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TECHNOLOGY TRANSFER: EXAMINING BRITAIN'S DEFENCE INDUSTRIAL PARTICIPATION POLICY

RON MATTHEWS AND RICHARD WILLIAMS

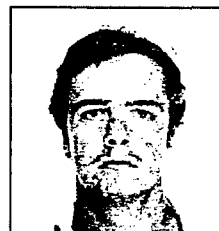
Since the early 1980s, the UK Ministry of Defence (MoD) has espoused the virtues of market liberalisation, commercialisation, and, increasingly, 'open trade'. MoD's open procurement policy¹ seeks to maximise value-for-money in defence procurement by providing access to the global market for both the (MoD) defence equipment purchaser and (UK) defence-industrial suppliers, subject to constraints imposed by UN and/or national foreign policy.² This open trading philosophy is premised on the institutional belief that the UK defence-industrial base (DIB), following the Levene reforms³ introduced by the MoD in the early 1980s, is now sufficiently efficient to compete in the global defence market. The view is that international trade will assist in securing the appropriate critical mass of capacity conducive for the achievement of technological dynamism and also manufacturing economies of both scale and scope. In meeting Britain's future national security needs, the tricky policy question is how to 'manage' defence imports to ensure that defence-industrial capability is not undermined. This in turn begs the further question as to whether defence is different, perhaps not subject to Adam Smith's strictures on the need for free and unfettered international trade.

Protectionism, imperfection and now 'peace' have combined to further highlight the uniqueness of defence trade. The international arms market has been extremely tight since the mid-1980s, and, more specifically, the end of the Cold War. With few purchasers, but many sellers, the current global arms market is often characterised as a buyers' market. Under these trading conditions, UK defence contractors have been obliged, grudgingly, to engage in outward technology transfer to 'offset' foreign customer purchases of British military equipment.⁴ Offsets are disliked by defence contractors, but there is little alternative. A 'Hobson's choice' dilemma applies. The imperative of win-

ning arms export orders in a shrinking⁵ global defence market can only be achieved by conceding to offsets, yet this carries with it the danger of creating potential competition in the future. However, the alternative, to refuse offsets, is equally unpalatable. This course of action implies the almost certain loss of a sale, undermining commercial viability, indeed, even the survivability of UK defence contractors.

In contrast to 'outward' offsets,⁶ Britain's policy governing 'inward' industrial participation has been less publicised. It is no less important, however. In the long-run, the UK Government seeks to eliminate offsets, believing them to work against GATT/WTO free trade principles; in the sense that they are market-distorting – operating on a bilateral rather than a multilateral basis. In the short-run, though, the UK has been obliged to recognise market distortion realities in the arms market, and establish a trading regime formalising, institutionally, inward offset requirements. In this regard, the MoD has crafted what it prefers to call an Industrial Participation (IP) – rather than an offset – policy.⁷ The 'participatory' element of IP policy takes the form of compensatory investment into the

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UK DIB by overseas arms vendors. The UK Government is not seeking to protect domestic defence industry *per se*, but rather to enable local defence companies to operate under open competition for overseas defence contracts. It is envisaged that the winning of such contracts will stimulate higher-order, defence-related, development and production activities in the UK.

The IP policy was first introduced in 1990. With growing purchases of overseas defence equipment, the purpose of this paper is thus to detail, explain and review the MoD's IP policy regulations. In particular, the practical difficulties policymakers face in policy implementation are explored. Informed speculation on the implications and challenges of IP policy on national security closes the discussion.

INDUSTRIAL PARTICIPATION: THE POLICY OUTLINED

Industrialising countries, such as Saudi Arabia and Malaysia, use defence purchases and linked offset programmes to lever additional opportunities for economic development.

The UK MoD's IP policy approach, by contrast, seeks to use overseas defence purchases to maintain, indeed, even enhance local DIB capabilities. The industrialising countries' strategy has a broadly development motive, whereas UK policy has a more focused defence-industrial thrust, albeit with associated and often considerable economic and technological spin-offs to the commercial sector. The following points represent the salient features of UK IP policy:

- IP proposals are 'invited' when the offshore content of an order is likely to exceed £10m.⁸ The MoD typically invites IP to the value of 100 per cent of the offshore content, ie *quid pro quo* compensation for the full value of the work placed offshore. Bidders' IP proposals are evaluated alongside the cost-effectiveness and technical compliance of the military equipment to be purchased. Thus the attractiveness of IP proposals, along with the cost-effectiveness of the defence-related systems to be procured from overseas, determines the outcome of procurement competitions.
- Linked to the above point, offshore vendors are invited to submit IP proposals when the MoD's

formal Invitation to Tender is issued. The IP proposal forms part of the tender response, identifying probable first-, and, sometimes, second-tier UK suppliers.

- IP work must be defence or defence-related, and procured from a UK manufacturer or service provider.

- Civil work is not admissible for IP credits, save where it is deemed defence-related. Therefore, standard commercial equipment provided without modification to military specification is not acceptable for IP purposes.

- To qualify for IP credits, defence work placed with UK companies should be new, and placed

as a result of the IP agreement. IP work should consist of products not previously purchased, or purchased from new suppliers, or new contracts/purchase orders for existing business valued at over £35 000.

- IP work must contain as high a technology content as possible, at least commensurate with the military equipment to which the IP obligation relates.

- IP work should be placed with UK companies via a competitive process. The implicit assumption is that the overseas vendor obtains value-for-money through sourcing components and sub-assemblies from the most cost-efficient source. Based on this competitive philosophy, MoD's unequivocal policy-stance is that it will not pay a premium for IP.⁹

INDUSTRIAL PARTICIPATION IN PRACTICE

The UK IP policy aim is to provide British defence companies with opportunities to bid into offshore defence contractor programmes, providing an impetus for enhanced industrial integration on a European and also (in practice, principally) a transatlantic basis. Overseas bidders' IP proposals will be considered as part of the final procurement decision. Assessment of IP proposals is made by the Directorate of Marketing Services, located within the Defence Export Services Organisation (DESO).¹⁰ The Directorate's team evaluate the proposed quantity and quality of IP work to be placed in the UK, the risk associated with the proposal, the defence equipment's export potential

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(and the manner in which this will benefit the UK) and, finally, the offshore bidder's track record on previous or existing IP agreements to establish performance credentials.

The MoD Marketing Directorate's workload is onerous. A team of only five civil servants implements MoD IP policy guidelines. This involves regulation, interpretation, technology transfer evaluation, IP proposal assessment, negotiation of Letters of Agreement, and management and monitoring of the IP obligation process. The unit's smallness, however, belies its strategic significance in shaping the development of the UK DIB. This is evidenced by reference to the value of IP work handled to date by the MoD IP office. At the beginning of 1999, the gross value of the 37 IP agreements with UK defence industry, amounted to £4.8bn.¹¹ This figure can be decomposed into 23 completed agreements valued at £1.7bn, and 14 'live' agreements valued at £3.1bn.¹² The bulk of the outstanding IP agreement value will be placed over the next nine years, with an annual placement of IP amounting to around £290m. These IP values are not inconsiderable sums, given the contraction of the national and international defence market.

The Marketing Directorate's staff are regularly required to interpret the IP guidelines. This is because of the nuances that inevitably arise when a broad policy stance is adopted. Among the more important of these nuances is the need to determine when an offset is actually an offset. In the 1989 AWACs (airborne warning aircraft) procurement, for instance, Boeing was allowed to claim credit for Rolls Royce engines, albeit that normal practice is for the purchaser to decide engine source.¹³ It is a near-certainty, of course, that MoD would have chosen Rolls Royce engines, anyway, to power the AWACs aircraft. Another critical (some might say, controversial) policy issue is that the MoD only *invites* foreign contractors to offer IP work to UK companies if the value of overseas defence contracts exceeds the £10m threshold.

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indeed, any region in the country. The choice is left entirely with offshore contractors to decide not only how best to incorporate IP into their product supply chain, but also the selection of British companies bidding for IP work, based on criteria such as technological sophistication, quality and competitiveness. In developing its IP policy, MoD has preferred to adopt a more liberal approach, in which foreign defence contractors offer UK companies work opportunities based on merit rather than obligation. Again, it is the overseas defence contractor which determines whether, in the round, its IP proposal will incorporate predominantly 'direct' IP; that is, work associated with the primary defence contract, or, 'indirect' IP, ie, defence-related work, though unconnected with the primary defence contract.¹⁴ DESO simply evaluates the IP proposal, and then forwards it to MoD (PE) as part of the procurement selection process.¹⁵

To gain IP credits, work must be localised to the UK. However, this requirement does not reflect asset-ownership, merely location, as the recipient of IP work may be a foreign-owned, UK-based undertaking. Arguably, this policy-view encourages foreign direct investment into the UK, and while this may be beneficial in the short-run, in respect of job creation and capacity building, a possible downside might be the long-term erosion of UK defence-industrial sovereignty.

DESO's IP monitoring team must also be alert to the possibilities of IP 'leakage'. This is where the UK subcontractor decides, independently, to outsource packages of the work offshore suppliers. IP policy stipulates that only the UK content values of the vendor's subcontracts are eligible for IP credits. IP leakage is clearly a troubling issue for offshore contractors genuinely seeking fulfilment of their IP agreement. As before, DESO adopts a flexible, case-by-case appraisal, taking into account normal commercial practices, but nevertheless subscribing to the view that the overarching purpose of IP policy should not be compromised.

IP policy makes no attempt to place a 'value' on items such as employment, investment, subcontractor linkages and skill generation, and certainly

not on intangible items, such as cultural change. Nor, significantly, does IP policy allow offshore firms to incorporate a 'multiplier' factor within their IP valuations: £10m credits are only allowed for £10m work. The absence of a multiplier is a distinguishing characteristic of UK IP policy. Other countries' IP policies generally allow multipliers, providing an incentive, through 'multiplied' credits, for inward investment/subcontract work in what host country governments perceive to be strategically important high technology growth poles within their respective economies. Thus a multiplier of five indicates that £10m worth of IP attracts a £50m credit against the IP target value. Clearly, then, UK IP policy is considerably more demanding than the international norm

OPEN TRADE: LIFE WITHOUT OFFSETS?

The inexorable march towards consolidation of US and European defence and aerospace industries, as well as intensifying pressure for international cooperation, is prompting government and industry officials from major arms-producing nations to reassess the contentious role of offsets. In the US, in particular, offsets have become a politically thorny issue. There have been persistent and strident calls by the US Administration, especially the Commerce Department and Congress, to curtail or forbid the practice of offsets. In January 1999, William Reinsch, US Under Secretary of Commerce for Export Administration, indicated that he intends to establish a US-European Working Group to discuss how to limit the growth and impact of defence offsets.¹⁶ This US official puts an inter-

esting spin on future international defence-industrial cooperation; that rather than offsets, technology-sharing should be based on the US Joint Strike Fighter (JSF) 'model'. Here, British, Dutch and Canadian partner countries share the risk of development and also eventual production activities, thus obviating the need for offsets or IP. The JSF international cooperative 'model' certainly has much to commend it. However, it is unclear, at this time, whether there is a groundswell of opinion across the US defence-industrial base, and, indeed, the European defence sector, as to the appropriateness of a JSF cooperative approach rather than the existing offset/IP requirements linked to 'off-the-shelf' purchase of US military kit.

UK policy-makers recognise US sensitivity to IP. Counterbalancing this, however, is the existence of protectionist US legislation centred on the 'Buy America' Acts, and concern at the, admittedly reduced, but nevertheless continuing defence trading imbalance, consistently favouring the US. Table 1, below, shows the data in this regard. The UK:US defence trade imbalance reflects, to a large degree, the openness of Britain's defence market; a market in which the US accounts for 80 per cent of UK overseas defence procurement.¹⁷ The most recent figures, those for 1995, display a dramatic worsening of the UK:US trade imbalance, but this was a year when the UK purchased several 'big ticket' US weapon systems, including the Apache helicopter. It is thus too early to establish whether this widening of the imbalance represents a change in the trend, or simply a one-off annual aberration.

At the European level, the British Government

FY	UK Purchases	US Purchases	Ratio
1991	1329.25	559.4	2.4:1
1992	828.75	504.8	1.6:1
1993	833.94	610.1	1.4:1
1994	771.25	380.3	2.0:1
1995	2300.1	435.06	5.3:1

Table 1: US:UK Defence Trade Balance

Source: DESO Statistical Data

has been evangelistic in its efforts to liberalise the European defence market. Accordingly, the UK has favoured the implementation of offset waivers. Bilateral arrangements with France and Germany have been pursued as a means of reducing offset burdens on British companies when selling defence systems to these countries. The UK policy aim is to embrace all the Western European Armaments Group (WEAG) nations in a coordinated web of offset waivers, seeking to progressively eliminate avoidable distortions in the European defence equipment market.

An interim step has already been achieved in this regard through the establishment of the quadrilateral armaments procurement agency (OCCAR), comprising France, Germany, Italy and the UK. Of course, the need in the longer term is for mutual offset waivers to involve all WEAG member countries. However, the nub of the problem is to obtain universal agreement for the establishment of offset limitations as well as a set of international ground rules to monitor their compliance. Even if governments could design an international offset protocol that found widespread acceptance amongst such countries as Russia, China and Israel, there would still be the problem of enforcing it. For vendor countries, market pressures would likely make offset protocols untenable. Perhaps the most intractable problem, though, is that defence industrialising countries, such as Greece, Turkey and India, would continue (in the tight international buyers' market) to insist on offsets as a pre-condition of sale. The fact remains, that for defence industrialising countries, offsets represent an opportunity not an obligation.

FUTURE POLICY CHALLENGES

IP policy, and the nature of its implementation, is likely to have profound implications on the future development of the UK DIB. The impact of IP on employment maintenance and, indeed, creation, is clearly an important issue, but possibly of even greater concern is the 'national' integrity of UK defence-related development and production work. An open global procurement environment, rather than increased dependence on, primarily, US sup-

pliers is the intended outcome of IP policy, but the danger of dependence nevertheless exists. IP policy is aimed at promoting US and UK defence-industrial relations to help establish the latter as suppliers to the former. The spirit of IP agreements is that collaborative US:UK 'technology-sharing' ventures will stimulate innovative and highly skilled defence work in the UK, enhancing 'indigenous' competitiveness in the process. In this regard, IP policy threads neatly into the Technology Foresight fabric.¹⁸ It is perhaps too early to gauge the effectiveness of inward technology

transfer associated with the UK's IP requirements, particularly since the major overseas procurements, such as the mid-1990s acquisitions of Apache helicopters and C130J aircraft, are commitments only recently incurred. Inevitably, however, the technology transfer debate will be linked to the achievement of balanced 'UK:US' trade.

While there is no question that IP works against the principles of free trade, the fact is that it does offer a second-best palliative for assuaging UK defence industrial erosion. The paradox, of course, is that the UK's search for competitiveness is driven by an 'open' trading regime, emphasising procurement of defence equipment from the lowest cost source, which, in practice, is normally a US supplier. □

NOTES

1. The UK MoD view is that 'open trade' secures cost reduction through international competition. Whilst the government's long-term aim is the elimination of protectionism and offset/IP arrangements in the defence market, it accepts that under the present tight global market conditions, contracts are not won on price and technical quality alone.
2. Such constraints specifically include prevention of arms sales to countries where UN embargoes apply, ie Iraq, and nations judged to be unsuitable recipients of UK arms under the ethical policy guidelines of Britain's Foreign Office.
3. See S. Schofield, 'The Levene Reforms: An Evaluation', *Defense Analysis*, 11/2 (1995) and also Ron Matthews and Judith Parker, 'Prime Contracting in Major Defence Contracts', *Defense Analysis*, 15/1 (1999).
4. The classic case in this regard is Saudi Arabia's 1988 Al-Yamamah contract. See Ron Matthews, 'Saudi Arabia's Defence Offset Programmes: Progress, Policy and Perfor-

mance', *Defence and Peace Economics*, 7 (1996) pp.233-51.

5. World military expenditure has been falling since 1987, averaging a 4.5 per cent annual decline across the ten year period, 1988-1997. Mostly as a result of this decline, there has been an associated decrease in the international arms trade; the value in 1997 still only half the level reached in 1987, see *SIPRI Yearbook* (1998).

6. For a rich trawl of country (offset policy and practice) case studies, see, Stephen Martin, *The Economics of Offsets – Defence Procurement and Countertrade*, Harwood Academic Publishers (1996).

7. The UK MoD adopts a liberal and flexible policy stance. Foreign vendors are 'invited' to provide UK defence contractors with opportunities to compete for work, winning contracts solely on merit. It is the MoD's view that this is a distinguishing feature of its IP policy compared to the more rigid 'offset' approach.

8. The £10mn threshold is an arbitrary value. For some countries, IP requirements kick-in at a lower threshold than £10mn, but the UK's position is that this would entail an excessive administrative burden for insignificant gain to the UK economy. Also, IP focuses on major equipment procurement and not, for instance, spares.

9. Technology offsets, particularly moving from advanced countries to those that are industrialising, are not a costless exercise. As far as possible, vendors will try to load price with the costs of generating skills and industrial capacity in the arms purchasing nation. By comparison, Britain's IP model operates more on a competitive basis, providing greater confidence that the cost pressures associated with technology transfer and work placement will be minimised, if not eradicated.

10. On April 1, 1999, DESO separated from Procurement Executive, when the latter became the Defence Procurement Agency.

11. MoD/DESO briefing notes from interviews at Business Development (IP/EP), Directorate of Marketing Services, DESO, May 1999.

12. Ibid.

13. See, HMSO (1989), *House of Commons Defence Committee*, Third Report: The Working of the AWACs Offset Agreement, 286, session 88-89, May.

14. MoD's IP policy requires that British contractors be allowed to bid for high quality defence work (at an equivalent technical level to that of the purchased equipment). Offshore firms obtain IP 'credits', which may be banked for future IP requirements.

15. IP proposals are considered in paper IV of the seven part 'dossier' process governing all MoD major defence equipment procurements.

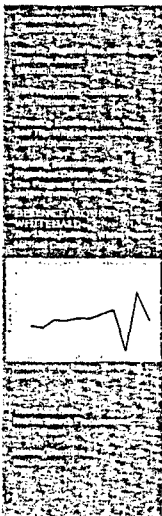
16. Offset Conference, Washington DC, USA, January 22, 1999.

17. Around 10 per cent of the UK defence market was supplied by overseas producers during the period 1992-5. The US is the dominant overseas supplier accounting for 80 per cent of the offshore suppliers' share into the UK defence market. See, Richard Williams, *The UK Industrial Participation Policy – Strengths and Weaknesses*, RMCS-Cranfield University unpublished MDA dissertation (1998), p.34.

18. *Technology Foresight* is an ongoing study investigating the basis for the establishment of UK industrial policy. It links together the key strategic facets of industry, academia and government, identifying critical technologies, strategic industries and the imperative of raising competitiveness. See, Office of Science and Technology (1995).

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