they are sure that a particular band of projects are most necessary. The effect is to burden the supply chain with time constraints that may not support a Final Price within normal VFM bounds. In interview, the supply chain suggested that this is overcome by seeking 85% utilization of Core Services staff across units in order to allow them to execute accelerated works outside normal mobilization periods, whilst Core Services subcontractors would backfill normal Core Services duties. This is a risky approach if the balance is not kept, as it could result in the supply chain losing money – something that is obviously not VFM for them. This issue of day-to-day management does highlight that quantitative approaches go only so far to identify VFM and that there is a need to consider qualitative factors (Simpson and Dye, 2009). Viewpoints and events affect subjective interpretation of VFM as noted above in the literature review section.

This quantitative approach undertaken by DE will by necessity concentrate on inputs and outputs. In the same way that VFM experience is a factor in achieving the widest acceptance at Stage 1, so too is the demonstration of effectiveness of an MNW at Stage 2. Effectiveness is an element of Best Value (Great Britain, 1999) which reflects on achievement of objectives. This has been touched on in the literary review above and remains a further potential avenue for development in the DE model.

There is also the frequently unacknowledged power of innovation, which if enabled, allows for the development of new solutions to seemingly old problems. Rigid standardization is the natural enemy of innovation and this is a danger in such a regulated environment as the UK military. However the wider use of prime contracting and ever more inclusive supply chains will facilitate controlled experimentation that promotes new thinking. The main hurdle is likely to be attitude to failure, which in the UK construction sector crystallizes as a blame culture contrary

to the philosophy of collaborative, cost-recovery contracts. In terms of DE's approach, interviews revealed that innovation is measured as a lesson learnt at Stage 2 rather than pro-actively sought from Stage 1, losing the impetus of agreed value. A further question here is whether there needs to be a Stage 3 that focuses on lessons learnt and feedback, which in turn will harness innovations for continuous improvement.

DE's method, for Stages 1 and 2 has been developed to address the specific needs of the defence customer. Other approaches adopted within MOD for collating data to ascertain value for money, are the use of standard price books, standardized databases such as BCIS and the PSA schedule of rates 1998. Another method of empirical data comparison, a favoured approach in the US and adopted by some PQS firms is that of a price survey carried out with contractors and suppliers on their tendering lists. A further approach is that where an approximate measurement is undertaken in the style of schedules of rates and BoQ these are then priced up. The overarching driver, in all these methods, is to provide hard quantitative data for VFM, the avenue adopted is dependant upon the usual constraints of time, briefing information and cost data available.

There is a danger of portraying VFM in a flat simplistic, manner rather than reflecting the complex, rich, diverse and multi-layering in the nature of value. As Aritua (2009) and Checkland and Poulter (2006) contend there are many different end users and multiple stakeholders in the public sector, all of who hold individual interpretations of value which must be considered. Add to this the two dimensions of value discussed by Barima (2009) – benchmarking and perspective of the parties – there then appears richness and complexity, which can be appreciated though not easily addressed.

CONCLUSION

Five key elements have been identified in DE's quest to assure that VFM is demonstrated on MNW projects:

- consistent method
- efficient use of resources
- measure against best standards
- objective evidence
- comparable circumstances

The kernel of DE's approach to MNW VFM is quantitative in nature with a limited degree of judgement, which aims to convert subjective expectations and satisfaction statements into hard scores. Professional judgement is also employed around the interpretation of cost information benchmarks but with the aim of delivering a body of evidence over time that will reduce this need for judgement. In essence, therefore, DE is endeavouring to implement a system of hard measures in order to back up its approach to VFM. This is regarded by DE as a positive development because there is a need for standardization of VFM solutions that will allow for a consistent way of showing standards achieved project by project.

Given the lack of background development of MNW KPIs, the conventional categories of VFM measures of Cost, Time and Quality have been adopted by DE. However these categories could become more refined, in particular, the addition of

methods to account for attitudes of various stakeholders, the accounting for effectiveness and integration of innovation.

In exploring DE's approach to find a workable system for measuring VFM on MNWs, the authors have been able to compare a live approach to the available literature, which is scant in the immediate subject area but from wider studies have shown that there are potential areas of development, which may form further specific areas of study. These include the introduction of a qualitative toolbox, an investigation of stakeholder values and a review of approaches to risk management.

The latter of these is particularly worthy of exploration beyond this paper, it is fundamental to VFM that risk is a shared commodity (NAO 2001) and Aritua *et al.* (2009) highlights that the intelligent client uses the interfaces of VFM to handle risk. In minor works, risk management is difficult to resource because it should respond to unique, small and often urgent needs. Indeed, in similar circumstances the conservative insurance industry would resort to the use of cost recovery or dayworks as a way to closely manage risk of inaction or inefficient resource usage.

In attempting to introduce an empirical interface to measure VFM, a credible start has been made by DE in exploring a practical approach to VFM in the field of minor works. Further studies will help expand on these ideas of risk, qualitative tools and perceptions in the area of minor works capital expenditure, which dominates the whole construction sector not only in defence.

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