



GENERAL STAFF OF THE ARMED FORCES OF SVK
Strategic Planning and Capabilities Development Division



CURRENT REFORM ASSUMPTIONS OF THE ARMED FORCES OF THE SLOVAK REPUBLIC

**in the context of security environment evolution
and limited source provision**

Maj Jaroslav GELETIČ

Coordination of International Military Cooperation Branch/J5

Interoperability Conference 2012



Agenda



1. Transformation Milestones

- Force/C2 Structure until 31 May 09
- Force/C2 Structure since 01 June 09

2. Threats

3. Tasks and Resources Imbalance

4. Options

- Reform
- Pooling and Sharing

5. Conclusions



1. Transformation Milestones



Long-Term Plans

- In 2001 developed „Model 2010“
- In 2005 developed „Model 2015“
- In 2009 developing „Model 2020“ – Not Finalised
- In 2011-2012 developing „SDR – New Model“



Objectives of Transformation

To establish

- *An effective, professional but affordable Armed Forces organized, equipped and trained to comply with the SVK Defence Strategy*
- *A modernized Armed Forces to be interoperable with NATO*

The Main Areas of Transformation

1. Force/C2 structure
2. Personnel Management
3. Training Management
4. Armament - Modernization





1. Force/C2 Structure Until 31 May 2009



Minister of Defence

General Staff

Chief of the General Staff/CHOD ★★★★★

Deputy Chief of the General Staff/DCHOD ★★★

J-1 ★★

J-2 OF-5

J-3 ★★

J-4 ★★

J-5 ★★

J-6 OF-5

J-7 OF-5

J-8 OF-5

Land Force Command Trenčín ★★

Air Force Command Zvolen ★★

Trg&Spt Force Command Trenčín ★★

Medical Service Command Ružomberok OF-5

Directly subordinated units and facilities

1 MBde Topoľčany ★

2 MBde Prešov ★

CBRN Bn

Engineering Bn

CS and CSS units

AFB Sliač

AFB Prešov

AFB Kuchyňa

GBAD Bde Nitra

CRC Zvolen

Training Command Martin

Logistic Command Trenčín

CIS Command Trenčín

CoE EOD Nováky

Garrison Command Bratislava

SOF Regiment

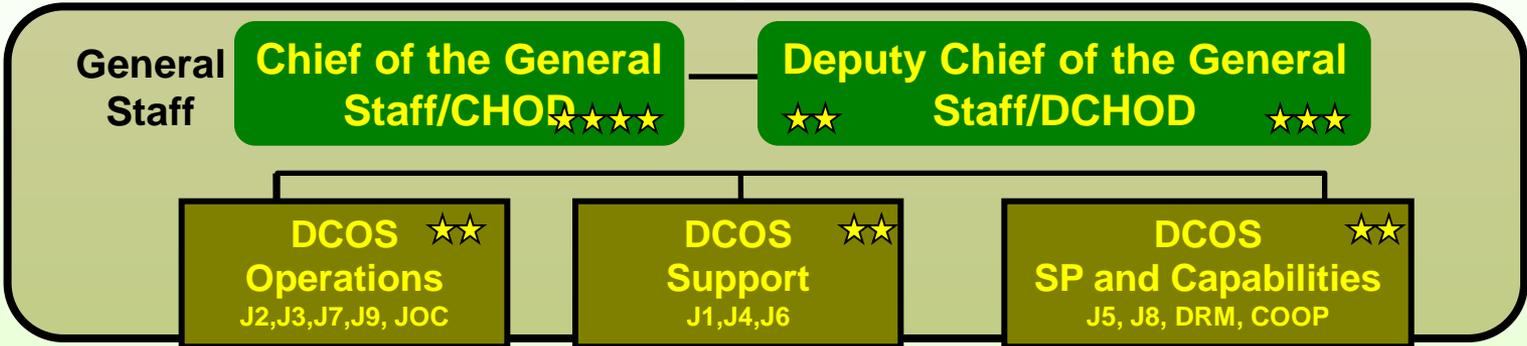
Personnel Bureau

1. Force/C2 Structure Since 1 June 2009



Minister of Defence

Strategic level



Operational level



Tactical level





2. Threats

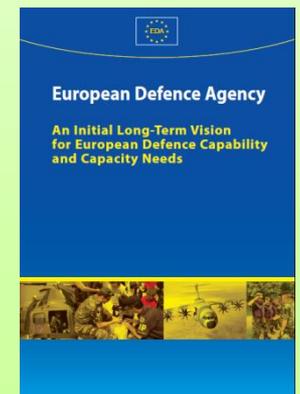


NATO

- New Strategic Concept (2010)
- Multiple Futures Project (2009)

EU

- European Security Strategy (2003)
Report on the Implementation of the ESS - Providing Security in a Changing World (2008)
- An Initial Long-Term Vision for European Defence Capability and Capacity Needs (2006)





2. Threats



External Inputs



ENERGY SOURCES



ILLEGAL IMMIGRATION



TERRORISM



CLIMATE CHANGES



CYBER DEFENCE



WMD



FAILING STATES



PIRACY



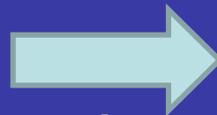
2. Threats



National analysis

- Security Challenges for the Slovak Republic
- Slovak potential allows us respond to majority of Security Challenges **only within International Community Framework**
- Slovak Armed Forces must be ready to react immediately **using own capabilities** to natural disasters, technological catastrophes, NBC effects management, illegal massive migration, or public order restoration within the Slovak Republic Framework.

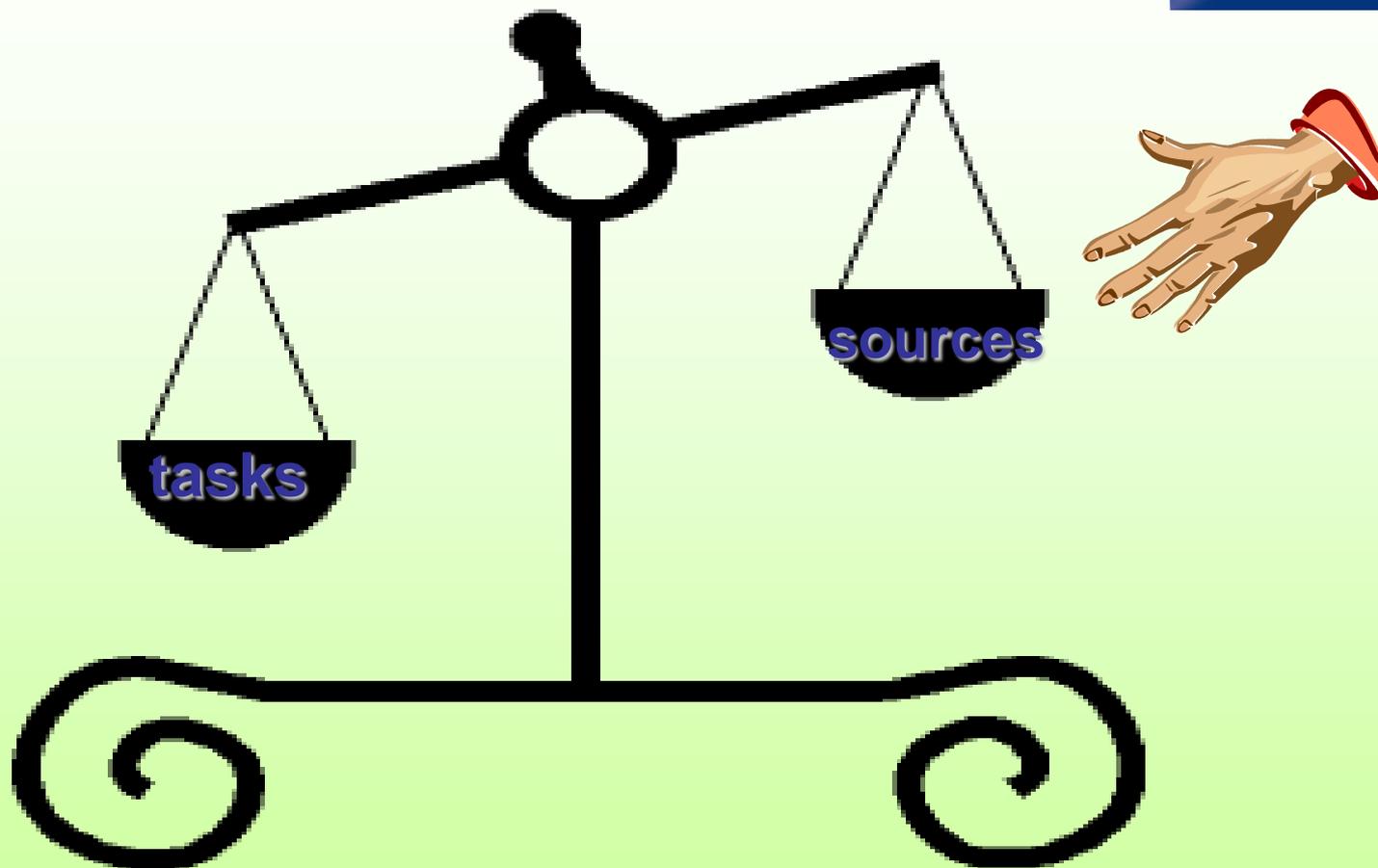
Range and Complexity of tasks in the area of state defence are increasing



building better, resources demanding capabilities.



3. Tasks and Resources Imbalance

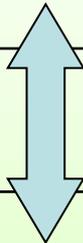
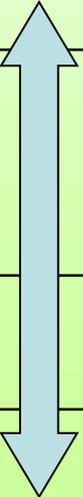




3. Tasks and Resources Imbalance



Increase of Slovak Armed Forces Tasks since independence

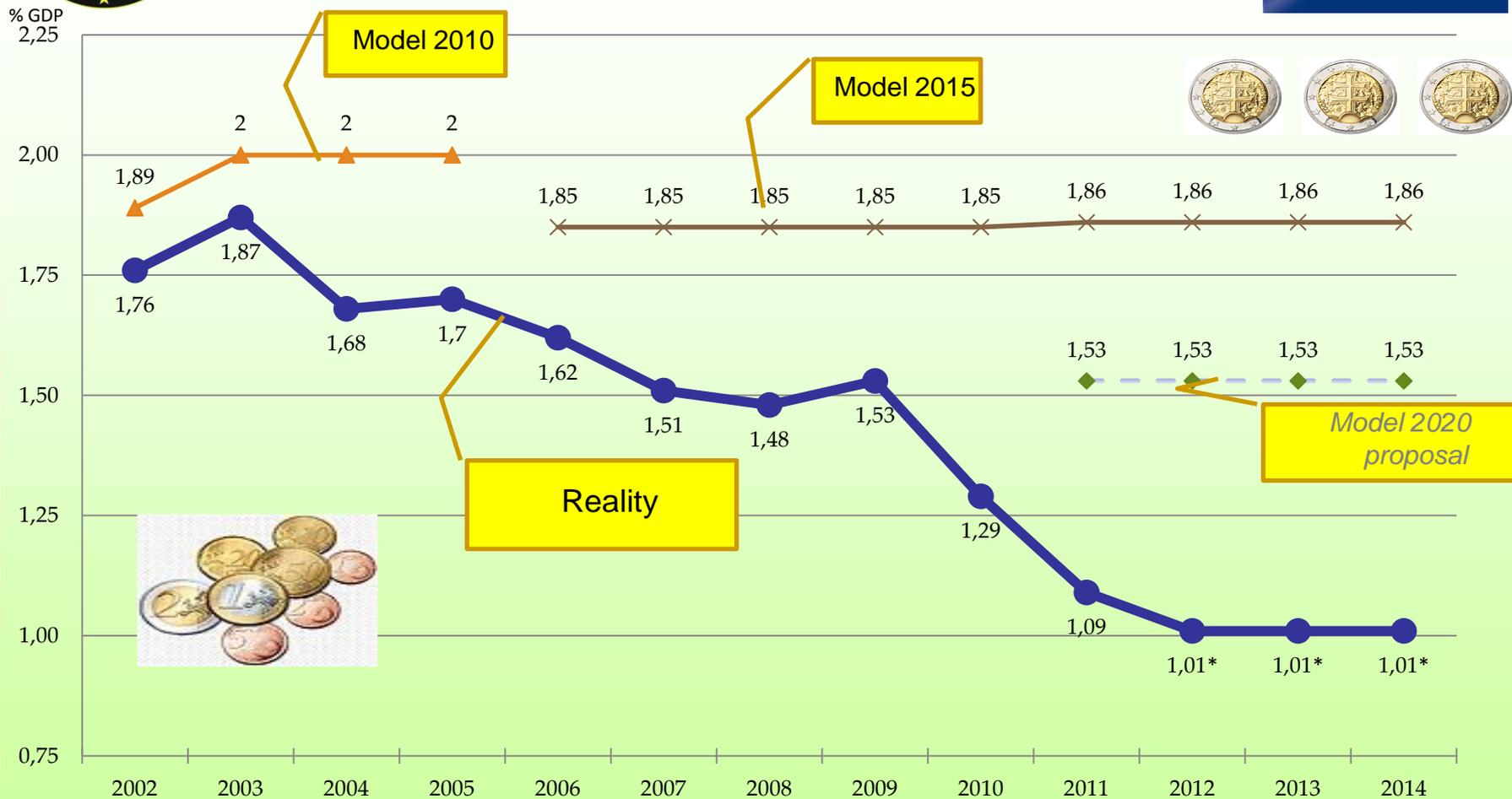
	Transformation of Slovak Armed Forces	NATO/EU OPERATIONS	NRF & EU BG	NATIONAL ASPECTS
1994	Armed Forces Development Concept until 2000 (46 000 professionals)	0/0	x	Individual Defence 
1999	Concept of MoD SR Reform until 2002 (37 700 professionals)	44/0	x	
2001	Model 2010 (24 500 professionals)	102/2	x	
2005	Model 2015 (18 700 professionals)	120/6	x	Collective Defence 
2009		385/40	NRF 2006 (4) NRF 2007 (23) NRF 2008 (789) NRF 2009 (24) EU BG CZE 2/2009 (442)	
2010	Model 2020 proposal (16 000 professionals)	458/45	EU BG POL 1/2010 (346)	
2011	SDR White Book of Defence	352/48	NRF 2011 (6) NRF 2012 (153) - preparation	



3. Tasks and Resources Imbalance



Planned and allocated MOD Resources





3. Tasks and Resources Imbalance



Critical Capabilities of Armed Forces versus Expenditures

Example of prioritising of tasks and capabilities

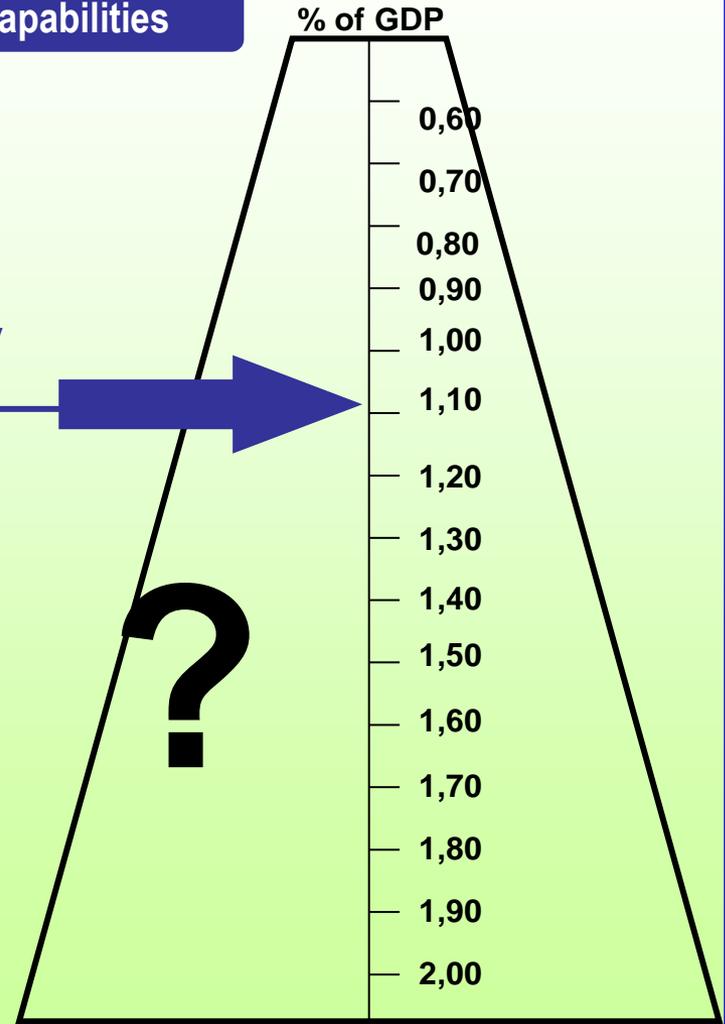
Completing in full scale of defined criteria

Armed Forces of SR must be able to:

1. **Contribute to international crisis management operations (up to 600 personnel)**
2. **Defend Slovak airspace within NATO Integrated Air Defence System (NATINADS)**
3. **Participate in NRF (0,9% of IRF), alternatively in EU BG and maintain DCM**

Acting in crisis regime and in the scale enabled by available sources

4. **Maintain Mechanised Battalion Group in NATO HRF**
5. **Provide air transport DCM and CMOs and tactical air transport for land force**
6. **Fulfil other existing commitments to NATO (CoE EOD)**
7. **Achieve and maintain FOC of mechanised brigade keeping it in FLR as well as provide HNS for Allied Forces**
8. **Provide air defence for the state critical infrastructure**
9. **Provide defence for additional important facilities**
10. **Manage other approved FGs**





3. Tasks and Resources Imbalance



Strategic options - What next?

- armed forces reached a crossroad
- three possible strategic options

Strategic option No. 1: Maintaining the current status = **Status Quo.**

Strategic option No. 2: Achieving balance between tasks and resources by **narrowing the Slovak political-military ambition.**

Strategic option No. 3: Achieving balance between tasks and resources via **increase of defence funding.**

Slovak Government has decided not to decrease political-military ambition of the state and noted the SDR material.

- To prepare Slovak Armed Forces model based on 1,1% of GDP estimation



3. Tasks and Resources Imbalance



Basic principles of the Slovak Armed Forces Development

- 1) **Level of Ambition**
- 2) **No change in commitments to NATO and EU**
- 3) **Development of the Armed Forces to fulfil key priorities:**
 - Defence of Slovak Airspace within (NATINADS)
 - Contribution to International Crisis Management Operations
 - Assistance to Management of Non-Military Crisis Situations
 - Provision of Mechanised Brigade to Collective Defence of Alliance
 - provide HNS for Allied Forces
4. **Increase level of interoperability**
5. **Continue in Increasing of Effectiveness and Economy**



4. Options - Reform

Proposed Measures



I. To decrease expenses

- Rationalization of support structures in relation to defined needs of final Slovak Armed Forces Model
- Tactical units reorganization
- Infrastructure
- Armaments
- Mobilization System and Active Reserves

II. To increase interoperability

- Equipment modernisation
- Reorganisation of tactical units according to NATO Standards
- Training in accordance with NATO Standards



4. Options - Reform



Equipment Modernisation

- **Light Tactical MultiPurpose Vehicles**
- **2 – 4 Medium Tactical Transport Airplanes**
- **Air Defence System**
- **Medium MultiPurpose Helicopters**
- **Logistic Units, CIS Elements, Medical, Small Arms**
- **Political Decision on MultiPurpose Tactical Jets**

Outside MoD Budget



4. Options – Pooling and Sharing



Smart Defence

- ❑ Centres of Excellence as Hubs of E&T
- ❑ Pooling & Sharing Multinational Medical Treatment Facilities (ROLE 2)
- ❑ Pooling CBRN capabilities – CZE-HUN-SVN Regional Grouping
- ❑ Distributed Training and Exercise (DTE)
- ❑
 - EU (EDA, PSC, EUMC, EUMS)
 - Regional Defence Cooperation
 - Visegrad Group
 - Bilateral Activities (Czech Republic)



4. Options – Pooling and Sharing



Possible Areas in Multinational Approaches

- NATO/EU Level**
- NATINADS
- C-IED
- Strategic and Tactical Air Transport
- Multinational Logistics and Medical Support
- Cyber Defence
- ACCS
- AGS
- JISR
- Regional Level:**
- Military Training Area Lešt',
- CBRN Training Centre Zemianske Kostol'any
- Armed Forces Academy
- Leading Role in CoE EOD Development
- Active Role in NATO DCM
- Best Potential within Regional (V4) Framework and bilaterally with Czech Republic



5. Conclusions



**White Book of Slovakia's Defence, won't be dealt with any further in the current electoral term,
"It'll be up to the new government as to whether it agrees to the proposed strategy or not."**

**Thank you
for your attention**



Building the capabilities of Armed Forces to conduct irregular warfare



Štefan ACSAI
MAJ, SVK A

Agenda

Introduction

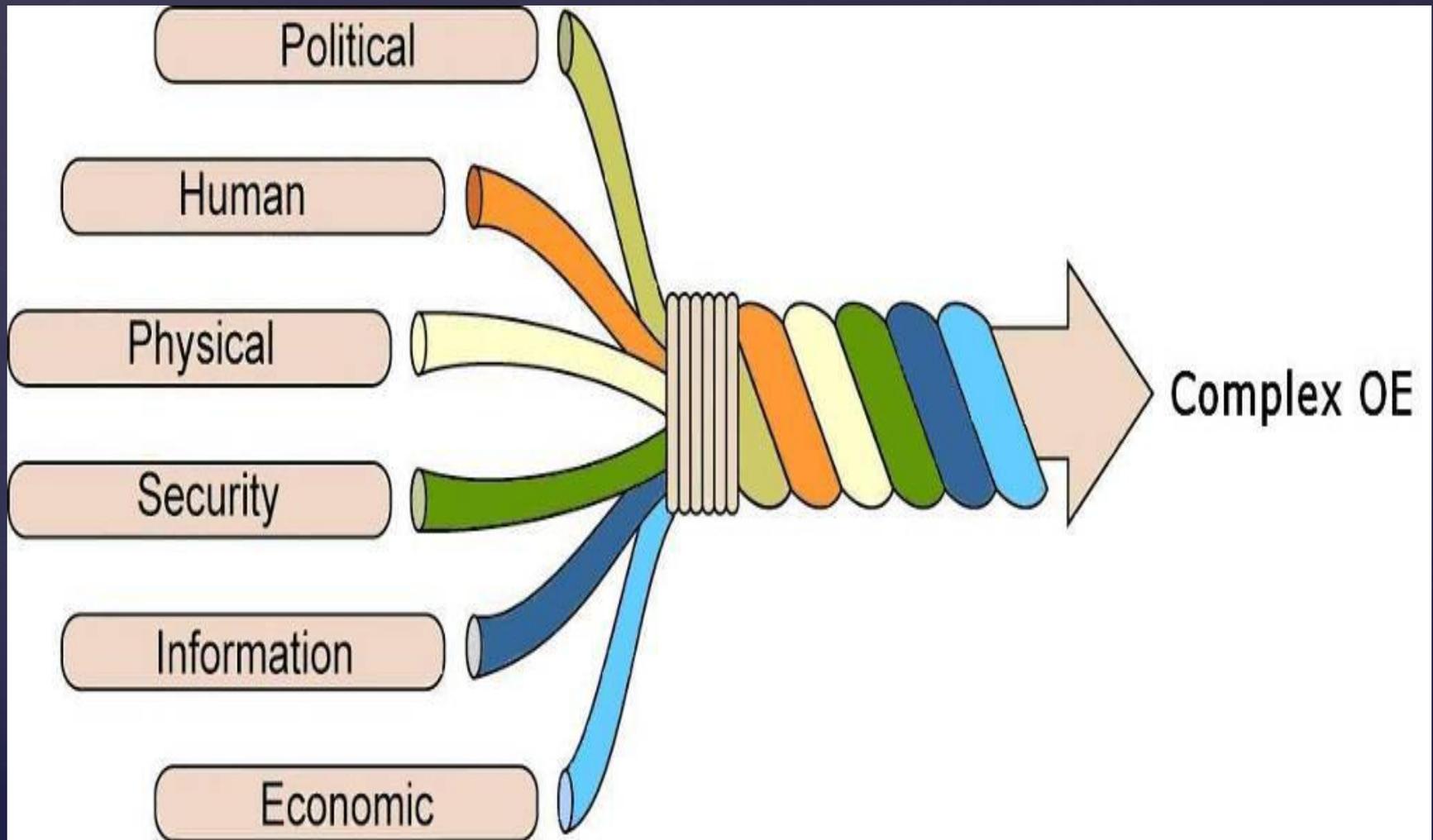
1. Operational environment
2. Irregular activities
3. Military contribution
4. COIN operations
5. Slovak AF approach to asymmetric conflict

Summary

Discussion

1.Operational environment

Variable factors of the operational environment



1.Operational environment

Actors

- Host nation civil authorities
- International organizations
- Alliance and coalition governments
- Non-governmental organizations
- Commercial organizations
- Private security companies
- Media

2. Irregular activities

- **Insurgency**
- Terrorism
- Criminality
- Disorder
- Subversion

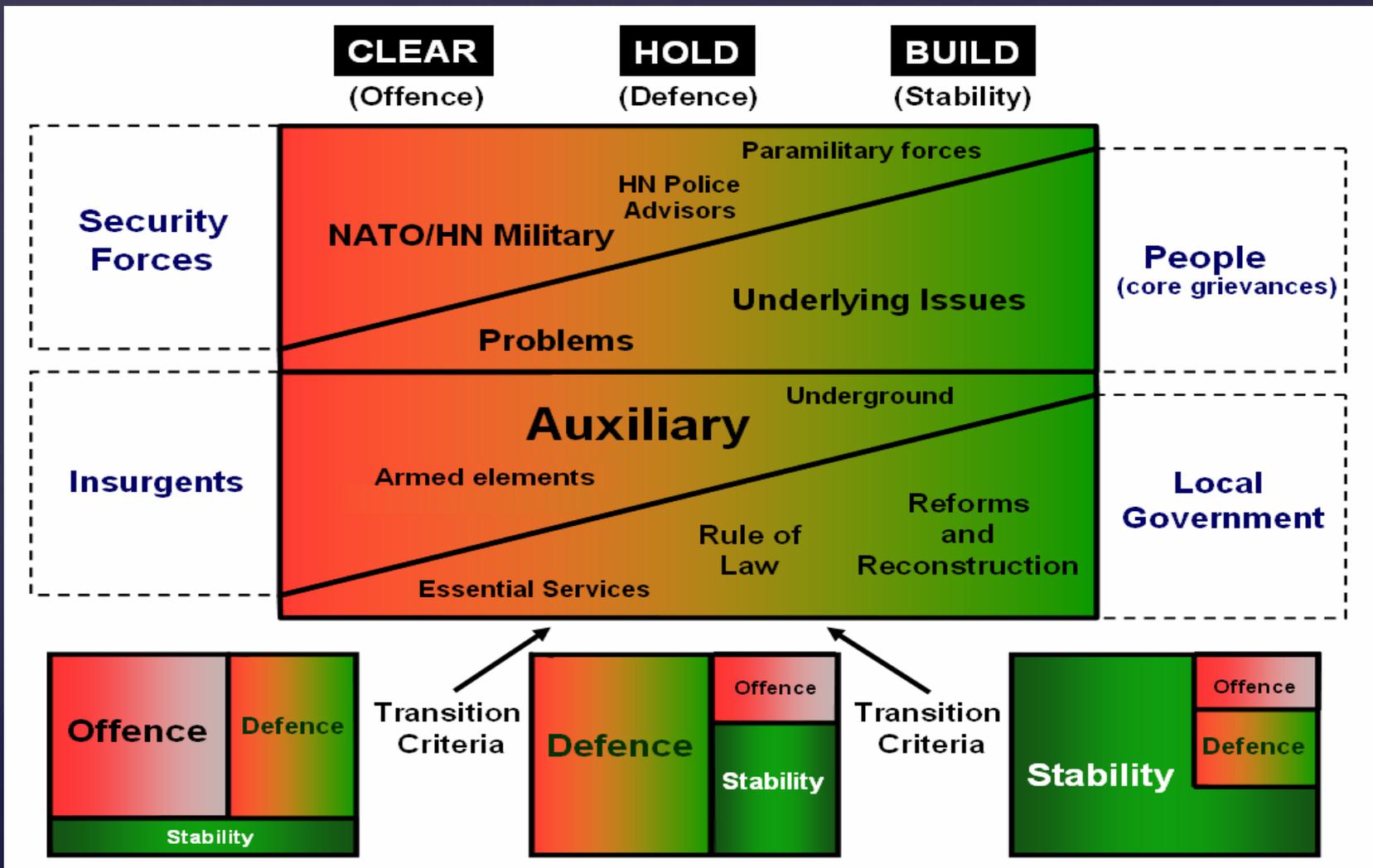
3. Military contribution

Military objectives

- Secure the population
- Isolate the insurgents from their support
- Contain the insurgents in a broader regional context
- Target the insurgents' organization
- Neutralize the insurgents' armed organizations

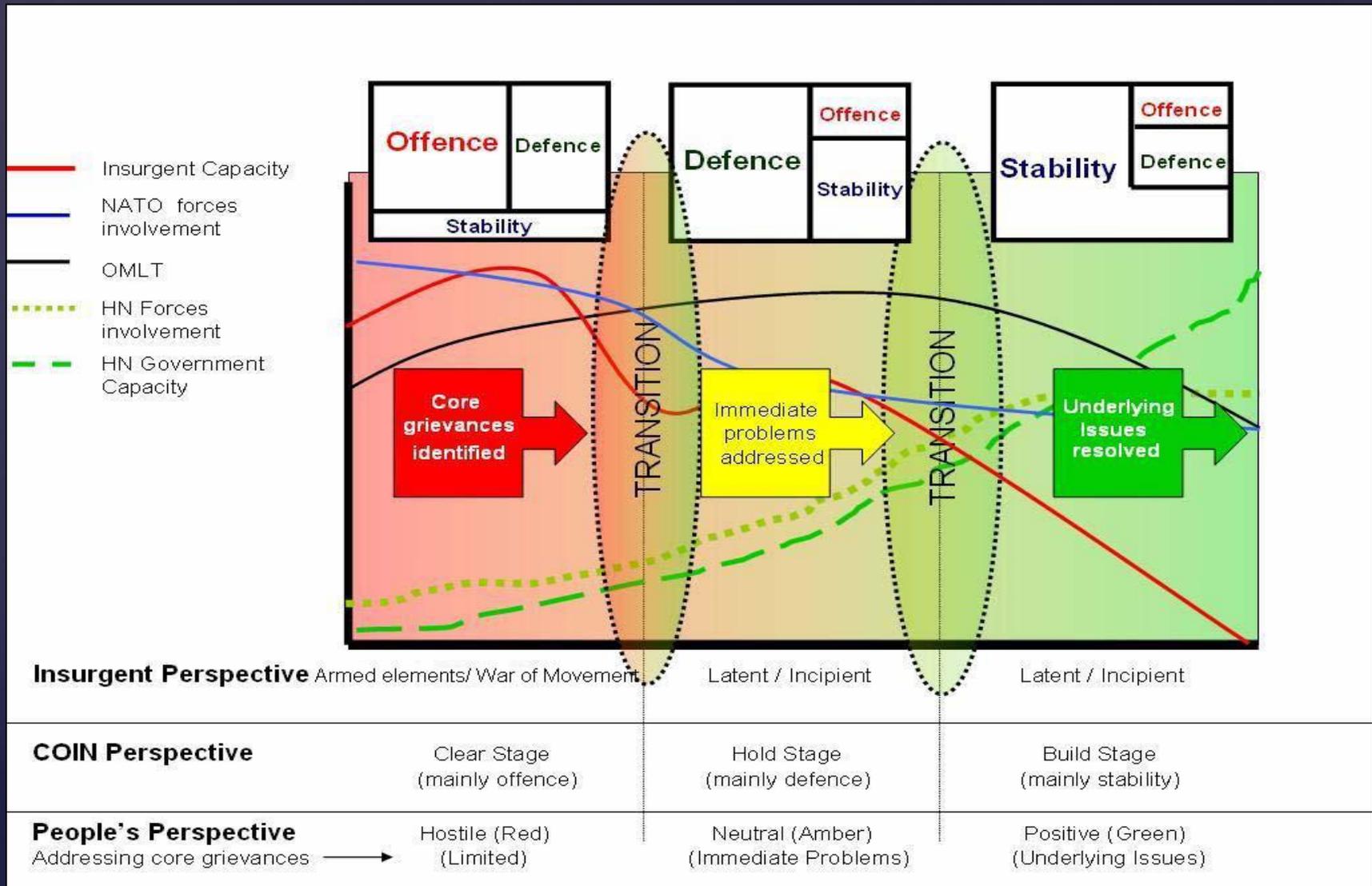
3. Military contribution

Operational approach



3. Military contribution

Transition



4. COIN Operations

- Troops-to-task analysis
- Brigade combat teams
- Host nation security forces
- Capabilities

5. Slovak AF approach to asymmetric conflict

- Doctrines
- Participation in various activities
- Training and exercises



Summary

- Operational environment
- Irregular activities
- Military contribution
- COIN operations
- Slovak AF approach to asymmetric conflict

Discussion





AUSTRIAN FEDERAL MINISTRY OF DEFENCE AND SPORTS

National Defence Academy

Military reforms in the light of the security environment changes and defence budget restrictions

Force development under the current Austrian budgetary restrictions

Liptovský Mikuláš, 29.3.2012

Lieutenant Colonel Mag. Mag. Thomas Fronck
Head of Department of Military Command and Management
Institut for Higher Military Command, Leadership and Management
National Defence Academy of the Austrian Armed Forces



Agenda

- **General**
- **Political and strategic guidelines**
- **Budgetary restrictions**
- **Conclusions**
- **Way ahead AAF**

- **Q & A**



AUSTRIAN FEDERAL MINISTRY OF DEFENCE AND SPORTS
National Defence Academy



NATO/PfP

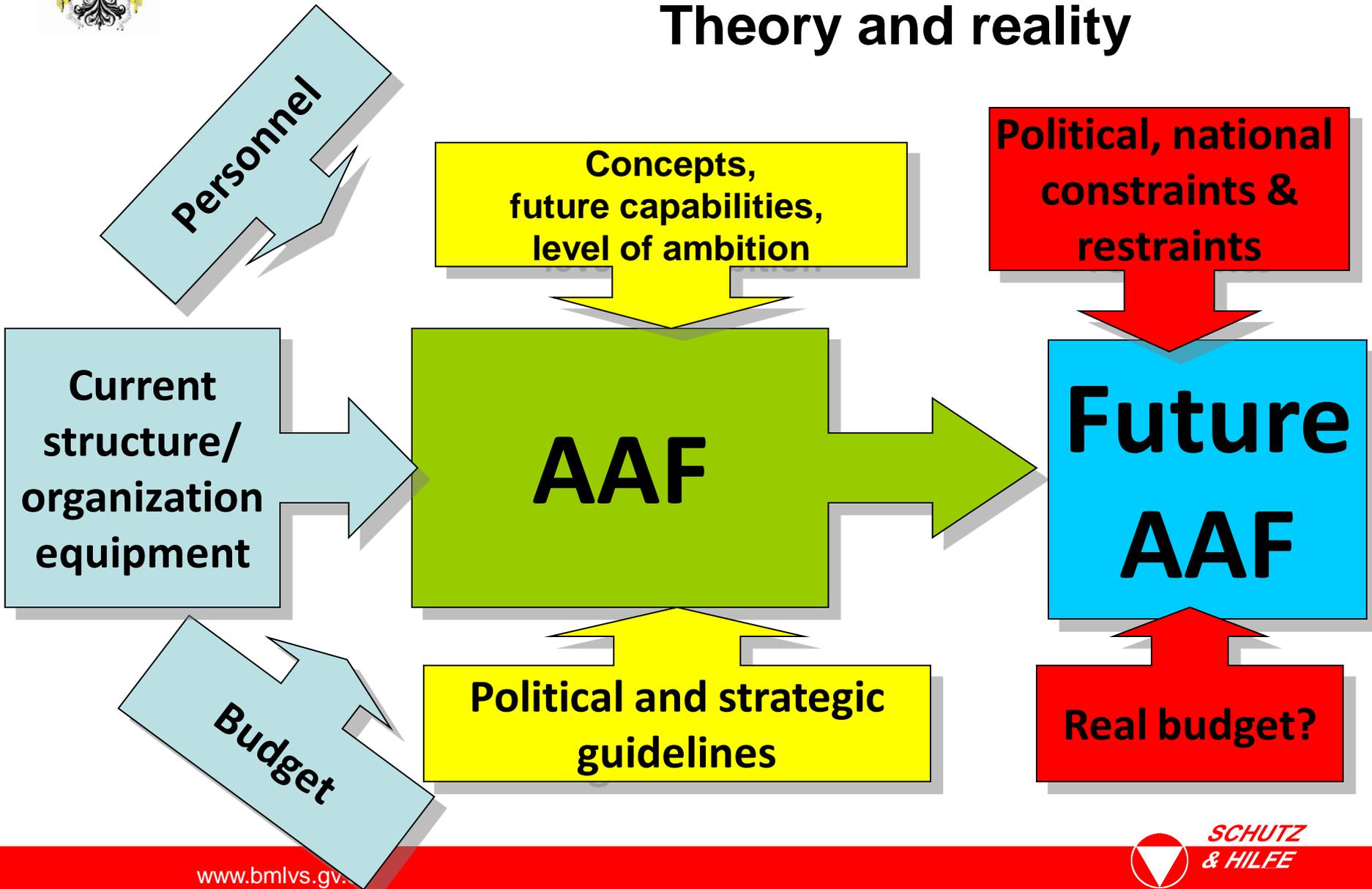


Neutrality

**Compulsory
military service
in discussion**



Theory and reality





Political and strategic guidelines AAF

Austrian National Security Strategy 2011
„Shaping Security in a New Decade“

Sub-Strategy Defence Policy 2005
current

Military Strategic Concept 2005
current

Scenarios

Level of ambition

Threat / risk
assessment

Tasks and
structure/
capabilities

Capabilities AAF / concepts

Planning Guideline 2011 – 2016 of the MOD



Austrian National Security Strategy 2011
„Shaping Security in a New Decade“

Defence-political profiles
A-D

New Sub-Strategy Defence Policy
20XX

Scenarios

Capabilities AAF

Structure

Planning Guideline 20XX – 20XX of the MOD



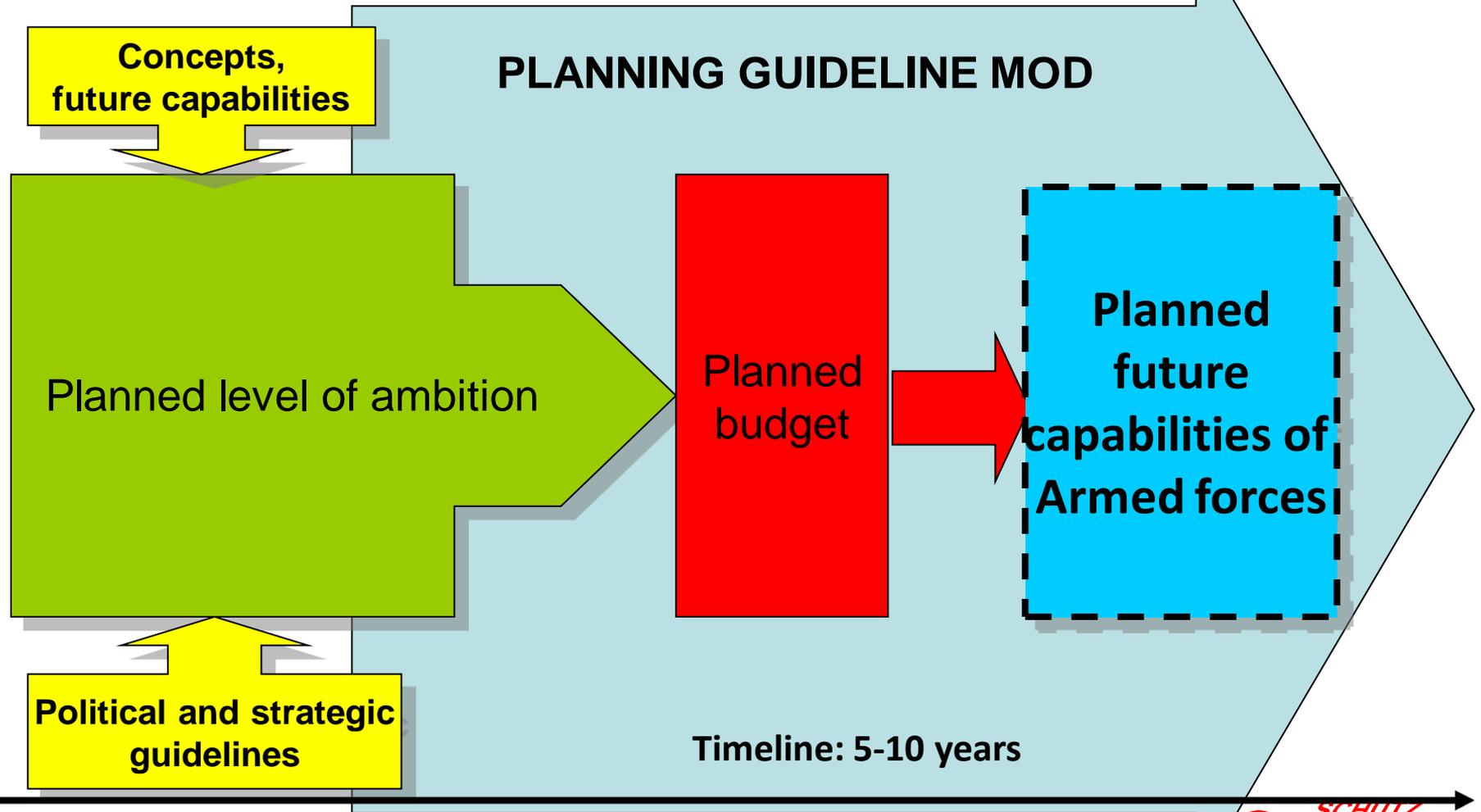
National Security Strategy 2011

The NSS is the central framework for Austria's security policy:

- **Comprehensive National Defence**
- **Joint (holistic) National Defence**
- **Proactive National Defence**
- **Solidary National Defence**
 - *Austria will participate in the EU's Common Security and Defence Policy in all its dimensions*
- **constitutional basis: neutrality**
- **definition of the tasks for the AAF**



National ambitions and budgetary restrictions



Force development capability development 2004 – 20XX

permanent adaptation and implementation

Capabilities

Future system

- Enhanced capabilities for stability & reconstruction ops
 - Rapid deployable units
- New C2-structure
 - Joint Forces Command / Joint Forces Support Command
 - brigades

- New C2-structure MOD, territorial commands, ...
- High readiness battalion for operations across the whole military spectrum
- Enhanced Air Surveillance and Aero Medevac capabilities
- New training / school organization

- Framework brigade ready for low intensity operations
 - One battalion ready for high Intensity operations
- Framework brigade ready for high intensity operations
- Enhanced ISTAR-Capabilities
- Enhanced network capabilities

2004

2007

2010

2012

20xx

Timeline



AUSTRIAN FEDERAL MINISTRY OF DEFENCE AND SPORTS
National Defence Academy

National ambition for international operations (Planning Guideline 2011-2016)

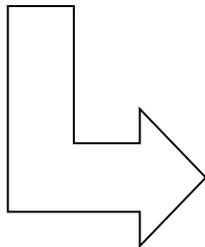


BDE-Level Lead Nation in stability and reconstruction ops (S&R) for up to 1 year

1 BN S&R indefinitely in 1 AOR

1 BN Peace Keeping indefinitely in 1 AOR

1 BN on short notice for a 6 month-operation across the whole spectrum of military operations



e.g. BG I/2011 (Coy) & II/2012 (log lead)

e.g. Infantry coy in GE ORF BN

National reserves



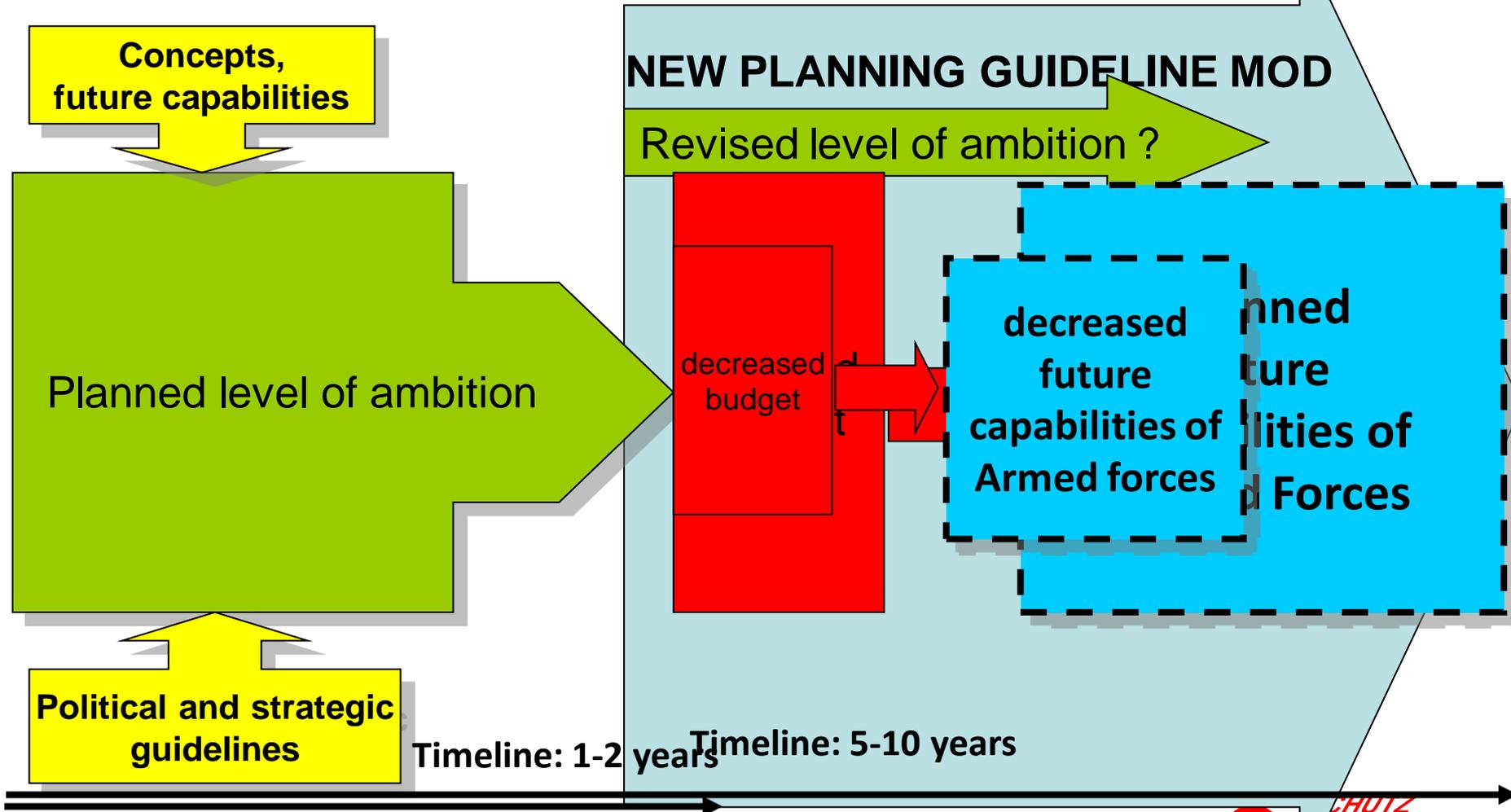
Budget reductions AAF 2007-2016

Budget 2007/2008	minus € 97 Million*
Budget 2009 – 2013	minus € 409 Million*
Budget 2011 – 2014	minus € 531 Million*
Budget 2012 – 2015	minus € 11 Million*
Budget 2012 – 2016	minus € 618 Million*
	Total: minus € 1.666 Billion

* Compared to the framework budget figures decided upon one year before



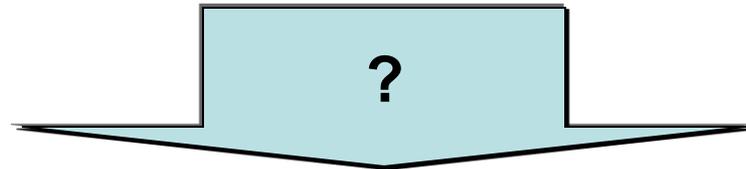
National ambitions and budgetary restrictions





Challenges for the AAF

Austrian security-political priorities have changed from reactive defence to proactive multinational stabilization as well as homeland security and support tasks. This functional priority placed on external and internal tasks requires an overstretched concentration of resources and therefore clear priorities due to the low level of defence expenditures.



Capabilities AAF



Conclusions I

- **HOLD > OPERATIVE PAUSE**
- **Consolidation of current capabilities > *loss of time to readjust***

Force development capability development 2004 – 20XX

permanent adaptation and implementation

Capabilities

2010-20xx: Consolidation of current capabilities

- Enhanced capabilities for stability & reconstruction ops
 - Rapid deployable units
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- New C2-structure MOD, territorial commands, ...
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Future system?
Specification?

Timeline

2004

2007

2010

2012

20xx



Conclusions I

- **HOLD > OPERATIVE PAUSE**
- **Consolidation of current capabilities > loss of time to readjust**
- **Identification and implementation of savings in operational costs**
 - Personell > **downfall on capabilities**



Personell figures

AAF 2010 (Armed Forces Plan 2008-2013)

26.000

2012 (status quo)

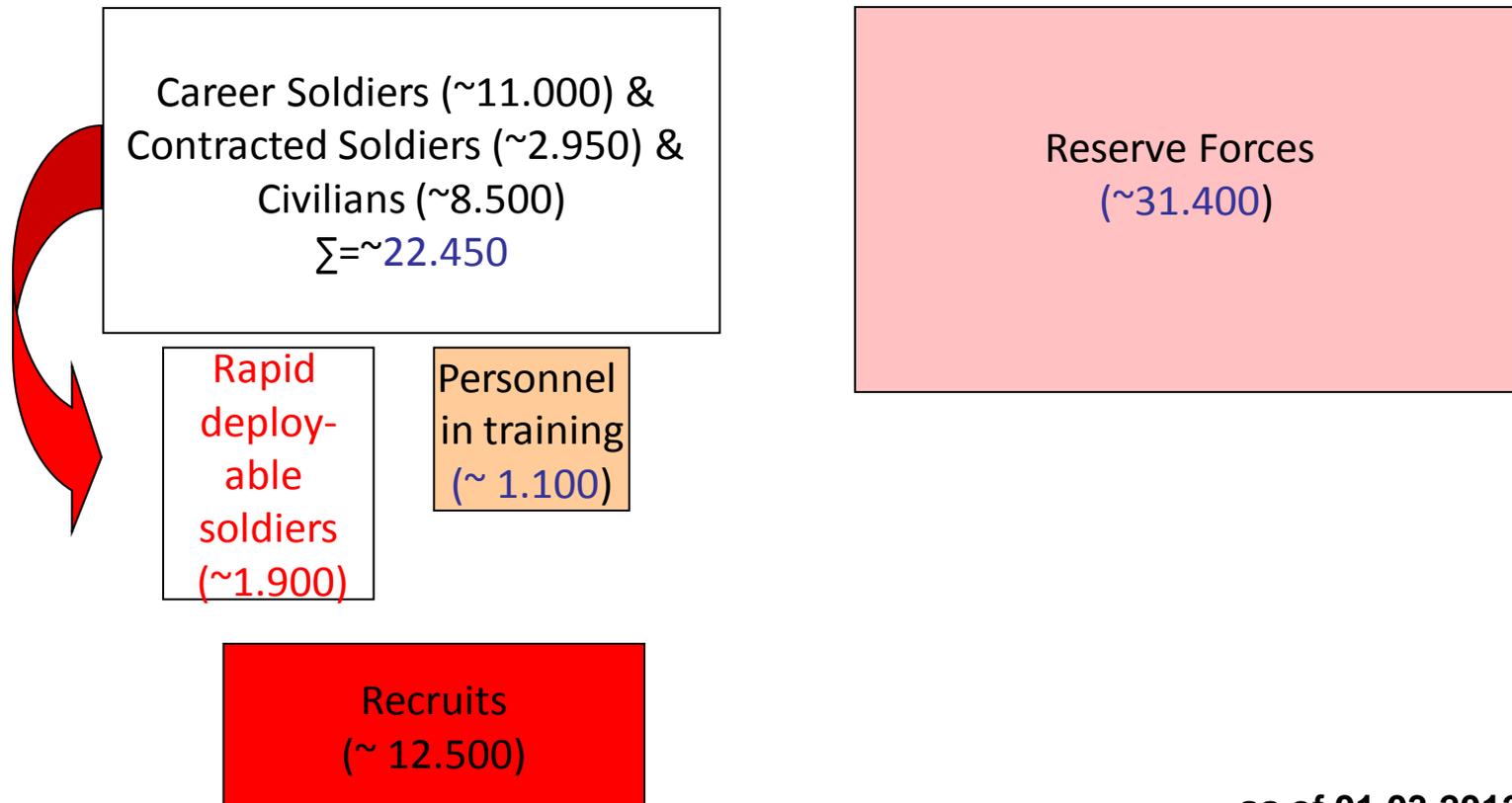
22.450

AAF 20XX

19.000?



Current force structure AAF 2012: ~55.000



as of 01.03.2012



Conclusions I

- **HOLD > OPERATIVE PAUSE**
- **Consolidation of current capabilities > Loss of time to readjust**
- **Identification and implementation of savings in operational costs**
 - Personell > **downfall on capabilities**
 - Disposal of substantial number of equipment > AAF 50% of the armoured vehicle fleet > **downfall on capabilities**
- **Capability development in certain fields stopped > AAF to lead a multinational framework brigade across the whole spectrum of military operations stopped**



Conclusions II

- **Focus on the development of specialised high demand capabilities:**
 - **for example AAF:**
 - **Specialised infantry,**
 - **SOF,**
 - **Engineer,**
 - **Medical support (Role 1, Role 2),**
 - **Ground transportation,**
 - **Search & Rescue,**
 - **NBC defence and Rotary Wing Air Transport**



Conclusions III

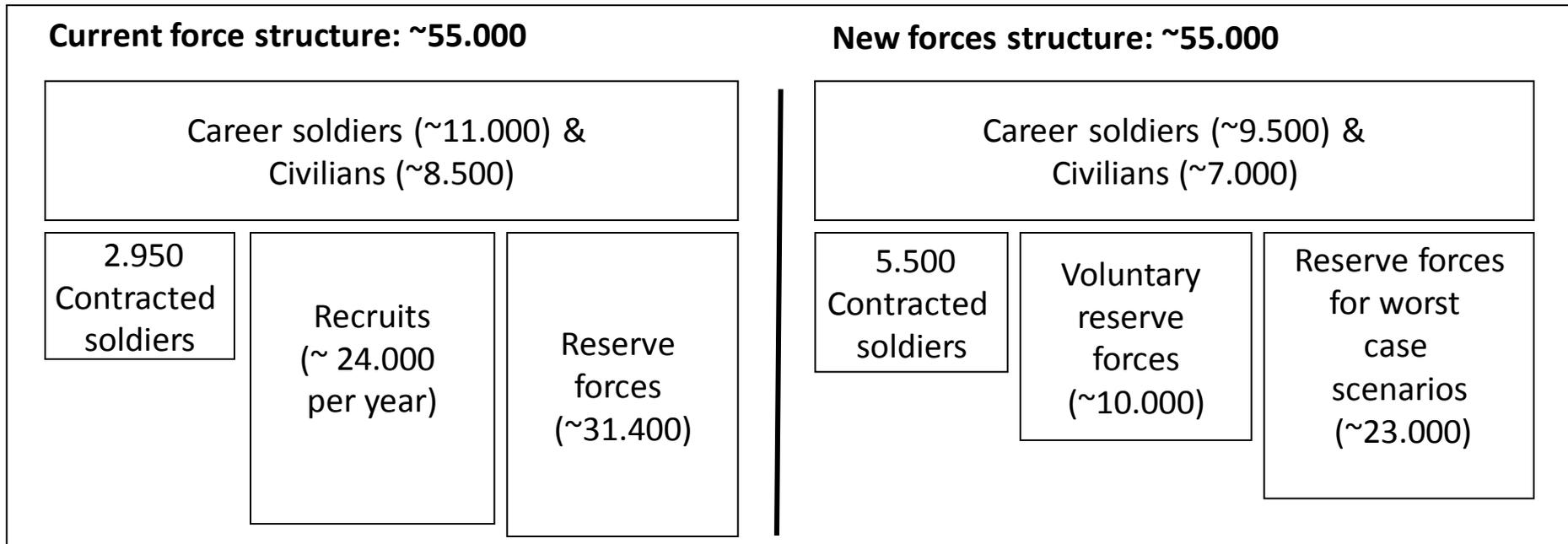
- Estimation process on possible future areas of **Pooling & Sharing and Regional Cooperation** necessary
- New scenario and capability based planning process to transform armed forces based on new budget in conjunction with the NSS > **What is the level of ambition?**
- Changes in quality/quantity & timelines of force development of Armed forces > **5-10 years > too long?**

New Planning Guideline 2013-20xx to be written



Way ahead AAF

- The Minister of Defence & Sports tasked the General Staff in November 2010 to work out different types of the Austrian Armed Forces with and without conscription. These armed forces are to be able to fulfil the same tasks as today's forces.
- The Minister of Defence & Sports prefers the following type:





Way ahead AAF

- 5th September 2011: The Minister of Defence & Sports tasked the General Staff to establish 3 prototype projects to gain further experience for a possible change to an all volunteer force.

- The aim is to:
 - to make reserve units more attractive
 - to reduce conscripts in administrative/supporting functions
 - to create a prototype all volunteer unit



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Military reforms in the light of the security environment changes and defence budget restrictions

Force Development

under the current Austrian budgetary restrictions

Thank you for your attention!

I am looking forward to taking your questions!

Lieutenant Colonel Mag. Mag. Thomas Fronck
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AUSTRIAN ARMED FORCES
JOINT FORCES COMMAND

Military Capabilities in COIN operations on the tactical level

„Interoperability Conference 2012“,
29th March 2012



AUSTRIAN ARMED FORCES
JOINT FORCES COMMAND

Personal Background

- Maj (GS) Markus WACHTEL
- Dep J5/JFC

- Several papers during CGSC
 - Operational Aspects of COIN
 - Capabilities in COIN



AUSTRIAN ARMED FORCES
JOINT FORCES COMMAND

Austrian situation concerning COIN

- AUT is currently not involved in COIN-ops
- PSO focused → robust military operations
- Theoretical approach vs. Experience

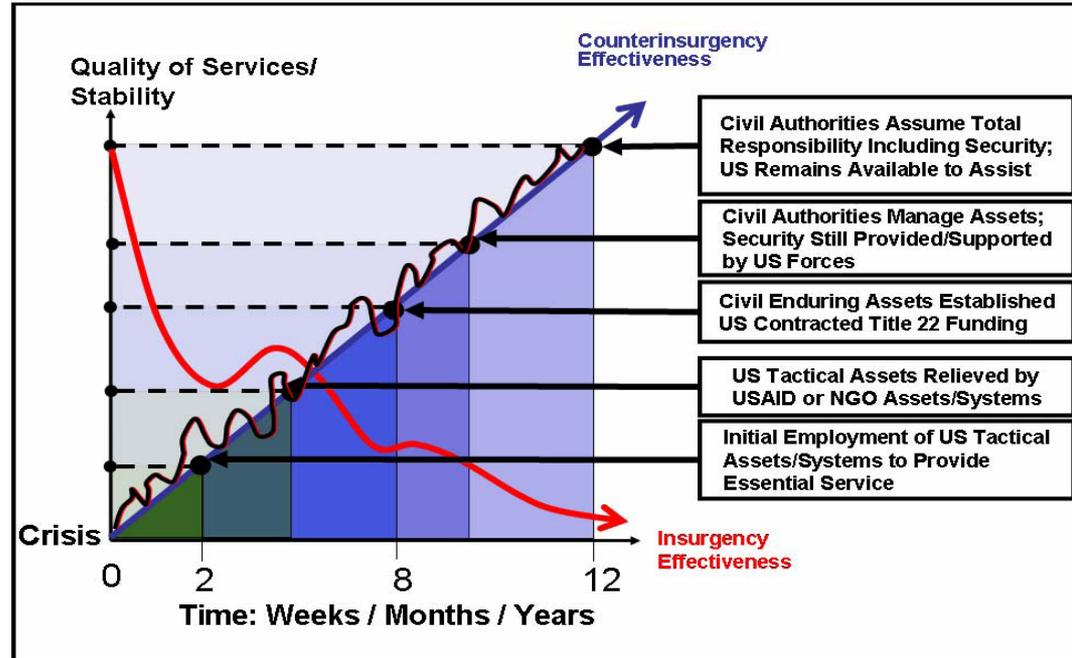
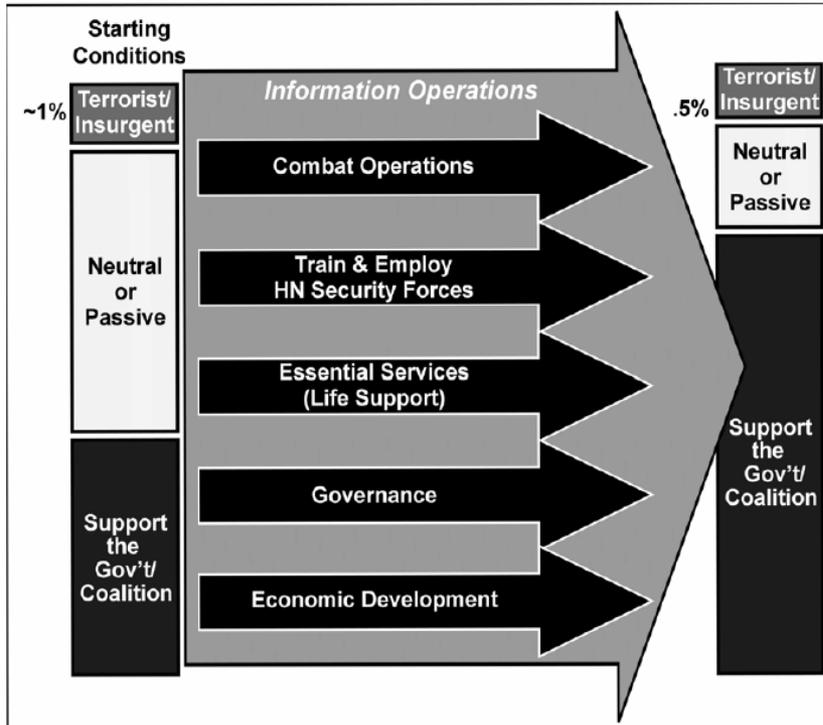


Military Capabilities in COIN

- Very few military capabilities are exclusively relevant only in COIN-ops
- Technical aspects of capabilities are applicable to different scenarios
- COIN is foremost a thing of doctrine/mind set
 - Employ fitting capabilities in the current situation
 - Long term learning/development



Aim of military operations in COIN





AUT doctrine concerning COIN

- Types of insurgents
 - Fundamentalists (Religious motivation)
 - Separatists (Ethnical motivation)
 - Rebels (Political motivation)
- Accounted for in own field manuals
 - General description of COIN
 - Focused on military tasks (attack, defend,...)
 - MDMP suitable for all missions
 - Complex situations hard to simulate during training
- Definition of insurgency/COIN only in national context



Combat operations

- Protection
 - Air assets
 - C-IED project
- Command
 - C²I system PHÖNIX
 - International cooperation (higher tactical/operational level)
 - National training (lower tactical level)
- Inform
 - Air RECCE
- Engage
 - IVECO
 - Fire control system



AUSTRIAN ARMED FORCES
JOINT FORCES COMMAND

Essential services (Life Support), Governance, Economic development

- Experience from missions in AUT and abroad
- Capabilities available
 - Water purification
 - General support engineers
 - Experts
- Challenge
 - Employ capabilities under new conditions (threat level)



Conclusions

- Capabilities in general available
 - Especially for non combat aspects
- COIN not primary focus for forces development
- COIN aspects included in capability development
- Bismarck:
“I choose to learn from the experience of others.”

MILITARY REFORMS

IN THE LIGHT OF THE SECURITY CHANGES AND
DEFENCE BUDGETS RESTRICTIONS

COL (Ret.) Pavel ZUNA, Ph.D.

Interoperability Conference, Liptovský Mikuláš 2012

OUTLINE

1. Introduction
2. Security Environment Impression
3. Security Budgets

1. Introduction



1. Introduction

INTERETS

- Existence of the CZE
- Democracy & Rule of Law
- Human Rights and Freedoms

National Security Objectives

CONDITIONS

- Critical Infrastructure
- National Institutions Function
- Political & Economic Stability

Changes in the
Security
Environment

Military Reform

Budgetary
Restrictions

- NATO Collective Defense
- NA5CRO
- EU Crisis Management
- Support to Civil Authorities

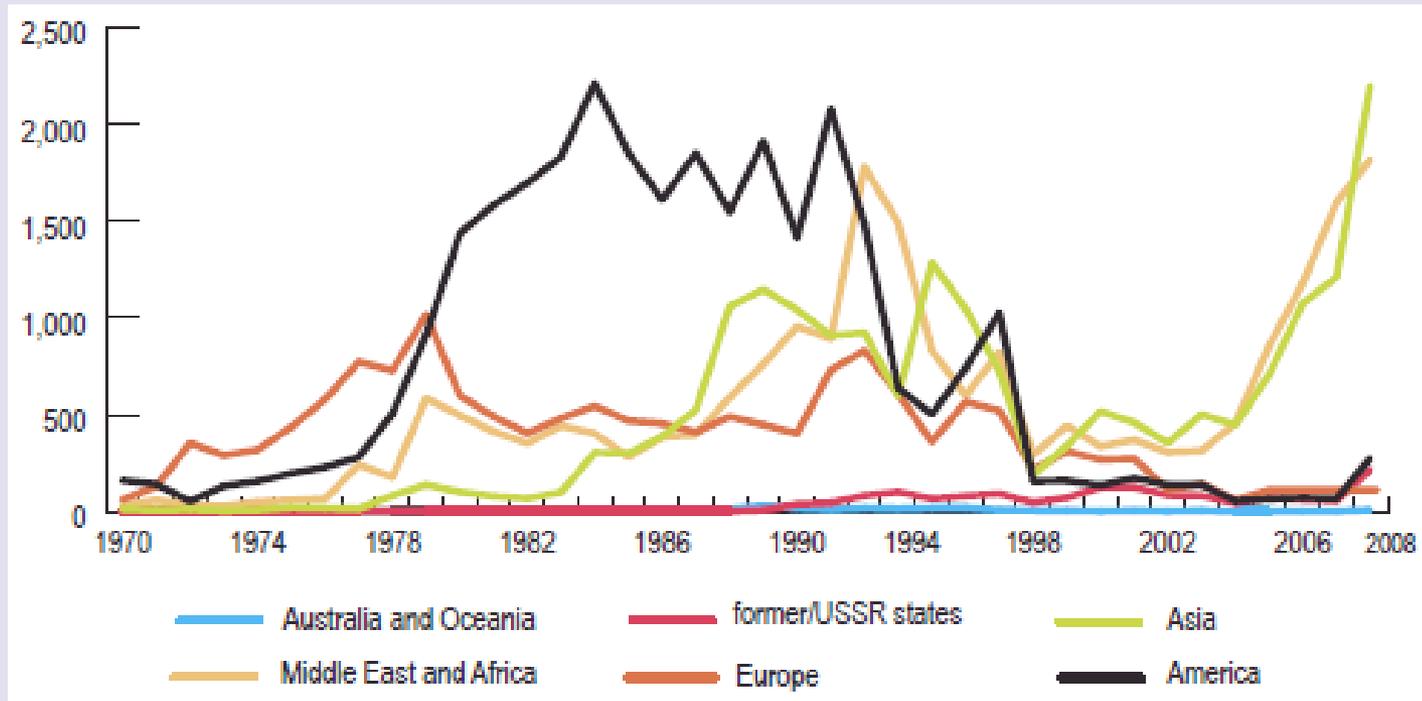
1. Security Environment Impression

Security Environment Assumptions

- Threats and sources; internal and external security of nation
- Defense and Security – military & non-military tools
- Unconventional threats prevailing
- Impact of Euro-Atlantic Outside Security

1. Security Environment Impression

Security Incidents by World Regions
1970–2008



Source: The University of Maryland (www.start.umd.edu)

1. Security Environment Impression

Security Environment Threats Sources

- Political Radicalism
- Terrorism tied with the nationalism
- Ideological or Religious Fundamentalism
- Proliferation of WMD
- Missuse of non-military Technologies
- Cybernetic assaults
- Regional Conflicts
- Organized Crime

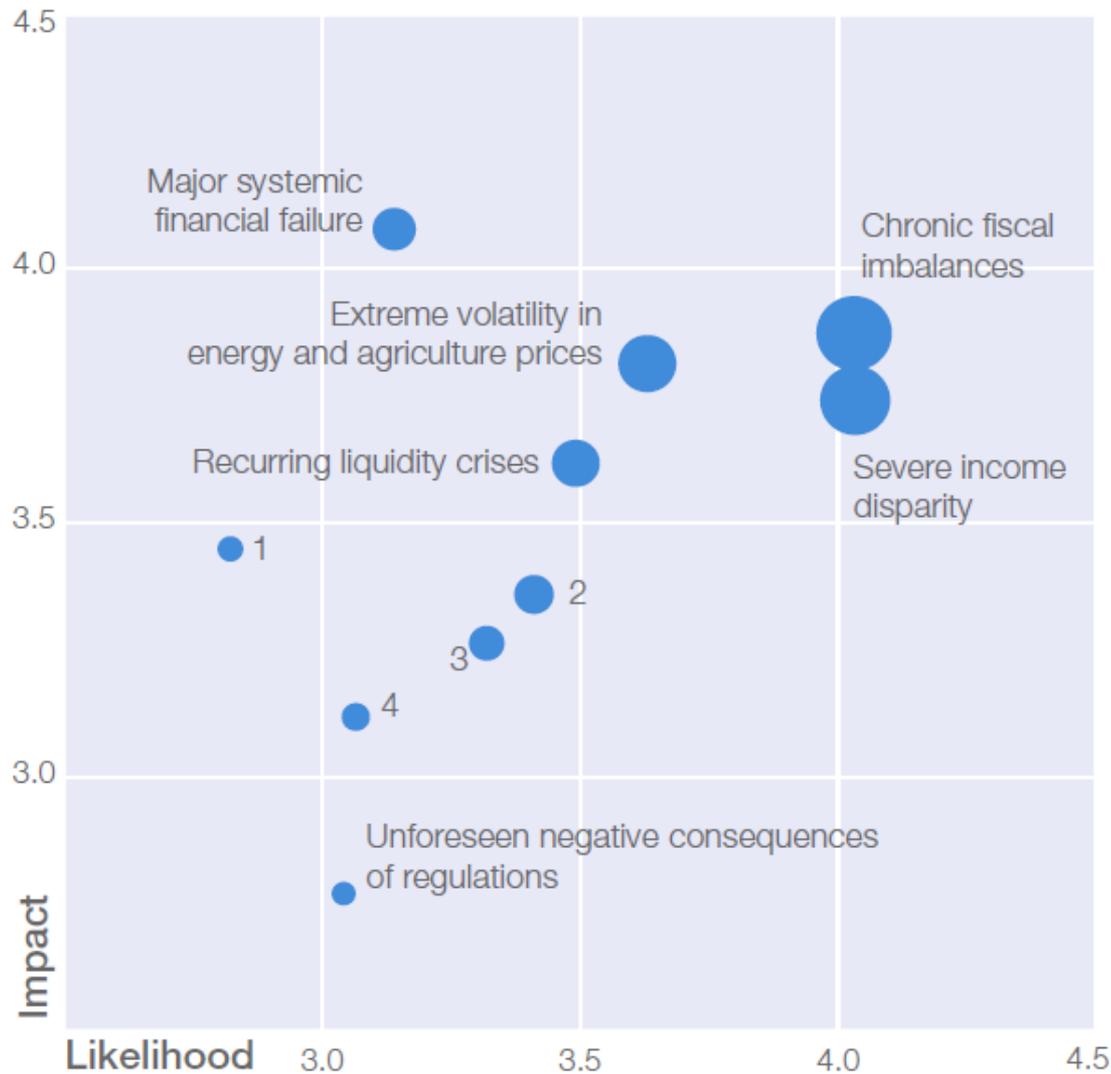
1. Security Environment Impression

Security Environment Threats Conditions

- Economic Interconnectedness and Interdependencies
- Population explosion & Failing States & Public Order
- Availability of Natural Resources
- Proliferation of WMD
- Non State Actors Strive for Power
- Budgetary, Economic and Financial Crisis Social Impacts

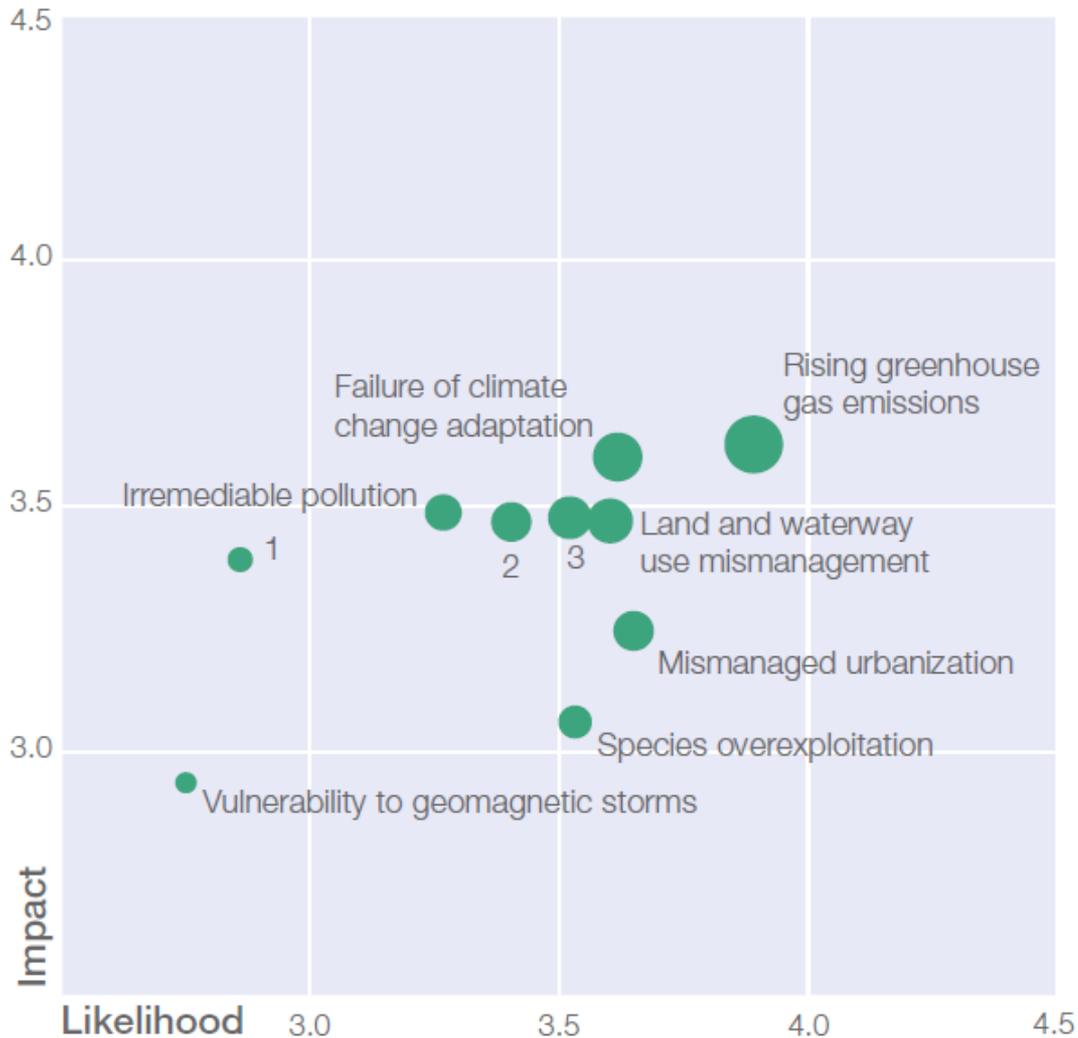
1. Security Environment Impression

Economic Risks



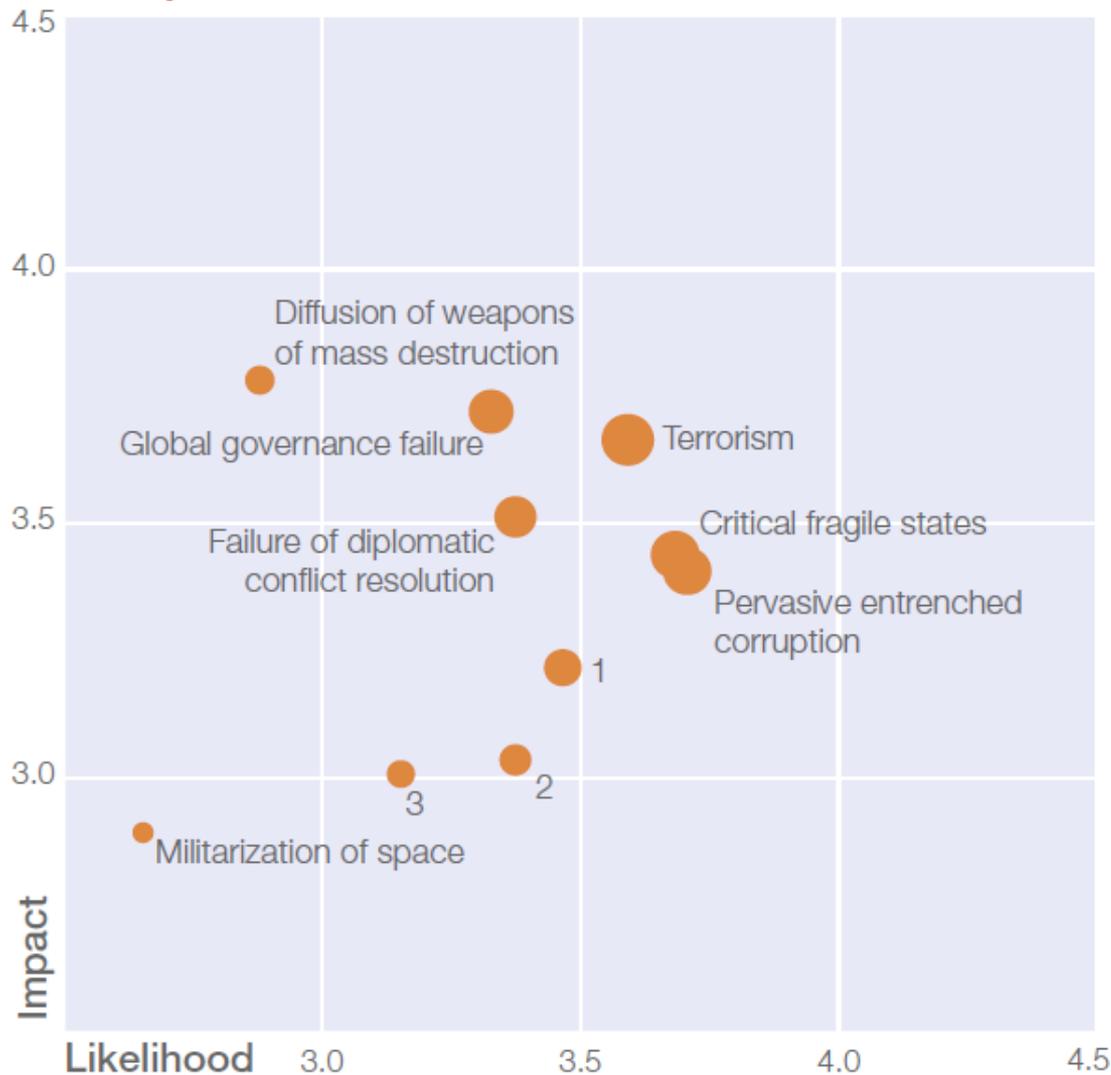
1. Security Environment Impression

Environmental Risks



1. Security Environment Impression

Geopolitical Risks



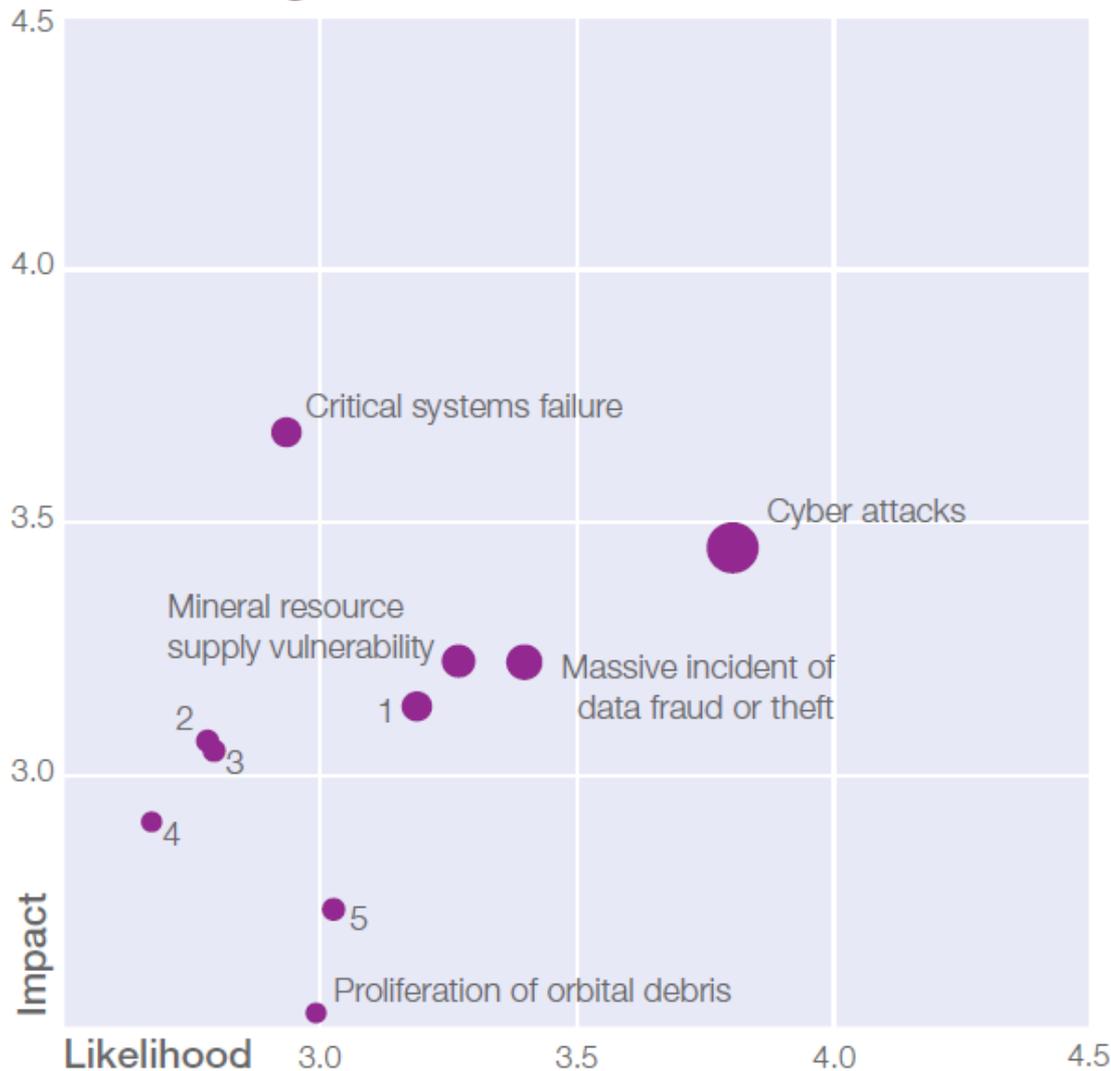
1. Security Environment Impression

Societal Risks



1. Security Environment Impression

Technological Risks



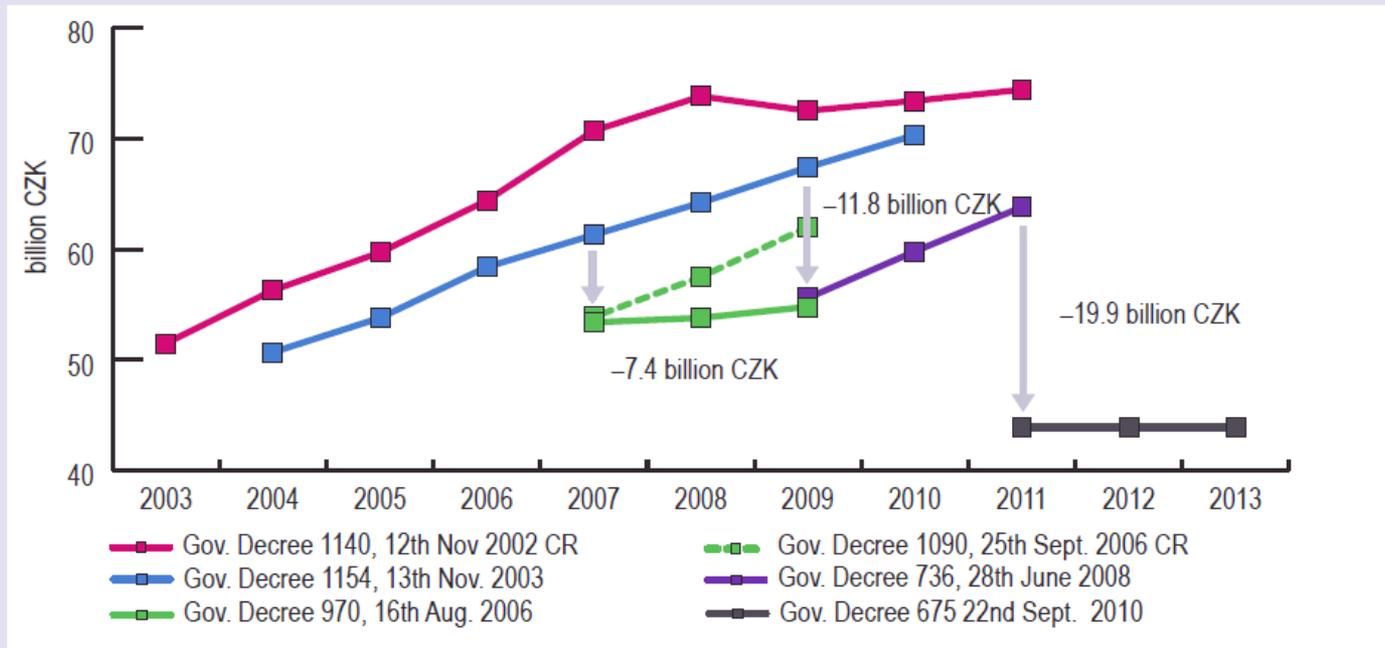


Future employment of the CZE AF's

- Security and Stability
- Prevention & Solution of Conflicts
- UN's Global Stabilisation Role
- OSCE's Prevention of Armed Conflicts
- Control of Conventional Armament in Europe
- Availability of Strategic Raw Material Resources
- NATO/EU Cooperation with Partner Nations
- Upholding of Democracy, Freedoms and Rule of Law
- Suppression of Political Extremism, mainly manifested as Terrorism

2. Security Budgets

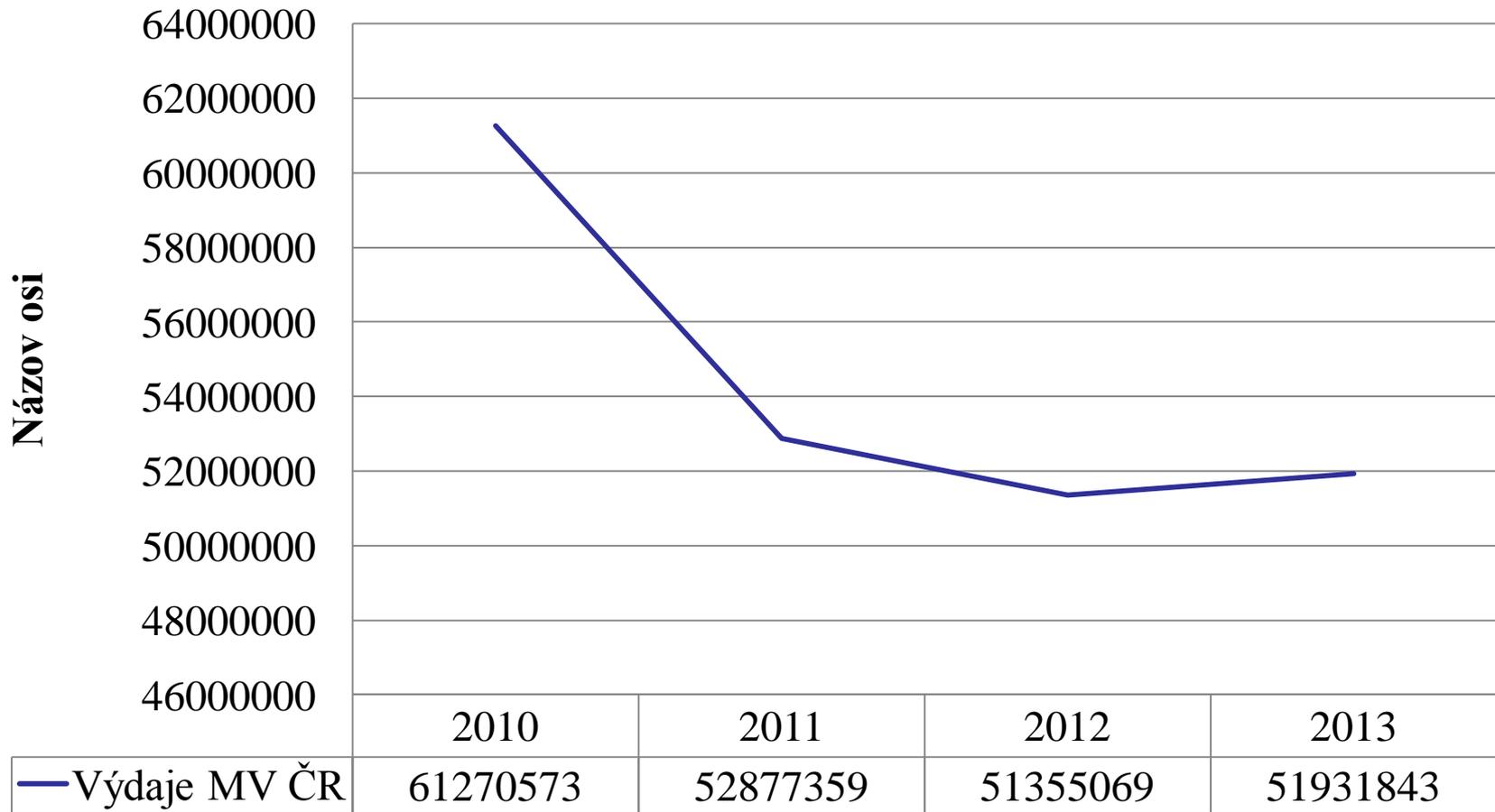
Financial Framework Development during the Reform of the Czech Armed Forces, FY 2003–2013



The instability of the budgetary framework is the main problem for planning. The Concept of Building the Professional Czech Armed Forces from 2002 calculated with allocating 2% of GDP for the MoD Budget till 2010, but this has never happened. As early as 2003, this concept had to be readjusted to the changed resource framework. This framework has been diminishing further, despite the fact that in 2006 the Government pledged to strive for its augmentation.

2. Security Budgets

Výdaje MV ČR

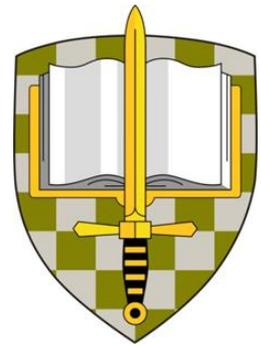


V tis. Kč

DISCUSSION

Is the Decline of the Security Budgets relevant to the Current Global Risks and the Role of the Security Tools to cope with them?

Are the Military Reforms relevant to the Expected Role of the Security Tools?



A model approach to the decision-making process

**„Interoperability Conference 2012“
„Building the capabilities of armed forces to conduct
irregular warfare“**

Ivana MOKRÁ

University of Defense

Faculty of economics and management

Department of military management and tactics

Content

- ▶ Decision (decision-making process)
- ▶ A history of decision-making process
- ▶ A tactical decision support
- ▶ A model approach
- ▶ Conclusion

- Military is one of those broad and important areas of social theory and practice, in which modelling & simulation in today's sense have been used for centuries.

Decision-making process

- ▶ One of the most important activities
- ▶ Can be understood as a core management
- ▶ Decision-making is always a choice between minimally two options



Military factors:

- Time
- Asset
- Unfamiliar environment
- Factor of possible loss of life
- Factor of possible loss of technology



A history of tactical modelling

- ▶ Relatively long-term development since antique
- ▶ Theoretically-technological wall
- ▶ Oldest combat game – the chess
- ▶ Operational research
- ▶ Computer technology
- ▶ Simulator with virtual Reality
- ▶ DEEP BLUE



KASPAROV vs DEEP BLUE
the rematch

Garry Kasparov
The best player in the world shows no signs of slowing down

Deep Blue
This 1.4 ton 8-year-old sure plays a mean game of chess

The team behind the technology
A busy year for the developers of Deep Blue

Game 1: 5/3/97:	Kasparov wins
Game 2: 5/4/97:	Deep Blue wins
Game 3: 5/6/97:	Draw
Game 4: 5/7/97:	Draw
Game 5: 5/10/97:	Draw
Game 6: 5/11/97:	Deep Blue wins

A tactical decision support » systems C4I and its Czech version

- ▶ Control software for modular combat system of soldier of the 21st. century.
- ▶ No longer new & developed or introduced in all the developed armies of the world.
- ▶ Attention focused on the lowest tactical level

System performance:

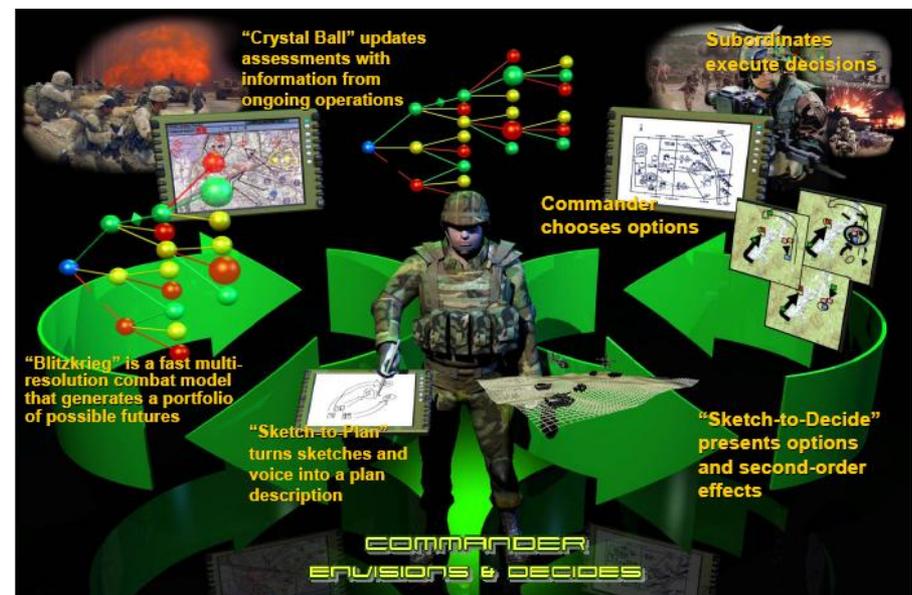
Tactical overview of common situation
Digital topographical support
Digital voice communication
Real time tactical video transmission
Elementary decision support analyses



A model approach

» The DEEP GREEN Concept

- ▶ This concept is an innovative approach to using simulation to support ongoing military operations while they are being conducted.
- ▶ The basic approach is to maintain a state space graph of possible future states.
- ▶ Develop technologies to help the commander:



A model approach

» Model of decision-making process

- ▶ Solution and construction of models is motivated by intentions to limit the intuitive decision-making
 - ▶ Multi-criteria decision-making process
 - ▶ Geo-tactical analyses
 - ▶ Tactical, geographic, technical conditions
- 

Conclusion

- ▶ Relatively long-term development since antique
 - ▶ Theoretically-technological limitations
 - ▶ Model access cannot be confused with using C4ISR/V21 systems or current simulators
 - ▶ The approach is still in the beginning
- 