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THE AFFORDABLE FUTURE FLEET - UNDERSTANDING AFFORDABILITY FROM A CENTRAL POLICY AND PROGRAMMING PERSPECTIVE

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ABSTRACT

A continuing challenge for Defence Ministries and their industrial partners is how to make the planned future fleet affordable. That challenge is starker now than for some time with budgets under ever closer scrutiny as Governments seek to improve value for money and respond to the impact of the global financial crisis. Set against this wider context the first challenge in planning any future fleet is to define what is meant by "affordable". Only by understanding the many facets of affordability and their associated constraints can those involved in defining and providing capability manage effectively.

This paper explores the general concept of affordability from the perspective of central Defence policy and programming. It examines the resulting strategic influences and constraints imposed on projects and programmes, and the effects that decisions at the project and programme level can have on affordability at the Defence level. Themes discussed include the balance between stability at the programme level and flexibility at the portfolio level, managing with structural cost growth, managing the financial impact of risks, project credibility and understanding the link to Defence outputs. The paper derives a simple framework to guide assessments of affordability and offers some views on how those involved could approach their projects to address affordability.

INTRODUCTION

Over the past 10 years the UK has undertaken a substantial ship build programme and further new platforms are planned. However, the cost of those platforms, and the cost of the manpower to operate them, is rising and the overall Defence programme faces a significant affordability challenge. Moreover, the last 7 years have seen the UK engaged in two Medium Scale[A] land dominated conflicts that have stretched the Force Structure.

This backdrop of recent conflict and affordability may set the conditions for another paradigm shift in Defence. The UK is approaching its next major

Strategic Defence Review (SDR) and has published the related Green Paper[1] which explores these pressures. The SDR will, it is hoped, provide policy direction that will enable MOD Central staff to construct an affordable and sustainable forward programme. In constructing that detailed programme, and adjusting it through inter-Review years[B], the central view of affordability and its constituent parts may differ from the view taken in other areas of Defence.

This paper begins by examining the likely major pressures central programmers will face. The paper then considers the major lever for achieving programme balance, flexibility, and what central programmers may ideally wish to see from constituent projects to help generate flexibility at the top level. The paper then proposes a simple framework for assessing the affordability of individual activities from a central perspective.

Authors' Biography

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CONTEXT FOR FUTURE PROGRAMMING

Broader Financial Context

The state of the wider economy is such that most commentators agree the need for restraint in public expenditure in order to reduce the overall level of UK Government debt. There is a significant likelihood that the core[C] Defence budget, in common with most other Government Departments, will face real terms reductions over the medium term. It is conceivable that this may amount to what is termed a "flat-cash" settlement, meaning that the budget beyond the current Spending Review period would be of the same cash value but will not increase in line with inflation. Assuming a long run GDP deflator (the relevant measure of inflation) of 2.7%, a "flat-cash" settlement from Financial Year 2011 onwards could theoretically result in a real terms reduction as great as £42Bn over 10 years,

[1] Cm 7794, "Adaptability and Partnership: Issues for the Strategic Defence Review", February 2010.

illustrated below. The National Audit Office estimated[2] the potential shortfall between a "flat cash" settlement and the current programme at £36Bn.

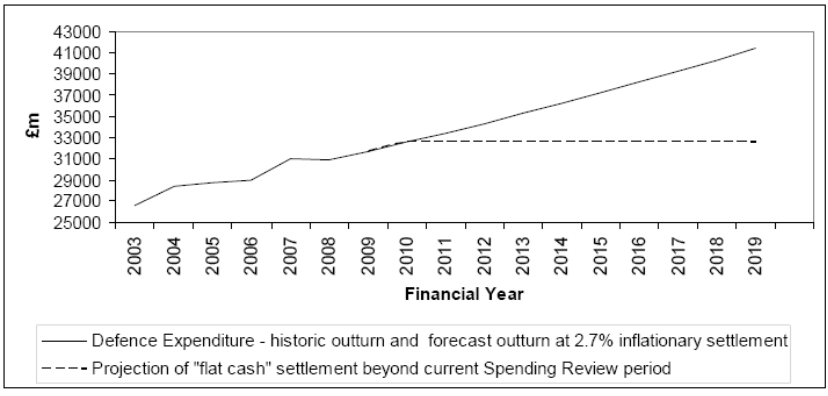

FIG.1 – THE IMPACT OF A "FLAT-CASH" SETTLEMENT

Structural Cost Growth

There is also considerable long term cost pressure internal to Defence. Analysis within the UK MOD, consistent with analysis in other nations, shows that there is a rise in the costs of Defence beyond that experienced in the general economy. This structural cost growth is driven primarily by Manpower and Equipment costs. From UK Defence Statistics[3], a review of operating costs show that, Service Manpower costs are approximately 27% of annual operating expenditure, equipment procurement costs are approximately 19% and equipment support costs approximately 16%.

UK Defence Statistics[3] also show that military salaries have, over the long run, increased in real terms by approximately 1.5%. Manpower costs have risen consistently in response to systemic drivers such as the need to compete for skilled personnel and to retain personnel as societal expectations change. The overall costs of military personnel also include a very substantial pensions bill and liability. Across both Service and Civilian personnel, annual pension costs run at approximately £1.8Bn[4].

There is also growing evidence that equipment procurement costs over the long run exceed general inflation. Kirkpatrick[5] argues that cost growth in equipment procurement may be as high as 6.2% above the GDP deflator and there is interest within the Office of National Statistics and the MOD in assessing a more robust measure. There are a number of drivers for the effect.

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[2] National Audit Office, "Ministry of defence: the major projects report 2009", The Stationary Office (December 2009).
[3] UK Defence Statistics 2009, The Stationary Office (2009).
[4] MOD Annual Report and Accounts 2009, The Stationary Office (2009).
[5] D Kirkpatrick, "Is defence inflation really as high as claimed?" RUSI Defence Systems (October 2008).

Firstly, there has been a desire to ensure technological edge. In economic terms, the utility gained from military equipment is not driven just by the needs of customers (the Military end-user) but by the perceived utility relative to potential adversaries. Therefore, there is a competitive upwards drive in the utility of successive generations of equipment. The recent Green Paper[1] recognises that this may not be the paradigm in the medium to long term, not only because of costs but principally because access to technology is now much broader and Defence is no longer the driver of innovation it once was. A new approach may allow a reduction in cost growth but only if a policy decision is taken not to seek a definite high end technological edge, and to achieve overmatch and combat specific threats in other ways.

There has also been consolidation in Defence industry. This has, and has the potential to, reduce cost through the removal of inefficiencies but it also results in a premium from what is referred to in economic terms as the "deadweight cost of monopoly". That is not to say that Governments are being overcharged, although they may be, but that the cost of input factors, in particular skilled manpower, has risen and there is a general loss of competitiveness inherent with monopoly provision that drives increased costs.

As there has been consolidation at the top tier of defence industries there is also evidence of reduced lower tier competition, although more because of a reducing reliance on Defence at this level. Whilst Defence remains highly reliant on a few specialist providers, some of those providers have become less reliant on Defence in response to falling volumes and charges rise as they offset the opportunity costs of continuing to retain capabilities associated with niche, and often legacy, products.

One of the drivers for both these effects has been lower volumes within a spiral of increasing cost, reducing volume and lengthening procurement cycles. In the maritime sector in particular, the dominant factor is now the cost of the attendant enduring industrial base, with individual programmes becoming more of a marginal cost. In specific areas of procurement, cost growth can be much higher than in the general economy owing to the use of specialist raw materials.

Going forward, it will be necessary to examine these factors in greater detail and strive for better value. The new Strategy for Acquisition Reform[6] is the latest in a set of initiatives aimed at doing so. As arms of Government, Defence Departments will need to lead by example and structural cost growth cannot be treated as an irreducible factor over the long term.

However, tackling this growth through efficiency gains is complex and slow. If costs are most likely to grow at beyond the GDP deflator and there is no increase in budgets above that (in part as no Government will wish to be complicit in accepting cost growth) then programming must generate room for this. It is arguable that this has not been allowed for in the past as conventional wisdom has held that such margins would be removed by central finance departments.

A further factor driving cost is legislative and regulatory change. This is a much more difficult driver to assess looking forward, and to reduce, and it is arguable that a measure of growth is necessary. However, it has had and continues to have a significant financial impact.

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6 Cm 7796, "The Defence Strategy for Acquisition Reform", February 2010.

Adjusting the previous position from Fig 1 for potential structural cost growth at 1.5% gives rise to Fig 2 where the effective core budget available to be programmed reduces sharply, in the worst case by approximately £55Bn.

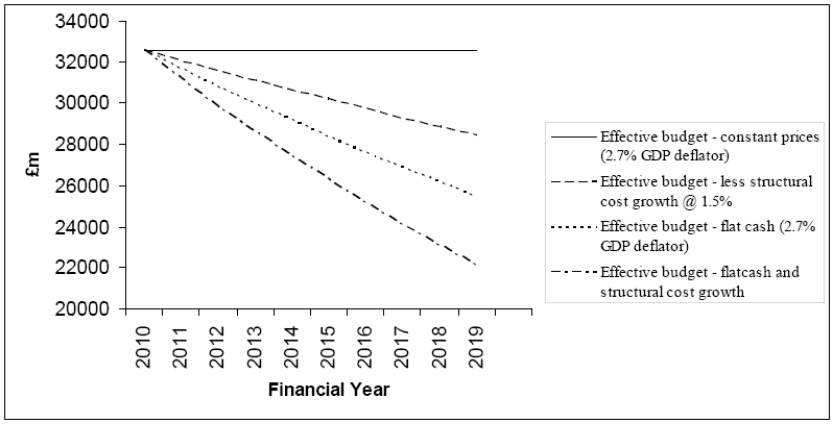

FIG.2 - EFFECT OF STRUCTURAL COST GROWTH

Future demand

In addition to the top down financial pressure faced in programming, there is increasing pressure in terms of the nature of demand on the overall Force Structure; what Defence may be required to do is changing.

The Green Paper[1] discusses increasing uncertainty and complexity in the character of future conflict, and the likely challenge in maintaining a technological edge. Against this background, greater adaptability is required, not only in equipment and personnel but in processes and structures. As resources tighten, wider utility may need to be sought from both equipment and personnel and greater flexibility needed in planning, management, acquisition and industry.

Analysis of recent conflicts shows the need to plan more carefully for sufficient enablers to support the desired level of concurrency, and to sustain operations for long periods and through several phases. There is little point in developing equipment to deliver high end kinetic effect if it cannot be deployed to and sustained in theatre – probably for longer than envisaged.

POLICY, PLANNING, REALISM AND PROGRAMMING

Policy to programme

In the UK the Force Structure is, currently, driven from a contingent operations baseline. The potential tasks and scenarios that forces may be involved in are defined, necessary capabilities are determined, Force Elements are attributed to those tasks and a level of aspiration is set in terms of the number of concurrent operations. On a daily basis this Force Structure undertakes Standing Tasks and Standing Overseas Commitments, and any contingent tasks that have been

enacted, such as operations in Afghanistan. In high level planning, and particularly in the contingent driven approach, the units of analysis are scenarios and effects. Only after these are considered does programming address the specific Force Elements that may deliver capabilities and hence effects within scenarios.

As the size of the Fleet has reduced since the last Defence review, Standing Commitments have become a relatively more significant demand on the Force Structure. More generally and recently, the need to ensure success on current operations which have been beyond the planned scale and concurrency have been the dominant demand, in particular on enablers. The reality is that daily effort has very different demands to those originally planned for. The recent Strategy for Defence aims to recuperate essential contingent capabilities, but places success in Afghanistan as the highest priority.

It is entirely possible to derive a force structure differently, from Standing Commitments, and accept that contingent operations will draw from this; risk will be taken against Standing Commitments in the event that a contingent task is undertaken. With no financial constraint, the contingent driving approach is likely to result in a larger and more expensive force structure as a range of capabilities will be planned to cater for a wide range of potential scenarios. However, whilst potentially less expensive, driving the force structure from standing tasks has other risks. A significant planning lesson from recent conflict is that its nature is more enduring than envisaged and the demand for enablers across all environments is much greater. In general, standing tasks are less complex and less joint in nature that contingent operations; planning merely on a standing baseline risks mission failure when a contingent operation is enacted. This is significant as it may be difficult to continue to regard a contingent operation as discretionary once it has commenced.

The likelihood is that long term planning is likely to have to consider both approaches and strike a balance between them. The point of balance will be driven by three primary factors. Firstly, by those tasks that are considered by any Government to be non-discretionary, and specifically those where that country may be required to operate alone, or even in a lead role as opposed to within a wider coalition. Secondly, by what is affordable. Thirdly, and more in the case of platform based capabilities, what is practicable in terms of project timescales and the associated decision cycle.

Programme realism

Once the high level programme is defined it is adjusted in the light of real and nearer term pressures to arrive at a funded and deliverable plan. A major near term pressure is change in the costs of constituent projects.

As programmers seek to achieve a balanced and affordable programme, a dominant consideration issue is the degree to which a specific capability is compliant with current strategy and critical to a range of scenarios. As budgets tighten, so will definitions and the rationale for a specific capability or platform will be more tested; Defence will be challenged to find other ways of achieving the same effect more affordably. One strategic programming approach is to determine which scenarios, or scales of operation, it is reasonable to take risk

against being able to undertake. This may then steer choices over particular Force Elements.

Against this backdrop, programming in the Maritime environment deals with the whole existing and future fleet, which co-exist. From a programming perspective, the term future fleet may be misleading. A new vessel may be needed, either to maintain an essential capability or move to a new capability, but it is the whole fleet that is programmed, some of which is future in nature. Where this subtly has real impact is that programming action may be most effective, as well as most realistic, in extending current fleets rather than procuring new. Notwithstanding the understood impacts of safety justification, legacy training etc it is a legitimate programming response to extend existing platforms, especially if their capabilities can be adapted or if the driving policy is likely to change. For example, Type 23 is very much part of the future fleet as it will probably exist in the Defence Programme beyond 2030.

Programme flexibility and constraints

The previous sections have described the context within which central programming will take place, where there are conflicting pressures from reducing budgets, rising costs, uncertainty of demand and the need for greater agility. The goal of programming is to maximise Defence outputs as determined by Strategy, within the limits of affordability. The most useful tool to achieve this goal is flexibility and the greater the mismatch between the available resource and previously programmed activity, the more flexibility is necessary to achieve affordability and balance.

At the Defence level, a substantial proportion of the budget is always committed or genuinely non-discretionary, at least in the short term. For example, contracts already placed may have exit costs in the near term; military personnel costs can be reduced through reducing numbers but this takes typically up to 3 years unless expensive compulsory redundancy action is taken. Work is underway to establish in more detail how budgetary flexibility changes over time but the near term flexible proportion of any Defence budget is limited. Therefore, near term programming is heavily constrained by practicalities. Longer term programming can be heavily constrained by politics.

Whilst flexibility is the most useful tool for top-level programming, it is often argued that greater stability at the project level will reduce costs. Therefore, there can be inherent tension between reducing costs within the boundaries of a project and reducing costs at the top level, especially when demand is changing at a faster rate than the life cycle of some constituent projects. Affordability can also be, in the near-term, at legitimate variance with value for money. The reality of budgeting means that some decisions must be taken to maintain affordability in the near term that may be, from a project perspective, poor value for money. The NAO2 note the impact of deferral decisions, as does Gray[7] in his report on acquisition.

[7] B Gray, "Review of acquisition for the Secretary of State for Defence", (October 2009).

ASPECTS OF AFFORDABILITY

In pursuit of flexibility to create an affordable and balanced programme, whilst recognising the different perspective of flexibility that exists looking bottom up, it is instructive to consider specific aspects that bear on programming decisions. These aspects may all be considered as components of affordability. The following sub-sections address these aspects, noting where top-down and bottom-up perspectives may differ.

Strategic alignment

As described, a key consideration is the extent to which an activity supports the overall Strategy at Defence level. Specific capabilities will always have a case for their procurement or continuance but must be viewed against strategic priorities. As demand changes, seeking greater agility and wider utility, the strategic case for some capabilities may diminish. This is a clear aspect of affordability as any activity must be judged in part on the associated opportunity costs.

Budgets, Expenditure categories and profiles

In the UK MOD, as in other countries, there are rules governing accounting treatment and there are different sub-ordinate budgets. From a future procurement and support perspective the primary UK budgets are the Equipment Programme, the Equipment Support Programme and the Non-Equipment Investment Programme. Each of these also has limits for different classes of expenditure, primarily Capital and Resource although there are other sub-ordinate categories. It is simple to state, but often complex to manage, that an activity must be affordable in each relevant budget and, most importantly, against each category of expenditure. This is not always the case and, as innovative arrangements for delivery are proposed, the effect in each budget and category must be assessed carefully in advance of action. Through Life Capability Management (TLCM), that takes an approach across all Defence Lines of Development (DLODs), aims to address cross-cutting issues although there is scepticism (Gray[7]) in its ability to assist.

Moreover, the profile of the activity (the costs against each financial year) in each budget and against each category must be demonstrably affordable. Again, this is easier to state than to achieve but realism and understanding of profile is a key factor in achieving overall stability in the extant programme. The issue of profiling (ensuring costs are budgeted for in the year which they will fall) is of critical importance when dealing with managing the financial impact of risk, which can materialise in different years to the risk-mitigated profile

Where budget types and profiles often come together is where up-front investment is required that aims to yield savings in later years; for example, initial investment in design and manufacture may seek to reduce support costs. Whilst it is possible to generate causal models that can show such trades, ultimately they must be able to be linked back to the relevant budgets. In addition, there must be sufficient funding available in the near years to support the investment and this, as well as any downstream saving, must be programmed. A particular problem arises where investment is required to offset the rising costs of an activity but where no saving exists against the currently programmed budget. Thus, although an initiative may

appear rational in isolation, it still represents growth in the overall level of programmed activity and may therefore be seen unfavourably. Practically, such cases can only be solved through absolute realism in current programme costs.

Stability and realism

In the absence of changes in demand and imposed changes in available budget, stability and certainty within individual projects supports effective top level programming. It is axiomatic that long-term stability is more cost effective within the bounds of each individual programme, enabling a tailored procurement solution and the basis for continuous improvement to reduce costs. That stability depends on many other aspects, some discussed below, but a key issue is realism at all stages; lack of realism manifests later in cost growth, which affects other projects.

Cost understanding, evidence and transparency

Realism depends in large part on a deep understanding of costs and causal links. The Strategy for Acquisition Reform[6] has committed to achieving a better understanding and more independent verification of costs. An important aspect for programmers is to better understand the fixed costs of an activity and to be able to separate those from the increasingly marginal costs of individual projects. This demands transparency. There are current examples where reducing procurement volume yields negligible short to medium term savings as the underlying industrial capacity is still to be retained to support future procurement, although from a central perspective there remains a need for industry to press down on these costs to ensure long-term affordability.

Level of commitment and flexibility

Often related to the fixed costs underlying an activity is the degree of associated financial commitment, which in cases may be contractually cemented. Commitment, whether real or perceived, limits top-level flexibility and, whilst greater commitment may be cost effective within a defined boundary, it may not be so within a wider boundary. Each case should be considered on its merits but it is crucial to understand, at all levels of decision making, what is truly committed, what is flexible, and the impact of change. An overall measure of top-level flexibility may be helpful, as may an associated target to increase or decrease the level of commitment as part of a considered strategy.

It is quite possible for a project to be demonstrably affordable for a period of time, against all the criteria set, but for the available budget to change as a result of broader reductions or challenges in another project. The “good” project may therefore become unaffordable through no internal fault. From a central perspective this may be the unfortunate result of a change in broader priorities. The issue for the project is how to respond to that change in input, which demands a deep understanding of costs, risks and causal links. A clear understanding of options and a realistic and agreed view of impacts is essential to give programmers the best information on which to make balancing decisions.

Responsiveness to demand change

Agility in equipment and manpower is a clear aim, if hard to deliver in a platform dominated environment. For the Maritime environment, with large and long-term platform programmes, achieving increased responsiveness is particularly challenging; there are different dynamics in other environments, particularly in some parts of the land environment where the mantra is equipping the man rather than manning the equipment.

There are a number of project and technical approaches to improving responsiveness to changes in demand, notably a spiral development and acquisition strategy and an Open Systems (OS) approach. Whilst the technical aspects of OS are reasonably well advanced, implementing and supporting OS requires an aligned commercial construct and that is more difficult to achieve. Effective implementation of OS may also be assisted by a more agile and open funding model. However, if a spiral acquisition and OS approach is completely dependent on a new central funding model, it is unlikely to succeed.

Understood and Managed Risk

It is expected that, at the start of a project, assessed risk will rise over time. As the project proceeds, risk may rise further as more aspects are understood and only abate as delivery is well underway and the number of initiating factors reduces, by which time many earlier risks may have materialised. However, the approach to budgeting for the financial implications of risk does not always allow for the rise as time proceeds. A delay in delivery, either self-generated or externally imposed, causes a resource shortfall in later years if risk contingency is not programmed in these years. Cumulatively, the effects of this are often significant, leading to centrally imposed adjustments to ensure the entire programme does not overspend.

The paper solution appears simple – to ensure that forward costing includes a growing element of risk provision which accounts for the fact that a number of risks will have materialised, forming a new baseline, and further risks may yet materialise. In practice this is difficult to achieve and may require a large shift of culture as there is perception that the risk allowance will not be available when needed. Further work is underway, under the auspices of the Strategy for Acquisition Reform[6], to examine contingency, how and where it should be held and drawn down.

To assist the treatment of risk at a project level it is helpful for higher levels of management to set a more explicit appetite for different categories of risk, and for different aspects of the programme; more risk may be acceptable against lower priority areas, less risk will be acceptable against higher priority areas. A top down risk appetite acts as both a guide to and a constraint on planning activity.

Stakeholders and shared view

Building on a transparent evidence base, aspects of affordability must be discussed and, where practicable, agreed across Stakeholders. This enables more robust and more efficient programming as issues do not need to be revisited many times. From the central perspective, the effort expended in achieving a shared understanding, if not a shared view, is beneficial.

Clarity and consistency and credibility

Building on a clear, open and agreed evidence base, across the Stakeholder network, it is important that a clear and consistent case is developed for each activity. This allows the activity to be better judged in terms of strategic alignment and better judged as wider factors change or priorities are tested. It is important to distinguish between an argument for an activity and a constraint associated with changing an activity; the costs of undertaking an activity and the savings from not undertaking an activity are generally significantly different. Clarity and consistency beget credibility and this can be important in longer term projects which will be subject to externally imposed change even if there is no internal change.

Definition

From a central programming perspective, affordability may therefore be defined as an evidenced, agreed and assured demonstration that the costs of an activity which is aligned with strategy, including provision for the financial impacts of risk, are no greater than the available resources in the correct financial years in all relevant budgets and expenditure categories, that the impacts of changes on other activities are transparent and understood and that the sensitivity of the activity to changes in available budget are clearly understood.

FRAMEWORK FOR ASSESSING AFFORDABILITY

From the programming perspective, it has been argued that affordability is more than a simple comparison of total expected cost against expected budget and has several components. Assessing these components, which are interdependent, is often complex and must be ongoing, as input factors and programming demands change.

To assist ongoing evaluation of the affordability of activities from a top-level programme perspective, a simple framework is proposed, which should be developed and adapted for specific cases and to tie to the necessary evidence base. The framework captures the major components of affordability of interest to central programmers, presenting the components as a series of open questions that seek an evidentially based answer that will assist the overall programming effort. The open question approach matches that being developed within the UK MOD on top-level performance management and is derived from work by Marr[8]. The framework is structured hierarchically to illustrate the way in which answers support an overall view from the top or centre.

[8] B Marr, “Managing and delivering performance: how government, public sector and not-for-profit organizations can measure and manage what really matters”, Elsevier (2009).

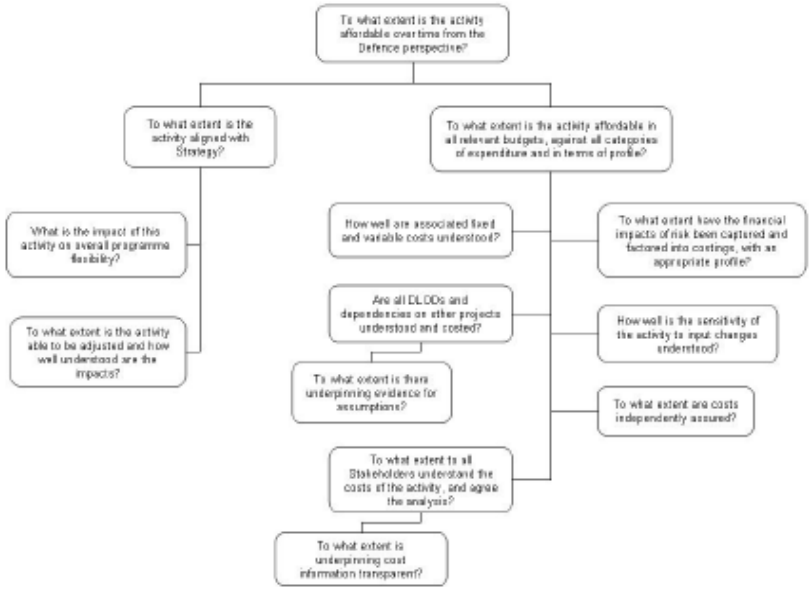

FIG.3 - AFFORDABILITY FRAMEWORK

CONCLUSIONS

1. In the financial climate that is likely to exist for the medium term, the available budget for programming is likely to reduce significantly as the input budget reduces and as better account is taken of structural cost growth.

2. The demand for Defence is likely to change, and change more rapidly. Defence will need to be more agile in all respects to meet changes in demand.

3. Programmers will seek to prioritise against Strategy. The current Fleet is the substantial part of the future fleet when viewed from a programming perspective.

4. Increased flexibility within the overall Defence programme will assist in achieving an affordable and balanced programme.

5. Increasing flexibility across the overall programme may bring associated constraints at the project level, in particular in relation to long-term arrangements.

6. The affordability of an activity comprises several components, all of which must be addressed individually and collectively to support the creation and sustainment of a robust programme at Defence level.

7. In seeking to make the Fleet affordable in the widest Defence context, project teams and their industrial partners should address all aspects of

affordability on an ongoing basis; the definition and simple framework in this paper may assist.

ACKNOWLEDEMENTS

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A Medium Scale relates to the planning assumptions from Defence Strategic Guidance, a key internal planning document. In reality, Operation Herrick (Afghanistan) is substantially in excess of the Medium Scale planning assumption, specifically in relation to its demand for enablers.

B The Strategy for Acquisition Reform, published in parallel with the Green Paper, commits to seeking to legislate for Defence Reviews at 5 yearly intervals.

C The core budget excludes the Net Additional Costs of Military Operations (such as Afghanistan) which are paid separately from the HMT reserve.

The views expressed are those of the authors and do not necessarily represent those of the UK Ministry of Defence or HM Government.