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## **The UK Defence Industrial Strategy and Alternative Approaches**

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### **Key Points in this Paper**

- The UK Defence Industrial Strategy (DIS) is a lost opportunity of historic proportions. Rather than address a broader global security context and the role that the UK's manufacturing and technology base could play within it; the Ministry of Defence is continuing the drive for ever-more sophisticated and expensive military platforms.
- This obsession with military capabilities is not inevitable and has been questioned in the past, especially in the early 1950s and mid 1960s. The Labour government under Harold Wilson provided a strong critique of the UK's dependency on military R&D and a similar debate is needed now in the modern context of the UK as a medium-sized European economy.
- Radical reforms to improve value for money in defence procurement have come and gone (e.g. the Levene Reforms of the 1980s and the launch of the Defence Procurement Agency in 1999), with little real impact on delays and cost overruns. Smart Procurement became Smart Acquisition in 1999, but the Public Accounts Committee concluded in 2005 that, "*Smart Acquisition is at risk of becoming the latest in a long line of failed attempts to improve defence procurement*".
- The internationalisation of the military-industrial sector has been the most significant development, with American corporations now dominating global defence markets. BAE Systems emerged as the sole 'British' global military-industrial giant: over 50 per cent of major UK defence contracts are now placed with BAE.
- The DIS provides greater clarification of the policy of protecting those industrial and technological capabilities (in aerospace, engineering and electronics) deemed essential for national security. But industry expects in return a steady ordering pattern for new equipment, despite the public emphasis on reduced platform numbers.

- The logic of the DIS is likely to lead to a new generation of Trident nuclear submarines being built after the peak production on other naval systems in 2015.
- None of this is inevitable. An alternative European Security Industrial Strategy would require the rationalisation and re-focusing of UK and EU military industrial capacities within a much broader European, civil technological and industrial base that also satisfies the demand for peacekeeping and peace enforcement operations.
- A more ambitious project would be an International Security Industrial Strategy, which would focus on non-military security challenges, such as climate change. The strategy could help reduce dependence on fossil fuel and uranium supplies, through research, development and production of new forms of renewable energy systems and of new materials that conserve energy consumption.
- Virtually no debate is taking place about decisions that will profoundly influence the nature of UK security and industrial policy for the next twenty to thirty years. Given the political will, instead of leading in arms exports that add to regional tensions, the UK could become a world pioneer in peaceful technologies and in supporting sustainable international development.

## **1. Introduction**

The UK Ministry of Defence published its Defence Industrial Strategy (DIS) in December 2005. The DIS takes forward the Defence Industrial Policy published in October 2002, and seeks to set out a strategic view of MoD's defence requirements by sector, and the principles that will underpin procurement and industrial decisions in the future. BASIC submitted written evidence to the Defence Committee inquiry into the DIS in late January 2006. The Committee is expected to report its findings in the spring. This BASIC Paper is an expanded version of the written evidence to the Committee, and is being published separately in an attempt to generate a wider public and parliamentary discussion on this important issue.

The DIS is a lost opportunity of historic proportions. Rather than address a broader global security context that reflects on the inter-related political, social and environmental issues essential to the development of a peaceful world in the 21<sup>st</sup> Century, and the role that the UK's manufacturing and technology base could play within it; the Ministry of Defence, in an orgy of self congratulation, follows an all-too predictable path. Defining security in exclusively military terms, it celebrates an industrial strategy that, despite the end of the Cold War, continues the drive for ever-more sophisticated and expensive military platforms.

As a result, the UK will be committed, for the next generation, to high levels of military research, development and procurement, and an aggressive arms export policy - a pocket-superpower so tied to US military strategy that it is incapable of making a rational analysis of its own security needs.

## **2. The post-war years**

After empire and through the long period of relative economic decline during the post-war years, the UK continued to 'punch above its weight' militarily.<sup>1</sup> Successive governments attempted to compensate for the loss of great-power status with the maintenance of a broad defence capability and a domestic military-industrial base that could provide the armed forces with the full range of advanced equipment. As a result, the UK traditionally spent a higher proportion of its GDP on the military compared to other medium-sized industrial economies. And, of course, it was a Labour government that took the decision to develop an atomic weapons programme as the ultimate symbol of the UK's desire for a continued place at the world's top table, the UN Security Council; even though that decision tied the UK into a dependent relationship with the United States for its nuclear missile technologies, in turn having broader impacts on our freedom of action.

This obsession with military capabilities was not universally welcomed. In 1951, during the first Atlee administration, when military spending was increased and charges for some health care provision were introduced, senior ministers, including Harold Wilson, the future prime minister, resigned in protest. Reservations were also expressed about the burden of military expenditure and the diversion of scarce industrial and technological resources from areas of civil R&D and production that were essential to the export drive and post-war reconstruction, especially when faced with emerging competition from West Germany and Japan.<sup>2</sup>

Indeed, it was the first Wilson government, in the mid 1960s that attempted to utilise the full technological potential of the government's military research establishments by setting up the Ministry of Technology as an umbrella organisation. Its remit was to focus on civil applications of government-led R&D in areas seen as essential for the future of the UK in the international markets of engineering, aerospace and the emerging electronics sector. As Tony Benn, then Minister for Technology said:

Having inherited the finest complex of research facilities available anywhere in the Western world, it has been my object to bring about a shift from the almost exclusive concentration of government support on defence research to more general support for civil industry...There is no reason why in education or in some other similar field of civil expenditure there should not be similar simulation by means of public procurement in technologies associated with areas other than defence.<sup>3</sup>

The 'white heat of technology' subsequently floundered as a result of the general economic difficulties faced by the administration, but it still remains a significant example of how central government attempted to shift the unbalanced, strategic direction of key industries away from military towards civil production.<sup>4</sup>

The dilemma of maintaining high military expenditure, within a framework of limited public resources, would face successive governments as periodic strategic reviews resulted in the gradual reduction to overseas commitments and some cuts to the size of the armed forces. Various efficiency reforms were also pursued, most notably, the government-led restructuring and rationalisation of the military-industrial base to take advantage of economies of scale through larger contractors, e.g., the merging of six engine companies into Rolls Royce.<sup>5</sup> Nationalisation brought further consolidation in the 1970s through the creation of British Aerospace, as the leading airframe manufacture,

and British Shipbuilders, responsible for both surface vessels and submarines. Internal efficiency reforms to the MoD were also pursued with the merging of the service based procurement organisations into one Procurement Executive.<sup>6</sup>

But the trend towards increasing sophistication and expense for each new generation of military equipment continued, with the term gold-plating being used to describe how additional capabilities were added to large military platforms irrespective of cost.<sup>7</sup> There was a series of scandals over major programmes like the Nimrod Early Warning Aircraft and the Tigerfish heavyweight torpedo that were tendered on a cost-plus basis and experienced serious technical problems, cost escalations and severe delays. For example, Nimrod's airborne radar technology ran into software compatibility problems and the heat generated by the aircrafts array of computer equipment had to be dissipated through the fuel stores, severely restricting the range of the aircraft. By the time of its cancellation in 1986, an estimated £1 billion had been spent. It was increasingly argued that UK arms manufactures had a protected position of guaranteed contracts and with little incentive to control costs, as the MoD would effectively underwrite major programmes if they ran into development or production difficulties.<sup>8</sup>

### **3. The Levene Reforms and the Internationalisation of Military Industries**

During the 1980s, the Thatcher government initiated a period of radical reforms in military-industrial policy, as part of a more general approach that stressed the efficiency benefits it claimed would be generated through market forces. Firstly, it privatised major arms industries including British Aerospace, British Shipbuilding and the Royal Ordnance factories. Perhaps more significantly, the government placed heavy significance on competition, through what became known as the Levene Reforms, after the Chief of Defence Procurement, Sir Peter Levene.

Instead of cost-plus contracts, major programmes would be tendered on a competitive basis wherever possible, including the use of overseas suppliers against previously favoured domestic ones, and with fixed prices that put the burden of risk and cost overruns on the contractor rather than the Ministry of Defence. The cancellation of Nimrod, and its replacement with the American contractor Boeing's E-3 Sentry aircraft, was seen as significant in demonstrating the determination of the government to carry through this new policy, despite the protests from British Aerospace about the loss of domestic technological and industrial capabilities and skilled manufacturing jobs.

These reforms are generally considered to have been successful in generating a more commercial culture, with savings of 10% cited in the procurement of major equipment, a significant level. But the evidence for such claims is flimsy. Many of the major projects that were tendered competitively during the late 1980s to mid 1990s were subject to delays and cost overruns, and it is not clear how these extra costs were apportioned between the MoD and the companies, since contracts were renegotiated on a confidential basis.

In many cases, savings were made simply through the reduction in quantities ordered and delays to in-service dates, which could be attributed to the end of the Cold War and the general reduction in the numbers of equipment deployed. There were also clear examples of where decisions had been taken to award contracts to UK companies for industrial and technological reasons since to do otherwise might risk the loss of what were considered to be vital assets, and despite clear cost advantages from overseas suppliers.<sup>9</sup>

A good example is the decision to pursue a split order for support helicopters between the UK-based Westland for twenty-two utility version EH101s and the American Boeing company for an additional eight Chinooks, despite the extra costs that would be generated by introducing a new helicopter through servicing, training, etc. As Malcolm Rifkind, then Secretary of State acknowledged:

The costs of introducing an additional helicopter type into service and creating a mixed fleet are inevitably higher than those of an all-Chinook fleet. In reaching this decision, the Government have also taken full account of the wider implications for the aircraft industry. They have invested some £1.5 billion in the development of the EH101 family, which is central to Westland's comprehensive design and manufacturing capability...and it will help to secure the future of the United Kingdom helicopter design and manufacturing capability and so strengthen the United Kingdom's aerospace industry.<sup>10</sup>

Another complicating factor that would become more significant through this period was the increasing internationalisation of the military-industrial sector as leading companies attempted to consolidate in global markets. A variety of arrangements developed involving takeovers, alliances, and joint-production agreements between UK companies and both American and European manufacturers, partly building on older collaborative arrangements, but which saw the creation of much larger international corporations with both military and civil interests.

American corporations dominated these global markets, building on the strength of the US domestic military spending, with the emergence of five leading companies, Lockheed Martin, Boeing, Raytheon, Northrop Grumman and General Dynamics. European restructuring was on a smaller scale but saw consolidation around two major companies. EADS and Thales. The former combined the French company Aerospatiale Matra and the German company DaimlerChrysler Aerospace (DASA). Thomson, the French military electronics company acquired Racal, as well as other UK interests, and changed the name of the company to Thales.

In the UK, the most obvious and significant outcome was the emergence of BAE Systems, formerly British Aerospace, as a global military-industrial giant (if still smaller than the major American corporations like Lockheed). It took over GEC-Marconi in 1999 but also embarked on a series of acquisitions in the United States. This ensured, not only its domination of UK procurement, but also a healthy slice of the much larger American market and its place as a leading military exporter.<sup>11</sup>

So the stress on competitive tendering, already tenuous in theory, became even more so in practice, as BAE began to consolidate itself both as the UK's leading platform manufacturer and as the systems integrator for a range of vital equipment, including command and control and missiles.

#### **4. New Labour and the Defence Industrial Strategy**

New Labour has, essentially, carried on with the policies of the previous government, namely, to fudge these inconsistencies and failures in the hope that nobody notices. On the one hand it celebrates the application of competition and market forces, despite the continuing cost over runs and delays in major projects. On the other, it emphasises the need for long-term relationships with preferred UK-based suppliers for what are

considered to be essential areas of industrial and technological capabilities, but denies that the overall commitment to competition is undermined.<sup>12</sup>

If anything, these issues have become more acute, as evidenced by the circumstances surrounding the decision to place an order for new Hawk trainer aircraft with BAE in 2003. The contract, worth £800 million for production and £2.7 billion for future servicing, was initially competitive between BAE and an Italian bid from Aermacchi, part of the Finmeccania group. The government gave the contract to BAE because of reported concerns over redundancies and possible closure of its Brough plant in East Yorkshire, and despite the advice of the permanent secretary at the MoD, Sir Kevin Tebbit, that reiterated the need for competitive tendering to generate savings. In a rare example of public dispute between civil servants and politicians he refused to sign the contract until directed by the then Defence Secretary, Geoff Hoon, who cited broader technological and industrial issues as the reasons for abandoning competitive tendering in this case.<sup>13</sup>

The government has also continued the programme of privatisation, the most significant being the sale of the MoD's research arm, the Defence Evaluation and Research Agency, DERA, with partial flotation under the rather curious name of Qinetiq, in 2002 and full privatisation scheduled for early 2006, although the state will retain a 25% interest. The process of privatisation has been controversial with the initial investors expected to receive massive windfall profits from the full flotation. Privatisation is intended to develop a more commercial approach to the exploitation of its research, including civil spin-off, but 80% of revenue is generated through the MoD which is tied into long-term contracts with Qinetiq.<sup>14</sup>

As well as difficulties with maintaining competitive tendering, the problems of delays and cost increases continue. The Public Accounts Committee's most recent report on major projects identified an increase of £1.7 billion in the forecast costs in addition to the £3.1 billion recorded in the previous year. Similarly, the in-year delay of 62 months to the forecast in-service dates for those projects in the Major Projects Report was in addition to the 144-month delay recorded in the previous year. Taken together these figures mean that the twenty projects have each slipped by an average of more than ten months in the last two years.<sup>15</sup>

Also highlighted by the government are further internal reforms such as the Procurement Executive's re-branding as the Defence Procurement Agency, launched in 1999, with a slimmed management structure and an emphasis on Integrated Project Teams to drive through efficient procurement. At this time, the MoD introduced Smart Procurement, now re-titled Smart Acquisition, to reflect a more thorough approach to the whole life cycle of equipment procurement and maintenance. Especially important was the clarification, at an early stage, of the technological challenges that might prove expensive to rectify if left to the later stages of production. But, again, there is little evidence of substantial improvements. On the contrary, some concerns have already been expressed that the new regime is not being applied consistently and may need to be re-focused. Even Smarter Acquisition perhaps? Indeed it is difficult to disagree with the conclusion of the Public Accounts Committee that:

Six years since the introduction of Smart Acquisition, there is still little evidence of the Department having improved its performance in delivering projects to cost and to time. Smart Acquisition is at risk of becoming the latest in a long line of failed attempts to improve defence procurement.<sup>16</sup>

Unsurprisingly, the MoD projects the DIS as a radical framework, posing real challenges to the prime contractors. Much is made of the reduction in platform numbers, from the middle of the next decade, and the need for contractors to move to 'life-cycle procurement' around upgrades and other forms of innovative systems integration. If this really were a radical departure from previous policy then it would deserve greater attention. But there have always been peaks and troughs in the procurement cycle and virtually all major platforms have experienced upgrades, especially of electronic equipment, which have, in some cases, been more expensive than the original contracts.

What is more interesting about the DIS is the greater clarification given to the consistent but less transparent policy of protecting those industrial and technological capabilities deemed essential for national security, despite the rhetoric that still surrounds competitive tendering and market principles. The DIS identified the design of complex ships; nuclear submarines; armoured fighting vehicles; fixed-wing aircraft; helicopters; general munitions; complex weapons; command and control; chemical, biological, radiological and nuclear protection; and test and evaluation, as key areas - all of which involve high-technology capabilities and a long-term commitment by the government to support military R&D and procurement in the UK.

Here is where the true significance of the DIS lies. The government sees itself, through the MoD, as having a strong influence over the continuation of an advanced, military-industrial technology base in the UK that spans specialised areas of aerospace, engineering and electronics. But the quid-pro-quo as far as industry is concerned, must be the maintenance of a steady ordering pattern for new equipment, despite the public emphasis on reduced platform numbers.<sup>17</sup> To put this into context, total spending by the MoD was nearly £31 billion in 2004-05, of which over £8 billion was on procurement and £2.6 billion on research and development, the majority with private industry.<sup>18</sup>

One obvious conclusion to be drawn is on the future of the UK's nuclear weapons system after Trident. Although no public announcement has been made on what the government's preferred option is, and we still await a parliamentary debate on one of the most important decisions this government will make, the logic of the DIS is irresistible. A new generation of submarines will be ordered and work will begin after the peak production on other naval systems in 2015. Questions may remain over whether ballistic missiles or cruise missiles will be deployed, but these relate more to the future strategic choices of the United States and, therefore, the UK's continued dependency on American options for its own nuclear forces.

The other obvious factor is the growing stranglehold of BAE on procurement, since the MoD's emphasis on strategic requirements closely fits the company's range of monopoly production in the UK. We estimate that over 50 per cent of major contracts by value were placed with BAE in the last financial year (although no breakdown is provided by the MoD other than to identify companies with contracts of £500 million or more in value).<sup>19</sup> The government seems comfortable with this position because the company is viewed as a global asset; vital both to the UK's industrial base, and to the country's export strategy through the sale of military equipment, including the recent contract with Saudi Arabia for Typhoon fighter aircraft.<sup>20</sup>

So the logic of the DIS is to conflate the interests of a private company with the interests of the country, even if this means that the UK has a very narrowly defined concept of

advanced technologies and that the government continues to pour billions of pounds into specialised military R&D and procurement that has little application to the broader civil, industrial and technological base.

## **5. Alternative Approaches**

None of this is inevitable. The government clearly has a pivotal role to play in the strategic direction taken by major UK industries and the opportunity still exists to consider policy options other than the present industrial and technological cul-de-sac. What is lacking is the political will for radical reform.

A European Security Industrial Strategy is one approach that deserves serious consideration. Instead of continuing as a junior partner to the United States in its global power projection, the UK could play a leading role in the development of the EU as an independent power in world politics and international security. This would build on the work already undertaken to establish a joint force to carry out what became known as the 'Petersberg tasks', first defined by EU partners in 1992, namely peacekeeping, humanitarian aid and crisis management, including peace enforcement, all within the framework of UN sanctioned intervention.<sup>21</sup>

Since then a European Rapid Reaction Force has been agreed between EU member countries with the capacity to deploy up to 60,000 troops and other support personnel to carry out these tasks. The EU has also been responsible for major peacekeeping operations, particularly in Bosnia, and has also set up the Organisation Conjointe de Co-operation en Matiere d'Armament (OCCAR), to co-ordinate large procurement programmes, including the A400 large airlift transport plane through the Airbus Military Company.<sup>22</sup>

A major strategic overview was undertaken in 2003, by Javier Solano, the EU's High Representative for Foreign and Security Policy, that looked to build on the Petersberg declaration in the light of the changing security environment. The European Security Strategy identified the threats from terrorism; proliferation of Weapons of Mass Destruction; regional conflicts; state failure; and organised crime as the major security threats facing Europe.<sup>23</sup> Interestingly, it called for a policy of pre-emption and argued for a more effective application of the full spectrum of instruments for crisis management and conflict prevention, both in terms of traditional UN peacekeeping and for new forms of intervention to deal with new threats. These might include joint disarmament operations, support for third countries in combating terrorism and security sector reform.

As such, the security strategy reflects an important debate about the direction EU policy should take, involving an influential group that wants closer liaison with the United States, and an acceptance of the underlying rationale for American global reach and military interventionism. From this flow demands for increased military spending and military R&D, not least from European arms manufacturers, who have argued that EU military spending is too low in comparison to the United States and needs to be substantially increased if these global security challenges are to be met.

Yet, there are elements of the strategy that indicate an independent and clearly demarcated approach, based on the understanding that much of the new security challenge has emerged from conditions of poverty and the crisis of governance in failing states. From this perspective, far too much emphasis has been placed on military power

projection, with little concern for the civilian chaos and societal breakdown that can ensue and take years to redress. Where intervention is necessary, there needs to be clear understanding of the civilian capacity to that intervention, including support for civil police forces, legal and judicial institutions, the restoration of basic infrastructure and democratic institution building – all of which require a long-term commitment, possibly running into decades.

This should not be seen as the EU simply picking up the pieces after US intervention but a coherent and independent approach to international security, where peacekeeping and peace-enforcement operations are endorsed by the UN and where the EU has the capability to carry out both military peace enforcement operations and the full spectrum of civilian support for peacekeeping and reconstruction.

Under a European Industrial Security Strategy then, much of the member states' military industrial capacities would need to be rationalised.<sup>24</sup> Inevitably, there would be loss of military R&D, industry and employment but the trends in employment are already downward. In the UK, for example, overall military-related employment has declined from 550,000 in 1990/1 to 305,000 in 2003/4. Of this, MoD related-employment had declined from 405,000 to 245,000, while export-related employment declined from 150,000 to 65,000.<sup>25</sup> The focus, therefore, should be on how to tap into a much broader European, civil technological and industrial base that was supported by all European governments and that provided new opportunities in expanding international civil markets, while also satisfying the demand for some military specialisms tied to peacekeeping and peace enforcement operations.<sup>26</sup>

For the UK, the shift of procurement and R&D funding from the MoD could be significant. There would be the opportunity to compensate for this reduction by expanding the role of the DTI in developing new forms of support with UK industry around civil programmes, with the MoD playing a subordinate role of advising the DTI on which military specialisms might need to be maintained, either in the UK or through joint European capabilities.

A more ambitious project still, would be to replace the DIS with an International Security Industrial Strategy (ISIS). Tony Blair was absolutely right to identify climate change as the greatest threat facing the world through its multi-faceted impacts on sea levels, extremes of weather, destruction of complex ecologies, etc. A simple test of the strategy would be its effectiveness in helping to reduce, and quickly to eliminate, our dependence on external fossil fuel and uranium supplies, through research, development and production of new forms of renewable energy systems and of new materials that conserve energy consumption. (Compared to the MoD's £2.5 billion R&D budget, the government provided just £12.2 million in renewable energy R&D in 2002.)<sup>27</sup>

Proposals to broaden our approach to security are not new and can be traced back to the very origins of the United Nations itself. For example, as early as 1950, the UN's 'Peace Through Deeds' resolution urged efforts to:

...reduce to a minimum the diversion for armaments of its member nations' human and economic resources and to strive towards the development of such resources for the general welfare, with due regard to needs of the underdeveloped areas of the world....and to devote part of the savings achieved through such disarmament to an international fund, within the framework of the UN, to assist development and reconstruction in underdeveloped countries.<sup>28</sup>

By the 1970s and 1980s, the concept of common security, that incorporated social, economic and environmental dimensions, was being articulated through a series of influential UN reports that identified the growing threats from environmental degradation and the growing gap between rich and poor countries that could lead to potential conflict. For example, the Brandt Commission in its 1980 report, painted a sombre picture of social breakdown, with over 800 million people living in poverty, while global military spending at \$450 billion a year dwarfed official development aid of only \$20 billion. At the same time, environmental failure was becoming an acute global problem:

Few threats to peace and the survival of the human community are greater than those posed by the prospect of cumulative and irreversible degradation of the biosphere on which human life depends.<sup>29</sup>

Given the acute nature of the crisis the Commission called for disarmament, conversion of the military sector and enhanced powers for the United Nations in the resolution of disputes and conflicts. These could only be achieved if the leading nations that spent proportionately the most on armaments, transferred spending to domestic and international programmes that supported sustainable development.

The major elements of a common security framework were clear; military preparations actually fed insecurity rather than created the conditions for a stable international peace; the whole concept of security needed to be overhauled in order to incorporate economic, environmental and social dimensions; resources presently squandered on military spending had to be redirected to international aid and development; the Western societies themselves must embark on a new path of sustainable economic development; and international institutions had to be radically reformed and new ones created that fairly represented the whole international community and not just the interests of rich nations. However, the agenda of common security was never taken up seriously, even after the end of the Cold War, and the limited progress represented by international agreements like Kyoto and some increases in aid to the poorest countries, are in stark contrast to the scale of the challenges facing the international community.

In the context of developing industrial and technology policy in the face of these security challenges, the government's Foresight programme represents one approach that looks beyond normal commercial horizons in order to explore possible future applications of scientific knowledge. Underlying this is an acknowledgement of the inter-linking between technological and societal issues where, through the process of democratic debate and deliberation, these various alternatives are given proper consideration to identify the range of possible impacts both positive and negative, and to guide and support the policy process.<sup>30</sup>

An important element of the Foresight programme is scenario planning that maps various large-scale economic landscapes, both nationally and internationally, and projects forward their different impacts over the longer term. For example the contrast can be made between a 'world markets' scenario predicated on conventional development and the continuation of traditional growth patterns, compared to an 'interdependence' scenario through global sustainability. Under the latter, attempts are made to apply science in order to achieve a balance between economic, social and environmental policy. Sustainability is seen through an extension of global governance around security policy, economic development, resource management and

environmental protection; leading to the maintenance of bio-diversity, the protection of the global commons and fair access to environmental resources.

In this interdependence scenario, the UK becomes a major provider of renewables including offshore wind, biomass and solar energy with major infrastructure investment to support the use of hydrogen. Higher energy prices would also encourage greater use of energy efficiency measures and by 2025, a large proportion of our energy needs would be satisfied through renewables.

Of course, such scenarios provide a fairly broad-brush view of national economies and the international system, with the obvious caveat that massive uncertainties exist about future trends. But they do serve as a useful focal point from which to assess very different outcomes that can emerge from decisions taken now about technology policy. And underlying this exercise is a clear understanding that these futures are not closed off and that democratic debate and social analysis are essential to influence political decisions on scientific and industrial priorities that will have a crucial bearing on longer term developments.

From our perspective, an International Security Industrial Strategy that prioritised civil R&D and production would be an important contribution to a scenario of interdependency and global sustainability. Indeed, without such a shift in priorities, it is difficult to see how those ambitions can be realised.

An International Security Industrial Strategy would also relate these capabilities directly to the UK's development policies, for example, providing assistance to emerging economies in reducing their demand for non-renewable energy supplies and so helping to cut global warming and the debt pressures that do so much to undermine security. Instead of leading in arms exports that add to regional tensions, the UK would be sending a clear signal that it saw itself as a world pioneer in peaceful technologies and in supporting sustainable international development that made the world a safer place. The implications would, of course, be profound since these forms of security would take precedence over traditional military preoccupations.

## **6 Conclusions**

The concept of a military-industrial complex (MIC), made famous by President Eisenhower, that organises security policy around the needs of an elite group of private businesses and military bureaucracies, in order to maintain high levels of military spending, may have fallen into disrepute. But the UK's DIS provides ample evidence that a powerful military industrial network exists, which if not dominant, clearly has substantial influence. Senior members of that network move effortlessly through the system, from senior positions in the defence procurement and R&D agencies to senior positions in the major defence contractors (and back again) while sitting on important committees, think tanks and other agencies with direct connections into the heart of government decision making.

The map of international security can then easily be transposed onto a pre-defined superstructure that emphasises the continued importance of 'high-technology' military-industrial specialisms in aerospace, shipbuilding and engineering and provides an irresistible logic that there can be no alternative approach. Such is the influence of this network.

We are left in the invidious position that virtually no debate is taking place about decisions that will profoundly influence the nature of security and industrial policy for the next twenty to thirty years. As a result, UK military spending will remain artificially high and focused on expensive platforms, including a massively costly replacement for the Trident system; monopoly supply through BAE; specialist military R&D with little benefit to the broader civil industrial and technological base; and increased global arms sales.

The repercussions are serious. By committing ourselves to a new generation of nuclear weapons we undermine the Nuclear Non Proliferation Treaty at a critical time of potential breakdown, and when there is a specific responsibility on existing nuclear weapons powers to do everything possible to work towards nuclear disarmament.

BAE, with the government's enthusiastic support, will be left in the enviable position that all private companies aspire to, monopoly power, whereby it can plan for the long-term with absolute assurance that both large contracts and relatively high profit margins will be maintained. At the same time, this is presented as an important contribution to national security, a boost to our high technology industries and employment, and vital to our export potential.

There is no guarantee of BAE maintaining a presence in the UK. Since the takeover of GEC in 1999, employment at the company had declined from 115,600 to 68,100 by 2002<sup>31</sup> and, while BAE will continue to play its trump card as the 'national champion' of UK manufacturing, it is also in a strong position take advantage of further international consolidation, including a possible merger with a US military-industrial giant like General Dynamics. Restructuring could see the loss of capacity in the UK and sourcing to foreign subsidiaries with highly skilled and low-paid foreign workforces.

Nor should exports of fighter aircraft, warships, missiles, etc, be greeted with universal acclaim when taking into account the levels of hidden subsidy and inherent corruption that surrounds such deals. Our overseas agents may, on occasion, call themselves princes earning commission, but they are simply petty criminals taking bribes. It should be a source of shame rather than celebration, that the UK plays a leading role in an arms trade that damages the real needs of so many developing countries, and contributes to destabilisation, particularly in those areas of regional tension.

When faced with the enormous power of vested interests and the effective closure of debate, it would be easy to accept this as a *fait accompli*. But, the very fact that political influence is still important over the scale and direction of the military-industrial sector demonstrates that there is nothing inevitable about this process. The Labour government under Harold Wilson provided a strong critique of the UK's dependency on military R&D and a similar debate is needed now in the modern context of the UK as a medium-sized European economy. How can the country best utilise its industrial and technological capabilities to play a leading role in the EU and in an increasingly interdependent world that needs new thinking for new security challenges?

In thirty years time, with oil and gas supplies running low and our all-singing, all-dancing, military platforms lying idle in their bases for lack of fuel, the UK might face some calamitous environmental disaster; perhaps an unprecedented tidal surge that swamps the Thames barrier, causing extensive flooding in London and the South East. Future generations will look back at the decisions we are making now, to pour billions of pounds into armaments, with a combination of incredulity and anger that such a narrow

interpretation of security continued to dominate the psyche of our national leadership. Who knows, there may even be a spare copy of the DIS floating out of the MoD, down the Thames, and into the briny expanse of what was once Norfolk.

## APPENDIX ONE

**Major Projects 2005-2025**

Project	In-Service Date	Cost (£bns)
<b>SEA</b>		
ASTUTE Submarine 3 Nuclear-Powered Submarines (Order for further 3 expected) BAE	2009	£3.492
TYPE 45 Destroyer 6 Vessels (Order for further 6 expected) BAE	2009	£5.896
FUTURE AIRCRAFT CARRIER 2 Carrier Task Force Lead Vessels Kellog, Brown and Root (Physical Integrator) BAE prime contractor with VT, Swan Hunters and Babcock	2012	£3.000
FUTURE SURFACE COMBATANT <sup>32</sup> Replacement surface fleet. BAE and others	2016-19	£10-15.000
MARITIME UNDERWATER CAPABILITY <sup>33</sup> Single design, multi-role nuclear submarine for attack submarine and possible stretched version for Trident nuclear missile replacement BAE	2020-2025	£12-20.000
<b><u>AIR</u></b>		
SKYNET 2 Military Communication Satellites (Order for further one expected) Paradigm Secure Communications Ltd (Subsidiary of EADS)	2007	£2.000
NIMROD 12 Maritime Patrol Aircraft BAE	2008	£3.808

Project	In-Service Date	Cost (£bns)
FUTURE STRATEGIC TANKER AIRCRAFT 20 Air-to-Air Refuelling Air Tanker Ltd (EADS, Rolls Royce, Cobham, Thales)	2008	£3.500 <sup>34</sup>
FUTURE ROTORCRAFT CAPABILITY 100 medium/heavy transport/battlefield helicopters Agusta Westland	2009	£5.000
FUTURE TRANSPORT AIRCRAFT –A400M 25 Tactical Transport Planes BAE in Airbus Consortium	2010	£3.500
BEYOND VISUAL RANGE AIR-TO-AIR MISSILE – METEOR Matra BAe Dynamics	2011	£1.200
FUTURE CARRIER-BORNE AIRCRAFT 150 Short-take-off and landing aircraft Lockheed Martin and BAE	2012	£7-10.000
FUTURE OFFENSIVE AIR CAPABILITY <sup>35</sup> Up to 140 attack aircraft, possibly with stealth capabilities BAE	2017	£10-15.000
<u>LAND</u>		
BOWMAN Tactical Communication General Dynamics UK Ltd	2005	£2.300
FUTURE RAPID EFFECTS SYSTEM (Medium-weight air-deployable vehicles) Systems house contract with Atkins BAE offering Terrier programme <sup>36</sup>	2009	£6.000
FUTURE INTEGRATED SOLDIER TECHNOLOGY Radios, Computer GPS, Cameras, Weapon Sights, etc THALES coordinator	2015	£2.000

Note:

This table is based on information for projects valued at over £1 billion, from the Major Projects Report 2005 – Project Summary Sheets, National Audit Office, HC 595-II, 2005 and various other sources including the Key Note, Defence Industry Market Review, 2003 and other specialist literature. Some projects have been omitted because of lack of

information, such as the Armoured Battle Group Support Vehicle, and estimates have been made on project costs in some cases. However, unless stated otherwise in the footnotes, the costings relate as far as possible to the latest published information available in the literature.

## APPENDIX TWO

**Key Defence Statistics<sup>37</sup>****1) UK MoD Expenditure (millions)**

2004-05	2005-06	2006-07	2007-08
29,710	30,888	32,067	33,477

(This represents a real increase, after inflation, of 1.4%)

**2) R&D Expenditure 2003/04 (millions)**

Research	524
Development	2,153
Total	2,677

**3) Contractors Paid £500 million or more in 2004/05**

BAE Systems (Operations Ltd)  
 BAE Systems (Electronics Ltd)  
 NETMA  
 Qinetiq

\*NETMA is the NATO Eurofighter & Tornado Management Agency and represents the Eurofighter partner nations' governments. It was established to oversee the procurement of weapon systems into the respective air forces.

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## **Endnotes**

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- <sup>4</sup>. Richard Coopey, 'Restructuring Civil and Military Science and Technology: The Ministry of Technology in the 1960s', in Richard Coopey, Matthew Uttley, Graham Spinardi, *Defence Science and Technology Adjusting to Change* (Reading, Harwood Academic Publishers, 1993).
- <sup>5</sup>. Trevor Taylor & Keith Hayward, *The UK Defence Industrial Base : Development and Future Policy Options* (Brassey's Defence Publishers, 1989).
- <sup>6</sup>. *Ibid*, p. 100.
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- <sup>8</sup>. Public Accounts Committee, *Control and Management of the Development of Major Equipment* (House of Commons Paper 104, Session 1986-87).
- <sup>9</sup>. Steven Schofield, 'The Levene Reforms: An Evaluation', *Defense Analysis*, Vol. 11, No 2, pp. 147-174 (1995).
- <sup>10</sup>. Hansard, 9th March 1995, columns 461–468.
- <sup>11</sup>. Key Note, *Market Review 2003 – The Defence Industry*, pp. 101-123 (Hampton, 2003).
- <sup>12</sup>. *Defence Industrial Strategy*, Cm 6697 (December 2005), also builds on the MoD's *Defence Industrial Policy*, MoD Policy Paper No. 5 (MoD, 2002).
- <sup>13</sup>. *Guardian*, 10/12/2003, 'MoD Chief Refuses to Sign £800 million Hawk order'.
- <sup>14</sup>. *Guardian*, 13/1/2006, 'Labour Condemned Over QinetiQ flotation'.
- <sup>15</sup>. Public Accounts Committee, *MoD – Major Projects Report 2005*, HC 210, 2005.
- <sup>16</sup>. *Ibid*, para 1.1.
- <sup>17</sup>. See Appendix One for a listing of major projects and expected in-service dates.
- <sup>18</sup>. See *UK Defence Statistics 2005*.  
[www.dasa.mod.uk/natstats/ukds/2005/c1/sec1intro.html](http://www.dasa.mod.uk/natstats/ukds/2005/c1/sec1intro.html) and Appendix Two.
- <sup>19</sup>. See Appendix Two.
- <sup>20</sup>. See Ian Davis and Emma Mayhew, *What Happens When A White Elephant Meets a Paper Tiger? The Prospective Sale of Eurofighter Typhoon Aircraft to Saudi Arabia and the EU Code of Conduct on Arms Exports*, BASIC Paper No.49, December 2005.  
<http://www.basicint.org/pubs/Papers/BP49.htm>.  
Also See Appendix One for Major Projects.
- <sup>21</sup>. These tasks were established in June 1992 at the Ministerial Council of the Western European Union (WEU) held at the Petersberg Hotel, near Bonn, Germany.
- <sup>22</sup>. Jocelyn Mawdsley, Gerrard Quille, *Equipping the Rapid Reaction Force – Options for and Constraints on A European Defence Equipment Strategy* (Bonn International Conversion Centre, 2003).
- <sup>23</sup>. Council of Europe, *A Secure Europe in a Better World*, (2003), [www-ue.int/uedocs](http://www-ue.int/uedocs)
- <sup>24</sup>. Jocelyn Mawdsley et al, *op.cit*.
- <sup>25</sup>. *UK Defence Statistics, 2005*.
- <sup>26</sup>. Steven Schofield, *The UK and Non-offensive Defence*, pp 23-25 (Security Studies Network, 2002). See also, Chris Langley, *Soldiers in the Laboratory – Military Involvement in Science and Technology and Some Alternatives* (Scientists for Global Responsibility, 2005), [www.sgr.org.uk](http://www.sgr.org.uk).

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- <sup>29</sup>. Brandt Commission, *North-South – A Programme for Survival*, p 115 (Pan Books, 1980).
- <sup>30</sup>. DTI, *Foresight Futures 2020 – Revised Scenarios and Guidance*, (DTI, 2002).
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- <sup>32</sup>. Long-term project awaiting contract – BAE in strong position to be prime contractor; costings are author's estimate.
- <sup>33</sup>. As above.
- <sup>34</sup>. Total Costs are given as £13,900 under a Private Finance Initiative (PFI) – procurement costings are author's estimate.
- <sup>35</sup>. Long-term project awaiting contract.
- <sup>36</sup>. Contract still at competitive stage.
- <sup>37</sup>. Statistics are provided by the Defence Analytical Service Agency, [www.dasa.mod.uk](http://www.dasa.mod.uk).