

Equipment Planning of the Luftwaffe

Aside from the presentation of major equipment projects of the Luftwaffe (German Air Force), this article offers a “tour d’horizon” on the Bundeswehr planning. To that end, the conceptual corner stones as well as the function of the Bundeswehr plan as a sustainable planning basis for the further development of the armed forces are thoroughly described. The explanations are based on the as-of date of June 2009.

The System of Bundeswehr Planning

Against the background of the changing security environment the Bundeswehr orientates itself consistently to the more likely tasks. This is, last but not least, also underlined in the 2006 Defence White Paper. Superior goal is and continues to be the improvement of the operational capability of the armed forces in the given task spectrum of stabilization operations up to response operations of high intensity. The Bundeswehr will only be able to continue to successfully perform its task in coactions with the armed forces of the allied nations if it has task-related and modern equipment that supports the required capabilities.

The modernization of materiel and equipment of the Bundeswehr follows the capability-oriented and joint (inter-service) approach. It will have to be checked in an annual cycle

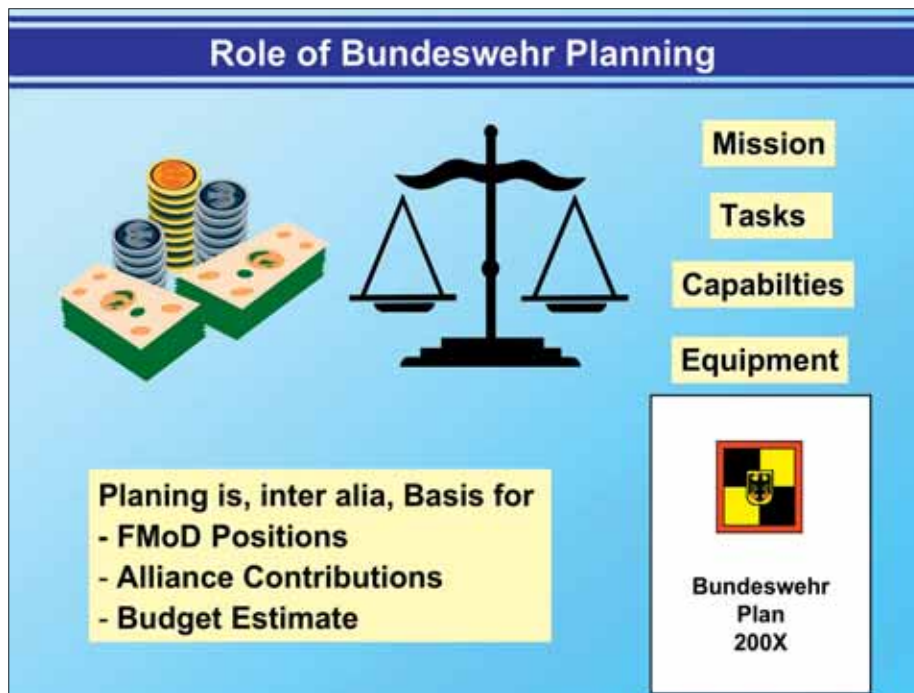
how the required projects for closing capability gaps can best be included in the planning within the scope of financial management possibilities. Here it is of prime importance to economically employ the limited resources for maximum use in the armed forces. To this end, the Bundeswehr Plan is drawn up in the FMoD under the overall control of the Armed Forces Staff in collaboration with the staffs of the individual Services and directorates. It documents the general planning for the further development of the armed forces. The Bundeswehr Plan forms the basis for German positions on and contributions to planning matters in NATO and in national and international commissions and bodies as well for the preparation of the budget estimate of FMoD for the financial planning of the Federal Government. The Bundeswehr Plan has thus the character of a claim vis-à-vis the budget.

The preparation of the Bundeswehr plan is made with a two-year lead to that of the budget. Thus, for instance, the 2010 Bundeswehr Plan was drawn up in 2008 in order to be available in due time in 2009 for the preparation of the 2010 Defence Budget. The range of the detailed near-budget fine planning is limited here to the period of the financial planning of the Federal Government (four years) plus one year (2010 Bundeswehr Plan: 2010 up to and including 2014). A rough planning exceeding this time frame is made for larger, long-term projects only. In order to remain capable to act in future, too, the rapid implementation of the

equipment planning into budgetary reality is of considerable importance. Only the enacted budget law entitles to spend financial means for predetermined purposes. As to this, the federal budget is characterized by, inter alia, the principle of annual appropriation. Budgetary means, which have not been “cashed up”, are basically not possible to be carried forward to the next budget year. In this context, a longer-term layout of the perspective of the Bundeswehr Plan is therefore of great significance for the preparation of the budgetary and finance plan of the Federal Government. For that reason, all financial requirements and planned appropriations need to be covered by the Bundeswehr Plan as reliably as possible. This can be managed all the better the more detailed and dependable the information is with regard to costs, realization risks, and appropriation periods.

In the FMoD’s budget application only those measures can be taken account of which are ready for budgetary allotment. To establish the budgetary matureness, the financial requirements have to be projected in the Bundeswehr Plan in compliance with the needs; a requirement-based document according to the Customer Product Management (CPM) has to be submitted in a finalized and signed version; also, proof has to be produced of the technical-economic feasibility of the measure. The CPM governs the procedural provisions for the requirements determination and procurement in the Bundeswehr.

In practice it is noted that the actual realization of a project is often accompanied by clear discrepancies in respect to the required quality, time and costs when compared with the advised planning. This has a considerable impact on the sustainability of the Bundeswehr Plan, on the augmentation of the capabilities and consequently on the accomplishment of the mission of the armed forces. Delayed delivery dates of new weapon systems or cost increases in comparison with the already issued Bundeswehr Plan make it necessary, for instance, to adapt the budgeting to the changed data, and to restore the requirement-related presentation of the project in the next Bundeswehr Plan. In a tight defence budget, the additional financial requirements and/or those shifted on the time axis have to be compensated which, however, is generally to the disadvantage of other projects and their contributions to the capability. A predatory, competitive effect is the result. In a most adverse case it can end up in the fact that another project is not or no longer projected in the Bundeswehr Plan and consequently not possible to be realized in the budget. For trade and industry such predatory and com-



petitive effects and the resultant necessary shifting or deletion of projects can sometimes negatively affect the acquisition of orders.

Planning Maxims in the Luftwaffe

Within the scope of its collaboration in the preparation of the Bundeswehr Plan, the Luftwaffe plans its contributions as an integral part to the joint, interservice capability profile. For its materiel and equipment planning the Luftwaffe has derived a concrete scope of action from the political and conceptual stipulations. The improvement of the operational capability is the “measure of all things”. The equipment suited for the respective mission must be interoperable, quickly deployable, and robust and offer a high level of protection.

Each individual Service has conceptually assigned areas of responsibility and competence, which result in an effective capability pool only in their entirety. On the premises of having coalition competence, response capability, flexibility, robustness and sustainability the air forces make unique capabilities available to the armed forces. In concrete terms, their main emphasis is in the fields of

- Strategic and operational mobility
- Standoff-capable, scalable and precise effect against targets on the ground and above wa-



EUROFIGHTER with Effectors.

Picture: EADS

- ter in all weather and visibility conditions
- Effect against targets in the air, including the capabilities to ensure airspace security
- Defence against ballistic missiles as well as
- Airborne intelligence.

In order to get quick access to modern equipment that supports the required capabilities, the Luftwaffe concentrates, in context with the joint prioritization, the equipment planning on op-

erationally required minimum scales. It is essential to create the required capabilities; the startup with the quality being initially decisive. In order to guarantee the coalition and alliance competence, the interoperability as well as the capability for “network enabled operations” are additional important parameters and determinants for the planning considerations of the Luftwaffe.



EUROFIGHTER Refueled in Flight.

Picture: Luftwaffe

In the following emphasis is laid on projects, which are particularly suited to illustrate the strategic orientation of the equipment planning of the Luftwaffe and its substantial contributions to the national security provision and the joint and combined mission accomplishment. The weighing of projects with each other is to be renounced here. Only that much: Measures to avert danger to life and limb of members of the Bundeswehr are given highest priority. These include the protection in missions and the implementation of legal directions and regulations.

EUROFIGHTER

The introduction of the EUROFIGHTER weapon system is of paramount significance for the future viability of the Bundeswehr in a multinational environment. For the mission-oriented capability profile of the armed forces the EUROFIGHTER is a determining factor primarily due to its capability to control the airspace and, in future, because of its precise selective capability to engage ground targets. Initially the EUROFIGHTER will gradually assume from the F-4F PHANTOM the permanent task of air policing the German airspace. On 3 June 2008, NATO was for the first time informed on the assumption of the task of NATO QRA (Quick Reaction Alert) by EUROFIGHT-

ER. With the provision of an alert section by 74th Fighter Wing, Neuburg/Danube, the permanent mission task of protecting and policing German airspace in the south of the Federal Republic has been successfully performed with the EUROFIGHTER since this date.

Achieving the capability profile predetermined in the Concept of the Bundeswehr and fulfilling the alliance commitments requires the introduction of 180 EUROFIGHTER with specified functions for the employment in air-to-air and air-to-ground roles. The out phasing of F-4F PHANTOMS and some of the aircraft of the TORNADO fleet have been coordinated with the delivery of the EUROFIGHTER. With the already delivered aircraft of the 1st batch and the aircraft of the 2nd batch that are in the process of delivery, Germany will have a total of 112 EUROFIGHTER. The contract for the request of the delivery of aircraft of the 3rd batch, initially in a partial batch "3A", is aimed for the year 2009. This requires a parliamentary involvement.

The EUROFIGHTER of the 1st batch are optimized for the air defence (counter-air) role and equipped with a 27mm Mauer internal gun as well as with air-to-air guided missiles of the IRIS-T type for short ranges and AM-RAAM 120 B for medium ranges. With the planned integration of the METEOR guided

medium-range missile developed with the participation of the German industry, the effectiveness of the EUROFIGHTER increase even further. METEOR has a novel propulsion technology, which allows a high maneuverability during the entire flight progress of the guided missile, especially in the terminal homing approach. Moreover, the METEOR missile is equipped with sophisticated seeker-head technology.

In the field of the engagement of targets on the ground it is primarily about the capability to fight in all weather conditions with maximum precision. In the course of the ordered role adaptation of the EUROFIGHTER, the integration of GPS and the laser-guided, all-weather capable GBU 48 short-range precision weapon (formerly eGBU 16) in connection with a laser designator pod mounted on EUROFIGHTER is already under contract. Planned in the medium term is the integration of the all-weather and standoff-capable TAURUS guided missile for engaging heavily defended or hardened high-value targets.

By its equipping with the Multifunctional Information Distribution System (MIDS), the EUROFIGHTER fully meets for the first time the requirement in respect to the interoperability with our allies and to the ground and naval forces. This enhances the effectiveness in mis-

sions to a considerable degree. This leap in quality – together with selected measures for an improvement of the mission effectiveness of the TORNADO aircraft in the performance of reconnaissance (in short: recce) tasks and in the suppression of enemy air defences (in short: SEAD) over and beyond the year 2025 – makes it possible to guarantee the capability contributions to the effectiveness in missions against targets on the ground and in the air with a clearly smaller fleet size than hitherto needed as it has been demanded by security policy officials/authorities.

The flight operations with the EUROFIGHTER, which were started in 2004 in the sole responsibility of the Luftwaffe, have meanwhile achieved the stability necessary for the execution of the task. The 10,000th flight hour was flown by the Luftwaffe in March 2009 already and recognized and appreciated with a ceremonious parade. It is intended to gradually integrate the EUROFIGHTER in all planned mission tasks. Thus, the Luftwaffe contemplates a participation of the EUROFIGHTER weapon system in the four-month air-policing mission in the Baltic States in late 2009. The Luftwaffe will also participate with the EUROFIGHTER weapon system in protecting and policing the Icelandic airspace over several weeks in summer 2010. Furthermore, as a contribution of the Luftwaffe to the NATO Reaction Force (NRF) in the second half of 2011 a EUROFIGHTER mission module in the air defence role will be presented to NATO for the first time.

MEADS (Medium Extended Air Defence System)

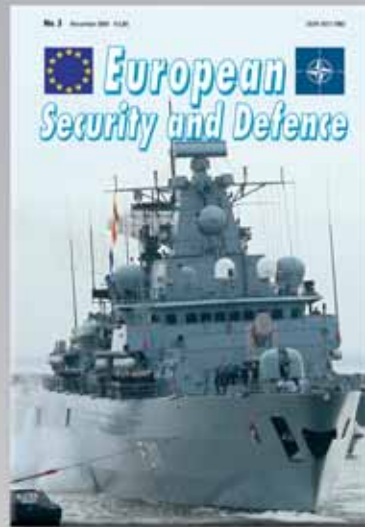
With regard to the progressing risk potential by especially ballistic and aerodynamic missiles, including cruise missiles and drones, the capabilities of the armed forces to counter such air attack means gain increasingly in importance. The enemy's potential capability to employ and deliver weapons of mass destruction implies a special risk quality, which needs to be countered. A first step to improve the missile defence has been made with the ongoing realization of the adaptation of the combat efficiency of the PATRIOT weapon system and the procurement of PAC-3 guided missiles for ballistic missile defence. With the German participation in the multinational development and procurement of a highly mobile and powerful new-generation air defence system (the medium extended air defence system – MEADS), the air defence capability which is highly prioritized in the Concept of the Bundeswehr is to be further upgraded and geared to the threat spectrum to be expected in future. MEADS is designed as a fully mobile, all-weather capable air defence missile system with an open system architecture and effective against the entire threat spectrum from the air, including ballistic missiles – also in the function as carriers of weapons of mass destruction. In comparison with PATRIOT missiles, MEADS is designed for a 360° engagement of targets with small radar signatures and is air transportable with little expenditure by use of national means (A400M). At present, the acquisition of twelve fire units is planned as an initial requirement as of 2015. A first independent mission module consisting of three fire units



Graphics Showing Medium Extended Air Defence System – MEADS.

Graphic: EADS

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Roll-Out of Airbus A400M.

Picture: Airbus Military

is planned to be operational ready as of 2017. MEADS will contribute to both the protection of soldiers on missions and the protection of Germany and its citizens.

AIRBUS A400M

The capability for quick transports of heavy and bulky equipment for all Services of the Bundeswehr – also over long distances – is to be improved with the planned delivery of 60 systems of the multinational AIRBUS A400M transport aircraft. Particular improvements are expected to be realized in respect to the payload to be transported and the range of action. The load is specified with a maximum of approximately 37 tons, the maximum range with approximately 7,900 km. This corresponds to about twice the performance spectrum of the C-160 TRANSALL. The Termez airbase in Uzbekistan would be possible to be reached with the A400M without a stopover (intermediate landing) inclusive of an additional load of approximately 25 tons.

The A400M is to also possess the capability for aero medical evacuation, the execution of airborne and evacuation operations as well as for the support of Special Forces. In order to be able to conduct tactical operations under threat conditions during the day and nighttime, it is planned to integrate a support system for low-level flights as well as powerful electronic self-protection equipment. Furthermore it is planned that the A400M is possible to be refueled in flight and that it for one can also be employed as a refueller for other aircraft and helicopters. All in all, the operational possibilities for the armed forces to augment and supply troops in even distant theaters of operation will be significantly improved with the A400M. Based on its performance spectrum the A400M is to also make up a major pillar of the European military air transport capacities aside from the national added value.

The highly complex technical challenges have led to delays in the program. These affect also the delivery planning contemplated for Germany. The Luftwaffe prepares itself to cope with the delays as well as possible.

NH90 Transport Helicopter

To maintain and to further improve the operational deployability and tactical mobility,

the Luftwaffe is going to procure 42 transport helicopters of the NH90 type. The successor

model for the Bell UH-1D is to be delivered to the operating forces of the Luftwaffe as of 2011, following a delay of several years. Presently it is still being considered whether the NH90 with reduced capabilities should be fielded for conducting initial flight operations in order to have the operating units gain experiences with it. The NH90 is planned for the transport of personnel (max. 20 persons) and materiel (payload of approximately 2,500 kg) as well as for the Search and Rescue (SAR) task.

Originally it was intended to also realize the capability for Combat Search and Rescue (CSAR) on the basis of the NH90 platform. The



NH90 Transport Helicopters.

Picture: Eurocopter



Model of an Unmanned Aerial Vehicle (UAV).

Picture: EADS

capability to mount armed rescue of aircraft crews and passengers and to pull out Special Forces from endangered areas serves directly to protect members of both the Bundeswehr and forces of allied nations. It is therefore aimed to establish this capability, which is highly prioritized in the Concept of the Bundeswehr, as early as possible. As a result of identified technical, time-related, and financial risks in the realization of the CSAR capability on the basis of the NH90 platform it is currently also explored to make use of alternative platforms. As a solution realizable within a short term, helicopters of the CH-53 type are now being modified for withdrawing personnel in the theatre of operations in Afghanistan. For the full spectrum of the special task of CSAR the CH-53 helicopter is lacking essential performance elements, however. The CH-53 is, among other things, not possible to be employed in connection with air warfare operations. Therefore, it continues to be imperative that a special CSAR helicopter be acquired to accomplish this task.

Unmanned Aerial Vehicles

In addition to the classic manned flying weapon systems the unmanned aerial vehicles are being attached growing importance. The Luftwaffe plans the employment of so-called Unmanned Aerial Vehicles (UAVs) in the fields of airborne surveillance and reconnaissance. Due to the fact that they are highly independent of threats the UAV systems can contribute

considerably to generating a continuous and up-to-date joint picture of the situation in the area of operations, which owes to their range and time on task within the meaning of network enabled operations. In differentiation to drones that are also employed unmanned, the UAVs, which, for example, operate at altitudes of more than 45,000 feet and with times of flight of more than 24 hours, appear in a completely new light. The results can be of both tactical and operational and often even of strategic significance for all users. The current and continuous information on the situation improves the prerequisite for the situation-adapted employment as well as for the early identification and avoidance of employment risks. By employing UAVs it will ultimately be possible to take much better account of the protection aspect of the overall conduct of operations.

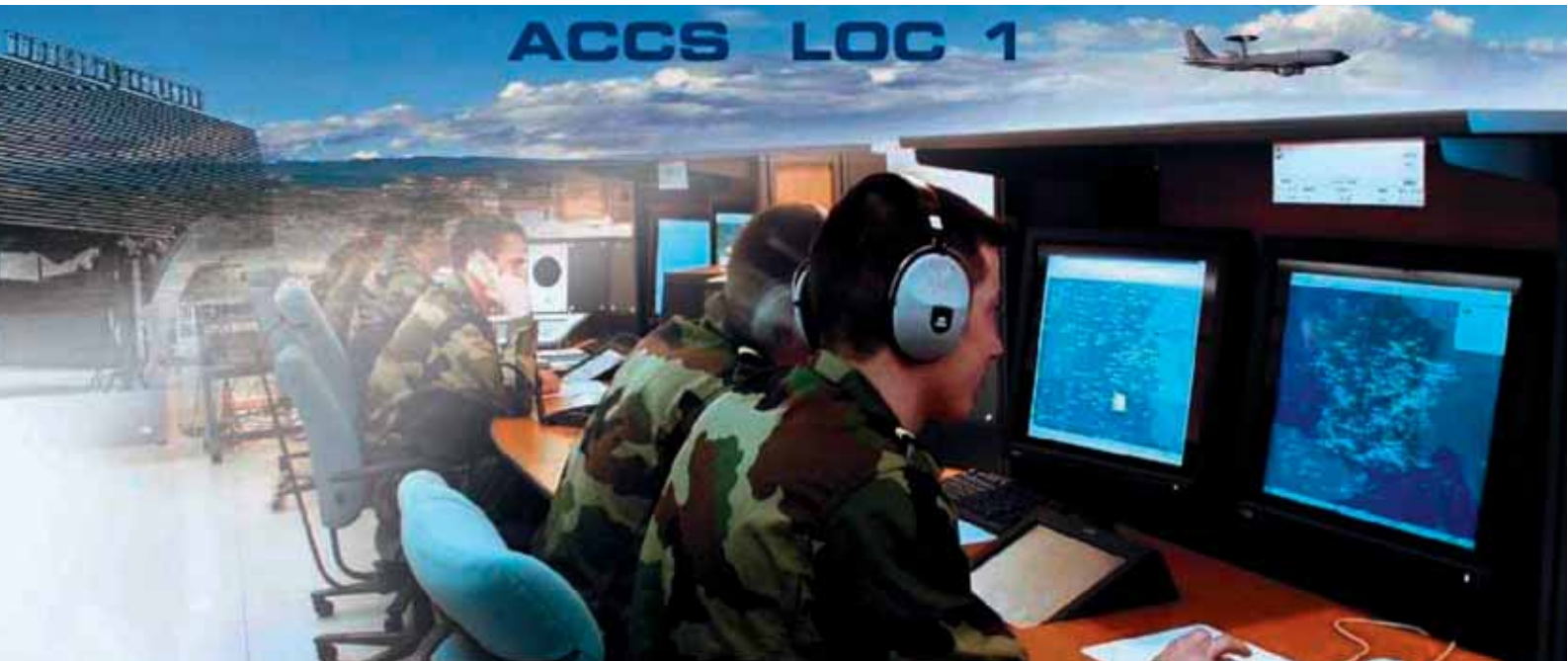
In order to achieve a distinct improvement of the employment profile for the armed forces it is intended to initially effect the rapid implementation of a time-limited interim solution, e.g. in form of a leasing solution, for accessing the capability to conduct reconnaissance in the depth of the area of operations. With a contract to be concluded in 2009, initial capabilities could be provided as from the coming year already. The procurement solution is to be decided on in a second step at a later point in time.

The UAV EURO HAWK is planned as a successor for the SIGINT variant of the Breguet Atlantic. The EURO HAWK is based on the technology of the U.S. GLOBAL HAWK and

is equipped with a nationally developed sensor system. A so-called "full scale demonstrator" will initially be constructed and tested within the scope of the project planning phase. These unmanned aerial vehicles of the Luftwaffe are to be available for operational initial flight operations as of spring 2011. Provided that the testing will be successful and that the parliament approves the procurement, four series-produced aircraft are to follow as of 2013. The EURO HAWK will lastingly improve the capability of the armed forces in preparing an area-wide overall image of the electro-magnetic spectrum.

Moreover, Germany participates in the NATO system "Alliance Ground Surveillance" (AGS).

The AGS – consisting of eight GLOBAL HAWK UAVs and a total of 15 ground stations – is to build up a NATO core capability for area-wide imaging reconnaissance and surveillance of stationary and mobile ground targets as of probably 2014. Based on the area-wide picture compilation and situation update it is possible to employ in a clearly more target-oriented and thus also more efficient way tactical reconnaissance means with optical sensors for the identification of individual objects. AGS ensures access by all participating NATO nations to unfiltered reconnaissance results and enhances thus the joint capability for crisis management and network-enabled operations. It is planned to supplement, if need arises, this NATO core capability by a temporary furnishing of na-



Air Command and Control System (ACCS)

Graphic: Author

tional systems to cover a region of up to eight areas of interest.

DIRCM

Aircraft are exposed to a wide threat by guided missiles with infrared homing seeker-heads, primarily by so-called Man Portable Air Defence Systems (MANPADS), which oftentimes are not subject to state control. Because of the wide technological spectrum of globally proliferated guided missiles with infrared homing devices a cross-sectional protection of aircraft can best be ensured by laser-based self-protection equipment, which will also be employable in conditions of civilian flight operations. With the DIRCM (Direct Infrared Counter Measures) it is intended to develop a platform-independent self-protection system for aircraft which, for the present, will take account of the foreseeable relevant threat in the military mission spectrum posed by advanced guided missiles with infrared homing seeker-heads. This capability, which is highly prioritized in the Luftwaffe, serves directly for the protection of crews and passengers. The integration of the system into the A400M transport aircraft is planned as a first step in cooperation with France.

ACCS and GIADS Command and Control Systems

With the introduction of the Air Command and Control System (ACCS) as the future command and control system for the NATO air forces which is planned to be realized in the medium term it is intended to establish for the first time a networked command and control from the tactical command level up to the unit level and to improve in this way the effectiveness of air forces in toto. With the ACCS all command posts will be jointly, i.e. on an inter-level basis, equipped with a standard command and control system. Up until the planned national activation of ACCS, which will begin

step by step as of 2012, the adaptation and upgrading of the German Improved Air Defence System (GIADS) as a German interim measure will ensure the enhancement of the command and control capability of air forces as well as the discharge of functions within the scope of the permanent mission task "airspace security". The adaptation and upgrading of GIADS was put under contract in early July 2008 to implement in due time the reduction of fixed command posts of the TACC Groups of the Luftwaffe from four to three as planned within the scope of the transformation of the Bundeswehr for the adoption of Air Force Structure 6 and thus to concomitantly achieve a reduction in spending in the fields of personnel and operation.

"Small-scale" Projects – Important Components for the Mission

Aside from the major projects selected and described in this article, additional procurements in the planning responsibility of the Luftwaffe will contribute to a gradual modernization of the equipment in the years to come and thus lead to a further improvement of the mission and capability profile. For this purpose, there have been many mission-relevant projects planned to be implemented in the very near future. Although these measures are not so much in the focus of the public eye, they contribute as important components to a cross-sectional improvement of the operational capability of the Luftwaffe and ensure the conduct of flight operations in a deployed mission at a Deployed Operation Base (DOB). To be mentioned here as examples are the measures for a mobile emergency arresting barrier system for combat aircraft, mobile command posts for maintaining the national command capability of the mission contingents of the Luftwaffe, deployable air safety system and airspace surveillance radars, air transportable fire fighting vehicles and different classes of protected vehicles.

Consistently Proceeding on the Way

The Luftwaffe makes an indispensable contribution to the mission accomplishment of the Bundeswehr. The planning of the Luftwaffe are strictly aimed at ensuring the mission-oriented capability augmentation in accordance with the task. The aforementioned projects in the planning responsibility of the Luftwaffe will gradually strengthen the capability profile of the armed forces across the entire mission spectrum ranging from stabilization operations of low and medium intensity up to response operations of high intensity. In view of the current situation in the defence budget, the Luftwaffe consistently proceeds on its way establishing focal points and setting priorities. Although delays in the delivery of new weapon systems are always possible in particular the development of high technology, it can be stated that the operational requirements are beyond any controversy with regard to the fulfillment of the political mandate. Delays in the delivery of new weapon system and increases in costs must not become a rule, however. They exhaust the already tight financial scope for an inclusion of other urgently needed projects in the planning. They necessitate an adaptation of the Bundeswehr planning. Predatory competitive effects have mostly direct repercussions on the further development of the armed forces and indirect consequences for trade and industry as partners of the Bundeswehr and as contractors. Both sides are called upon to jointly contribute to a solid information basis for the Bundeswehr planning by precise analyses and a trustful dialogue in due time. A lastingly effective Bundeswehr Planning can definitively contribute to a "win-win situation" for both sides. ■

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