Use of Commercial IT in CDE/ATD for Network Enabled Capabilities to Support Security Sector Transformation

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Main topics

1. **Future operations and need for forces with network enabled capabilities.**
2. **Contribution from LF, AF, Navy, Civil Protection, Gendarme and others to combined, joint, interagency operational/expeditionary forces.**
3. **C4 architecture for network enabled expeditionary operations.**
4. **ATD of modules developed in Bulgarian Academy of Sciences.**
5. **Information fusion models and software to support situational awareness.**
6. **Implementation of CDE/ATD in preparation of the Bulgarian contingents for expeditionary operations.**
7. **Development of CoE in CDE/ATD for C4ISR Systems of Joint, Interagency Network Enabled Forces.**

Operations

1. **Expeditionary operations;**
2. Sovereignty operations;
3. Territorial defense operations;
4. **Public order operations;**
5. **Emergency management and disaster relief operations;**
6. ***Information operations;***
7. Integrated support operations for the Security Sector.

Capabilities

- Rapid and long distance deployability – 3-4 airplanes and helicopters for local mobility;
- High level of readiness, full professionalization, NATO/EU interoperability and best mix of capabilities from different agencies (countries from the region) as well as well defined spcialization in the framework of NATO/EU;
- Precise engagement – modern weapon systems;
- Focused logistics and effective sustain – from airlift to storage / packaging and effective outsourcing to local business;
- Full spectrum protection – modern individual and group protection systems, including NBC;
- C4ISR for network enabled capabilities – integrated communication and information systems, sensors, information fusion capabilities for situational awareness and decision making support, IFF systems;
- CIMIC capabilities to provide effective cooperation with civilian institutions, local government and fast transition from military operation to institution building and good governance.

C4 architecture

- Sensor management module
- Information fusion module
- Universal C2 module
- Universal communication module
- Engagement control module
- Backbone connectivity module
- Direct reach-back module

Main control centers

- National Joint Operations Center (NJOC)
- Agency Situation Center (ASC)
- Multinational Joint Operations Center (MJOC)
- Contingent Joint Operations Center (CJOC)
- Team C2 Center (TC3)

ATD of modules developed in Bulgarian Academy of Sciences

1. CONTROL CENTER WIRELESS MODULE – CCWM
2. UNIVERSAL COMMUNICATION WIRELESS MODULES – UCWM
3. ACCESS POINT WIRELESS MODULE – APWM
4. BACKBONE CONNECTION WIRELESS MODULE – BCWM
5. VIDEO WIRELESS MODULE – VWM
6. MOVING OBJECTS CONTROL MODULE - MOCM
7. MSSR/IFF ENABLED OPERATION CENTER MODULE – REOCM
8. SATCOM REACHBACK MODULE – SCRM

Picture

Information fusion models and software to support situational awareness

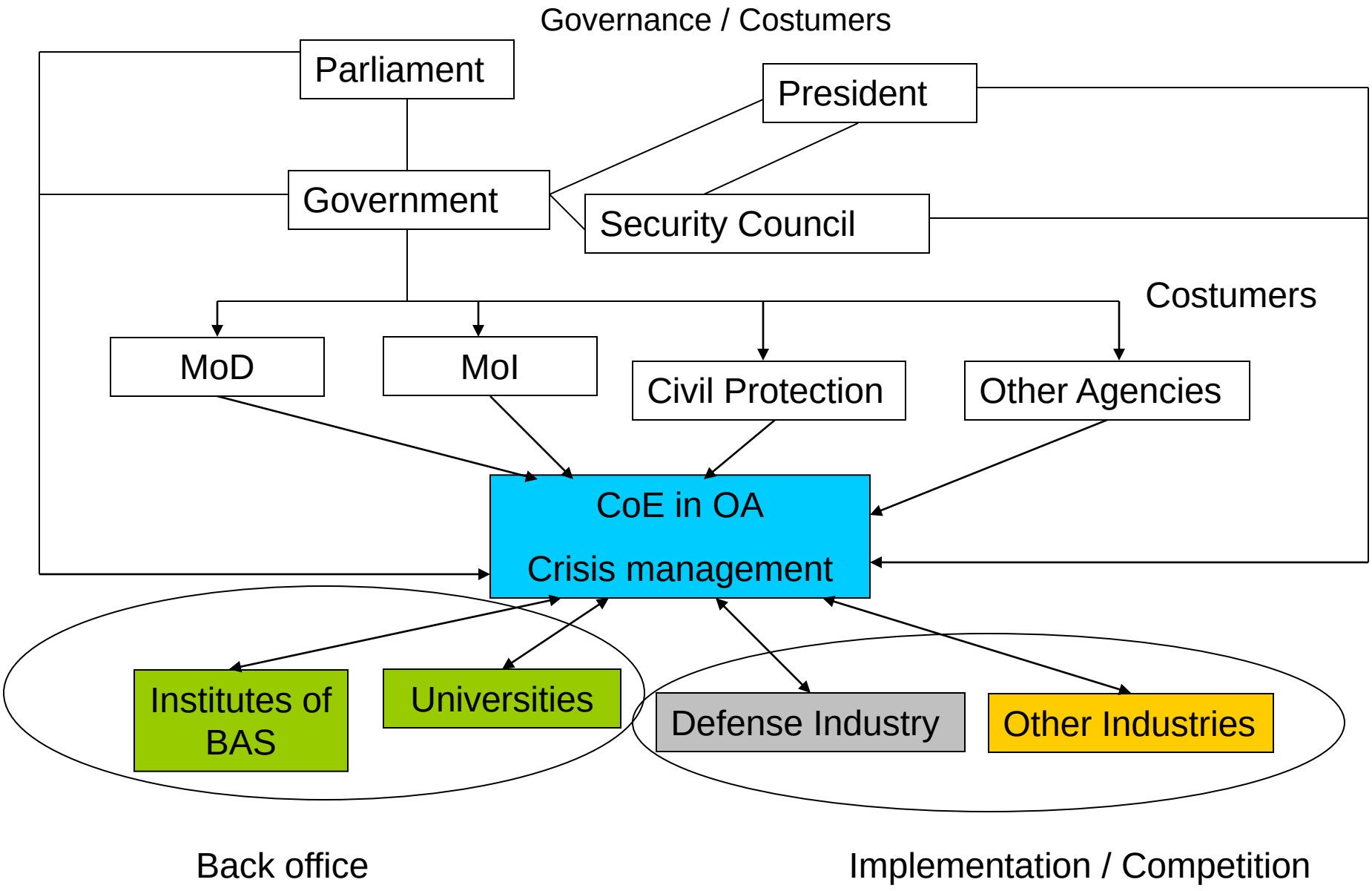
- **Simulation program system: “Multitarget-Multisensor (MTMS) tracking”**
  - *Module “Targets - Sensors - Clutter”*
  - *Module “MTMS tracking”*
  - *Module “Experimental Data Statistical Processing”.*
- **Program package: “State estimation and single maneuvering radar target tracking simulation”**
- **Implementation in “Kaliakra” Radar System**

Picture

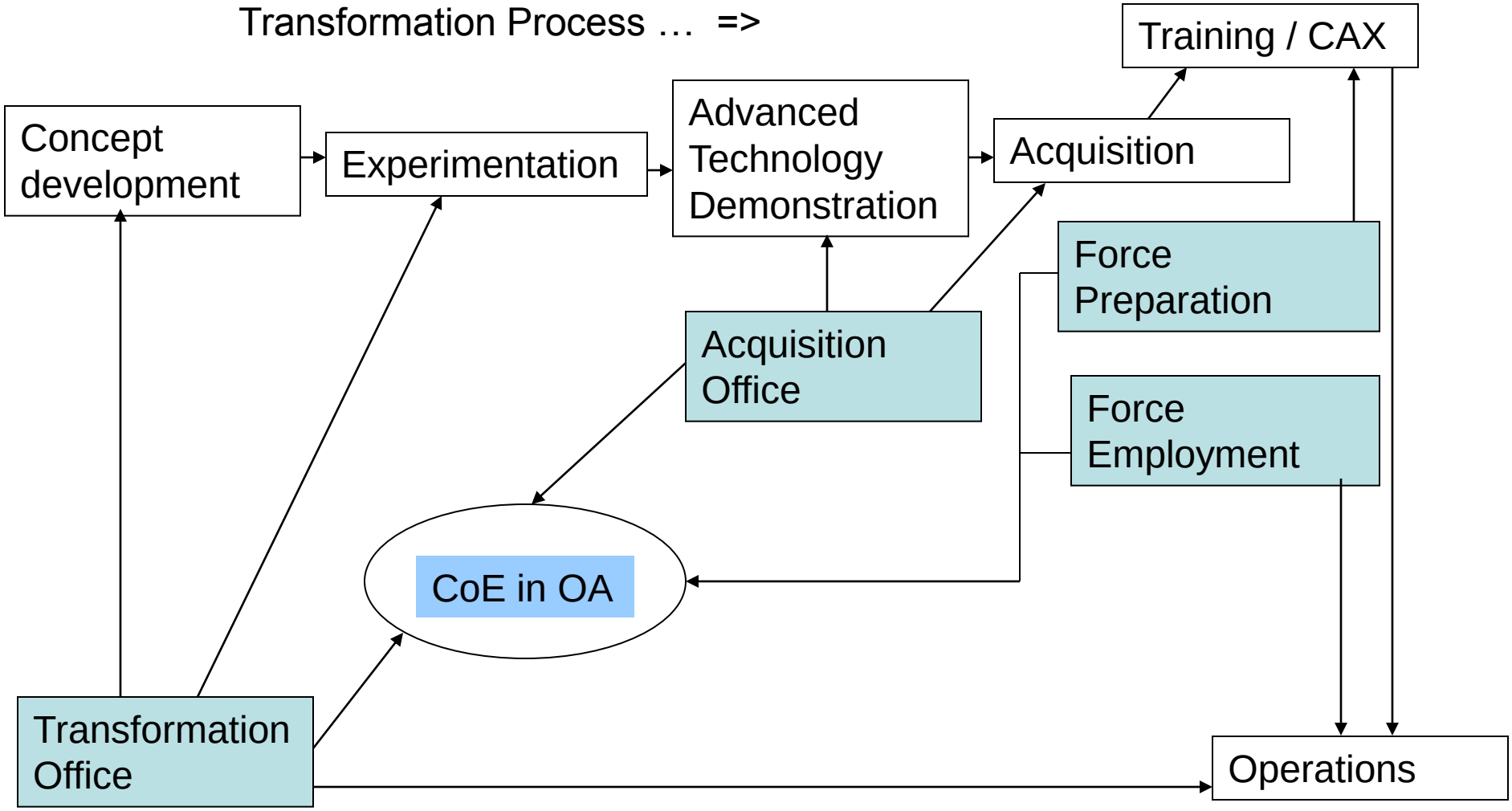
Implementation of CDE/ATD through CoE in OA/EAG

1. CDE
   - Concept development and experimentation through modeling and simulation / CAX on crisis management / change management scenarios
   - C4 Architecture Development and EAG for security sector
   - Force / capabilities planning
   - Acquisition planning / logistics planning
2. ATD in C4 area
   - C2 modules for Civil Protection Emergency Operations Center, Land Forces Field / Mobile Command Post, Air Operations Center (AOC) for AF and Naval Operations Center (NOC) for Navy with connectivity to sensors and active engagement systems)
   - MSSR / IFF modules mostly to support AOC or SAM complex OC, but to be added to expeditionary forces CP;
   - Infrastructure solutions for backbone connectivity from the area of operations as well as direct reach back over SatCom – in this case the module could be supported by proxy server to provide interoperability of systems with different representation of information.

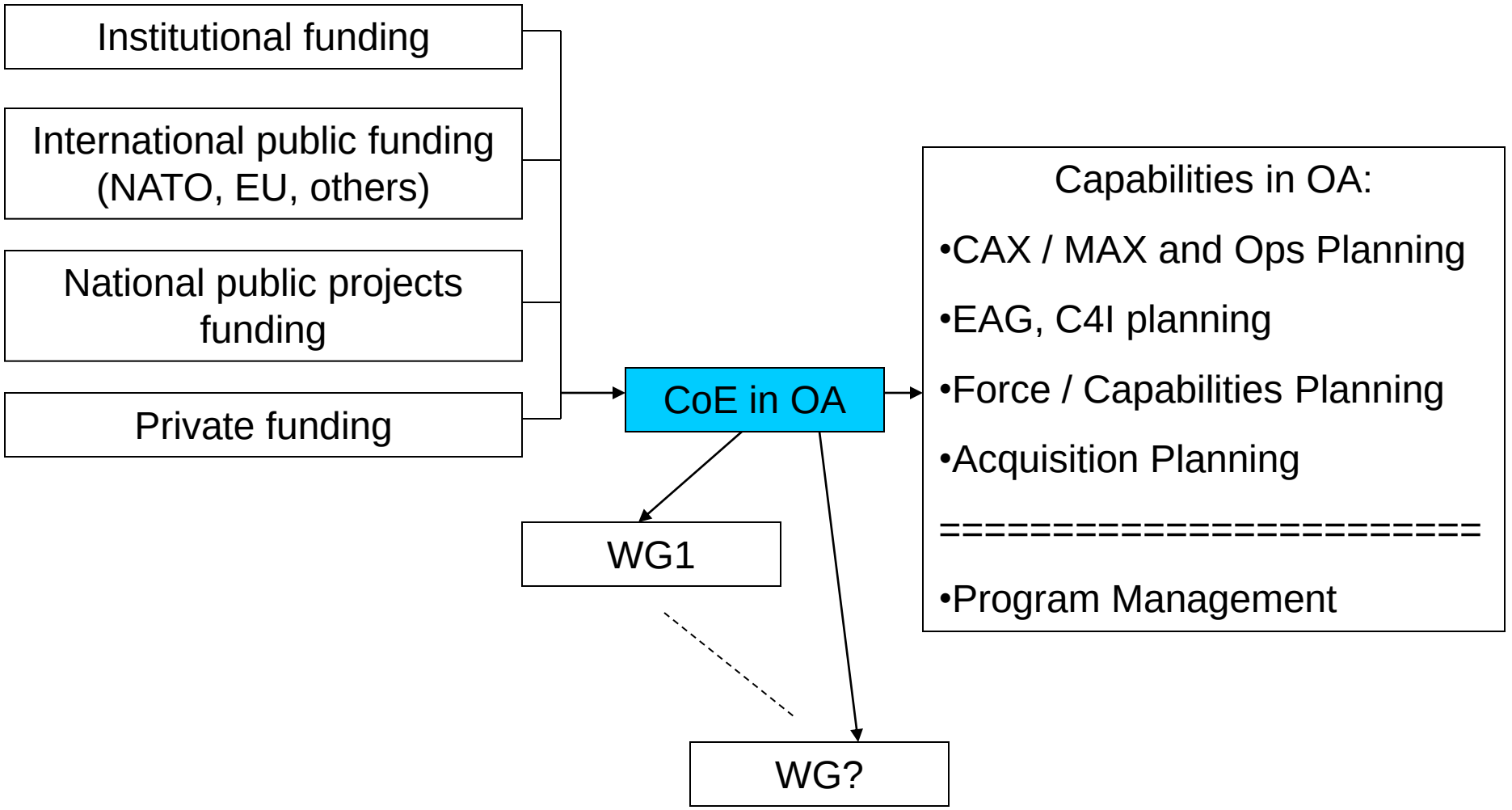
Where is the CoE situated among other organizations?



Where is the CoE situated along the CDE/ATD process in support of transformation?



How does CoE operate?



Conclusions

1. Need for new concepts for future operations
2. Academic support for modeling and simulation as part of experimentation
3. ATD to identify COTS solutions for concept implementation
4. PPP for experimentation, demonstration and implementation of spiral life cycle of new capabilities – especially in C4ISR area
5. Bottom – up approach through CoE in OA/EAG in BAS (in cooperation with DSC/AMoI and CP)
6. Key role of multi-source / multi-users project management
7. Coalition / regional context for improved interoperability and use of COTS solutions