AN INITIAL LONG-TERM VISION
FOR
EUROPEAN DEFENCE CAPABILITY AND CAPACITY NEEDS

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ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

1. A vision of the future nature and context of ESDP operations is essential to inform those near-term decisions which will determine Europe's long-term defence capabilities and capacities. The picture offered here will need further development, and regular reassessment – but may be judged a useful starting-point. (Introduction)

2. The global context is sobering, with the central predictions of demography and economics foreshadowing a Europe which, two decades hence, will be older, less pre-eminently prosperous, and surrounded by regions (including Africa and the Middle East) which may struggle to cope with the consequences of globalisation. Defence will need to contend with public finances under pressure from a growing pension burden; a shrinking recruitment pool; and societies increasingly cautious about interventionary operations, concerned with issues of legitimacy in the use of force, and inclined to favour "security" over "defence" spending. (Section I, The Global Context)

3. Defence will need to continue adapting to:

   - the changing role of force. Traditionally, war and politics were practised sequentially – and war involved largely unconstrained violence directed towards destroying opposing conventional forces. Today and tomorrow, force will be intimately interwoven with political (and media) developments – and will typically be applied in opaque circumstances against an obscure enemy under tight rules of engagement and 24/7 media scrutiny.

   - the technological revolution. Continued developments in micro-electronics, communication and sensing technologies, bio- and material sciences and energy technologies will provide modern Armed Forces with great advantages. But the adversary will work hard to adopt and exploit our own advances against us. Increasingly, defence will need to draw from the broadening flood of civil technological progress. (Section II, Challenges for Defence)

4. ESDP operations will be expeditionary, multinational and multi-instrument, directed at achieving security and stability more than "victory". Information will be critical, whether informing the "war of ideas" in cyberspace, or facilitating effective command decisions. "Asymmetry" will apply not merely to an opponent's tactics but also to his aims and values. In such circumstances, the military will be only one of a range of instruments applied to achieve the campaign goals. (Section III, Implications for the Military Contribution to ESDP Operations)

5. The key future force and capability characteristics may be:

- Synergy – going beyond combined–arms warfare to coordination of effects with non-military actors;

- Agility – implying speed of reaction and deployability, but also the capacity to reconfigure for optimum force size and balance, and move quickly at the tactical level;

- Selectivity – meaning a wide range of capabilities, and the means to ensure an informed and appropriate choice at each stage of the operation; and

- Sustainability – suggesting the right logistic support, but also theatre access.

(Section IV – Implications for Capability Development)

6. These characteristics are translated into a Future Capability Profile for each of the main capability domains of Command, Inform, Engage, Protect, Deploy and Sustain. (Annex – Future Capability Profile)

7. In working towards this capability profile defence planners will need to concentrate on some key issues, including

- Knowledge exploitation – improving intelligence, information and analysis at all levels, and developing appropriate forms of network-enabled capability

- Interoperability – preferably through greater commonality of equipment and systems, and shared or pooled capability

- The manpower balance – finding ways to enable greater investment by cutting manpower numbers and costs, whilst providing for "boots on the ground"

- Rapid acquisition – in particular quicker exploitation of new technology

- Industrial policy – averting a steady contraction and decline of the European defence industry by increasing investment; consolidating the European technological and industrial base; harnessing Europe's full potential; and targeting what we want to preserve or develop

- Flexibility for the unforeseen – recognising the limitations to how far we can penetrate the fog of the future.

(Section V: Key Issues for the Defence Planner).

1. Every day, defence planners, technologists and industrialists across Europe take decisions which materially affect the sort of defence capabilities, and underpinning technological and industrial base, that Europe will have at its disposal in 20 years time. Those involved in such decisions are, in the French phrase, "preparing the future" – and they need the best help that can be given them to understand the future for which they must prepare. Accordingly, the Ministerial Steering Board of the European Defence Agency (EDA) tasked the Agency, in November 2005, to lead a wide-ranging exercise to develop an initial long-term vision of European defence capability and capacity needs, looking some two decades ahead.

2. Any attempt to "forecast the future" – to assert with confidence that the world will be thus or so in 20 years time, or that defence ministries can accurately specify what capabilities will be required to meet the challenges so far ahead – would be self-deluding and dangerous. But we can reasonably aim to identify some of the most relevant and robust trends, and recommend them as guidelines for those working their way forward into the fog of the future. For example, a key hypothesis in what follows is that the phenomenon known as globalisation will continue. It is easy to think of scenarios which might invalidate this hypothesis: an uncontrolled pandemic; massive use of weapons of mass destruction; or perhaps regionalisation of the world's economic system, with competition for inadequate resources leading to the emergence of mutually suspicious regional blocks. But, so many stand to gain so much from the continuation of the globalisation process that it seems a reasonable assumption to make, at least for now, about the world in which the European Security and Defence Policy (ESDP) will operate.

3. "At least for now" is fundamental. This document does not pretend to offer a route map to be followed over the next twenty years. It aspires only to provide a sort of compass bearing, to indicate the directions in which it would be sensible to move forward. Accordingly it is an initial vision, intended as something to be revisited on a regular basis, to check whether the directions indicated still seem appropriate. And it cannot answer the question how much effort and resource should be invested in insuring against the unexpecteds and the unknowns which will inevitably present themselves along the way.

4. The European capability and capacity needs referred to in the Steering Board's tasking are those needed for the ESDP. They are only one part of the spectrum of what defence practitioners need to plan for, alongside, for example, separate national or NATO requirements. Thus, the initial long-term vision (LTV) makes no claim to influence the

totality of Member States' defence planning. Nor does it attempt to anticipate how ESDP itself may evolve over the next 20 years. However, the Headline Goal and European Security Strategy envisage a broad and significantly challenging set of potential missions. These include separation of warring factions by force, on the sort of scale that would have been required had a ground invasion of Kosovo in 1999 turned out to be necessary. They may also encompass stabilising operations in a failed state in the face of a determined and capable asymmetric threat. So the demands of today's ESDP are already potentially deep and comprehensive.

5. Against that background, what is offered here is a basis, a proposed foundation upon which follow-on work can be built, involving progressively more detailed analysis and therefore more useful guidance to those developing the defence capabilities and capacities of the future.

I

THE GLOBAL CONTEXT - WHAT SORT OF EUROPE IN WHAT SORT OF WORLD?

6. Unless globalisation stops or goes into reverse, the world of 2025 is likely to be more diverse, more inter-dependent, and even more unequal. A forecast tripling of Chinese GDP will make China the second global economy; India may have overhauled Japan, to take third place. Europe will continue to grow modestly - in GDP and perhaps membership - but with its technological advantage in such areas as IT, biotechnology, and nanotechnology being steadily eroded.

7. Europe will in particular be held back by low fertility rates (currently 1.5). The population may remain roughly stable, compensated by lower mortality and greater longevity. But by 2025 the effective economic old age dependency ratio (retired over 65s as a percentage of the working population aged 15-64) will have risen from 37% to 48%; and the average European will be 45 years old. Europeans will by 2025 comprise a mere 6% of the world population. The aging of Europe's people will lead to fierce competition for young and skilled workers. The Armed Forces recruitment pool (16 – 30 age group) will fall by over 15% by 2025.

8. These demographic trends will have major implications for public finances, with increasing health care and pension costs. Future public benefits to the elderly could rise from today's spectrum of 11-16% of national GDPs to 17-33% over the next 4 decades. Low economic growth and high unemployment could further exacerbate fiscal pressures on national budgets as unemployment and social benefits are funded by a decreasing taxpaying population. Inevitably, costs of armed forces personnel will also rise.

9. Globalisation will produce winners and losers, as between countries and regions, and within societies (whilst universal communication will make these disparities ever more apparent). The regions neighbouring Europe will face particular challenges. High fertility should see Africa's population growing faster than anywhere else – up by 48% to 1.3 billion by 2025 – despite AIDS. The average African's age is projected to be 22. Desertification may increasingly concentrate this young population in urban centres (11 African mega-cities of 5 million plus by 2025) – many of them without hope of employment. The implications for despair, humanitarian disaster and migratory pressures are obvious.

10. The Middle East will see a comparable growth in its young population – a 50% increase in the working age population - with similar uncertainties as to how they are to find employment,

and 70% of the population in cities by 2015. Russia, by contrast, looks likely to suffer a 10% population decline by 2025.

11. So the prognosis is for tensions and strong migratory pressures in the regions around Europe, at a time when Europe is becoming increasingly dependent on the rest of the world, especially for energy. Global energy demand is reckoned to rise by 50% by 2030 – oil consumption up 40%, gas up 90%. The resources are available but the question is whether investments will be made in time to avoid constant supply pressure at the margin and steady price increases. By 2025, Europe will be externally dependent for 90% of its oil and 80% of its gas. China and India in particular will drive global energy demand, and seek new sources in central Asia, Africa and the Middle East. In this and other ways, European security interests may be directly or indirectly challenged by tensions arising not only in the near neighbourhood but also further afield.

12. Even as Europe becomes more dependent on the wider world, and the immediate neighbourhood becomes more problematic, so it may become more cautious about military intervention. The "CNN effect" and associated casualty aversion are already familiar. Military operations will be subject to ever-increasing scrutiny by elected officials, media and populations. Governments and societies increasingly concerned for internal security and social cohesion may be even more hesitant to undertake potentially controversial interventions abroad - in particular interventions in regions from where large numbers of immigrants have come. Continued proliferation of nuclear, biological and chemical capabilities may also be expected, complicating the calculus of interventions.

13. Caution may be reinforced by increased concern with the legality of military action, as globalisation disseminates the concept of international law. Military action, not explicitly authorised by the UN may become increasingly controversial. In the conduct of war, ever greater attention will be paid to proportion and justification in the application of force, with an increasing tendency to hold individuals responsible for their actions not just at head of state or military commander level but down the command chain. Attention to collateral damage will be ever more acute.

14. Increasing concern with homeland security will erode distinctions between what is regarded as the province of "defence" and what of "security", and indeed may call in question the taxpayer's willingness to fund "defence" if this is seen as wholly concerned with interventions abroad or deterring increasingly improbable conventional attacks on European territory.

15. Europe will remain one of the most prosperous and stable regions on the plan. But, as it ages, loses economic pre-eminence and becomes more anxious about its security, it may also find the problems on its periphery increasingly challenging.

II

CHALLENGES FOR DEFENCE

16. Against this background: what are the principal challenges for defence? Apart from the danger, noted above, of "defence" becoming perceived as peripheral to the primary security concerns of European citizens, we identify two key issues:

- Adapting to the changing role of force
- Adapting to the technological revolution

ADAPTING TO THE CHANGING ROLE OF FORCE

17. It is a familiar thought that war is the continuation of politics by other means. But we have become used to these activities being conducted in distinct phases. When the politicians and diplomats fail, they hand matters over to the military, re-entering to settle the peace when the military issue is decided. Twice in the 20th century war took over from politics for a period of years. Similarly, expeditionary operations traditionally involved dispatching the force commander with the broadest of objectives and the freest of hands, requiring him only to report success when the job was done.

18. The all-seeing eye of the camera and the speed of modern communication have changed all that. All parties in modern conflicts realise that the political outcome will be determined not just by the achievement of military objectives, but by the manner in which operations are conducted or are perceived to be conducted. There seems always to be a video camera at hand, and a TV station ready to broadcast what it sees to global audiences. And the operation itself will be impacted by reactions of local actors and onlookers to breaking news (or rumours), even from the other side of the world.

19. The interplay between the political, the military and the mediatic is now continuous; and military success achieved in the wrong way can mean political failure.

20. With this 24/7 scrutiny has come, as noted above, an ever-increasing premium on issues of legitimacy and conformity with international law – a not always precise but certainly expanding corpus of constraining standards. This may include the interpretation of the Right of Self-Defence and the Threat to International Peace and Security as stipulated in the UN Charter (Jus ad Bellum), and the future balance between Intervention and State Sovereignty. The way force is employed is increasingly constrained by legal and policy considerations

based on general international law and the law of armed conflict when applicable. It is likely that policy could become increasingly restrictive about the conditions in which military force is deemed legitimate. In addition, international criminal law comes into play with the establishment of the International Criminal Court and a variety of ad hoc jurisdictions. All these developments will create an increasing level of complexity for the political and military operators and planners.

21. Allied to this is the widespread perception that technology is putting into military hands the means to conduct operations with ever greater precision and restraint. Warfare has been described as a mixture of intelligence and kinetic energy. The opening campaigns in Afghanistan and Iraq have confirmed beyond doubt that we are transitioning from the industrial age to the information age of war – that intelligence (or knowledge, or information) will become an ever more important resource for successful operations, whilst kinetic energy has to be applied in ever more precise and limited quantities.

22. In the Kosovo air war only 15% of munitions dropped were "smart"; by the 2003 Iraq war, the proportions between dumb and smart were reversed. Serious thought needs to be given to the future utility of unguided munitions (and of aircraft that cannot use smart weapons), as well as cluster bombs, mines and other weapons of indiscriminate effect. The environmental impact of military action will also come increasingly into focus, including concern for effects on our own troops – as with the crises over the use of depleted uranium ammunition in the first Gulf war and later in Kosovo.

23. Thus the focus of military efforts will shift to complementing diplomacy in preventing wars from occurring, containing those conflicts that do occur, and discouraging the emergence of parties whose objective it is to contribute to the generation of a crisis.

24. All this has reduced the plausibility of scenarios, at least in the European context and for the foreseeable future, involving traditional state-on-state warfare, with conventional forces pitted against comparable opponents. And it has simultaneously encouraged all but the most technologically dominant (for now the US and Europe) to seek out "asymmetric" strategies – ways of preventing sophisticated forces from using their technological advantage (e.g. by denying them clear targets), and adopting and exploiting against them their own technology (and media). The most effective practioners of such asymmetric strategies will often be non-state actors.

25. In sum, the operations for which European forces should primarily prepare for the foreseeable future will require force to be applied in opaque circumstances, against an opponent at pains

to conceal himself amongst civil populations, under tightly constraining rule of engagement and 24/7 media scrutiny.

ADAPTING TO THE TECHNOLOGICAL REVOLUTION

26. Just as globalisation is altering our geo-political landscape and our familiar rule set, so science and technology continue to transform the world we live in at a pace which we have difficulty comprehending. The proliferation of technology and knowledge is proceeding outside the control of governments and with the commercial sector fully in the driving seat. Unilateral advantages do not last long. Information technology has been the main revolutionary driver and pushed forward globalisation and its overall effects.

27. Science and technology are playing a key part in driving the changing role of military force; and exploitation of what they have to offer will be a key to successful adaptation to that changing role. Most of the technologies which may be the key determinants of the military capabilities needed in 2025 are, according to the scientific consensus, already known about today. There is little doubt that continued advances in microelectronics (Moore's law shows no signs of slackening) and in sensing and communication technologies will support the increasingly dominant role of knowledge in military operations. Similarly, the precision, speed and safety of military operations should benefit from rapid progress in bio- and material sciences (in these areas often associated with nanotechnology, a generic descriptor of technological advance being pursued amongst ever more minute elements). Developments in power sources will enable us to materialising many of these other new opportunities into useable equipments.

28. The "dark side" is obvious, too. The risks of proliferation of weapons of mass destruction are well-known: while the difficulties of obtaining the materials act as some brake on nuclear proliferation, protection against new forms of biological agents should be a particular concern. Our own universal means of communication are already thoroughly exploited by opponents both as platforms for propagating ideas and ideologies and as communication networks. Commercially available applications such as GPS and Google Earth (high resolution satellite imagery on your home PC) are manifestly open to abuse. And the more dependent we become on technology the more interest our opponents will have in attacking us via our technological infrastructure.

29. Science and technology will also raise false expectations about how far damage can be eliminated from military operations. Just as increasingly any death in hospital is ascribed to a failure by the medical profession, so it will be even more difficult in future for publics to accept that casualties sustained are not the result of specific negligence.

30. As the stream of civil technological advance broadens and quickens, so the traditional role of defence R&T as a motor of wider progress is reversed; technology will be "spun in" to defence more than "spun out". Maintaining the military technological edge will therefore require better exploitation of civil technologies – and ever more rapid exploitation of technology, whatever its source, before the opponent works out how to adopt or negate it.

31. The civil world of science and technology has another important lesson to offer – that technological advance will increasingly come as much from combining technologies as from linear development in one particular field. Yet no one institute, still less one person, can be competent across the broadening river of technology. Innovation will increasingly depend upon networks of excellent researchers collaborating to combine their expertise in different disciplines.

32. In sum, our Armed Forces can expect from future science and technology the universal availability of communication and knowledge as well as new levels of precision of and protection against lethal effects. However, what they cannot expect are sustained unilateral advantages – be they measured against conventional opponents in classical state-to-state conflict or against asymmetric threats. The proliferation of knowledge remains endemic to open societies and a global economy.

III

IMPLICATIONS FOR THE MILITARY CONTRIBUTION TO ESDP OPERATIONS

33. What do the changes in the economic, social and military world around us – and those at home – mean for the future of ESDP operations in, say, 2025?

34. The typical ESDP crisis management operation will be expeditionary, multi-national and multi-instrument. The EU has recognised the need to be a global security actor. For such purpose it envisages a capability to project forces over strategic distances and to austere areas of operation. Interventions will be based on common objectives among Member States, thus sending a message of a shared EU commitment to resolve the crisis. Therefore, deployment of forces needs to be based on the principle of wide multi-nationality. Furthermore, the EU will increasingly utilise a comprehensive approach combining its hard and soft power instruments and coordinating civilian, military, governmental and non-governmental bodies to collectively achieve the necessary political effects.

35. Indeed interventions will not necessarily involve fighting battles. The presence of multinational forces, backed by, and indeed symbolising, the collective political commitment of the Union, may well prevent hostilities from breaking out. Or they may help to stabilise a country or region after a political accord. Indeed, the scope of ESDP missions requires military contributions to be appropriately tailored, trained and readied to conduct a broad range of operations, in potentially austere areas and against diverse threats. In cases of intervention by force the main task will be to gain control of the dynamics of conflict, reduce its destructive power and break the cycle of violence. The objective is not "victory" as traditionally understood, but moderation, balance of interests and peaceful resolution of conflicts – in short, stability. That said, the level of force required to achieve such outcomes may, in some scenarios, be substantial.

36. While the success of such interventions will be influenced by our military capabilities and actions, it will increasingly depend on our actions, or inaction, in a much broader range of domains such as the promotion of human rights, rule of law, security sector reform, good governance and the fight against international crime. It is unlikely that EU Member States' forces undertaking a crisis management operation will be denied military success - but we may be denied overall mission achievement because we have failed to understand and plan adequately in this complex environment, or bring other crisis management instruments effectively to bear. Armed Forces are but one component of a wider, comprehensive and

integrated approach to ESDP operations..

37. In the information age, knowledge will be the vital resource in armed conflict. Commanders will be able to exploit opportunities and manage operational risk in an informed manner. But network and knowledge systems only provide the opportunity for quicker decision-making – they are not a sufficient condition for better decisions. Moreover, the benefits and the costs of the information age also apply to the opposition. Today, not only has the most profound technological development occurred in information technology but the rate of diffusion has been even more surprising. New applications and continued convergence of IT products will arise and become quickly assimilated, at least by some in all societies. Such new IT products require minimum infrastructure, and their diffusion will also empower non-state actors - whether benevolent or malevolent.

38. Conceptually, the information age has created a new common environment that states and organisations aspire to access and control - analogous to the sea in previous centuries. The cyberspace is a much more complex environment, not simply represented by the internet. Like its predecessor, the sea, it has an international character where trade and intercontinental communication are conducted. However, its entry fee for access and influence is very low, and the space can be used by, almost literally, anyone. It is expanding non-linearly almost daily. Irregular enemies know they are able to maximise their asymmetric opportunities by creating their own networks; they will try to achieve their own information superiority and counter our attempts to do the same. The benefits of globalisation in the information age have provided them the opportunity.

39. Asymmetric warfare has become a familiar term in recent years. It designates high-tech against low-tech, Goliath against David, centrally-controlled and network-enabled operations against disruptive tactics of local or regional – and sometimes transnational – guerrilla groups. More relevant, however, for understanding asymmetry is the divergence of goals to be achieved and rules to be observed. Whereas one side strives to establish or re-establish its own concepts of stability, rule of law and democratic structures, opponents will often aim at a radically different political order. They will not play by the rules of the Law of Armed Conflict such as the proportionality of force or the protection of the civilian population. Nor will they necessarily refrain from terrorist tactics, or even use of weapons of mass destruction. And they will seek to deter or deflect interventions by exploiting perceived weaknesses in EU resolve.

40. In sum, the increasing complexity of ESDP operations – with the concurrent characteristics of multinationality, expedition and asymmetry – call for an integrated and comprehensive

approach to the planning and conduct of interventions. The role of the military will be determined within a wider campaign plan that includes close consultation with other – civil – instruments of power and influence.

IV

IMPLICATIONS FOR CAPABILITY DEVELOPMENT

41. What are the guiding lights of the development of future capabilities for ESDP operations as described above? Capability development will always try to balance two different approaches: one maintains that past experience is a reliable guide to the future ("learning from history"); the other suggests that the ever-increasing speed of change in our societies puts a high premium on the adaptability and flexibility of capability planning. In reality, both perspectives count. For example, reliance on well-trained and competently-led troops remains a constant in warfare. While that will not change, the characteristics that create new competitive advantages are changing. These characteristics are as valid at the tactical as at the operational and the strategic level. And they are as applicable in prevention, stability and reconstruction, and peacekeeping as they are in high intensity combat.

42. Which are these future force and capability characteristics? In general, such future forces and their capabilities must be founded on comprehensive and effects-based planning: it is not just equipment, but more comprehensively strategic concepts, doctrine, training and organisation that will, in their combination, yield the desired effects. In particular, four main characteristics need primary attention: Synergy, Agility, Selectivity and Sustainability.

43. **Synergy**. In the future, joint forces composed of land, air, space and maritime elements will increasingly use precision firepower, intelligence and focussed logistics in order to deliver military effects in a more discriminate way. And the capabilities of other agencies and actors, including non-governmental organisations, will contribute to the management of conflict. The media, with its increased reach and effectiveness, need increasingly to be taken into account. Synergy between these different capacities will create the effects necessary for mission accomplishment within acceptable levels of risk, while minimising undesired effects. Synchronisation across organisational, institutional and component boundaries moves the joint force from traditional de-confliction and coordination procedures to the integrated, comprehensively-planned operations required.

44. The traditional combined-arms warfare can be broadly considered as the employment of complementary weapon systems to achieve a synergistic effect. Its most important consequence is to bring about dominance over an opponent at critical time and critical space. The components of combined-arms warfare have already changed from the traditional infantry, armour and artillery mix to other force elements such as combat UAVs, precision weapons

and, perhaps more significantly, an ever-increasing array of sophisticated sensors and command and control systems. However, the proliferation of technology will also accelerate how adversaries can develop technological and operational reactions to counter the weapons systems and tactics of European forces. Advanced technologies in areas such as stealth, signature reduction, thermal masking and their respective interdependencies require research and adaptable approaches to acquisition.

45. **Agility**. This refers to the ability to achieve rapidity of reaction, tailorable force packaging and deployability. Agility embraces concept, machine and mind. EU Member States' military forces will need to operate in a multinational and multilateral environment, working with EU and non-EU Member States and with national and international organisations, including the UN and NATO, and even within ad hoc coalitions. They will need to demonstrate strategic reach (expeditionary operations) and strategic agility, being able to quickly move strategic distances and enter directly into the theatre of operations, readied and prepared. Inevitably there could be instances where very short lead times apply prior to deployment, as well as minimal infrastructure provided in theatre (e.g., few adequate ports or airfields, limited host nation support).

46. Forces may need to be responsive, reacting quickly, decisively and with precision, being knowledge-focussed and appropriately digitised. Such joint forces may need to be quickly tailored to meet a wide range of contingencies. Continued co-ordination between the Maritime, Land, Air, Special Forces and Logistics components will assist the trend towards jointness in smaller tailored units and task forces, if required. Such agile packages save lift, put fewer people in harm's way, permit a higher operational tempo and the speedier application of combat effect. They will be able to show intent whilst maintaining sufficient combat power to prevail in contested operations. They will also possess the necessary command, control, communications, intelligence, surveillance and reconnaissance (C3ISR) to enable mission planning and rehearsal en route.

47. Future joint forces will need agility at the operational and tactical levels as well as the strategic. Once deployed, EU Member States' joint forces may need to be able to operate at will within all domains and across the depth and breadth of the operational area, possessing combinations of stealth, speed, information superiority, connectivity, protection, and lethality. They may need to operate in complex terrain and inside cities. In all cases, forces must be capable of moving quickly in order to capitalise on fleeting tactical and operational opportunities, apply continuous pressure and set an operational tempo that suits own forces but, at the same time, degrades the enemy's decision-cycle processes and operating concepts.

48. **Selectivity**. The selective use of kinetic and non-kinetic means to generate the desired lethal or non-lethal effects will be essential for future operations. Future forces need to be able to graduate and vary the application of force as necessary, and in accordance with legal and political constraints. Therefore, future capabilities may also effectively incorporate such non-kinetic capabilities as computer network attack, electromagnetic or directed-energy, offensive counterspace, military deception and psychological operations. Such capabilities should provide EU Member States' forces with enhanced flexibility and allow them to better engage targets whilst constrained by concerns of collateral effects. They should be prepared to operate in less densely populated environments as well as in complex terrain and cities with discrimination, precision and minimal collateral damage.

49. Selectivity makes it particularly important to determine the overall effectiveness of force application. There is a need for the assessment of battle damage, munitions effectiveness, collateral damage and effects, consequence analysis, behavioural modification analysis and the overall reassessment of mission requirements. Future analysis, linked to a comprehensive (civilian & military) EU operational lessons learned process, may need to measure the effects on behaviour and attitudes of opposing leadership, forces and populations.

50. **Sustainability.** If an adversary can impede or deny access of European forces to needed facilities or to the local operational area, the potential impact on the crisis and its management may be decisive. The adversary gains time, extra latitude and a greater probability of success. If European forces are compelled to operate from distant areas, then their capabilities will be affected in scale, speed and endurance. The converse is that, to the degree that the EU can demonstrate an ability to deal with area denial threats, the deterrent is made more credible.

51. Multinational and agile sustainability will require building sufficient capacity into sustainment pipelines, and exercising sufficient control over the pipeline from end-to-end, to provide a high degree of certainty of supply to the forces in theatre. The results could provide a more timely and precise delivery of mission-ready forces, a reduced combat support and combat service support footprint in theatre and a more cost effective fighter-to-support ratio within overall force structures. Even if sustainment pipelines remain national, a high degree of interoperability, co-ordination and use of agreed standards will be vital to achieve a unity of effort and purpose. In any case, and although there may be the desire for short decisive campaigns, it will be essential to have a sufficient rotational base to sustain operations in long-duration contingencies.

52. In this context, reduced theatre footprints may require an emphasis on the sea as a sphere for manoeuvre and sustainment. This reflects the problems that civilian opposition and insurrectionary movements can pose for the land as a military base, the geo-political shift

away from historical bases and alliances, and political sensitivities over deployment and host nation support of troops in the territory of allies.

53. Finally, the political sustainability of ESDP operations will depend on a conspicuous and successful focus on force protection.

54. The characteristics of synergy, agility, selectivity and sustainability are translated for each of the six Capability domains of Command, Inform, Engage, Protect, Deploy and Sustain into the Future Capability Profile for ESDP operations at Annex.

V

KEY ISSUES FOR THE DEFENCE PLANNER

55. There has never been a more difficult time to be a defence planner. As described above, the role of force and the context for its employment is rapidly evolving – as are the technologies available to both sides of a conflict. Only a fully comprehensive planning approach with a long-term perspective can offer an opportunity to balance forces appropriately against ambition and resource, and to identify and manage risk, be it operational, technical or financial. Imbalances, shortfalls or risks will not be addressed through technology advances alone. Education and training will also be crucial to ensure that culture change parallels conceptual and technical advance. And the European industrial base will have to serve as a reliable and efficient fundament of all efforts to provide the needed capabilities in the long term. In this wider planning context a number of key issues, ranging from knowledge exploitation to industrial policies, will determine how Europe can meet its future defence needs.

56. **Knowledge Exploitation**. Knowledge has been argued to be a fundamental resource for future operational success. The term needs to be widely interpreted. It embraces the horizon-scanning and assessment functions that will enable us to identify and monitor gathering clouds, and to take properly-informed decisions about the risk-versus-opportunity balance of possible interventions. It also encompasses cultural awareness, to allow a proper understanding of the mindsets and motivations of actors in the theatre, and to facilitate effective engagement with them. And it includes situational awareness in the conduct of operations, from the operational headquarters to the street corner, as key to good decision-taking and the safety and effectiveness of deployed forces.

57. The objective of knowledge management is to turn data into actionable information - available at all levels of decision-making, to be shared and not hoarded. But in its more ambitions forms this objective will not come cheap, involving as it will the development of systems of systems. Dominance in this area is not built upon only computers or CIS architectures, sensors or innovative training. It is based upon all these and much more - all welded together by agreed doctrine and common standards. Thus network-enabled capability must be a fundamental development priority for ESDP operations. It will be essential to ensure interoperability with the leading efforts of the US in this area, interpreted through NATO. But a more characteristically European approach may need to be developed, different in ambition and character (for example, with a stronger emphasis on civil-military

interoperability, and on the tactical level), albeit nested within NATO conceptual frameworks and standards.

58. In order to realise the full potential of the information age, emerging trends from recent operations indicate that if money is saved on information technology, we could substantially pay many times more in other areas. "Uninformed" forces must ultimately resort to mass warfare. They must confront their opposition in contests of attrition rather than maintain the initiative and seize opportunities to achieve effects by speed, surprise and dislocation. Uninformed forces and their supporting organisations must constantly react, rather than capitalise on opportunity. To reduce own casualties as part of the overall political objective, they must spend enormous resources in securing themselves against the unknown, reserving little for achieving objectives. To achieve the necessary degree of information superiority, European forces will need to maintain an appropriate level of ISR persistence and fidelity. This will require a broad range of sensors and systems, including satellites, manned aircraft, the full portfolio of UAVs and land systems. But again, technology alone will not provide the capability. Human intelligence and the development of reliable local intelligence networks will become more fundamental as European forces operate amongst the people in theatre.

59. **Interoperability**   This needs to be at the heart of all European capability development work. Expeditionary, multi-national operations, with strong inter-action with civil instruments, require interoperability within national forces, between national forces, and with civilian actors. Just as equipment is only one element of capability, so the interoperability requirement relates to all other aspects of capability, from language to procedure to training

60. The best form of interoperability for equipments and systems is commonality – using the same kit. This operational perspective matches the defence economic imperative to consolidate the demand side of the European defence equipment market. Experience shows that common acquisitions are most successful the further "upstream" they are started – attempting to harmonise technical requirements is difficult or impossible if the underlying thinking on conceptual requirements, and financial and timescale expectations, has not been converged from the outset.

61. But the quest for operational and economic efficiency through cooperation should not be confined to new equipment developments. It should, in the interest of enhanced interoperability, embrace pursuit of mutually-advantageous opportunities for pooled purchase of off-the-shelf equipment; or taking shares in a jointly-owned capability; or moving towards role specialisation or integration in a coherent and complementary fashion. Identification of

such potential opportunities will require Member States to educate each other on the content and priorities of their national forward defence plans and programmes.

62. **The Manpower Balance.** It is now conventional wisdom in Europe that there is a need to increase the proportion of defence budgets going on investment – which implies the need to reduce operating costs. A significant part of these, of course, can be the costs of deployments – which, if met from defence budgets, are particularly damaging to coherent capability development in that they are usually unpredictable and short notice. In some Member States, such costs are met from the central government reserve; wider adoption of that practice would be a powerful support to the development of the defence capabilities ESDP needs.

63. But the largest element of operating costs is for personnel – over 50% of collective EU defence spending. As armed forces professionalise, and as the falling birth-rate increases competition in the labour market for young men and women, personnel costs will in practice pre-empt more and more of defence spending unless manpower is reduced. With approaching 2 million men and women currently in uniform in Europe, there is scope to do this. Approaches include out-sourcing; increased automation (from warships to robots); and reducing superfluous capability (do Europeans between them really need nearly 10.000 main battle tanks, and nearly 3.000 combat aircraft?).

64. But driving down personnel costs by manpower reductions needs to be managed with an eye to the demands of operations that could require numerous "boots on the ground" (for the widespread imposition of central authority immediately post-conflict in a failed state; or for the sustainment of long-running stabilisation and reconstruction missions). Alternatives to maintaining an unaffordable permanent force structure may have to be considered, such as greater use of reservists.

65. **Rapid Acquisition**. Rapid exploitation of technology is vital. It has been argued that distinctions between defence and civil R&T will become increasingly blurred; that the latter will become increasingly important for satisfying defence needs; and that the pace of civil technological advance is constantly increasing. Defence needs to quicken the pace at which technological opportunities are exploited into fielded equipments, if only because the opposition will undoubtedly do so. And we need to adjust to an era in which major new equipment programmes become less and less frequent, with the capability edge maintained by technology insertion into older platforms. A key aim of effective capability development must be to radically shorten the timeframes involved in moving from innovation to practical embodiment.

66. To do this we must consider not only new equipment but also be clear on what aspects our legacy equipment will need to be modified and at what rate in order to maintain relevance. Some elements will remain relevant over a long time, perhaps the whole length of its in-service life, whereas other assets will need to be refreshed and replaced to maximise benefits drawn from emerging technologies - such may be the case in the areas of sensors and information management. Upgrading and updating to avoid obsolescence in capabilities which benefit from IT and other rapidly developing technologies will remain a challenge in both legacy management and new design. Access, modularity, plug-and-play architectures and a focus on network enabling capability would be examples of such flexibility.

67. **Industrial Policy**. Today, Europe retains a widely capable defence technological and industrial base (DTIB). But the prognosis is not encouraging. If Europe is to preserve a broadly based and globally competitive DTIB (which means competitive with the US, and, increasingly, producers in the Far East) it must take to heart the facts that US is outspending Europe six to one in defence R&D; that it devotes some 35% of its defence expenditure to investment (from a budget more than twice as large as that of the Europeans combined), as against the European level of about 20%; and that it is increasingly dominant in global export markets.

68. Government has a very special relationship with the defence industry – as customer, regulator, and principal source of research and development funding. But less and less does it remain owner; and, as defence companies move progressively from government to private ownership, and as shareholder funds become increasingly prominent in the control of companies, so one may expect the normal laws of a globalised economy to apply; capital will migrate to optimise returns. This pattern of "industry following the money" is already apparent in, for example, BAe Systems' significant acquisitions in the US, and the developing presence of other European companies in the UK market.

69. Un-arrested, the trends points towards a steady contraction of the European defence industry into niche producers working increasingly for US primes. A combination of counter-measures is necessary. Higher levels of European investment are essential (in the interests of military capability as much as industrial policy) – if necessary by rebalancing within constrained defence budgets. The need for this is particularly apparent in the field of R&T, where we are now living off the fat of investments made during the Cold War, and expenditure has fallen to a trivial 1.3% of overall European defence spending.

70. Increasing investment needs to be complemented by investing to better effect. In part this is a matter of ensuring that investment is directed towards future capability needs; there is ultimately no future for a defence industry in Europe that does not supply what our future

armed forces actually require, and what export customers may be interested to buy. But "better effect" also implies overcoming the notorious fragmentation of the European defence industrial scene, to eliminate wasteful duplications and achieve economically viable scale. The recent commitment of 22 Member States to the first introduction of competition in the European defence equipment market is a brave step in the right direction, provided that it is followed through. But redoubled efforts are also required to achieve consolidation on the demand side of the market, and to facilitate further progress towards supply side consolidation (where industry, facing these issues not just as an intellectual problem but as a matter of daily survival, have shown themselves typically more aware of the need to change than their sponsoring governments). The need, in short, is to accept that the DTIB in Europe can only survive as one European whole, not as a sum of different national capacities.

71. The European DTIB's survival also depends on exploiting all the resources available in the enlarged Union. Pre-eminently, this means drawing on the advances of civil and dual-use technology, such as that funded by the Commission in the security sphere. It also means emulating the speed with which several industries (automotive, IT) have realised the benefits of cheaper production in Eastern Europe and, given the central importance of technology, it means exploiting the abundant human capital and sources of innovation to be found in universities, SMEs, and enterprises not traditionally regarded as "defence industries" across Europe – as well as the wealth of excellent engineers and researchers who have joined the Union with its last enlargement.

72. Finally, we must be realistic and selective; at the European level, we need to understand that even if we invest more, invest better, and harness all the potential that Europe has to offer, we may still be unable to sustain a European DTIB which matches in every particular the best that the rest of the world has to offer. In those circumstances, we need to take conscious decisions about what we wish to preserve and develop in Europe, and what we are content to source from the global market.

73. **<u>Flexibility for the unforeseen</u>**. Finally, since all we know for sure about the fog of the future is that it conceals things that we do not expect, or have not even considered, we must aim to build into our capability development sufficient flexibility and adaptability to cope with whatever may emerge. The deployment of military force presupposes an opponent – and that opponent will be actively seeking to frustrate our assumptions, plans and operational methods. There is a dilemma here: to identify the nature of the flexibility and adaptability that will be most efficacious against a range of risks that we cannot anticipate; and to decide how much resource should be invested in this form of insurance. The regular revisiting of this "living" Long Term Vision may help keep this in the forefront of our minds.

FUTURE CAPABILITY PROFILE

The following Future Capability Profile is presented within the 6 capability development areas associated with the EU's Integrated Development Teams.

COMMAND

a. Command and Control capabilities form the decisive element in the battle for information superiority and decision superiority. It is aimed at employing EU MS forces, assets and facilities commensurate with the mission and its demands, so that the desired effects can be achieved.

b. During the preparation and conduct of an EU led operation, command and control must be continuously ensured in near-real time and between all levels of command and bodies of the EU. This will need to be based upon a streamlined C2 organisation, clear and standardised C2 procedures and a secure and efficient command support. The command capability must support rapid decision-making. The EU MS need to generate joint and combined headquarters that are easily deployable and sustainable, with the capability to plan, conduct and assess multinational operations. The availability of planning, decision support and command instruments will be necessary for global multifunctional crisis management.

c. There will be a requirement to conduct operations, supported by network enabling capabilities as well as to establish, maintain and share real-time situational awareness. This command capability must be secure and flexible, and must minimize the constraints of distance, terrain and weather.

d. The Operation Commander will need the ability to exercise command and control authority over relevant EU instruments in a defined area and/or during a defined time period. The ability to communicate seamlessly with partners at all levels, as well as the ability to plug in to joint and combined headquarters will become priorities.

INFORM

a. Future operations undertaken by the EU will rely on the capability to collect, process, select, share, disseminate, retrieve and store information. Information management systems should optimise this process, tailoring the desired output to the specific mission. The information needs to be inter-departmental, inter-agency and readily accessible.

b. The intelligence and findings gained through collection and reconnaissance efforts are both an indispensable contribution to ensuring an independent capacity to make judgements, take proper decisions and appropriate action, as well as representing common interests within an

increasingly complex environment. This requires EU MS to have available a broad spectrum of recognition and surveillance capabilities, including analysis of cyberspace with regard to military relevant information. It should be the aim to achieve a greater coverage than now, focussing on the areas of strategic interest for the EU.

c.   Developing reliable strategic communication and intelligence capabilities and protecting them against physical and non-physical threats as well as having access to reliable navigation and geographic positioning data will be critical. Merging these capabilities, may provide the EU MS with the basis for common information dissemination and reliable and secure communications.

d.   The result of this capability for obtaining and securely managing information might become apparent in a noticeable increase in the responsiveness of the decision making process of the chain of command, and making the manoeuvre of military forces progressively more effective.

ENGAGE

a.   To be effective forces may have to deny, or possibly control, limited in both time and space, the sea, land, air and information domains, to impair opponents' capabilities, both on contact and remotely, while simultaneously achieving the desired effects on targets. This requires the ability to rapidly engage on the ground, in the air, and at sea. Precision, high speed, engagement capability is needed.

b.   Within a joint environment the military capability as a whole takes priority over the capabilities of the single services. Therefore standoff engagement has to become an option for all services. All military capabilities should reflect the growing likelihood and relevance of fighting within complex terrain, such as urban and littoral areas. Forces need a range of capabilities from physical destruction to non-lethal. Future operations will necessitate capabilities for precise and selective targeting and engagement thereby optimising commit-to-effect times and minimising collateral damage especially in urban areas.

c.   The preparation and conduct of future EU led operations will require continued consideration of space related aspects, such as communication, and the detection and identification of potential threats in advance of an appropriate response.

d.   Combat identification capabilities in order to reduce casualties amongst friendly forces, partners, civilians and local population are increasingly important in the complex operational environment.

e.   Where feasible, the EU MS must also aim to reduce the impact of military operations on the natural environment.

PROTECT

a. Good prior knowledge of the overall situation is a prerequisite for effective ESDP operations. Hence, it could be advantageous for MS to have access to appropriate surveillance and advanced alarm capabilities.

b. It is critical to have the ability to detect, and then counter, those weapons which, for legal, moral or ethical reasons, are not available to EU MS forces (such as biological weapons) but which may be freely employed by an adversary. Thus it is important to protect our forces against the bio-hazards that they may face. High standards of casualty handling and the ability to recover stranded personnel become priorities, even in geographically remote areas.

c. Recognising the expanded nature of the future battlespace, EU MS may need increasingly to safeguard networks and the area of operations against both physical and cyber attack.

d. The consequences of Weapons of Mass Destruction attacks will be particularly difficult to manage. Preventing proliferation will be important as well as the ability to counter their subsequent employment. CBRN defence and protection capabilities may be essential for some ESDP missions.

DEPLOY

a. Deployability is the precondition for ESDP operations, including the reinforcement and sustainment of forces. EU MS should have at their disposal viable means for strategic deployability over long distances. Responsive Reception Staging Onwards movement and Integration is required to maintain tempo during operations. This requires adequate, timely and securely available air, sea and land transport capacities and procedures.

b. Strategic deployment is planned and should be coordinated on a joint and multinational basis, using all modes of transport and available civilian resources. An ensured deployability forms the basis for a rapid, credible expeditionary capability, which should be one of the main efforts of the EU to manage crises and prevent conflicts. It will need to be based upon strategic air transport, on in-flight refuelling capabilities, and on strategic sea transport capabilities, as well as overland force projection assets.

c. For intra-theatre movements, capabilities of mobility and land mobility support, tactical air transport and air mobility is a requirement.

SUSTAIN

a. The success of operations will also depend on the sustainability of deployed forces. Sustainability will encompass the provision, replacement and rotation of forces with the

necessary means and facilities, according to operational demands. Even if the operational area is a long way from EU MS territories, sustainability must be ensured for the duration of the deployment, irrespective of the threat situation or availability of infrastructure and other factors in the operational area.

b. The joint/combined support arrangements should be capable of ensuring the required quality and quantity of support over long distances and protracted timeframes. This capability may be enhanced through the provision of accurate asset visibility and tracking. Beneath that, a multinational logistic component may allow the reduction of the overall logistic footprint. Any unit has to be capable of ensuring sustainability for a limited period of time by utilising organic assets. Harmonisation, and in the longer-term standardisation, of logistic requirements and procedures may ease multinational joint/combined logistics.

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