

Defence Planning and Effects-based Operations  
Effects based Operations or Assessment, Tools and Metrics  
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**Abstract:**

There is a view that Effects-Based Operations are wholly in the kinetic domain and associated with warfighting. The UK view is that the effects based approach should be based upon all three levers of power and should look to the long term in order that a co-ordinated plan can be made across the Diplomatic, Economic and Military domains to achieve an end state where stability is viewed as a high level of Governance, Rule of Law, Economic and Social Well Being, and Security in a region in instability.

The paper examines the UK Operational Concept for Effects-based operations and describes how this needs to be viewed in order that operational analysis and associated experimentation can be designed to meet the user requirement. In particular, the demands of defence planners in the near and terms are studied and the ability of operational analysis to provide coherent answers to planning problems presented.

The paper proposes a generic model for an Effects-Based Operation based on Doctrine. This illustrates the different operational phases, and how they need to be taken into account when determining future policy and capability requirements.

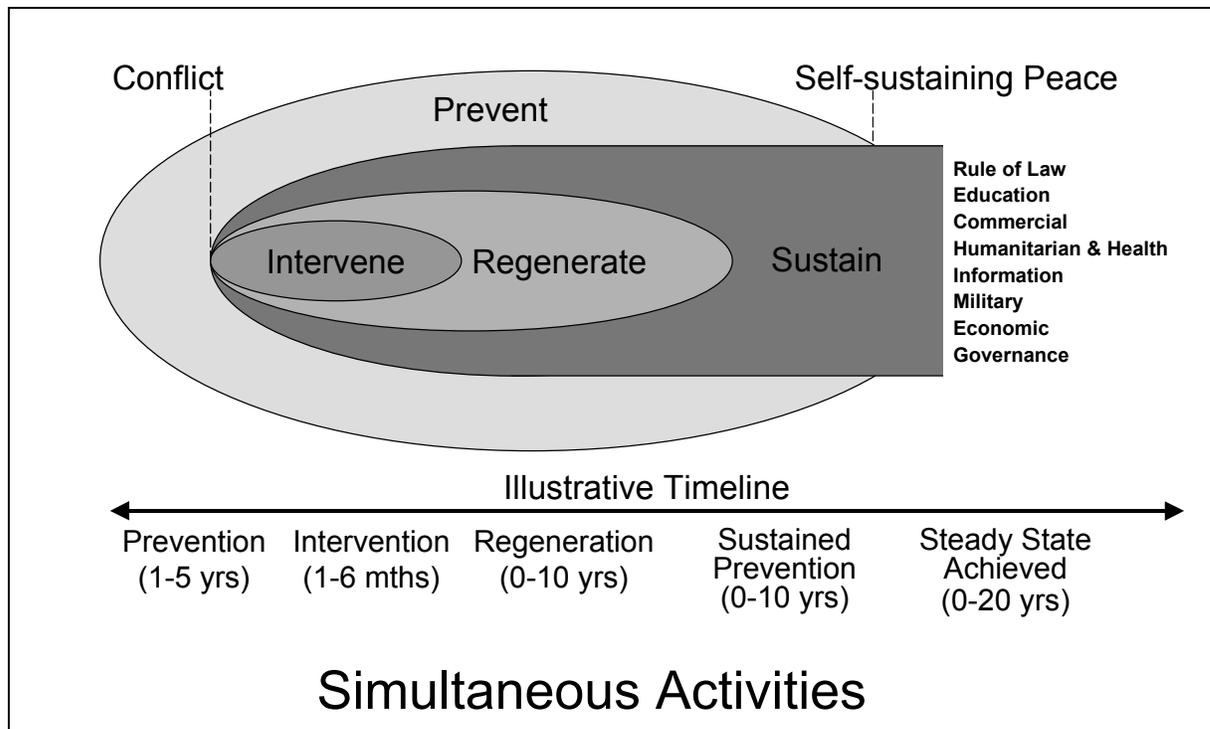
## **Introduction:**

The Joint Doctrine and Concepts Centre, part of the UK MoD, has recently published two analytical concepts describing the Effects Based Approach (EBA) Ref.1, the Effects Based Operational Concept (EBOC) Ref. 2, and a revised version of ‘The Military Contribution to Peace Support Operations’ Ref. 3. This paper will describe these in outline and offer a view on how they can to be viewed together provide the context for future defence planning. This context is then used to determine what Research, Analysis and Experimentation activities are required to support and enable the delivery of an Effects Based Approach.

## **Changing Nature of Operations a.k.a. Transformation**

‘Effects-based’ is more of a realisation of how we have to change the way we operate (transform) rather than a new way of doing things, it results from changes in the operational environment which in turn result from the changing and evolving nature of operations. The Cold War, with each side preparing to fight an attrition-based campaign under the threat of nuclear weapons, has been replaced by campaigns in which the two sides are likely to be unevenly matched and which are likely to endure for a considerable period of time. These campaigns will also include Other Government Departments (OGDs) and Non-Government Organisations (NGOs), amongst others, as key stakeholders in a campaign, all of whom will have key roles in delivering a successful outcome. While this is not new it is the acknowledgement of the capabilities that these players bring to the campaign, which has resulted in the generation of an Effects Based Approach Ref. 1 which addresses cross government planning synergies, and an Effects Based Operational Concept Ref. 2, addressing the Military requirement to deliver their role in future campaigns.

The Military Contribution to Peace Support Operations Ref. 3 identifies the key issues that need to be addressed over the long term if stability is to be achieved in a country or region at the conclusion of a campaign. The Diagram below is extracted from Ref. 3 and provides a generic model of an operation or campaign. This provides useful context in terms of where to start when thinking ‘Effects’.



**Figure 1: Generic Model of an Operation or Campaign**

There are a number of routes across the diagram above and they are not necessarily straight forward. The requirement to initiate preventative action may not be obvious at the outset; failures in a region that may subsequently initiate some form of instability may be both difficult to observe and measure. It is likely therefore that the start point in a campaign will be at some point after some period of instability. Depending on the nature of this the route to resolution will draw in a wide variety corrective action supplied by a wide range of ‘suppliers’<sup>1</sup> including the Military.

The model clearly shows the long-term goals against which the planning of future campaigns need to be established. It is against these goals that the Strategic Aim needs to be established and planning initiated. The Effects Based Approach and the Effects Based Operational Concept add additional context, and can be found in references 1 & 2.

### Using the Effects Based Paradigm

The key to using the Effects-Based paradigm in a campaign is establishing and disseminating the Strategic Aim. This needs to be agreed at the highest level between governments, in order that those who are able to contribute to the successful outcome of the campaign can be brought together to deliver, and then execute a plan, against a common understanding. It should be noted, however, that each department could have different aims and goals, which are likely to conflict with each other, preventing the aim being agreed at the outset. The Economic and Diplomatic instruments of power could well be trying to resolve problems in regions without any requirement for involvement or intervention of the military instrument.

Figure 1 shows a list of the key constituent parts of a Nation or Society: Rule of Law; Education; Commerce; Humanitarian and Health; Information; Military; Economic; and

<sup>1</sup> The Supplier could be a Government, or Non-Governmental organisation such as Oxfam, Red Cross, etc.

Diplomacy Administration & Governance (RECHIMED). These are linked to the activities that need to be considered within a campaign if a successful outcome is to be achieved. It should be noted that these are all long-term goals and cannot be created overnight. While they appear to be independent they need to be brought together in a coherent manner if long-term stability is to be achieved in the region of interest.

These long-term goals should allow the Strategic Aim to be generated, however, the time taken to establish and agree the Aim is such that it is unlikely to be established in isolation of other planning activities. Owners of the instruments of power<sup>2</sup> will have to work on their plans, while exchanging assumptions, in order that coherent plan can be generated with a range of Objectives and Effects against the Aim. Iterations of the plan will then refine these in light of the evolving strategic aim order to establish an executable plan from which Action can be initiated. Definitions from the UK EBOC Ref. 2 are reproduced below.

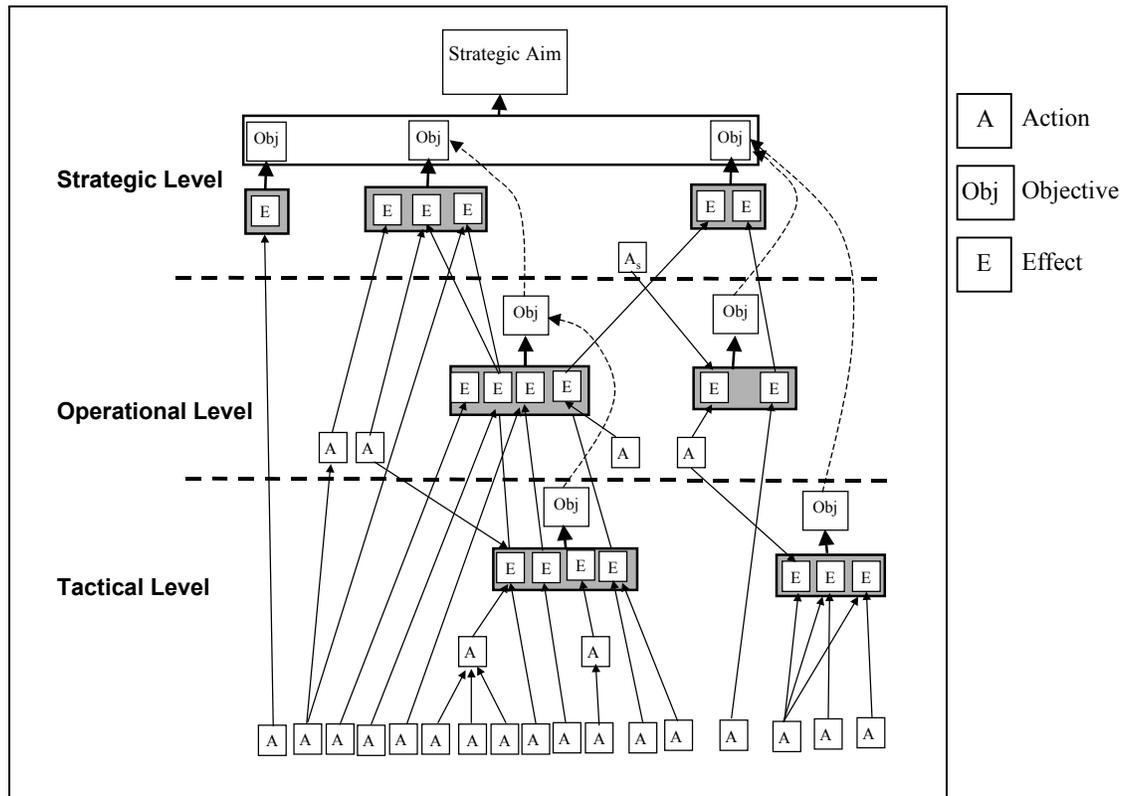
Strategic Aim	A single, unambiguous purpose attained by the achievement of one or more objectives.
Objective	The intended state of affairs to be achieved by the aggregation of specified Effect(s).
Effect	The physical or cognitive consequence(s) at any level within the Strategic Environment of one or more military or non-military actions.
Action	The process of doing or acting at any level.

**Table 1: Strategic Aim, Objective, Effect and Action Definitions**

The EBOC also postulates that the execution of a plan can take place at various levels. While this is coherent with the Military lever of power, and the chain of command, it may not align well with the other levers, and NGOs who may only have strategic and tactical levels. EBOC does not, however, restrict the connectivity between the aim and subsequent action to a strict hierarchy. The illustration below shows the possible relationships between Actions and the Aim across the Strategic, Operational and Tactical levels of command.

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<sup>2</sup> Diplomatic, Military, Economic (and Information)

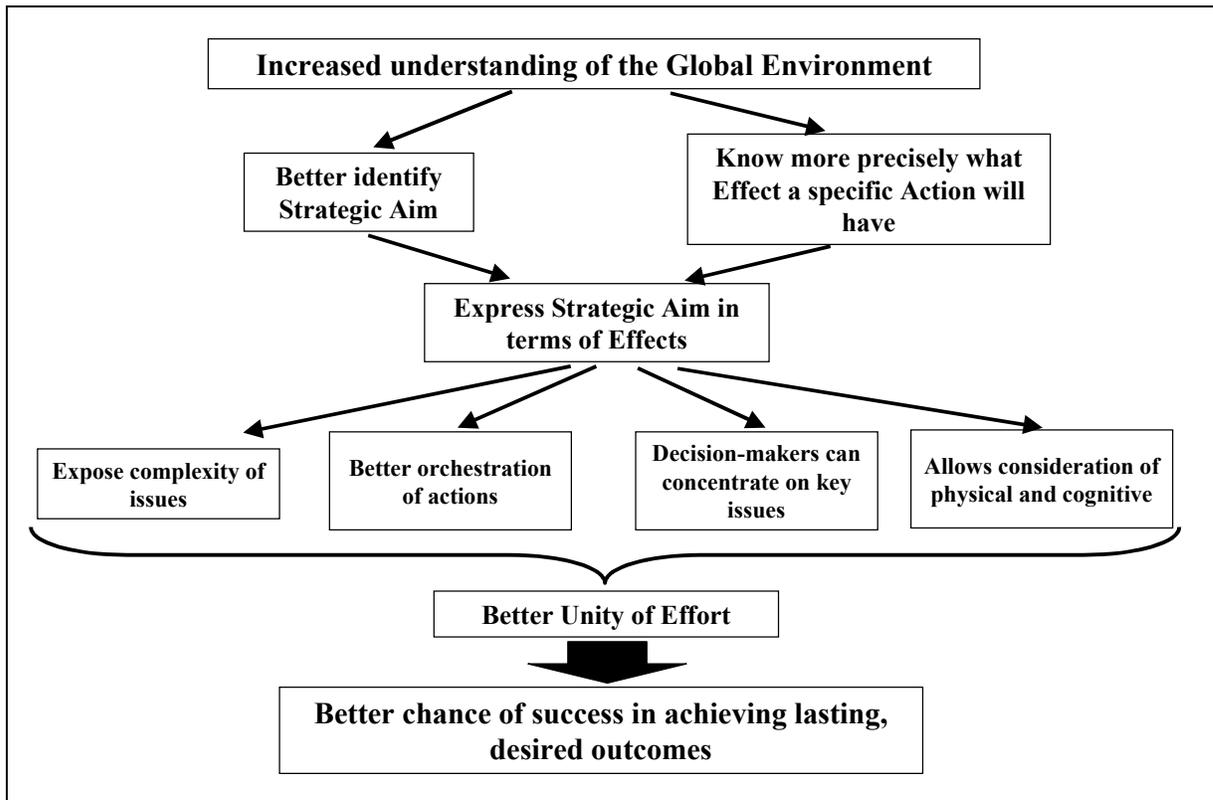


**Figure 2: Effects Relationship**

The Effects and associated Actions span a wide range of activities; in particular they exist in both the physical and cognitive domain, and can be delivered using a variety of kinetic and non-kinetic measures. If the campaign is to be successful an understanding of the cause of the instability is required including: the motivations of non-state actors contributing to the problem; the level of support they have within a region; who influences them, and many other factors. This allows the planners to determine the focus of a campaign, what the options are, and how it needs to be delivered in order to reach the desired outcome in the minimum timeframe.

### Context Summary

Given the context above the approach to delivering successful outcome, in an Effects-Based manner, can be thought through: firstly there is an increased understanding of the global environment, this allows the strategic aim to be better identified, and the effect an action would have to be understood more precisely. This allows the strategic aim to be expressed in terms of effects, which in turn exposes the complexity of the issues to be addressed, better orchestration of the actions, allows decision makers to concentrate on key issues and both physical and cognitive domains. This all leads to better unity of effort across all of the contributors and hence has a greater chance of success in achieving the desired outcomes. This should allow situations to be resolved in a shorter timeframe with less resource. Figure 3 below provides an illustration of this logical way of thinking.



**Figure 3: A Logical Way of Thinking**

**Way Ahead: Areas of work to be addressed**

Once the context has been established it is possible to determine what needs to be done to determine the value of the concept, and what activities need to be carried out to both support and enable it. The UK MOD uses Defence Lines of Development (DLOD) to ensure that future defence capability is delivered coherently, i.e. we have the people who are trained to use equipment and that we can support the equipment both when in the UK and when deployed. There are eight DLODs Training, Equipment, People, Infrastructure, Doctrine and Concepts, Organisation, Information and Logistics. Examination of these identifies some areas that need to be addressed if the Effects Based Approach is to be achieved. These are by no means comprehensive but intended to remind the reader of the scope of the problem.

<b>DLOD</b>	<b>Possible areas for future work</b>
Training	Promotion of collaborative working opportunities and processes such that both Military and Non-military can work with each other to engender trust in each other and experience of working with other organisations. The use of military training exercises and experiments to promote this is a key opportunity.
Equipment	Tools (to support thinking processes) to address Effects based Planning, Execution, Analysis, Assessment, and Information Management. Hardware to enable collaborative working, e.g. Networks, Security  Provision of decision support tools & simulation models that allow future equipment

	<p>decisions to be made in the context in which the equipment will be used and operated.</p> <p>Tools and technologies to track attitudes and behaviours, supporting Measures of effectiveness</p>
People	Recruitment, training and retention of individuals that can operate with other organisations. Access to Social Scientists, expertise in International Relations, Network Analysts in staff pool for addition to headquarters to manage data and provide increased assessment capability.
Infrastructure	Provision of Networks and security environment to allow collaborative working within individual nations, with other nations and with Non-Governmental Organisations (NGO).
Doctrine & Concepts	Provision of new ways of working, developed from EBA and EBOC, with supporting (common) reference material to allow an understanding of how to operate together.
Organisation	Establishment of organisational structures that promote working together.
Information	Management and exchange of data between participating organisations. Use of attitude tracking and behaviour patterns to support planning.
Logistics	Integrated support networks, in area resource sharing and exchange. Wider area support to enable reconstruction in RECHIMED areas. (i.e. Educators, Police, Administrators, First Aid)

**Table 2: DLOD Areas for further work**

In order to move ahead in some of the areas above the UK is developing an Effects Development Plan. This has three principle thrusts: Comprehensive Approach<sup>3</sup> and Collaborative Working Capability; Development and Validation of Future UK Military Capabilities to Engage in EBO; Development and Validation of Interim UK Military Capabilities to Engage in EBO. With these headings come a range of Analysis and Experimentation activities.

### **New Areas for Analysis and Research:**

A list of possible work areas is presented below, this by no means comprehensive but represents areas of the work that the UK is interested in pursuing.

**Modelling and Simulation (M&S):** Development of modelling and simulation facilities that can represent large scale Socio-technical systems, e.g. infrastructure systems, non-state actor networks, factions, social groups and NGOs. Introduction of the cognitive domain into the M&S capabilities used to determine the optimum solution to a problem; this should allow alternative options to be studied in particular non-kinetic solutions, such as Information Operations, which may make a better contribution to the delivery of the desired effect. The scenarios used to provide context to M&S facilities also need to be redefined, not only do they need to be written to reflect the Strategic Aim required they also need to be joined up, such that the transition between ‘Intervene’ and ‘Regenerate’ reflects use of the same equipment in two or more different situations, augmented or otherwise. There will also be instances where the same equipment will be used on the same day for different types of operation, as in the ‘Three Block War’ Ref. 4, equipment once deployed to an operation is also likely to be there for extended periods. These changes in the nature of operations are likely to make significant alterations to equipment, and other, requirements, therefore they

<sup>3</sup> The Comprehensive Approach includes the goal to have a Joined Up Cross Governmental and the Effects Based Approach.

need to be incorporated into the M&S capabilities used to support decision making, failure to do this will result in the inability to prosecute campaigns in the most efficient manner, with the operator having to make do with equipment procured against cold-war operations. The time taken to specify, procure and bring equipment capabilities into service is such that, when coupled to the time required to update the associated M&S capabilities there will be a delay before the full capability to carry out EBOs are available.

Measures of Effectiveness (MoE): Adoption of the paradigm described above raises the need for MoEs and assessment capabilities that will allow progress to be monitored against each of the RECHIMED constituent parts.

Cross-Government Capabilities: Develop an understanding of the operational capabilities and uses of the M&S used by OGDs to determine collaborative opportunities. Subsequent work will be required to develop these capabilities to enable and support cross-government operational planning.

Historical Analysis: Review the Military planning and decisions made and subsequent impact on OGD planning resulting from them, determine the aims and goals of the campaign contributors, OGDs, NGOs and military, to gain a greater understanding of the boundary areas. Determine the way each of the contributors operates and is organised to determine the degree of interaction, and where shortfalls are in order to determine how future organisations should be designed to support the EBA.

The UK MOD is currently addressing the changes required to the planning scenarios used to inform defence planning.

### **Areas for Experimentation:**

The Comprehensive Approach and Collaborative Working Capability aims to contribute to the thinking, processes, and organisations that will support a cross-Government EBA. OGDs and NGOs will be encouraged to attend, in order to experiment with process and ways of working, in future relevant exercises. This will enable all parties to establish a dialogue, common understanding of business processes and common ways of working and structures. In turn this will allow a Comprehensive Cross-Government approach to be taken to future operations, and most importantly establish the trust required between organisations to allow this joined up approach to work effectively efficiently.

### **Conclusions**

The Effects-Based Approach is not a new way of doing things but shifts the focus to long term outcomes.

Engagement of OGDs and NGOs will be necessary at early stages if we are to understand how they operate and common working practices can be developed and agreed. Experimentation will be a key enabler.

Modelling and Simulation capabilities need to evolve in order that they are capable of supporting the decision making required in the short term to enable the long term.

S&T is a key enabler in the delivery of an Effects-Based Approach.

### **Acknowledgements:**

This paper would not be possible without the work done by LtCol Duncan Dewar JDCC on EBA and EBOC and Phil Jones of Dstl and his colleagues who have contributed to the future areas of work.

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1 Effect Based Approach, JDCC, Draft, Oct 04

2 Effects Based Operational Concept, JDCC, Draft, Mar 05

3 JWP 3-50, The Military Contribution to Peace Support Operations, JDCC, Jun 04

4 Gen Krulak USMC, Marines Magazine, January 1999