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OVERVIEW OF THE RESEARCH, DEVELOPMENT AND ACQUISITION SYSTEMS OF THE FEDERAL REPUBLIC OF GERMANY, FRANCE, AND THE UNITED KINGDOM

A Research Project by Colonel John F. Dennis, USMC

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I. INTRODUCTION

Despite the fact that as early as 1950 members of the North Atlantic Treaty Organization agreed that all unnecessary duplication of armament production must be eliminated, significant duplication of effort has continued . This has resulted in not only a dimunition of NATO military capability but also in an unnecessary expenditure of resources. In the 1970's agreements were reached within NATO to achieve the closest practicable cooperation, among other things, in terms of weapons and research and development.[1]

The lack of success of these efforts resulted in, among other things, a mandate for NATO cooperative research and development. The justification for such action was that even though NATO had for more than a decade expended significantly greater resources in the aggregate than the Warsaw Treaty Organization, the Warsaw Treaty Organization had produced and deployed many more major combat items, such as tanks, artillery and combat aircraft, than had NATO. Congress identified that a major reason was inadequate cooperation among NATO nations in research, development, and production of military equipment and munitions.[2] In an effort to remedy this situation, Congress has provided funding for Foreign Weapons Evaluation (FWE) and NATO Comparative Test (NCT) for test and evaluation of foreign nations' weapons systems and technologies to determine their potential use by U.S. Forces.[3] Congress also created in the same legislative package two additional initiatives, the Conventional Defense Initiative (CDI) (procurement of weapons and encouragement of cooperation among NATO allies) and the Balanced Technology Initiative (BTI) (focuses on promising technologies and concepts).[4] This emphasis, not only in legislative wording but also appropriations, and procurement of foreign

weapons and technology has been reinforced by a recent reduction in the U.S. Marine Corps Research and Development Budget by 26 percent.[5] All these events have combined to make it advantageous for the U.S. Marine Corps to look to NATO as a source of weapon systems and technology. The Federal Republic of Germany (FRG), France, and the United Kingdom (UK) are the three most industrialized countries in Western Europe, are all net exporters of arms, and account for 80 percent of NATO Europe arms industry output with 54 percent of its population.[6] In light of the increased importance of these countries to potential weapon systems procurement, the Assistant Deputy Chief of Staff for Research, Development and Acquisition, U.S. Marine Corps, requested that this project be undertaken to provide U.S. Marine Corps personnel with a document that presents an overview of the research, development and acquisition systems of the FRG, France, and the UK.

A. OBJECTIVE

The objective of this project is to produce a document that describes in basic terms an overview of the research, development and acquisition systems of the FRG, France, and the UK.

B. METHODOLGY

The project primarily involved two major components. First, an examination was made of the Department of Defense and Marine Corps systems through interview and research (review of written directives, standing operating procedures, etc.). Second, the systems of selected Allied countries were looked at, beginning with interviews of foreign embassy personnel located in Washington and a review of various documents and publications.

II. FEDERAL REPUBLIC OF GERMANY

A. POLITICAL FACTORS

Historic and economic developments after World War II shaped the structure of the defense industry in the FRG. When the Federal Armed Forces (or Bundeswehr) were re-established, facilities for the development and production of defense material could no longer be owned by the armed forces. This reflected the restraint required to prevent the armed forces of the FRG from regaining their influence held prior to World War II. The constitution of the FRG tasks the armed forces to defend against external attack and provides for a civilian organization to develop and procure defense material.[7]

The government is parliamentary based on a democratic constitution that emphasizes individual liberty and divided power. The chancellor (prime minister) is selected by and is responsible to the lower (principal chamber of parliament and exercises the real power in the government.[8] The budget for acquisition is approved by parliament, and execution is left to the procurement agency.[9]

B. ACQUISITION ORGANIZATION

The acquisition function for equipment and weapon systems for the armed forces is the responsibility of the State Secretary for Armaments (Figures 1 and 2) under the Minister of Defense. The acquisition system in the Ministry of Defense (MOD) is governed by the principle of civilian control with an organization that is separate from the military or operational forces. The Acquisition Executive is the State Secretary for Armaments who provides the MOD with technical advice, participates in armed forces planning, coordinates international cooperation, controls RDT&E budgets, manages research and advanced technology and directs the Office

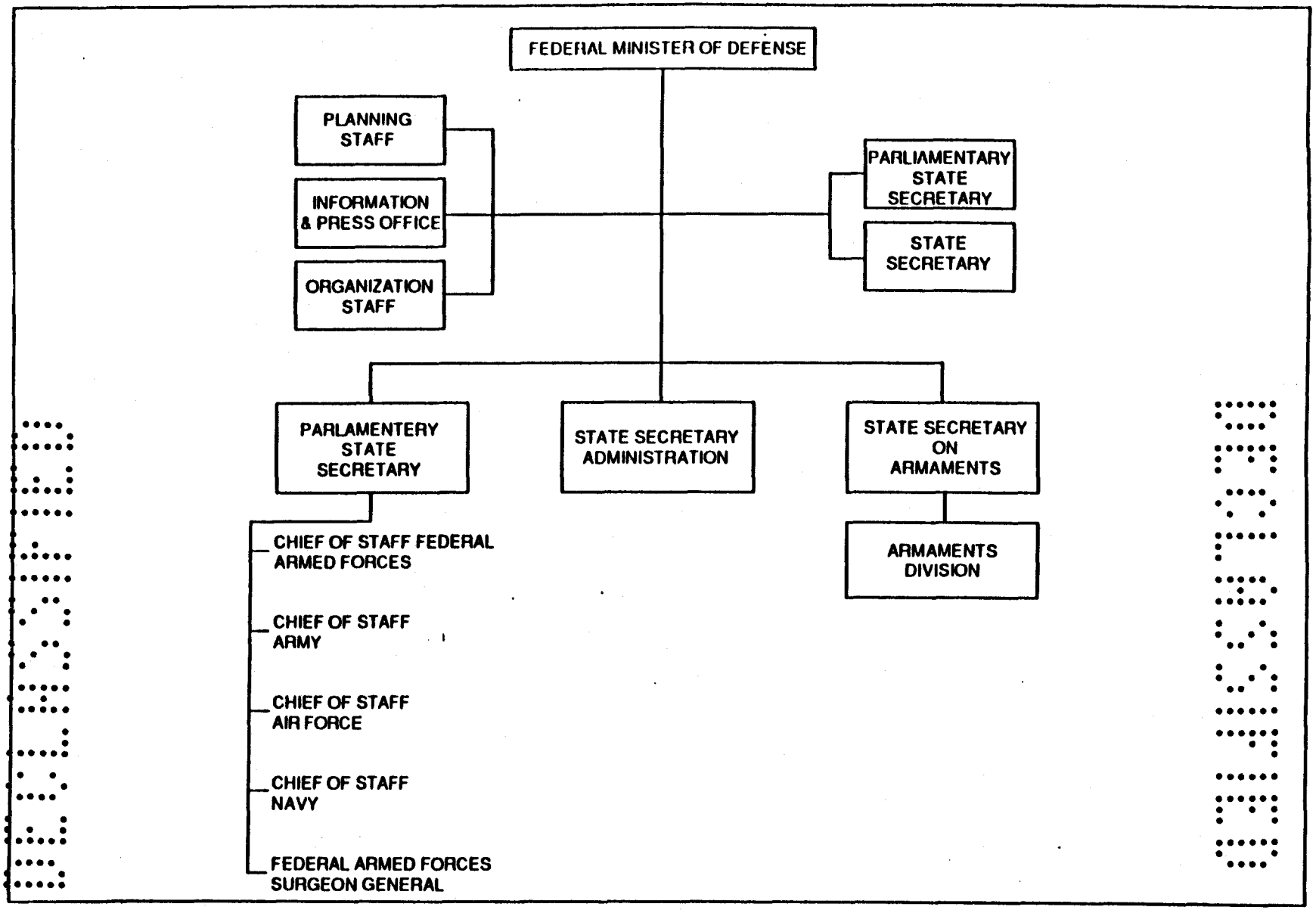


FIGURE 1

BASIC FRG MINISTRY OF DEFENSE ORGANIZATION

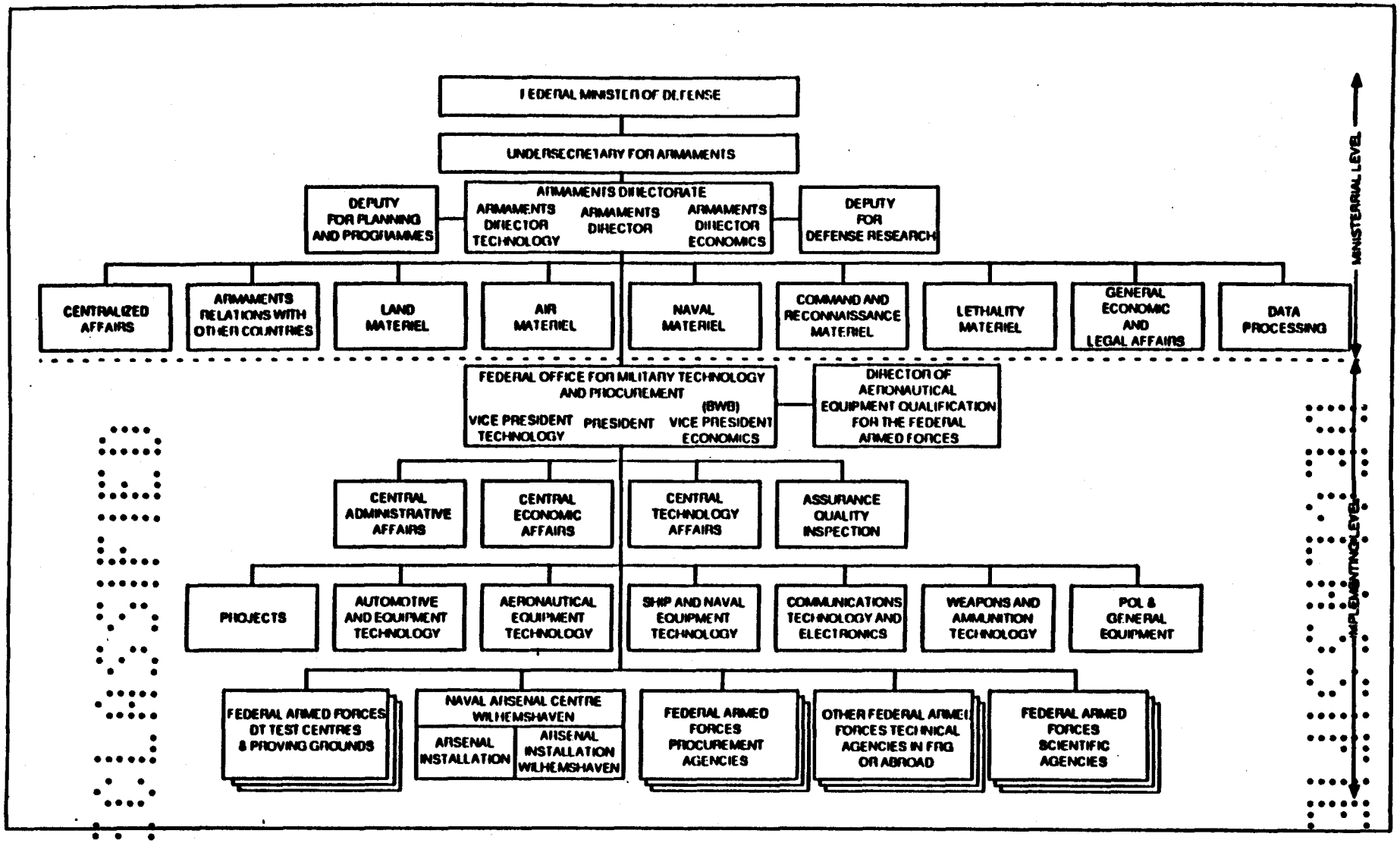


FIGURE 2

FRG ACQUISITION ORGANIZATION

for Military Technology and Procurement (BWB, which comes from the German initials). The BWB executes all development, test and evaluation, and procurement plus is designated the sole contact with industry (although industry in actual practice works closely with the armed forces on defense requirements). During weapon system development, the decision making organization is the System Manager's Working Group (Figure 3) comprised of members from both the civilian and military parts of the MOD at both the ministerial and implementing levels. The decisions made require unanimity and represent a balance of military need, technical solutions and available funding. Additionally, the Working Group attempts to insure that under-developed high-risk technology is not included that could result in increases in costs and delays.[10]

C. ACQUISITION PROCESS[11]

The Federal Armed Forces (Bundeswehr), using NATO Defense Policy Guidelines, projects a 5 year moving budget for multiyear funding. Prior to the actual acquisition process, the Preconcept Phase is completed, which includes threat analysis, formulation of feasible solutions, identification of equipment deficiencies, and a market analysis. The result of the Preconcept Phase is the Staff Target which explains the necessity of the new project (description of the threat, the tactical and logistic requirements, and an outline roughly of how the armament gap can be solved). The Staff Target is then translated into a finished product through a logical sequence of phases (Figure 4). The use of these phases is to insure the project remains in scope, that risk is reduced by an analysis of the results of each phase prior to entering the next, and that at any time during the process it can be determined that the project still meets the threat and that the cost remains acceptable, procurement can take

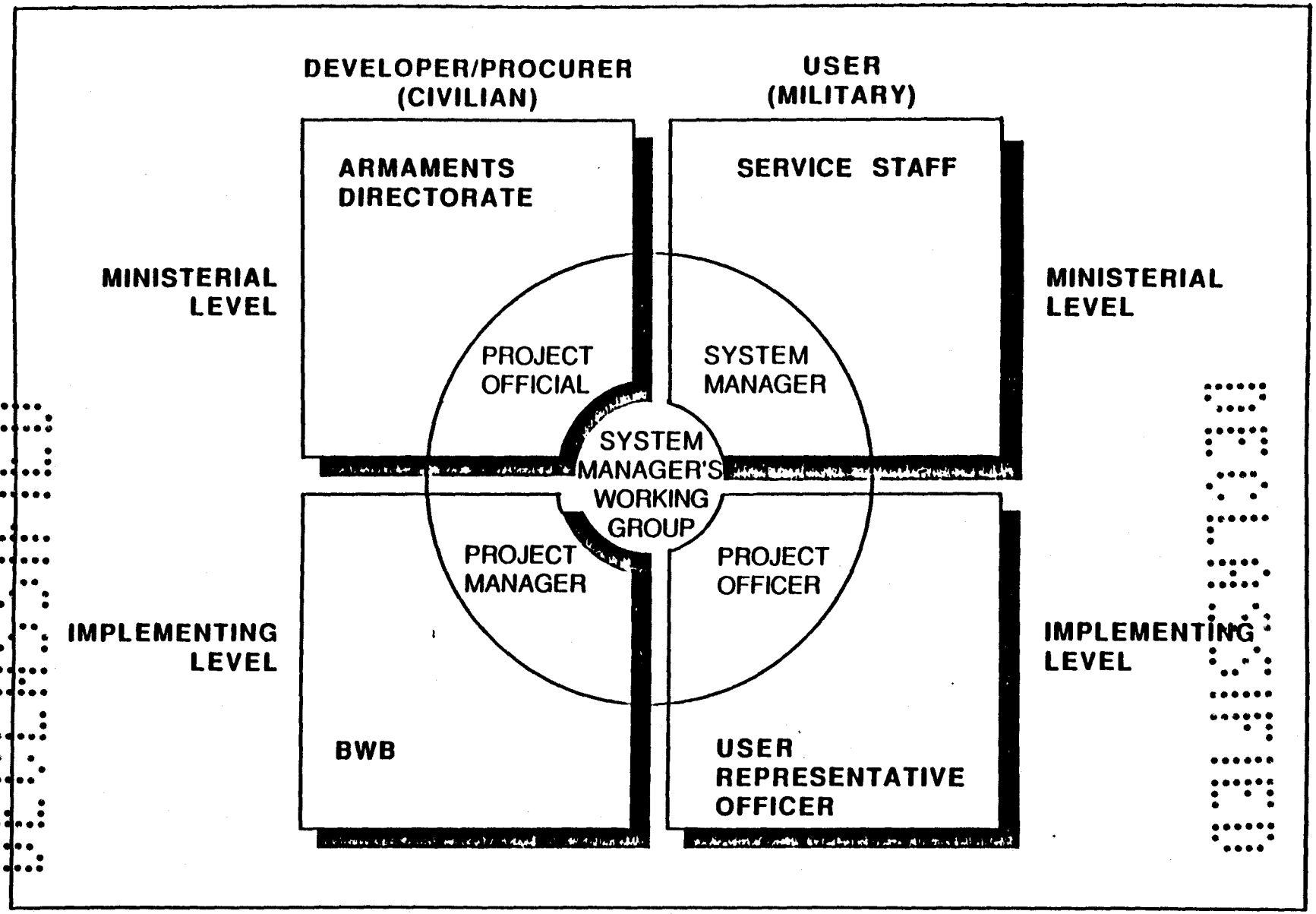


FIGURE 3

Interaction of Ministerial and Implementing Levels in the FRG Acquisition Process

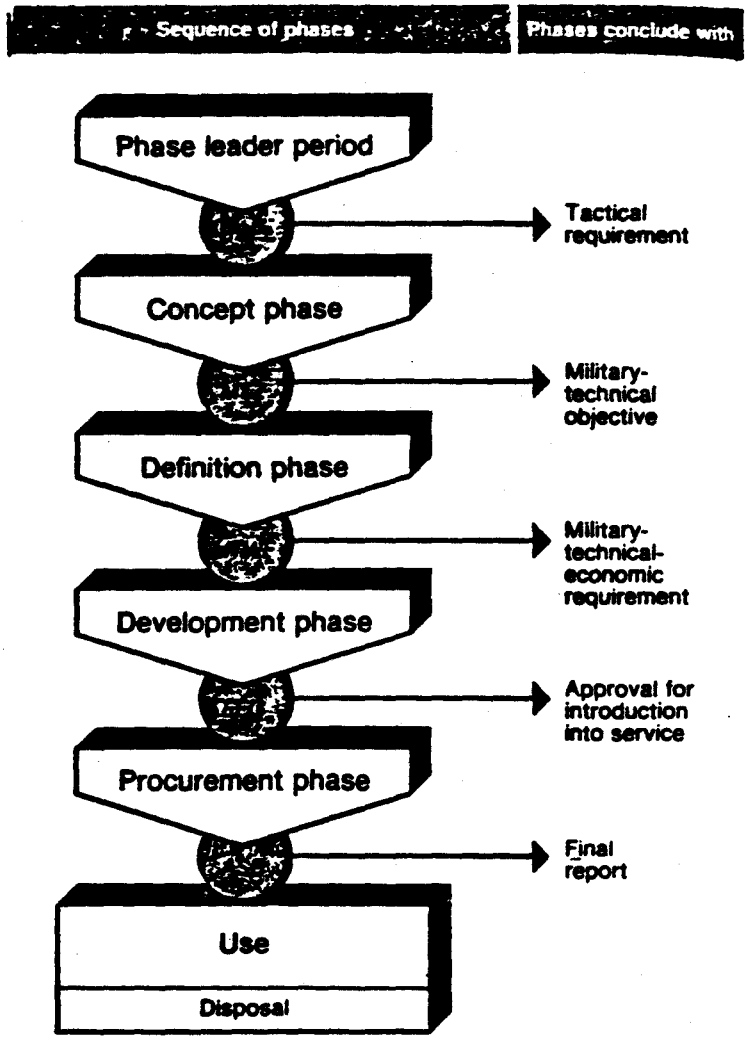


FIGURE 4

5 to 10 years, depending on complexity, and the typical service life is estimated to be 30 years. The German Government Contract Procedure and the European Community and GATT guidelines for procurement require contracting on a competitive basis, with no preferential treatment for German bidders. Competition in fact is not only policy but reality, with common practice of foreign procurement and the FRG teaming with another country.

III. FRANCE

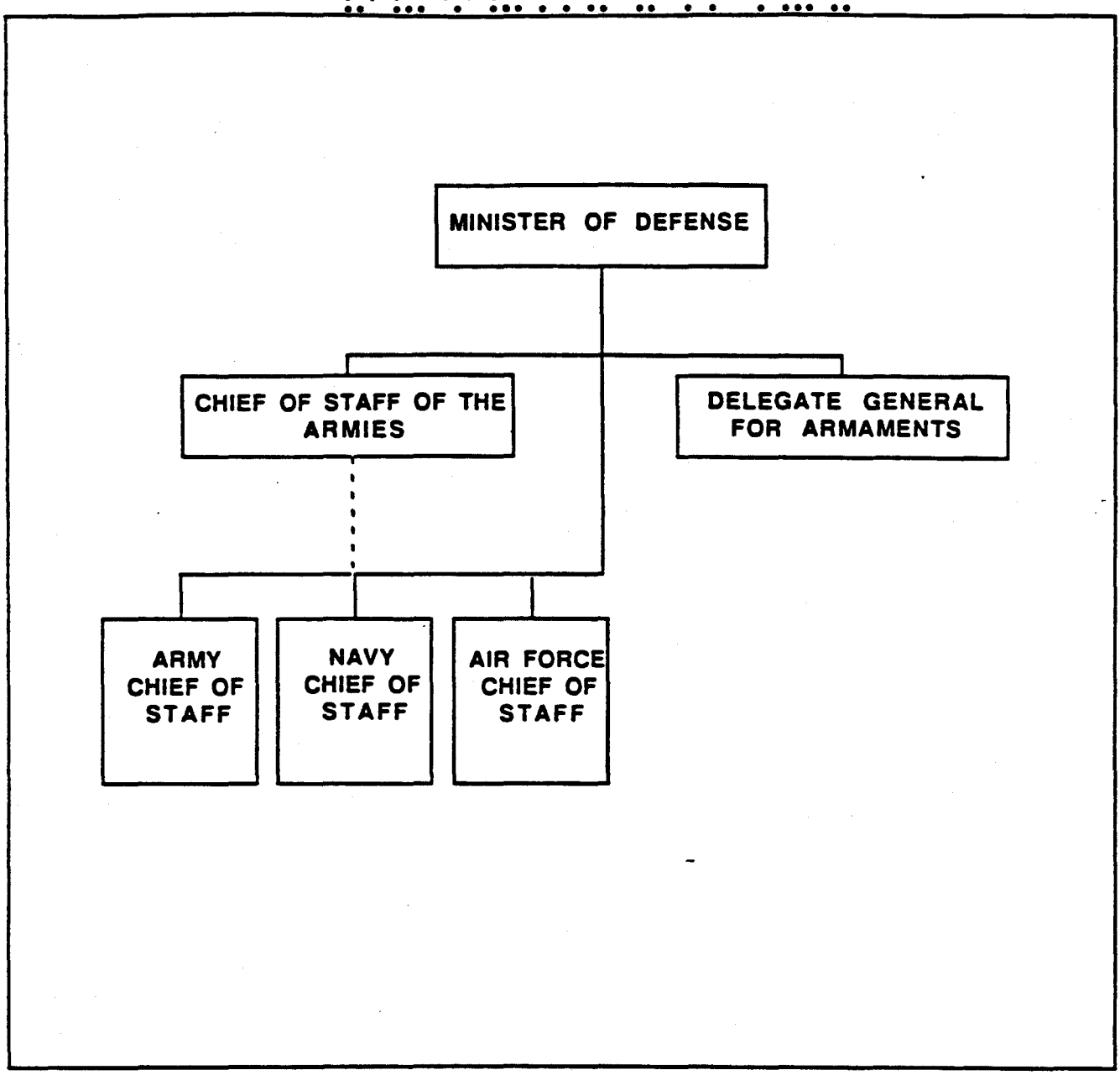
A. POLITICAL FACTORS

Like the FRG, France is a republic with a bicameral parliament, but in France the real power is held by the President (directly elected) who names the prime minister, presides over the cabinet, commands the armed forces and concludes treaties.

Although France is a charter signatory to the North Atlantic Treaty and a member of the North Atlantic Council, it has chosen to remain outside the NATO integrated military structure.[12] France has maintained this independence in support of its concept of national independence. The strategy of France defense includes not only defense of French soil but also defense of both regional and worldwide interests. This defense includes an independent nuclear capability in support of French soil, a Rapid Action Intervention Force and a worldwide navy military presence. The determination to be autonomous has resulted in virtually all arms procurements being made from French industry.[13] In fact France produces 90 percent of its armaments, collaborates with other nations to produce 9 percent and purchases 1 percent from other nations.[14]

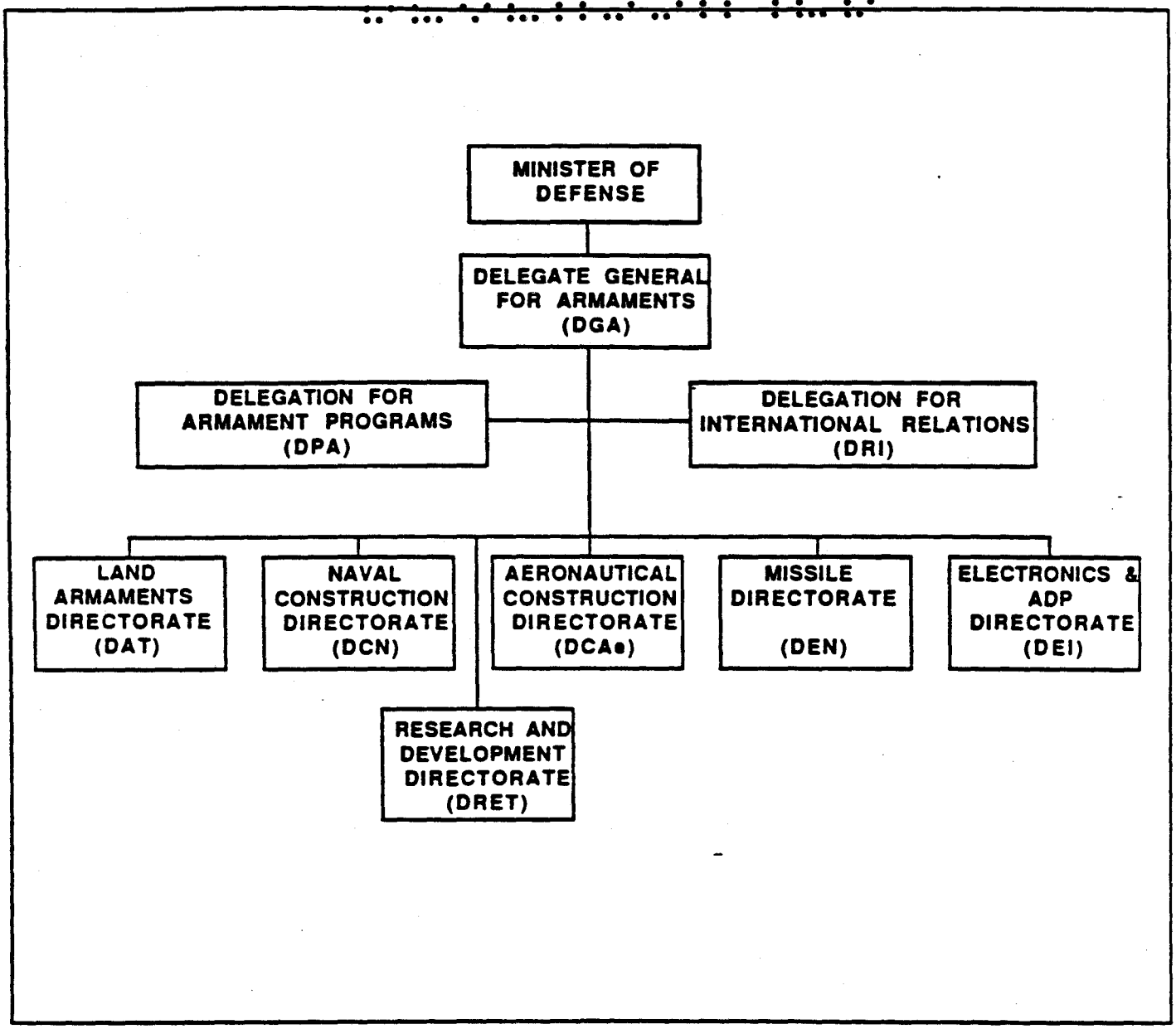
B. ACQUISITION ORGANIZATION

The acquisition organization is separated from the operational forces under the Minister of Defense (Figures 5 and 6). The DGA is run by Armament Corps Officers who, although have military rank, do not have a service affiliation. The DGA has a professional engineering corps of about 1000 which by law 65 percent must be graduates of Ecole Polytechnique (similar to MIT). The DGA works very closely with industry and in fact has a program to provide DGA officers to work in the private sector for about 5 years with industry paying the salaries.[15] DGA owned-industries get 25



BASIC FRENCH MINISTRY OF DEFENSE ORGANIZATION

FIGURE 5



SIMPLIFIED DGA ORGANIZATION

FIGURE 6

percent of armament contracts, 75 percent to nationalized industries, and 5 percent go to private industries.[16]

There are five phases in the acquisition process that begins with the Definition Phase (Figure 7) where the military need is specified by the requesting service. Since all decision making is consensus in nature, a consultative working group is established, composed of DGA and service members. The goal is to balance the military requirements with tactical concepts, logistic constraints, available technology and cost. Throughout the process, the DGA works closely with industry, and the appropriate head of an operational directorate with the DGA is authorized to sign contracts after MOD review. The five year programming system used by France provides a stable plan, since the plan is not subject to annual line item review. Before a system is accepted, the requesting service tests the system, and if acceptable, the system is approved by the service after the DGA guarantees the supportability of the system.[17]

FRENCH RESEARCH DEVELOPMENT AND ACQUISITION CYCLE PHASES FOR LAND ARMAMENTS

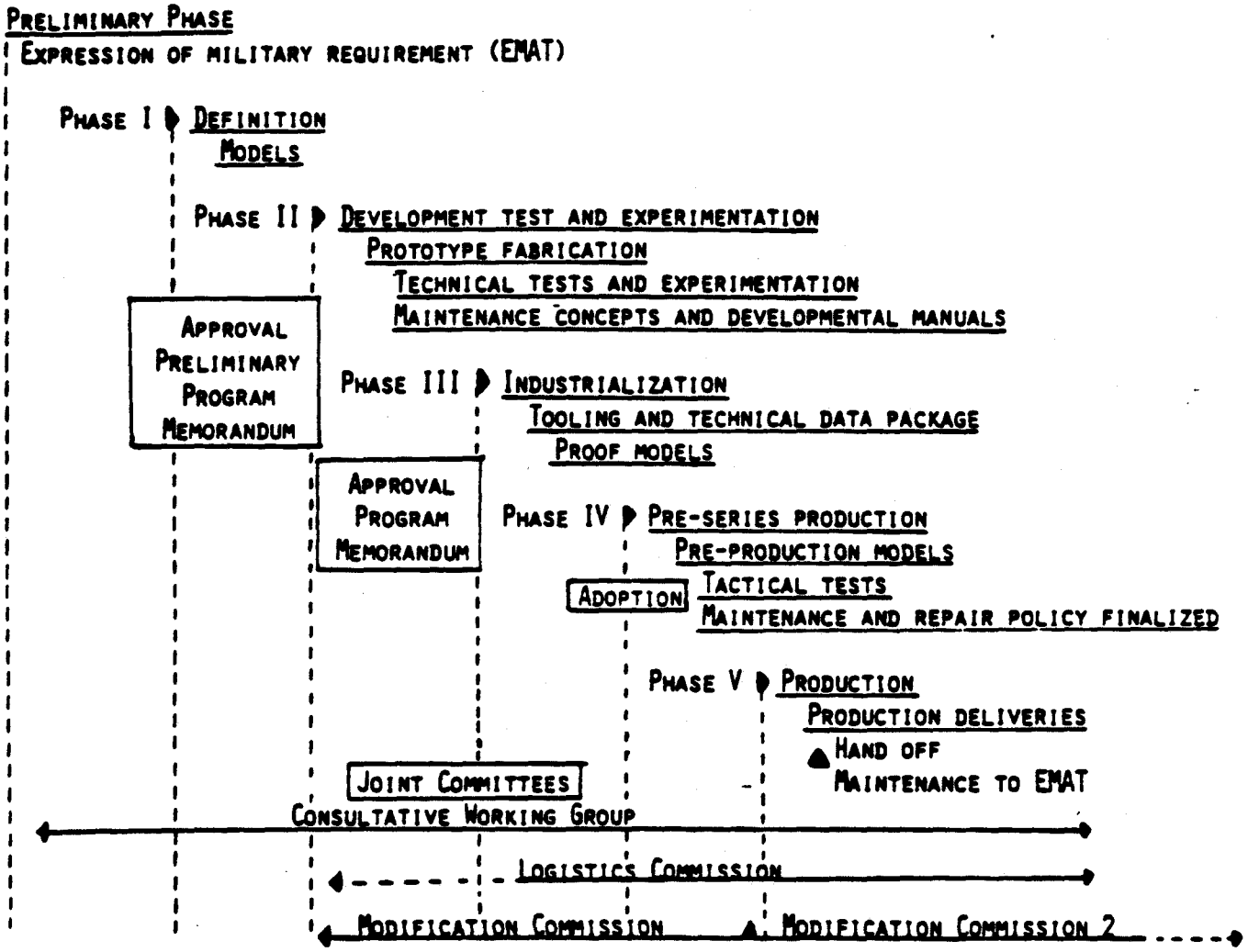


FIGURE 7

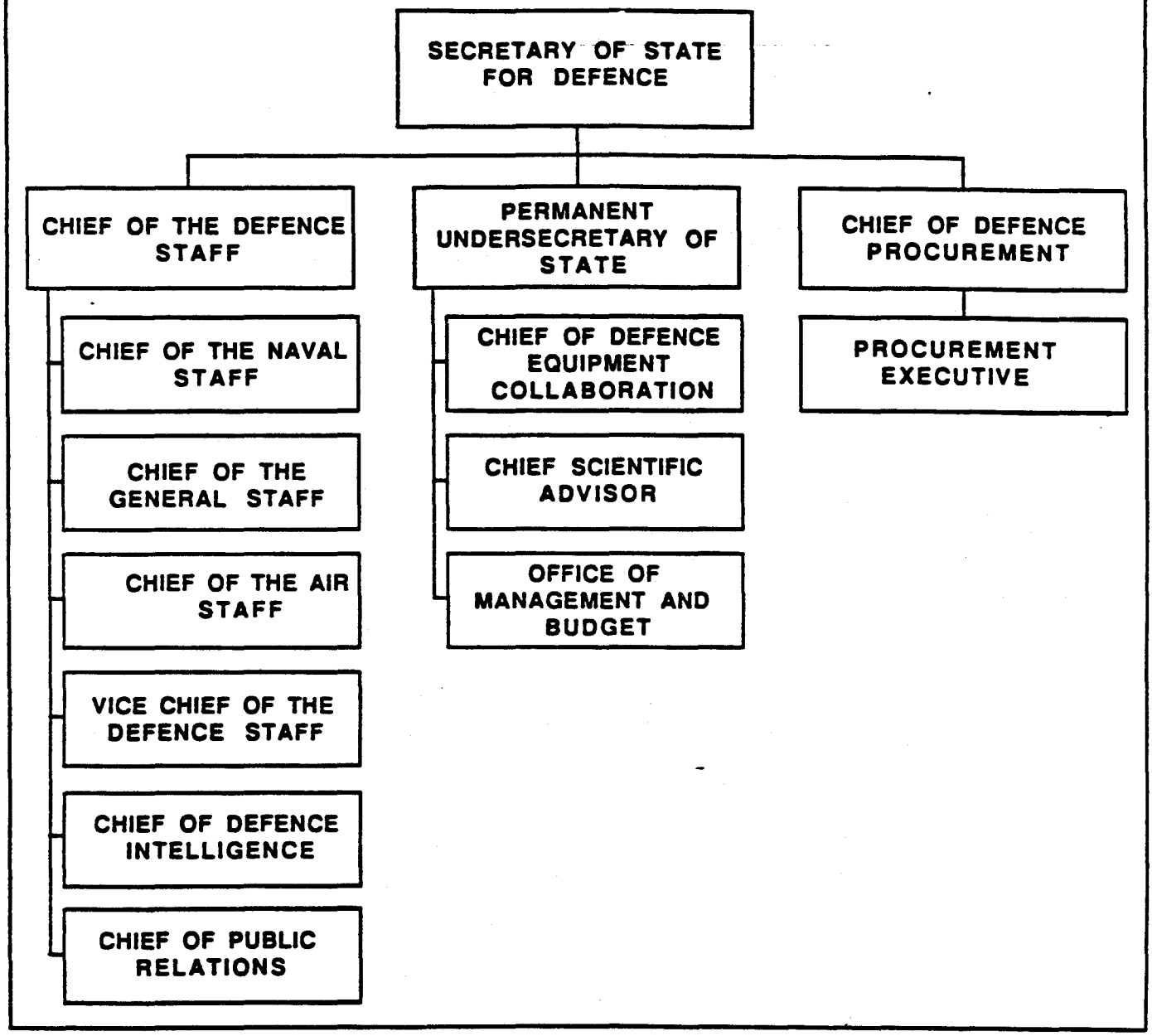
IV. UNITED KINGDOM

A. POLITICAL FACTORS

The UK is a constitutional monarchy based on an unwritten constitution composed of statutes plus common law and practice. The real power rests with the prime minister, and the focus of legislative power is the 650 members of the House of Commons, which has sole jurisdiction over finance. The prime minister and the cabinet, ultimately responsible to Parliament, have supreme responsibility over defense matters. As a key member of NATO, the UK is second only to the United States (US) in NATO in total defense spending. The Royal Navy has the UK's independent strategic nuclear arm and is responsible to provide defense for US reinforcement and resupply of Europe.[18]

Parliament gives the Government in power the funding to carry out the Government's defense policy but does not expect to hear details of what that is or to have a hand in its formulation. Even though Parliament controls funding, it approves very general planning proposals. Control is maintained by the use of an audit organization working for Parliament and reporting to a committee chaired by a senior opposition member (all other committees are chaired by the party in power).[19]

In 1985 the MOD was reorganized to improve the chain of command and to focus advice on defense matters. Previously inter-service wrangling had resulted in roughly equal shares of the budget but did not always reflect the intent of the Government. An integrated Defence Staff was created under the Chief of Defence Staff, who became the single chief military advisor to the Defence Secretary (previously he was only equal to the single-service chiefs) (Figure 8). In addition an Office of Management and Budget was established to prepare a program (covering 10 years) for



BASIC UK MINISTRY OF DEFENCE ORGANIZATION

FIGURE 8

approval by the Ministers each year.

B. ACQUISITION ORGANIZATION

The procurement of all defense equipment for the UK MOD is done by the Procurement Executive (PE). Although not directly involved in the reorganization, changes were made in operating practices. A recent Chief of Defence Procurement came from industry, and established a search for "value for money" with particular emphasis on competition.[20]

The actual phases of the procurement cycle are very similar to those of the FRG (Figure 9). An added capability the MOD has is the substantial number of research facilities throughout the UK and are often unmatched in industry. Also the separation of user from procurer is thought to provide an additional amount of accountability to the process. Recently the UK has set about revitalizing European collaboration, including research, which in turn encourages competition.

PROCUREMENT CYCLE

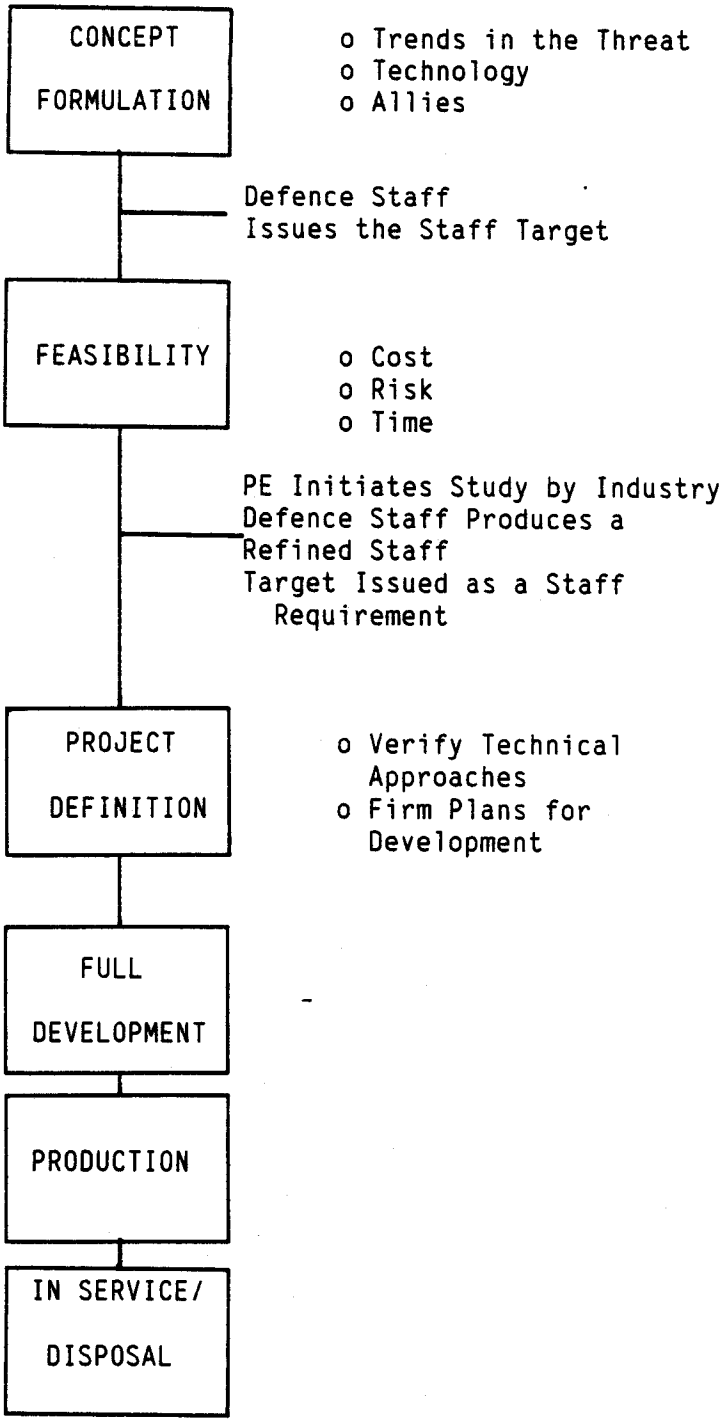


FIGURE 9

V. ARRANGEMENTS WITH THE UNITED STATES

The US imports a significant amount of armaments from the FRG, France and the UK. All four countries are part of a Memorandum of Understanding, which among other things specifies that each country will accept the test and evaluation data of the other countries.

The Department of Defense has established in the major industrialized countries in Europe Offices of Defense Cooperation (ODC). In some cases the offices are located in embassies, but in others the offices are separate, often depending on the view of the host country. Among other things, the ODCs are designed to be a key link to improving defense cooperation, to include armament sales and collaboration, among NATO members. In addition, the FRG, France, and the UK have personnel in their embassies whose interest is to promote armaments sales and collaboration. The FRG provides a Counselor, Defense Research and Engineering, France provides an Armament Attache, and the UK has a Director of Procurement. These personnel play a key role in providing the US with information on technology and systems available in their countries.

VI. SUMMARY

The acquisition systems of the FRG, France and the UK, although varied and complex, are very similar. The process of each, though sometimes grouped differently or given different names, are essentially the same. In addition, they are less formal and detailed in comparison to the US. Each of the three countries has a central civilian procurement agency in the MOD and includes both civilian and military personnel in the process.

It is worthy of note that the FRG places great emphasis on limiting its military to a narrow focus (defense as part of NATO) and has taken steps to preclude the armed forces from being able to produce arms and in fact has procured a significant amount of arms from other countries. France on the other hand has a more global interest and virtually produces all of its arms. The UK is somewhere in between, closer to France.

The most striking similarity among the three in contrast to the US is the very limited role their legislators play in procurement in contrast to the US. The benefit to such an arrangement is fiscal stability allowing procurement staffs to confidently plan for several years.

Without question, defense cooperation and collaboration, especially in NATO, will become more and more important as each country has to come to grips with the balance of revenues and outlays; key to this will be the people in the embassies and offices whose job it is to help their host countries understand what their countries have to offer.

END NOTES

[1] The Defense Systems Management College (DSMC), Management of Multinational Programs, 1987, pp. 1-1 to 1-5.

[2] Public Law 99-145 -- Nov. 8, 1985, Sec 1103.

[3] Department of Defense, Foreign Weapons Evaluation and NATO Comparative Test Programs, Procedures Manual (Draft), 8 Feb 1988, p. i.

[4] Defense News, "DoD Readies $700 Million Conventional Arms Effort", Dec. 21, 1987.

[5] Interview of Colonel M. Stankosky, Assistant Deputy Chief of Staff for Research, Development, and Acquisition, U.S. Marine Corps, of 1 Feb 88.

[6] DMSC, p. 5-1.

[7] Federal Academy of Defense Administration and Technology, Mannheim, Documentation of the Results of the Trilateral Symposium on Questions of Armaments Cooperation (UK, FR, GE), 1-4 Sep 1986, pp. 1 to 3.

[8] Office of the Deputy Director, Defense R & D (T&E), A Report on the Military Acquisition Process of the United Kingdom, France, Israel and the Federal Republic of Germany with Emphasis on the Role of Test and Evaluation, Dec 87, p. 31.

[9] Ibid., p. 4, and Federal Academy of Defense Administration and Technology, Mannheim, Documentation of the Results of the Trilateral Symposium on Questions of Armaments Cooperation (UK, FR, GE), 1-4 September 1986, pp. 13-14.

[10] A Report on the Military Acquisition Process, pp. 35-38.

[11] Handbook for Processing Armaments Projects in the Federal Ministry of Defence and Its Subordinate Offices, 4 April 1987, pp. 32-71, Trilateral Symposium, pp. 9, 10, 14, 15, A Report on the Military Acquisition Process, pp. 39-40.

[12] A Report on the Military Acquisition Process, pp. 18 and 20.

[13] Defense Attache, "French industry at the crossroads", 1987, p. 12.

[14] U.S. Army Material Command, French Army Research, Development and Acquisition, 9 July 1987, pp. 2 and 3.

[15] Interview with LTC. Axel Pavillet, Assistant Armament Attache (Army), Embassy of France, of 19 February 1988.

[16] French Army R D & A, p. 7.

[17] A Report on the Military Acquisition Process, pp. 22-29.

[18] Ibid., pp. 6 and 8.

19 Trilateral Symposium, pp. 37-42.

20 The Procurement Executive, Ministry of Defence, 1987, pp. 10 to 14.

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