

## **Vortrag**

# **Management of armed forces with focus on management of resources**

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Ministeriums für Verteidigung Singapur**

## **Management of armed forces with focus on management of resources**

### **Agenda**

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1. personnel Background
2. The Bundeswehr (German Armed Forces) - Overview

#### **II. Subjects of Interest**

##### **1. Armed Forces as a system**

- a. Basic model to measure performance and efficiency
- b. What determines the required Output (Outcome) and the Input ?
- c. Measurement of output, input and efficiency in peacetime
- d. Measurement of output, input and efficiency on operations in crisis management and war
- e. Risk management

## **II.2 Planning, programming and budgeting in armed forces with focus on the Bundeswehr**

- a. How to determine the financial requirement ? – The Bundeswehrplan
- b. Customer Product Management (CPM) as the Basis for procurement and logistics management
- c. Key indicators of the defence budget

## **II.3 Functions, fields of tasks, organisation and processes within the armed forces**

- a. Functions, fields of tasks and organisation
- b. Key indicators of the structure
- c. Performance and efficiency management of a unit (brigade, wing s. o.)
- d. Main processes and optimising of processes
- e. Shared services – outsourcing and Public Private Partnership (PPP)

## **II.4 Strategies to rationalize and to enhance the efficiency of armed forces – overview**

- a. Basic Preconditions
- b. Overview

## I.1 Personal background

- served as an officer for 40 years
- last rank: Lieutenant General
- last position: Vice Chief of Staff of Bundeswehr (German Armed Forces)
- since 1995: professor at the University of German Armed Forces Muenich
- subject: defence economics
- two fields of teaching and research:
  - (1.) Economic dimension of the security policy with focus on conflict and stability (global trends, role of resources, new manifestations of conflicts, future role of armed forces, cost-benefit-analysis of limited wars, case studies e. g. iraq war 2003 s. o.)
  - (2.) Armed forces management with focus on optimising and rationalising

## **I.2 The Bundeswehr (German Armed Forces) - Overview**

### **a. General mission of the Bundeswehr**

#### The Bundeswehr

- guarantees the capacity for action in the field of foreign policy
- contributes towards European and global stability
- maintains national security and defence
- provides assistance in the defence of our allies
- fosters multinational cooperation and integration

## **Tasks of the Bundeswehr:**

- International conflict prevention and crisis management including the fight against terrorism
- Support of allies
- Protection of Germany and its population
- Rescue and evacuation
- Partnership and cooperation
- Subsidiary assistance (e. g. relief aid in the event of natural disasters at home and abroad)

**Strength: (Target strength 2010):**

- **Servicemen and women (Soldiers):** about **252.000** (60.000 Regulars, 130.000 Temporary Carrier Volunteers , 67.000 Conscripts)
- **Civilian personnel:** about **75.000** (current strength 110.000 !)

**Total (Target strength 2010):** about **327.000**

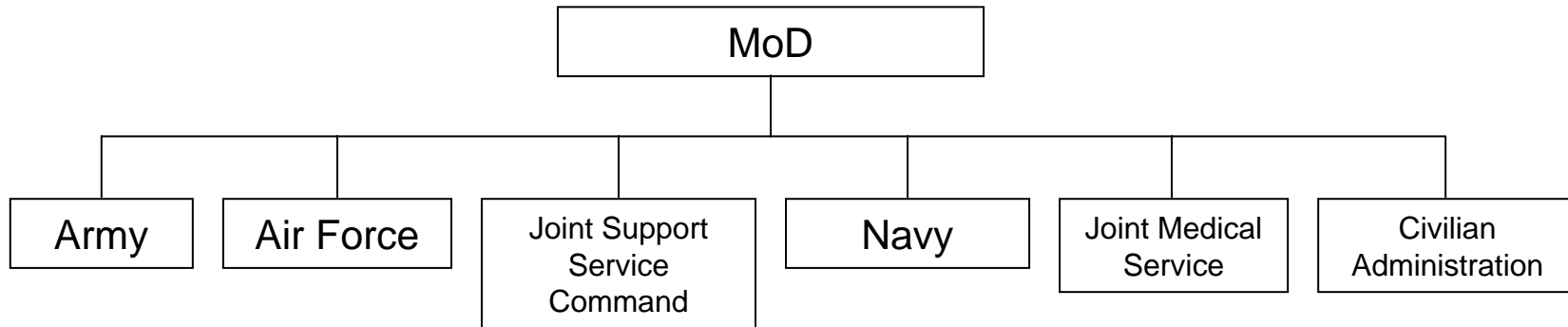
plus about 90.000 reservists

## **Some figures of major equipment (main weapon systems):**

main battle tanks	: about 350
armoured infantry fighting vehicles	: about 400
artillery systems	: about 200
aircraft	: about 400
helicopters	: about 300
ships/boats	: about 80



## Organization:



- Within the Joint Support Service Command: Bundeswehr Operations Command
- Role of Army, Air Force and Navy as a “Force Provider”
- Main tasks of the Civilian Administration: (1.) Territorial Defence Administration  
(2.) Armaments Organisation
- within the Army two “pillars”: (1.) Army Force Command (mainly the combat troops, 5 divisions)  
(2.) Army office (mainly schools and specialized offices)
- within the Air Force, Navy and Joint Medical Service the same two “pillars”

## Budget:

Total 2007: about 28 Billion EUR (42 Billion US-\$)

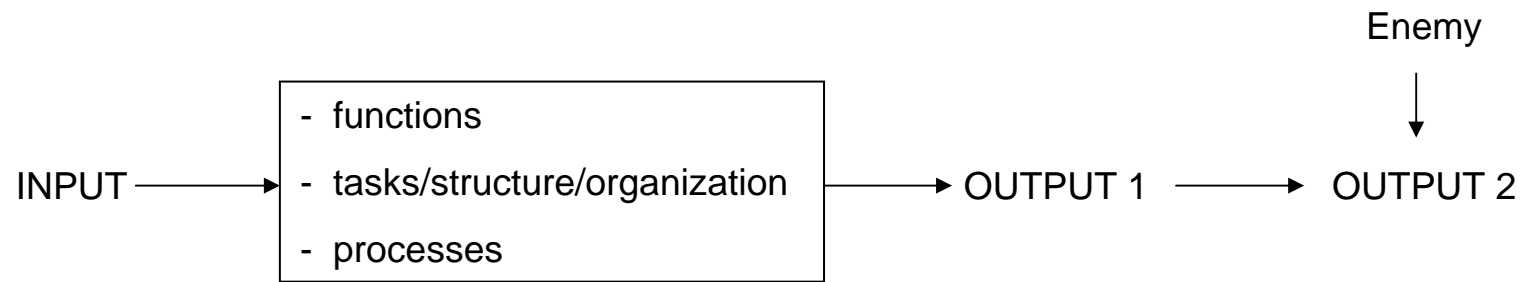
- Operating expenditure : about 21 bn EUR (32 bn US-\$; 75%)
- Defence investment expenditure : about 7 bn EUR (10 bn US-\$; 25%)

“operating expenditure” including pensions

### III. Subjects of interest

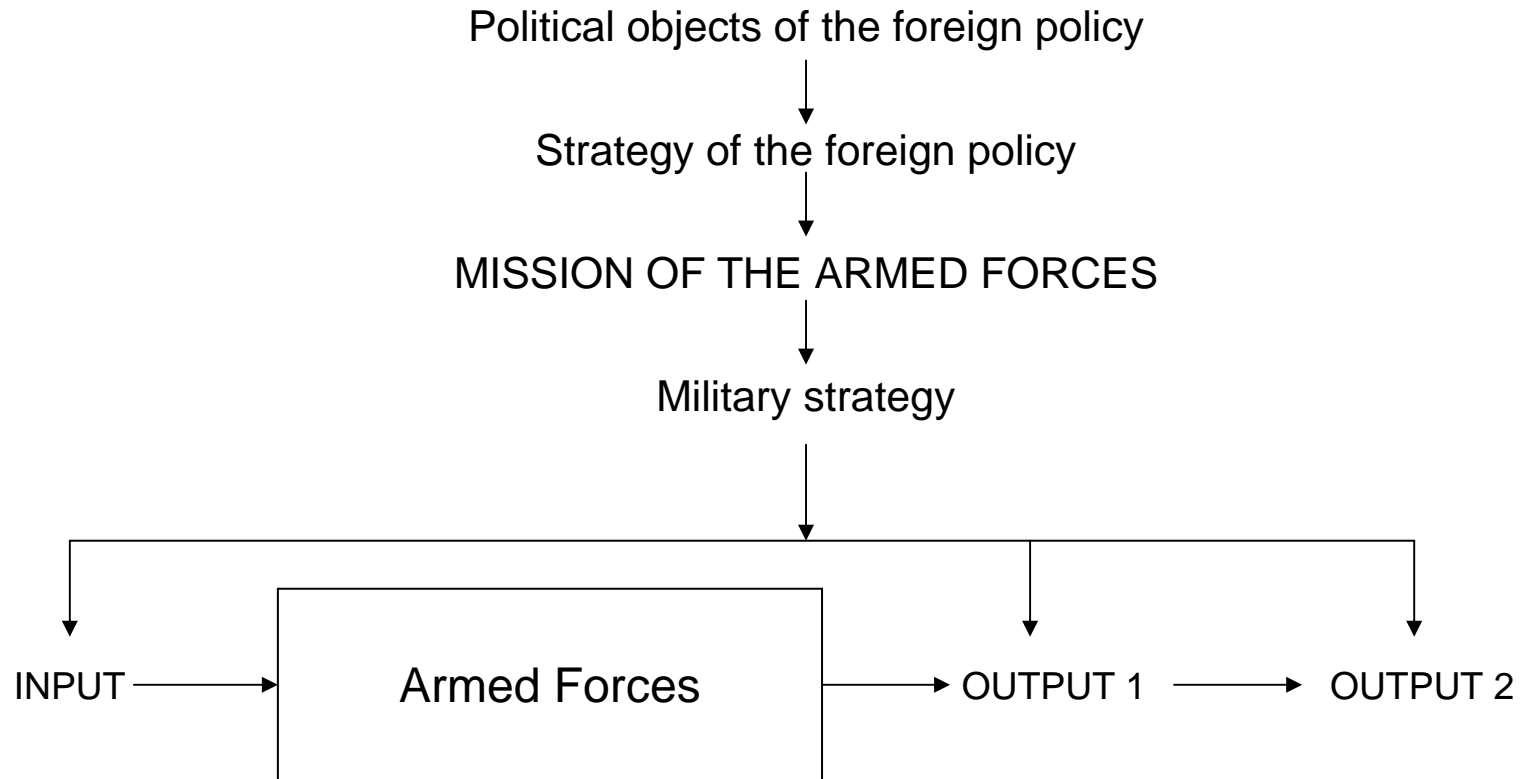
#### 1. Armed Forces as a system

##### a. Basic model to measure performance and efficiency:



- “performance (effectiveness)” = Output
- “efficiency” = relation between output (outcome) and input; to optimise !
- in principle three fields to be analysed in order to optimise management of resources: output, input and “inside” of Armed Forces

## What determines the required output (outcome) and the input ?



## **still II. 1 Armed forces as a system**

### **b. measurement of output 1 (peacetime) and input**

#### **(1.) measurement of output 1 (peacetime)**

**main approach: Capability approach at different levels !**

#### **Examples:**

- at very high level: “capable to conduct two major regional conflicts nearly simultaneously” (USA)
- more concretely: “What type of targets can be attacked effectively? What type of objects can be defended effectively? Where? At short notice? How long? How intensive?”
- “How many troops can be deployed for a mission abroad? How long? How many at short notice? How many permanently?”
- more generally: Total troops available? How many divisions, wings s. o. available? Figures of main equipment?

## Capability approach of the Bundeswehr (derived from mission and main tasks):

Two interlinked approaches: (1.) set up of interlinked Force Categories  
(2.) set up of interlinked Capability Categories

### (1.) Force Categories:

**Response Forces:** **35.000** troops (capable of quick response, earmarked mainly for **high intensity operations**)

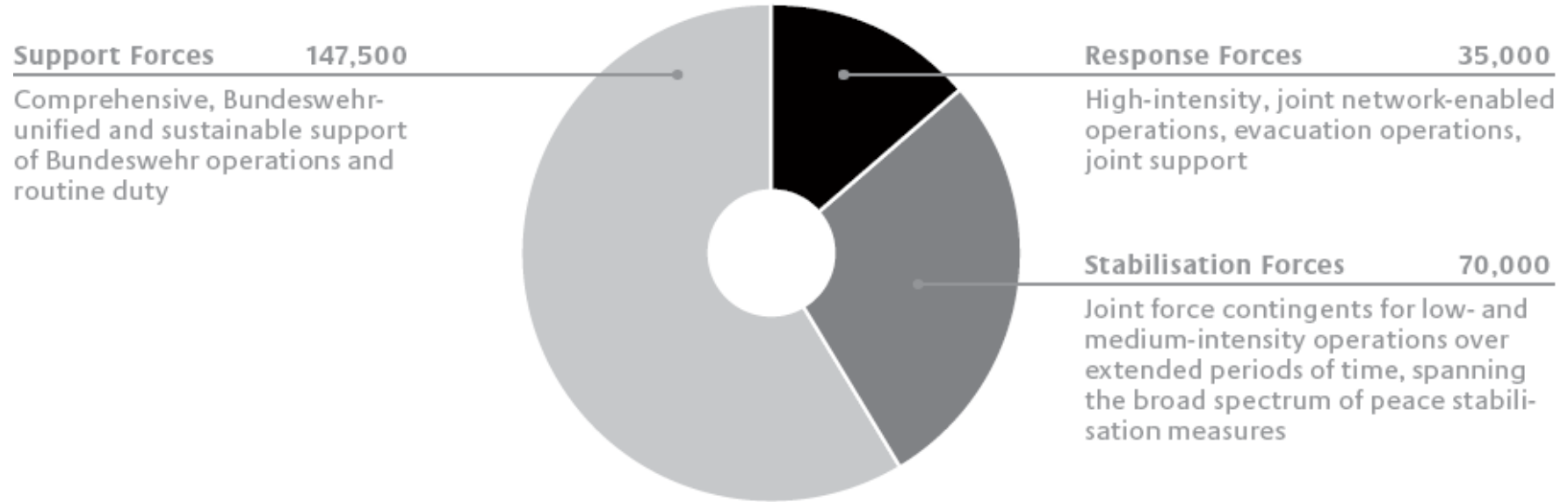
**Stabilisation Forces:** **70.000** troops (capable and earmarked for **middle and low intensity operations and stabilisation** for an extended period)

**Support Forces:** **147.000** troops (capable to provide **efficient and sustainable support across the entire spectrum of missions and operations**)

## Remarks concerning the Force Categories of the Bundeswehr:

- (1.) Force Categories are a **pool** – different missions require differently tailored contingent abroad – composed of modules !
- (2.) Capability to deploy **troops permanently abroad** for conflict management: **10.000 to 15.000 troops** (approx. 5 % of the total strength including civilian personnel)
- (3.) Forces Categories are **differently equipped and trained** – to set up Force Categories is a special **strategy of rationalizing** !
- (4.) The output respectively the capabilities are strongly determined by **obligations and commitments to NATO and EU** (see next page)

## Force Categories



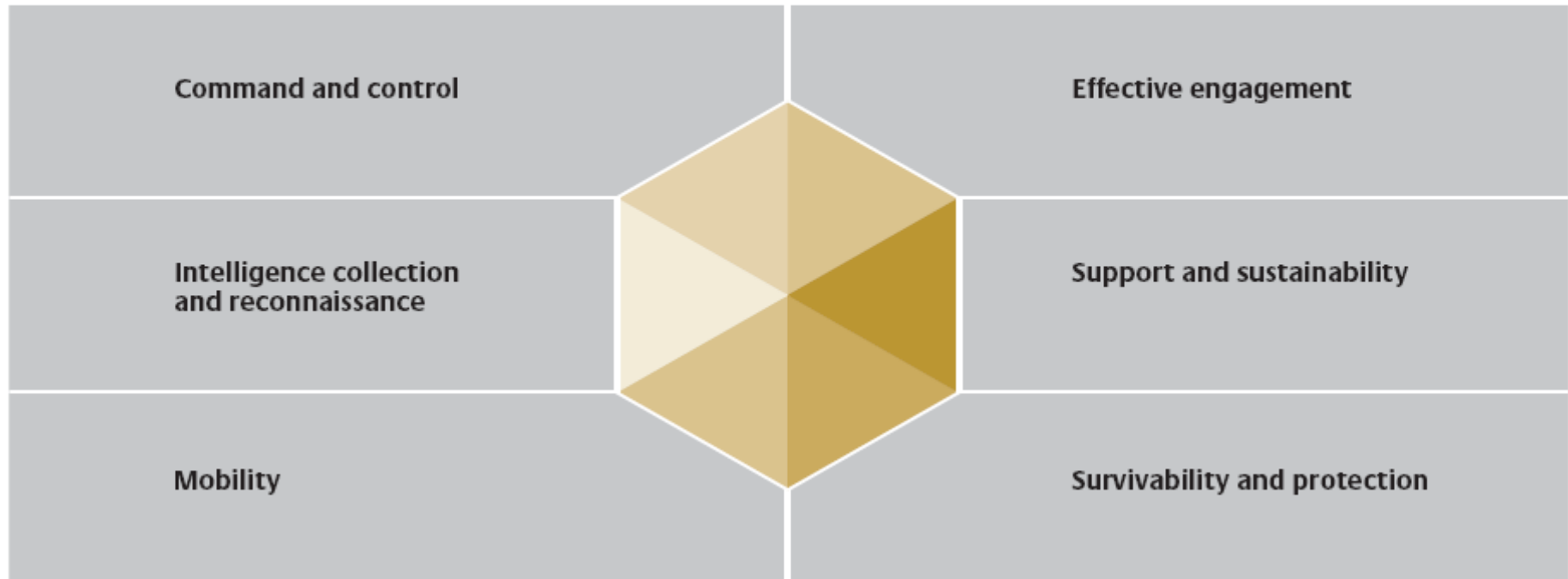


## **(2.) Capability Categories of the Bundeswehr**

Overview – Six interlinked Capability Categories:

1. Command and Control
2. Intelligence collection and reconnaissance
3. Mobility
4. Effective engagement
5. Support and sustainability
6. Survivability and protection

## Capability Categories



## Capability Categories as the basic pattern to allocate resources and to optimize resource management

Categories	personnel	material	infrastructure	organization/ structure and processes
Command and control				
Intelligence collection & recce				
Mobility				
Effective engagement				
Support & sustainability				
Survivability & protection				

## **Remarks concerning the Capability Categories:**

### **Use of the matrix – steps:**

- (1.) The fields of the matrix are filled in with the required capabilities in terms of personnel, material, infrastructure and organization
- (2.) Permanent review and check: Which of these must be built up? Which of these can be reduced?
- (3.) List of priorities – mainly with regard to the deficits
- (4.) Transformation in concrete coordinated projects and programs by using cost-benefit-analysis
- (5.) Transformation in required financial means according to the list of priorities

### **II.1.c. (2.) Measurement of input**

- main approach: Defence Budget !

### **II.1. C. (3.) Measurement of efficiency (peacetime)**

- “value of money” = relation between capabilities and the defence budget
- measurement at various levels – examples (main mission; crisis management):  
“How many troops could be deployed permanently for crisis management in foreign countries in relation to the defence budget ?”  
“How many aircraft/ships etc. in relation to the costs ?”
- details for the output see above
- very common: use of experts and their assessment on the basis of the figures and the results of exercises; OR-based simulations
- use of benchmarking to enhance efficiency; use of controlling

## **II.1.d. Measurement of output, input and efficiency on operations in crisis management and war**

**output:** level of the achievement of the military mission

typical figures: controlled and secure territory, losses inflicted to the enemy etc

**input:**

- troops (including equipment and services) on operations
- transformed into expenditure (“fiscal costs”), very common: only the additional expenditure caused by the operations
- casualties and losses of the own troops
- civilian casualties and losses

**efficiency:** relation between output and input (in figures)

## Remarks about the efficiency of military operations:

- (1.) **crucial:** - **clear political objectives and an comprehensive concept** in the preparation phase
  - during the operations: “**up-to-date balance sheet**” to see and to assess the development in terms of output and input (“strategic controlling”)
  
- (2.) **useful to extend** the measurement of military output and input:
  - relation between **political benefits and political costs**
  - between **economic benefits and economic costs** (e. g. impact on GNP)

examples/case studies:

- Afghanistan
- Iraq War 2003

## II.1. c. Risk management

principles:

- risks have **to be identified** in the planning phase **from the very beginning**: What can happen? What are the consequences? Probability? What has priority in risk management?
- planning on the basis of **different scenarios**; contingency plans are to be developed
- good **intelligence collection** and **reconnaissance**
- **enough resources** (“reserves”) to maintain superiority if the conflict escalates
- **capability to respond quickly** (see network-enabled operations)

**final remark: The measurement of output, input and efficiency of armed forces is not very easy, but it is a “must” !**



## **II.2. Planning, programming and budgeting with focus on the Bundeswehr**

### **a. How to determine the financial requirement ? – The Bundeswehrplan**

(1.) How to determine the financial requirement ?

- in principle: see above “Basic Model” and “Capability approach”
- steps to analyse: mission and tasks – assessment of the situation (risks and chances) -
- military strategy – required capabilities of the Bundeswehr as a whole – required capabilities of the single force and the civilian administration – transformed into projects, programs and manpower – transformed into the financial requirement

quite often: the financial requirement exceeds the ceiling of the given budget – then projects, programs and manpower according to the list of priorities

## (2.) The Bundeswehrplan

- **basic document** of the planning, programming and budgeting
- describes the **planned development** of the Bundeswehr in the categories of
  - personnel
  - material
  - infrastructure
  - organisation/structure
  - required financial means on the basis of a year for the next four years (major equipment up to 15 years)
- **every year a structured procedure to adapt** the Bundeswehrplan to the ever changing environment (new adapted plan in December of each year)
- **Chief of Staff Bundeswehr is responsible** for the planning process
- Bundeswehrplan needs **approval of the minister of defence**
- **final decision on the budget** for the next year is made **by the parliament**

## **II.2. b. Customer Product Management (CPM) as the Basis for Procurement and Logistic Management**

### Four Phases:

1. Phase of “Analysis”: Identification of the gap in capabilities and definition of functional requirements; check: Upgrading possible? If not: try to buy the missing equipment from the market by using the competition!  
If not possible:
2. Phase of “Projecting”: the new equipment (new product) – set up a project management; feasibility study; focus on costs, time and risks (technical and economic risks); request for proposals from the industry and invitation of interested companies for the project; use of competition on the market; cost-benefit-analysis on the basis of life cycle costs; in the end: approval to realize the project

3. Phase of “Introduction”: includes all activities from the approval of the project until the hand over to the user; starting point: invitation of tenders for the project; negotiations; selection of the company; contract on the development, procurement and logistic support; in the end: Check if new product fulfils the requirements
4. Phase of “Using”: includes all activities from the hand over to the user until the end of using the product; overriding objective in this phase is to maintain availability, a high state of readiness and to implement programs of upgrading, if necessary

additional concept: “Concept Development and Experimentation CD&E”

### **Remarks on CPM:**

- all phases are structured in detail
- additional special procedures to speed up the whole process (“too late” is the main reason for being not successful)
- main criterion: cost-benefit-analysis based on life cycle costs

### **Important under the aspect of rationalizing:**

- use of the competition on the market
- cooperation with other armed forces (common procurement, common agencies, s. o.); make sure interoperability
- built-in growth potential
- avoid too many types
- multi-role approach and modular design
- focus on Network Centric Warfare/Network-Enabled Operations

### **II.2.c. Key Indicators of the Defence Budget**

- share in the GNP (Germany 1,3 %, NATO without USA ca. 1,9 %)
- share in the state budget (Germany 10%)
- defence expenditure per capita of the population (Germany 341 € per capita per year)

#### **within the budget:**

- relation between operation expenditure and investment expenditure (Germany 75 % : 25 %)
- major equipment expenditure per soldier (Germany 19.000 € per soldier per year)
- share in the expenditure for personnel (Germany 54 %)
- relations between the different categories of expenditure within the budget

#### **Remarks:**

- important tool of management of resources at the strategic level
- to use for benchmarking, setting leading objectives and controlling

**Main categories of expenditure (Bundeswehr 2007, total about 28,4 bn EUR):**

<b>I. Operating expenditure</b>	<b>73 %</b>
1. Personnel (including pensions)	54 %
2. Maintenance, POL, Ammunition	7 %
3. Other operating expenditure	12 %
<b>II. Contracting out</b>	<b>2 %</b>
<b>III. Investment expenditure</b>	<b>25 %</b>
1. Research and development	4 %
2. Equipment	15 %
3. Infrastructure	3 %
4. other investment expenditure	<u>1 %</u>
	<u>100 %</u>

## **II.3 Functions, fields of tasks, organisation and processes within the armed forces**

### **a. Functions, fields of tasks and organisation – overview**

See depictions next pages

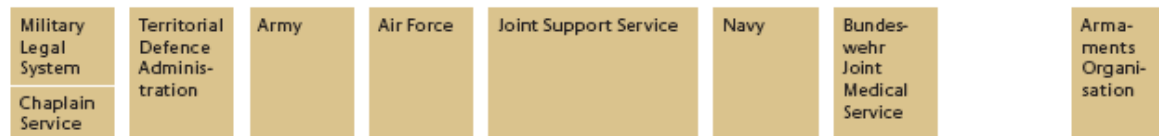


# Organisation of the Federal Ministry of Defence

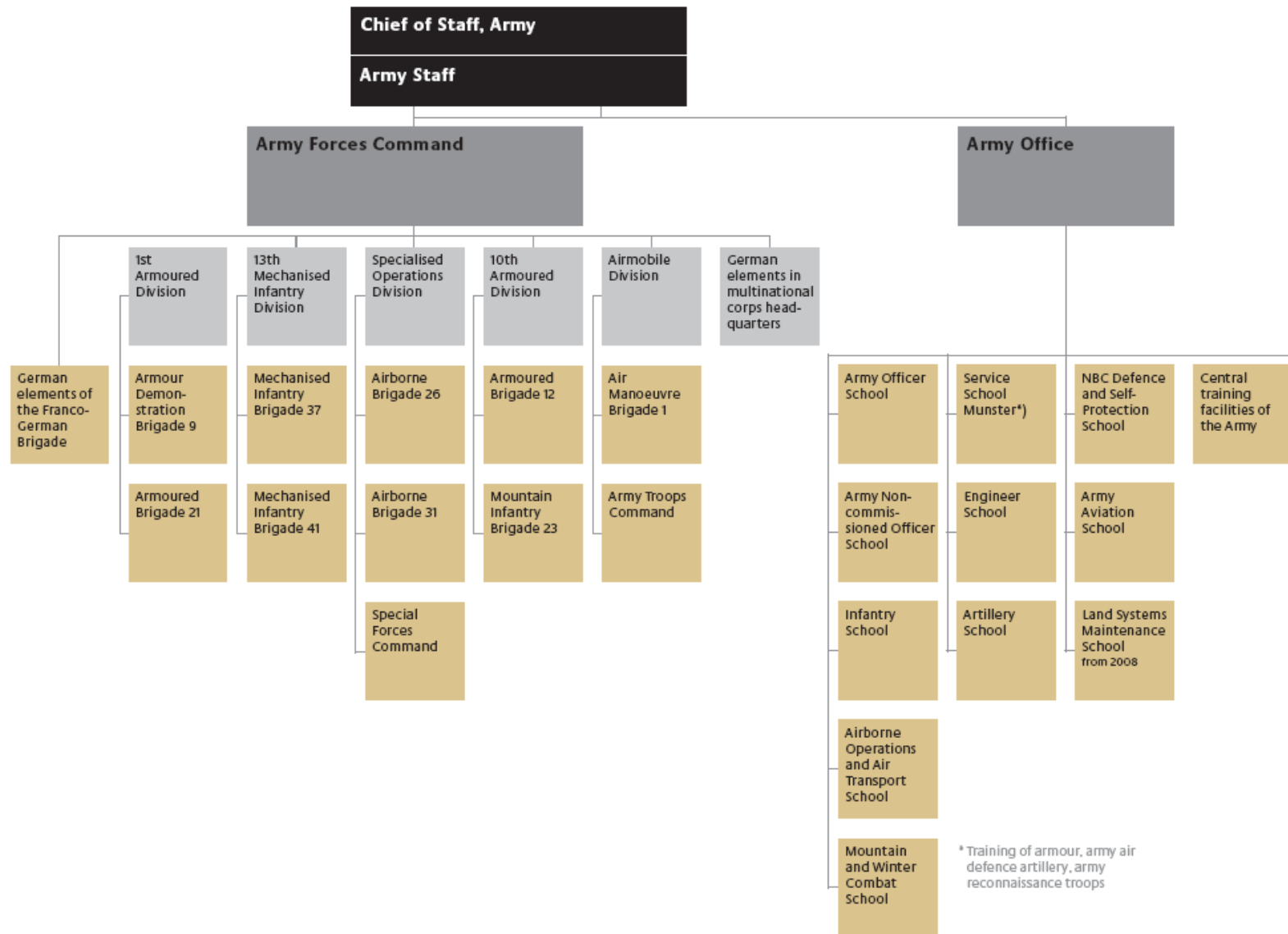
Federal Ministry of Defence

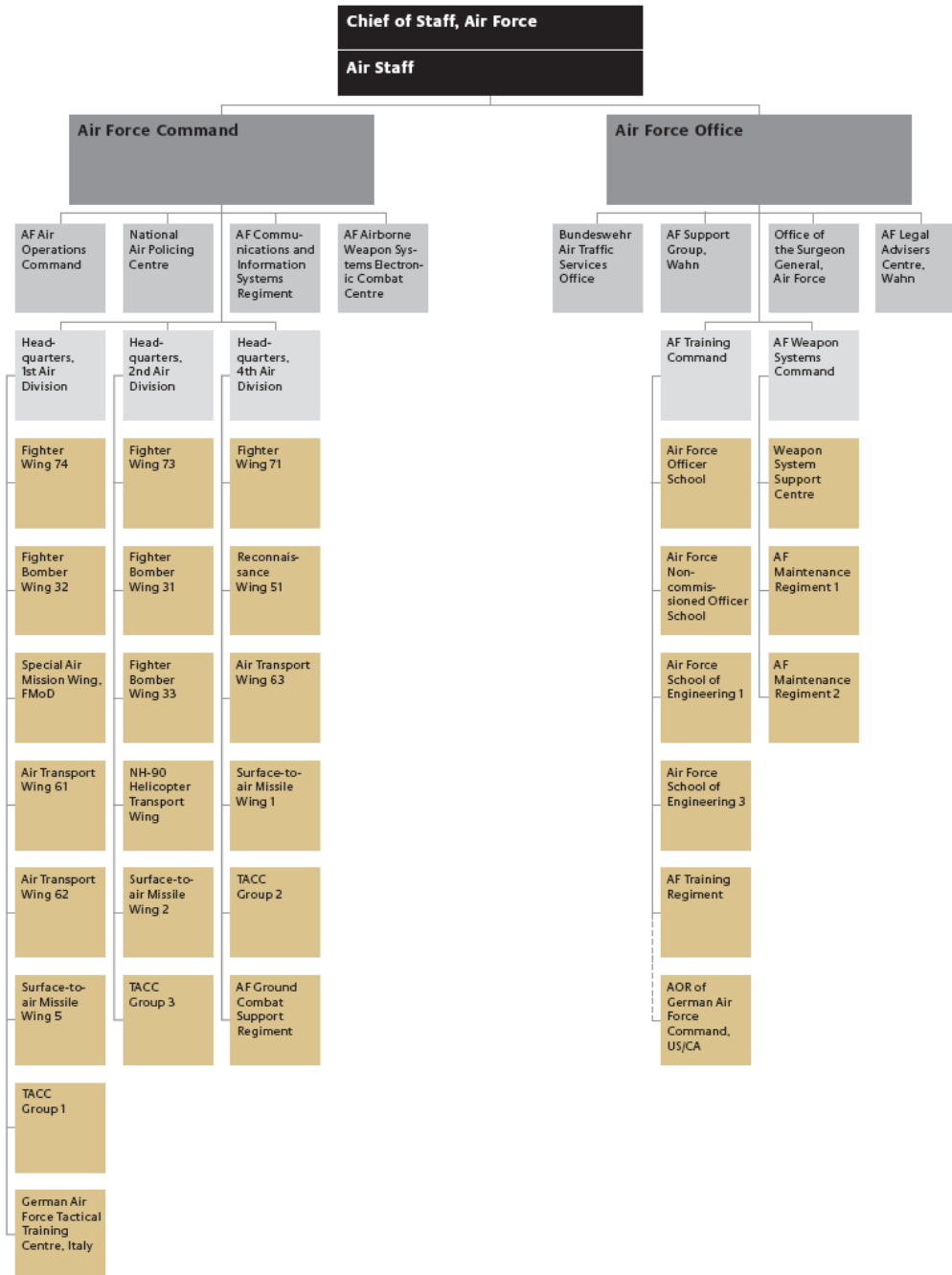


Subordinate areas

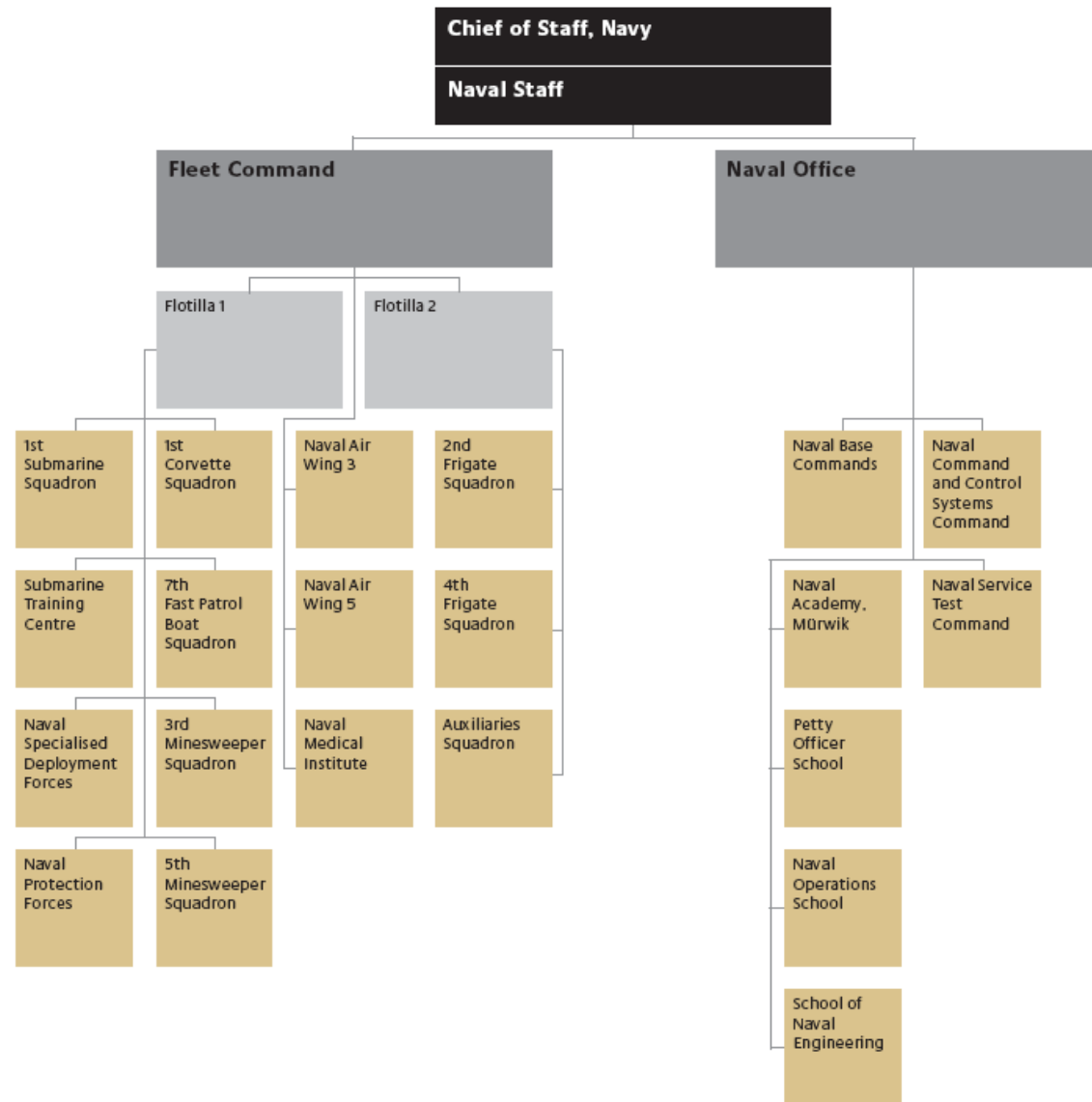


# Army Command Structure

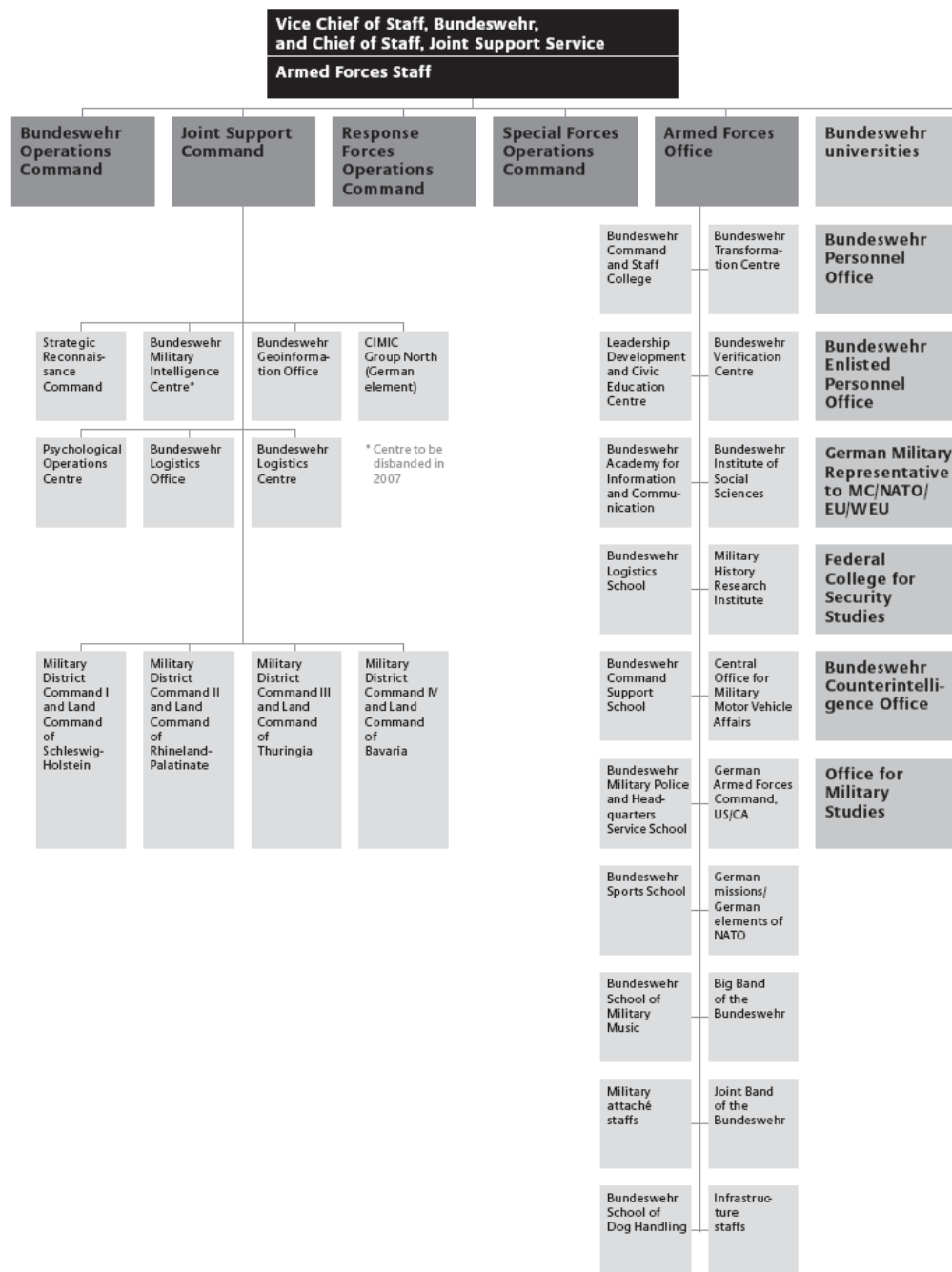




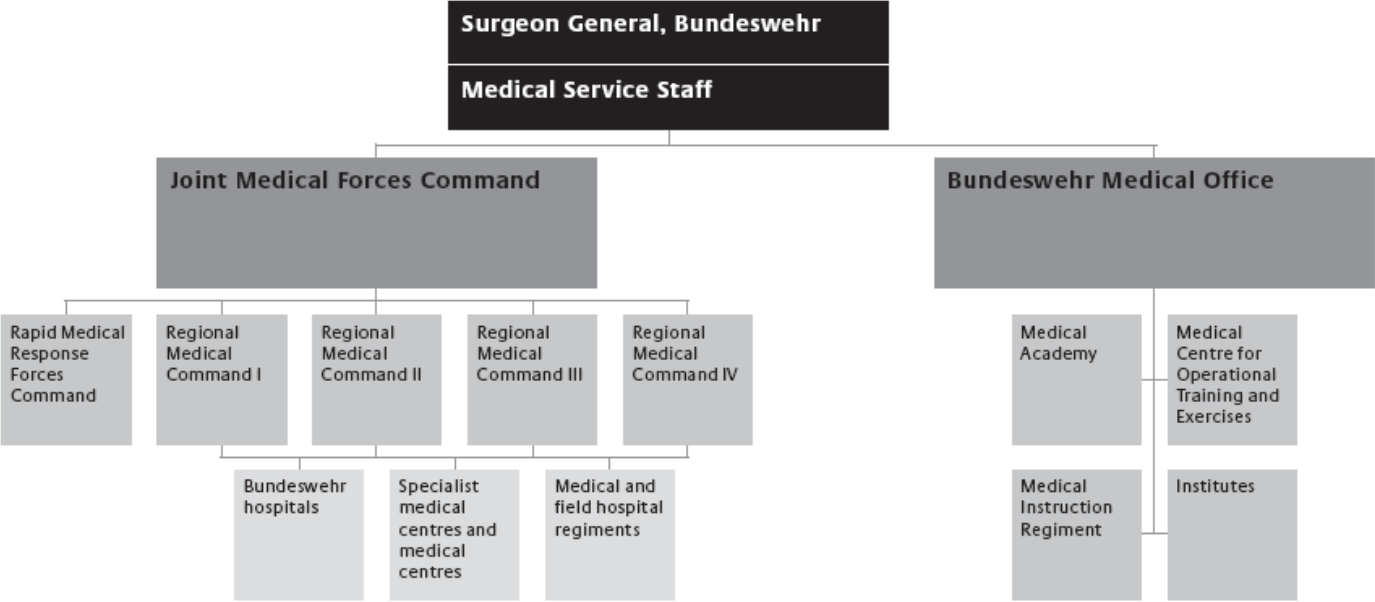
## Navy Command Structure



Joint Support Service Command Structure



Command Structure of the Joint Medical Service



### **II.3. b. Key indicators of the structure**

- share of combat troops in the total strength of the military organisation (including civilian personnel)
- relation “combat troops to fight directly: combat support troops: administrative personnel”
- relations of Forces Categories and within the Capability Categories (see above)
- permanent deployable troops for foreign military mission as share in the total strength
- overhead personnel as share in the total strength or in the departments and branches
- number of Command and Control levels
- relations between groups of ranks

assessment depends on mission and tasks mainly; to use for benchmarking and controlling

### II.3. c. Performance and efficiency management of a unit (Brigade, Wing, Office s. o.)

In principle: analogue to the armed forces as a whole

- Output:**
- starting point: mission of the unit/office s. o.
  - to break down to the capability profile or to the concrete required output (e. g. training facility: students which have completed a course per year)
  - measured by structured evaluations, during exercises and regular reports (with figures)
  - on operations: see above

**Input:** expenditure respectively costs caused by the unit

**Efficiency:** relation between output and input; cost-performance-analysis

**Tools to enhance efficiency:** regular reviews, management by agreed objectives, controlling, quality management, analysis of the processes

**Precondition:** good cost accounting system (What does a flying hour cost? ..)



## **II.3. d. Main processes and optimising the processes**

Main processes of armed forces:

- (1.) personnel: “from labour market/society to combat ready” – focus on training
- (2.) material (including infrastructure and services): “from factory/company to high state of readiness” – focus on supply chain

more general in war: “from the sources to the battlefield”

- many “sub-processes”
- Have to be coordinated! Today mainly on the basis of IT
- have to be optimised under the aspects of time, costs and risk!

## How to optimise a process?

- break down in phases and groups of activities
- analyse each of these: What is the value added (benefit)? What are the costs?
- Where are the cost-drivers? What can be rationalized?
- develop new optimised process and adapt or change – if necessary – the organisation respectively the structure

example: training process of pilots “from zero to combat ready”

- Remarks:
- (1.) For modelling interconnected processes of high complexity in a comprehensive approach IT-based system can be applied (such as ARIS)
  - (2.) The Bundeswehr is about to develop and to introduce a big system to make the bulk of the administrative and logistic processes IT-based (SASPF-project)

### **Some general trends in structuring armed forces to enhance efficiency:**

- **“structure follows mission, tasks and strategy”**: in NATO and EU after the cold war re-structuring to meet the challenge of conflict prevention and crisis management in a global perspective; very broad spectrum of tasks needs a special capability profile (see Forces Categories and Capability Categories)
- massive **use of IT** (“Network Centric Warfare”, “Network-Enabled Operations”)
- focus on processes
- structure of modules to compose the special required contingent and to enhance flexibility and quick response
- **centralization of the Operational Command** at high level
- **centralization of the support activities** into **Joint Support Command** at high level

## II.3. e. Shared Services – Outsourcing and Public Private Partnership (PPP)

- Basic approach:**
- concentration on the **core tasks of armed forces**
  - **transfer of tasks** not belonging to the core tasks of the armed forces to the **private sector**
  - mainly support services (not close to combat and to the battlefield)
  - **typical fields:** transport, maintenance, facility management, catering, clothing, civil-oriented training s. o. (in the German defence budget about 30 %)
  - mainly base on a **strategic partnership**
  - selection of the private partner on the basis of **competition**

## **Main forms of outsourcing and of strategic partnership:**

- outsourcing without any form of strategic partnership: just buy it from the market, if there is a need

forms of a strategic partnership

- (1.) “contracting-out”-model
- (2.) set up of a common company with the armed forces and a private company as shareholders (usually as Limited Company)
- (3.) special forms of partnership, e. g. mixed teams and use of common infrastructure in the field of maintenance on the basis of a contract
- (4.) leasing (including sale-and-lease-back; mostly incorporated into the other forms of strategic partnership)

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### **Main problems/risk:**

- if the armed forces are on operations: **safety and reliability** of the supply chain (“4xR”; basis is a contract according to the civil law, not the military hierarchies)
- **more “cuts” and interfaces** in the processes; more **costs of coordination**
- **loss of “know how”**; asymmetric level of information
- risk of an **increasing dependence** on the private partners, in particularly, if the private company has a monopoly position

- Therefore:**
- each outsourcing project must be analysed very carefully
  - main criteria: effects on the budget and safety of the supply chain
  - risk management is a “must”

### **Some measures to reduce the risk of PPP:**

- select the outsourcing strategy according to the strategic importance, e. g. no outsourcing, if the subject (material, service) is of high strategic importance connected with high speciality and high uncertainty
- avoid a single source strategy
- select a reliable partner
- common risk management committee, common early warning system
- open book policy
- concerned personnel of the company are reservists, temporary exchange of personnel
- limited reserves within the armed forces
- high negative sanctions (payment), if the partner does not fulfil the contract



## **II.4 Strategies to rationalize and to enhance the efficiency of armed forces**

### **a. Basic preconditions**

- clear military mission and tasks (to be derived from the overriding foreign policy objectives and to be embedded in a comprehensive approach)
- up-to-date assessment of the trends and of the situation, good planning system
- sound management accounting system as the basis to carry out cost-benefit-analysis
- comprehensive professional knowledge of resources management

### **b. Overview**

#### **(1.) in the field of output**

- choose the most efficient military strategy! (More offensive or more defensive? More direct or more indirect? More army, more air force or more navy? Which mix?)
- network-enabled operations; network centric warfare
- set up of force categories, concept of modules
- capability profile according to the strategy and the operational requirements, permanent and quick adaptation
- military principles such as concentration, use of the enemy's weaknesses, reserves, s.o.
- if the armed forces are a member of a lasting alliance: division of labour; interoperability; common commands, headquarters and facilities; pooling and others

(2.) in the field of input

- permanent access to the “best” resources of the society (modern technology, recruitment of personnel)
- use of the competition
- common development and procurement together with other armed forces
- good relations to the parliament and the “decision makers” on the defence budget

**“Best means to enhance the efficiency are highly motivated and well trained soldiers and members of the armed forces”**