

# DRDC-RDDC-2016-R210-Annex-C

Observation (what, who, when, why, where)	Observation type	Exp run	Theme	Team	Own comments and Interpretation
<b>Work process</b>					
OPG1 Leader briefs staff members about how to work to produce CDR op advice	Player action	Run 1	General	OPG_I	
OPG1 Leader briefs Eric on the working method: group will split to Spangl and AOO specific work groups	Player action	Run 1	General	OPG_I	
Identified 20 impacts, will continue in 2 working groups to identify operational impacts Briefing the audience (analyst, observers etc.) on ongoing staff activities. Explaining the factor analysis and how it will support the risk evaluation.	Player action	Run 1	General	OPG_I	Explanation of the factor analysis.
	Player action	Run 1	Uncertain	OPG_I	Ongoing risk evaluation work according to the COPD.
OPG 1 members working by them selves, or in pairs discussing elements of the risk evaluation	Other	Run 1	Uncertain	OPG_I	No use of the CICOA products in developing the planning product.
incl. Factor analysis&Conclusions&Key factors&Risk Analysis&Operational Limitations&National Input&Conclusions					Factor analysis with a cyber focus. Identified 5-7 factors for Spangle and for the AOO. Conclusion about cyber issues for Spangle and AOO. Good effort about finding cyber risks and issues both for home nation and in the AOO.
Briefing and construction of the OPG 1 planning product	Other	Run 1	Issue	OPG_I	
Briefing of the final OPG1 product for trial 1.	Player action	Run 1	Uncertain	OPG_I	
At the beginning of Run 1, the Lead task organized the group by J-Code/Function – J2 for Intel/Op Environment, J3 for Operations and deployment details, J6 for Comms/Cyber concerns, and J4 for Logistics issues. MN/ACT team should consider parsing out the Templates similarly (binning actions by function), to make it easier to assign various roles for completion, and then synchronizing as the solutions are developed and the templates are filled in.		Run 1		OPG_II	A majority of Cyber "heavy" tasks were given to the J6 representative. Legal issues were tasked to look at limitations, not legal possibilities or obligations.
Division of responsibilities. OPG leader, startup,	Your own opinion/interpr	Run 1	General	OPG_II	RSO M/I question raised.
Division of responsibilities. OPG leader, startup,	Player opinion/statement	Run 1	General	OPG_II	
OPG lead task organizes group by PEMISI, sets expectations for timelines and deliverables.					
Team assignments: JPG Lead, J2, J3, Info Ops, Logistics,	Player action	other	General	OPG_III	
OPG lead scopes problem. Intelligence rep gives example	Player action		General	OPG_III	
Group leader split up various sections of the vignette for each team members to analyze	Player action	Run 1	Utility/rele	OPG_III	
First member starting briefing situations (for area asked to analyze)	Player action	Run 1	Utility/rele	OPG_III	
Group leader provided heads up for summaries from team would start at 9:45 AM	Player action	Run 1	Utility/rele	OPG_III	
JPG Lead directs group to submit written summaries to J3.	Player action	Run 1	General	OPG_III	
JPG briefs functional area conclusions to group	Player action	Run 1		OPG_III	
JPG lead tasks group to identify friendly/enemy CoGs, assumptions, threats, vulnerabilities, mitigations and residual risks to homeland and deployed operational network.		Run 1		OPG_III	
JPG refined assumptions, developing RFIs.	Player Action	Run 1		OPG_III	
Threat assessment of Internet and possible impacts have to be assessed	Player action	Run 1	Issue	OPG_III	

Process and Final Products outlined including the necessity of threat assessment and assessment of opposing forces	Player action	Run 1	General	OPG_III
Group leader began summary of "final" product; utilized PowerPoint presentation and beamer	Player action	Run 1	Completen	OPG_III
Went around room -- each member briefed his area	Player action	Run 1	Completen	OPG_III
Continued working as a group on assumptions and RFI document (using beamer to create/edit document)	Player action	Run 1	Completen	OPG_III
Created list of and reviewed "key questions"	Player action	Run 1	Completen	OPG_III
Further step after the first input to the mission analysis that all assumption are to be outlined , Risks should lead to the assumptions	Player action	Run 1	Issue	OPG_III
Further process assumptions based on riks and mitigation and finally the recommenadtions	Player action	Run 1	Issue	OPG_III
Group leader summarized status, including PPT to date and assignments to each person	Player action	Run 1	General	OPG_III
Assessment of own force, civilian parties as well as opponents concerning cyber capabilities and a possible CoG outlined, Cyber key Terrain defined--> recommendations based on capabilities of opponent forces outlined --> own CoG defined critical vulnerabilities, requirements and capabilities outlined --> conclusions defined, recommendations for own forces and supporting forces and parties in the area cyber for own forces outlined	Player action	Run 1	General	OPG_III
Question raised by facilitator: Do we need specific Cyber SME in every J-branch or a SME pool	Other	Run 1	General	OPG_III
Question raised by facilitator : Could you use the given information for the assessment of capabilities in a effective way (risk assessment and prioritisation)	Other	Run 1	Improvemε	OPG_III
Unclear tasks - players did not know what to do	Player opinion/statement other		Improvemε	OPG_III
Lack of intelligence officer in the group	Player opinion/statement other		General	OPG_III
Players focus on an overall assessment from evaluating Cyber aspects	Your own opinion/interpr other		General	OPG_III

### Use of COPD, CICOA and other guidelines/sources of information

brainstorming/walking though the COPD in order to conctua a factor analysis as a part of an risk assessment.	Player action	Run 1	Uncertain	OPG_I	Problems identifying cyber key terrain without cyber sme present
OPG1 using COPD v2.0 pages 4-42 & 4-44 & 4-50 OP Level, Phase 3A - Analyse Mission	Player action	Run 1	General	OPG_I	
Group using COPD ascitvely to guide work process and outputs, no obs yet on CICOA use Factor analysis (page 4-42 to 4-45 in COPD).	Player action	Run 1	General	OPG_I	
Good work and analysis with only COPD - uploaded worksheets for potential adding to solution	Player action	Run 1	Uncertain	OPG_I	Discussing relevant factors.
Not all players familiar with COPD	Player opinion/statement other	Run 1	Improvemε	OPG_I	
	Player opinion/statement other		General	OPG_III	
OPG1 is missing the CICOA products. All works so far have been without access to CICOA guidelines.	Other	Run 1	Issue	OPG_I	Well, the little discussion they had about Cyber Key Terrain and the brainstorming about relevant factors should probably have benefit from the CICOA products. Baseline for OPG1 will be a baseline based on ordinary COPD and no extra cyber planning guidelines.
The CICOA products arrived...as both electronic and hard copies	Other	Run 1	Issue	OPG_I	Little bit late to introduce the CICOA products. Not sure what impact CICOA will have on trial 1 for group 1.

Group did not have CICOA	Player opinion/statement	Run 1	Issue	OPG_I	
Group Leader used Austrian mil. Op. Handbook "Campaigning" in directing group members	Player action	Run 1	General	OPG_I	
OPG begins research, referencing CV1 and country book	Player action	Run 1	General	OPG_III	
Question from the players: who give guideline (about cyber) for the FHQ ?	Player opinion/statement	Run 1	Practicabili	OPG_II	Provide Guideline ?
Question raised the facilitator: why did you choose that kind of solution development: time pressure, tools used in the COPG, templates are time consuming but effective, ...	Other	Run 1	Improvemε	OPG_III	

### Discussions on cyber, information and process

Discussion about C-SOC, J6-J3	Player opinion/statement	Run 1	Uncertain	OPG_II	Limitations to operate C-SOC capabilities
Discussion about riskmanagement versus deployment. Is secure communications preceeding speed?	Other	Run 1	Uncertain	OPG_II	Workgroup discussion about pros and cons. EXCON aswer to question. Depoy with national crypto. After TOA they will be provided mission crypto. Operational interoperability consequences and national caveats regarding depoying national crypto was not disucsse
HNS cyber capabilities	Player action	Run 1	Practicabili	OPG_II	Group had taken in consideration possibilities and risks when cooperating with HN. Action/decision not taken yet
Discussion about HFA cyber capabllity	Player action	Run 1	Practicabili	OPG_II	RFI regading HFA cyber capability was made. Identification about some cyber key terrain made.
Briefing on planning status: J2, J3	Player action	Run 1	General	OPG_II	Idetification of actors and possile mitigation actions within the Cyber and Information domain presented. Analysis done via System analysis process. Mitigation activities were mostly of surveillance type. Tasking issues also presented. Used document accordingly to COPD example. Content good, template COPD is very (too) generic. The group amended the template with cyber issues (they did not have the CICOA handbook or guideline in use at this point)
Discussion of scenario	Player opinion/statement	Run 1	Improvemε	OPG_II	The group thouthg that it is hard to define national and international division of responsibility regarding where information or processes cresses from national to inteternational responsibility.
What is cyber key terrain? -discussion and bewilderment, pondering what it is	Player action	Run 1	General	OPG_I	
Planners identifying and discussing issues with higher fidelity than necessary for building country staff estimate	Own opinion			OPG_III	
Assessment of SLOC and Energy --> Cyber awareness and capabilities needed to keep the SLOC open (Cyber SOC outlined)	Player action	Run 1	Issue	OPG_III	
Assessment of Economy and Communications --> Internet is pointed out as cyber key terrain (discussion about cyber key terrain is requested) there is the need of support of civilian access to internet for social stability and further support of government and industry Focus on ISP and entry points What are the conclusion of such a decision	Player action	Run 1	Issue	OPG_III	
Discussion about control of Internet in specific about control of information flow --> which capabilities are needed for such a campaign The solution could be the possibility to have cyber defensive capabilities to ensure that attackers on the internet cannot be successful	Player action	Run 1	Issue	OPG_III	

Offensive cyber operations are not an option, national approval is needed to have these capabilities and the legal framework	Player action	Run 1		OPG_III
What does cyber key terrain means --> definition provided by facilitator further discussion about C2 and about terminology (governmental critical infrastructure, ...)	Player action	Run 1	Issue	OPG_III
assumption: EUFOR has to provide specific assets and capabilities to protect critical infrastructure	Player action	Run 1	General	OPG_III
information sharing between EUFOR cyber teams and local CERT'S is needed within AOO	Player action	Run 1	Issue	OPG_III
Discussion about legal framework and general capabilities (Offensive cyber capabilities, AOO in cyber specif terms , possibility of actions and support provided from a home country via reach back,...)	Player action	Run 1	Issue	OPG_III
RFI about governmental communication infrastructure	Player action	Run 1	Issue	OPG_III
AU C2 attack, Hacker Threat --> Threat assessment and assumptions provided --> C2 infrastructure of AU is key infrastructure and must be hardened and EUFOR CIS assets have to be protected against the potential threats	Player action	Run 1	Issue	OPG_III
Discussion about vulnerabilities in case of interconnection to AU and as well to governmental infrastructure	Player action	Run 1	Issue	OPG_III
Assumption about cyber attacks concerning outage of critical infrastructure and the impact to economy --> capabilities needed to protect own forces and freedom of movement for forces (SLOC, ...)	Player action	Run 1	Issue	OPG_III
discussion about CoG: is there a CoG for Cyber --> There is only one CoG for each party, in specific the supporting capabilities and strengths are to be outlined A "friendly" CoG is that element—a characteristic, capability, or locality—that enables one's own or allied forces to accomplish their objectives. Conversely, an opponent's CoG is that element that prevents friendly forces from accomplishing their objectives.	Player action	Run 1	Issue	OPG_III
Discussion about classification of information (responsibilities in an international environment including information sharing of classified information in an multinational environment)	Player action	Run 1	Issue	OPG_III
Discussion about reliability of documents and information --> how can this be assured	Player action	Run 1	Issue	OPG_III
Discussion about terminology in specific in an international context e.g.: cyber awareness and cyber assurance, cyber attack, ... --> common understanding needed	Player action	Run 1	General	OPG_III
Discussion about the necessity of detailed planning on this stage of play	Player opinion/statement	Run 1	Practicabili	OPG_III
2 Big questions of the teams: How can we assure the same terminology, which legal framework do we use How can we be sure to act in the same time frame, to have the accurate Cyber picture and which responsibilities are with the nations	Player opinion/statement	Run 1	Improvemε	OPG_III

### Shortcomings with existing products/lack of information

Usage of ORLE (Operational Risk Level Evaluation (COPO 4-50) for Mission Analysis and Risk evaluation:		Run 1		Practicabili OPG_I
definition of key terrain, cyber key terrain without Cyber SME impossible	Player opinion/statement	Run 1		Practicabili OPG_I

Usage of COPD for CYBER mission and threat analysis does not necessarily leads to a proper solution	Your own opinion/interpr	Run 1	Practicabili	OPG_I	
Missing cyber threat catalogue - what are possible DCO related to identified threats	Player action	Run 1	Practicabili	OPG_I	no common understanding of Cyber Threats. Difficulties in identifying and analysing of potential threats.
Missing Cyber experties hampers the outcome of the Risk Analysis and Risk Evaluation	Your own opinion/interpr	Run 1	Improvemε	OPG_I	For future experiances or Staff training Cyber experties is required during the entire staffing process.
Unclear law issues - players did not know which law may apply: national or international National LoA is missing in the scenario --> aim and scenario should be more precise, Capability catalogue should be available	Player opinion/statement other		Improvemε	OPG_III	
RFI: Do we know the TTP's, capabilities of the adversaries (Do we have suitable counter measures?)	Player opinion/statement	Run 1	Practicabili	OPG_III	
Participants have problem how to gain new information (e.g. how to find enemy TTP's and capabilities ).What is more when they received MDCO 2013-2014 products they confused with MDCO Guidebook	Player action	Run 1	Issue	OPG_III	preparation for the experiment should be improved. In my opinion they received MDCO 2013-2014 products too late
Question from the players: who give guideline (about cyber) for the FHQ ?	Player opinion/statement other		General	OPG_III	Provide Guideline ?
	Player opinion/statement	Run 1	Practicabili	OPG_II	

#### Format

Intermediate briefing by Group Leader of the OPG's op advice to the CDR; no specific format, debated risks	Player action	Run 1	General	OPG_I	
OPG Mission Analysis Briefing (own format)	Player action	Run 1	General	OPG_I	
Developed own format Excel worksheet: Characteristics - Op impact	Player action	Run 1	General	OPG_I	

#### Suggestions for guidebook

Cyber Reaktion Team	Other	Run 1	Improvemε	OPG_I	Mentioning and Installation of CRT in the guidebook
Reviewed MDCO Capabilities Template. Recommend completing sections 1,2,14,15, final product should be an electronic product (TOPFAS use?)	Own Opinion	Run 1		OPG_III	
Question from facilitator: What did you miss: Checklist should be available or well trained SME	Player opinion/statement	Run 1	General	OPG_III	
The OPG is working on a risk evaluation, using a four column matrix with target source , consequences, severity and probability, followed by two row of mitigation and conclusions. An easy way to structure risk evaluation.	Other	Run 1	General	OPG_III	
	Player action	Run 1	Improvemε	OPG_I	Could be a useful example in the guidebook. Photo of matrix attached in next column.

Observation (what, who, when, why, where)	Observation type	Exp run	Theme	GB Chapter	Team	Own comments and Interpretation
<b>Work process</b>						
OPG1 reading the Guidebook and drawing up today's workplan	Player action	Run 2	Uncertain	Not Applicable	OPG_I	The OPG needs to get familiar with the Guidebook in order to use it. Risk Assessment and Cyber Key Terrain and the Initial Staff Estimate Template
Identifying relevant areas in the Guidebook	Player action	Run 2	Uncertain		OPG_I	
Discussion between the OPG and the analyze team/facilitator about the best way to go forward and use of the Guidebook.	Other	Run 2	Uncertain	Not Applicable	OPG_I	The OPG decides to work with Cyber staff estimate with the remark that they will not deliver a finished product at the end of trial 2. The OPG will highlight when information is insufficient, absent in order to fulfill the task. The OPG uses methods from both the COPD and the Guidebook.
Workplan set. OPG plan to work this way: 1) Identify Cyber Key Terrain, 2) Determine DCO requirements, 3) Identify necessary DCO, 4) Specify DCO Issues about the different approaches on abstraction/resolution of the chapters vs the templates	Player opinion/stater	Run 2	Uncertain	Not Applicable	OPG_I	The chapters are more on operational level but some of the template are very tactical.
	Player opinion/stater	Run 2	General	General	OPG_I	lot of reading in the guidebook. Seems to be a bit annoying for the participants that the template affiliated to a certain chapter is at a different location in the Guidebook.
The OPG are working pairwise with vulnerability analysis and threat analysis.	Player action	Run 2	Practicabili	General	OPG_I	The OPG has followed the process at page 4 in the GB. Some problem with the process. The presentation of the GB framework yesterday was much too fast for the OPG. The group has performed an operational risk assessment and a threat analysis. Threat analysis has to be brought further in the process.
Short presentation by the OPG of the work so far	Other	Run 2			OPG_I	
OPG1 Leader summarises Guidebook guidance and instructs staff work	Player action	Run 2	General	Not Applicable	OPG_I	
OPG member statement: "Tricky to work with a new document never seen before"	Player opinion/stater	Run 2	Issue	Not Applicable	OPG_I	
OPG member question replied by Facilitator: Preference to End Product of staff work or emphasis on the use of guidebook	Player opinion/stater	Run 2	Issue	Not Applicable	OPG_I	
Guidebook being used and often consulted in staff work	Player action	Run 2	General	Not Applicable	OPG_I	
Staff developing concise/consolidated RFIs by going through Guidebook line by line	Your own opinion/int	Run 2	General	Not Applicable	OPG_I	
Leader summary of progress: have reviewed RiskAnalysis, COG analysis + collected observations on Guidebook quality	Player opinion/stater	Run 2	General	Not Applicable	OPG_I	
* Grp felt missing cyber SMEs, questions cyber planning personnel in JOPG construct	Player opinion/stater	Run 2	Uncertain	General	OPG_I	
Integration of Cyber Planning Personal in staff structure	Player action	Run 2	Completen	Introduction	OPG_I	
Planning team/OPG I had concern with not having time to get familiar with the MDCO guide and questioned whether they would be able to complete today's task, or be able to fair assessment given the	Player opinion/stater	Run 2	General		OPG_I	
team using MDCO guide page 4 as the planning approach (step 1-4)	Player action	Run 2		Introduction		
Although attempting to use guide, there was no observable use of any of the templates during the morning session - assumption: in part due to the lack of familiarity with the MDCO guide referenced early; issue generated cross OPG observer/EXCON discussion on approach and techniques to ensure VLOE objectives we met	Your own opinion/int	Run 2	Practicabili	General	OPG_I	

Works to be done for each run are not understood by players	Player opinion/stater	Run 2	General	Not Applicable	OPG_I	Players try to accomplish a good mission analysis, but they really have to compare the improvement got with the guidebook for cyber purposes in the national contribution to OPG works
GB lecture helps players to disconnect from GOPD normal procedure	Your own opinion/inte	Run 2	Uncertain	Introduction	OPG_I	GB is not a procedure as itself. it is just the way for acquiring CD information to contribute to COPD normal procedure.
Players identify GB as a new planning procedure to incorporare CD aspects	Player opinion/stater	Run 2	Practicabili	Executive Summary	OPG_I	Connection between GB and COPD have to be clearly defined at the beginning of the GB
OPG I provided a recap of planning efforts aligned to Operational risk; although when asked they said they used the templates in section 9.4 there was no significant level of fidelity change or refinement of the conclusion	Your own opinion/inte	Run 2	Uncertain	Operational Risk	OPG_I	
OPG I felt there was too much information to digest given the task time constraints to go through the processes/templates	Your own opinion/inte	Run 2	Issue	General	OPG_I	
Insufficient cyber expetise on the planning team to determine the planning impact or actual so what of the CIV 5. Is the attack equivent to a flat tire that we fix and get on with mission? (mission delay only or are there other planning considerations associated	Player opinion/stater	Run 2	Uncertain	Operational Risk	OPG_I	
J6: ask COS a tactical question about C-KT: after an attack of one of the Key System: we shutdown it and we rebuild it in our area of responsibility. But where should we install it physically ? In order to ensure the physical protection ?	Player opinion/stater	Run 2	Practicabili	Cyber Key Terrain	OPG_II	the participant are going too low to tactical level
J2: Risk analysis (CPDAL) in chapter 4. Operational risk cannot be completed before the C-KT/Cyber Critical Asset is not listed	Player opinion/stater	Run 2	Issue	Operational Risk	OPG_II	the organisation of the GROUP II Staff to complete the process was not the best. Maybe provide a process guideline (like in group III)
ALL: they where complaining about missing information from the scenario and missing templates provided (like EU C2 Standard organisation)	Player opinion/stater	Run 2	Completen	C2 Requirements	OPG_II	we advise them to ask for RFI to the EXCON
Familiaritiation with the guidebook	Player action	Run 2	General	General	OPG_II	No contact with the guidebook before
Disribution of tasks and templates according to yesterdays branches assigned responsibilities.	Player action	Run 2	Practicabili	General	OPG_II	Good task distribution accordng to templates. Good starting point!!!
J2 asses that Cyber knowledge or background is needed to fill the Operational Risk Template up. A regular planner would have problems filling it up	Player opinion/stater	Run 2	Practicabili	Operational Risk	OPG_II	Help from J6 has been provided
Regarding the MDCO Capabilities Template the OPG needs more info. J6 assesses that the Template asks for many tacticals details.	Player opinion/stater	Run 2	Improvemε	MDCO Capabilities	OPG_II	The info provided in the Scenario doesnt fulfill the requested template information. It is difficult to fill the the template at this stage: too tactical focused template.
Instead of launching RFIs to the EXCON, the OPG has decided to write "TBD" in those template questions that need more info to be solved	Player action	Run 2	Practicabili	General	OPG_II	
Not enough time to read the guidance and scenario exercises – the practitioners do not have time to discuss about scenario and guidance. Half the time they lost to read the documents.		Run 2			OPG_II	
During the experiment was not discussed this should facilitator suggest solutions.		Run 2			OPG_II	
Observers do not know at what stage each day is an experiment and who is responsible for what.		Run 2			OPG_II	

In the opinion of the exercisers the scenario and the victims should be the same as the first day.		Run 2			OPG_II	
JPG Lead task organizes group to parse information, sets 0945 deadline for brief-out	General	2	General	NA	OPG_III	Culmination of theater brief, facilitator guidance, JPG lead guidance
J3 briefs Gov/Law/Policies/Capabilities early due to need to depart early	General	2	General	NA	OPG_III	Used previous planning framework to describe friendly capabilities.
Remainder of group briefs initial findings	General	2	General	NA	OPG_III	Facilitator requested team reference MDCO guidebook for future work.
JPG Lead posted process flow approach he designed to organize tasks to collect information to develop the Staff Estimate	General	2	General	NA	OPG_III	Covers all areas of PEMSII
start planning (mission analysis) with outlining guidelines and tasks to J heads: the team is tasked to work through all country books (identify the requested information to be used for further planning), j-head areas areas are assigned to different players, one hour time for producing the requested result;	Player action	Run 2	General		OPG_III	
Proposal: Cyber key terrain template should be used from the very beginning to be filled with already aggregated/identified information of the country books	Player action	Run 2	Practicabili	Cyber Key Terrain	OPG_III	
Workflow for developing the staff estimate: 1) Identify key cyber Terrain all team members (Template) and develop COA 2) Team A uses the guidebook to further produce COA in the area MDCO capabilities (Template 9.6) and to identify the operational risk (Template 9.4) Team B is focussing on the area Legal framework and Policy and procedures (template 9.2 and 9,3) 3) Team B is focussing on Order of battle (template 9,8) and team a is developing the C2 organisation (template 9.5 and 9.7) staff estimate will not be produced; most important are the findings for the key cyber terrain to ensure that the most critical risks are covered, Within the further process, the first input and findings for the key cyber terrain could be changed to further outcomes of the planning; every step has a single template to be used but it can be seen somehow as spiral development	Player action	Run 2	Practicability		OPG_III	The main question is how does this kind o conducting the planning process fit into the process of the COPD: Why was this spiral process developed instead of using the steps outlined in the MDCO guidebook? Is the sequential planning process described in the MDCO guidebook linked to the COPD process and where are the exit and entry points and does the templates provided support the COPD process in the area MDCO planning at all?
J2 briefing, situation briefing energy, geo, general and economic situation, Situation briefing Comms:	Player action	Run 2	General		OPG_III	
The team did not have all planning documents in specific they were not provided with the background and scenario document (including IMD; CMC; UN resolutions; Council decisions, PSC conclusions, military strategic options) This leads to a lack of information in the overall planning in specific what are the mission objectives and goals, timelines, etc Therefore it was difficult to plan COA in the area of Cyber or DCO in support of the different COA of the mission to fulfil the ordered objectives.	Other	Run 2	General		OPG_III	





Remaining members of group presented material/summary for their areas	Player action	Run 2	Utility/rele	Not Applicable	OPG_III
Group member briefed the group process for the day (see picture 1 in "pictures" tab) and the schedule for day	Player action	Run 2	General	Not Applicable	OPG_III
the team started to fill the templates as outlined above by splitting the team into 2 groups to fill in the requested information --> discussion started about the usage of templates Is the whole template to be filled in or is it possible just to fill in parts of the templates in specific due to a lack of information	Player action	Run 2	General		OPG_III
Facilitator and Operations Planning Advisor discussed the process of analyzing the cyber terrain (criteria used to access it) with the Group Leader	Other	Run 2	Utility/rele	Not Applicable	OPG_III
Operations Planner provided a Word document from EXCON that described a Cyber Priority Defended Asset List (CPDAL) for the purposes of this trial run.	Other	Run 2	Utility/rele	Not Applicable	OPG_III
Group Leader questioned the Facilitator about how to document information not found (what, where you looked, where it would go -- everything that would be asked in an RFI)	Player action	Run 2	Completen	Not Applicable	OPG_III
Group leader briefed status and tasking for each group member.	Player action	Run 2	General	Not Applicable	OPG_III
Work is stopped, the templates will be validated from a general perspective this was done in accordance with the team facilitator The aim is to verify the templates concerning the requested input and/or support character of the template to plan MDCO	Other	Run 2	General		OPG_III

### Discussions

The OPG discuss the Cyber Key Terrain and the dimension of it as described in the Guidebook		Run 2			OPG_I
* Grp developed question: is it possible that a cyber incident invokes new op planning proces? When, who decides?	Player opinion/stater	Run 2	Uncertain	General	OPG_I
The OPG identifies the need of a CPDAL (national cyber assets to be defended). In general terms there is a lack of info in the scenario	Player opinion/stater	Run 2	Utility/rele	Cyber Key Terrain	OPG_II
Discussion about starting point: should the planning process for the experiment start with the evaluation of the 12 questions for the commander's key objectives	Player opinion/stater	Run 2	Issue	Introduction	OPG_III
Discussion about the red line in the guidebook: How do we get to the staff estimate with using the guide?	Player opinion/stater	Run 2	Issue	Introduction	OPG_III
Discussion about the using of the guidebook,Should it be used in logical order or could it be used just when there is a link age within the process by following the planningaccording to COPD, Is there a logical order in the guidebook?	Player opinion/stater	Run 2	Issue		OPG_III
Discussion about the process: How to use the guidebook? How can the workload be splitted to the J- functions and roles in the team to make planning more effective?	Player action	Run 2	Practicability		OPG_III

Started work to identify cyber key terrain by using the template: discussion about what is the cyber key terrain for the mission main question is what is really critical for successfully conduct the mission The team tried to fill in the requested information by extracting the information received by the country book without having COA and commanders intent and the link to what is really critical for the mission --> intervention of facilitator because at the moment there is just a list of shortfalls without prioritisation but prioritisation is requested list of 10 items was produced, 3 of them are outlined as mission critical

Player action Run 2 General Cyber Key Terrain OPG\_III

Cyber Key Terrain : Question about definition (source agreed or just another definition?)

Player opinion/statement Run 2 Issue Cyber Key Terrain OPG\_III

Cyber Key Terrain : 6 layers are widely accepted Are they common knowledge or maybe they can not display the whole picture in specific in the area of prioritisation The guidelines are not clear to define Cyber Key Terrain There is a clear description of the process needed and an example should be inserted

Player opinion/statement Run 2 Issue Cyber Key Terrain OPG\_III

MDCO Capabilities: Helpful but needs a very detailed technical understanding Number 15 is duplication to the template legal framework

Player opinion/statement Run 2 Issue MDCO Capabilities OPG\_III

General question Do I have as an operational planner really to fill in that kind of information The commander wants to know is it possible what constraints do we have and how it is possible

Player opinion/statement Run 2 Issue OPG\_III

Operational Risk Template offers a lot of questions , they are understandable, very detailed information, maybe not possible to be answered in the planning group without experts, offers a tool for the a risk analysis it is not useful, use the normal tool in the INTEL area the outcome should be what is the operational risk not a detailed list of risks this must be visualised later These could support the overall process

Player opinion/statement Run 2 Issue Operational Risk OPG\_III

Legal framework: The questions are wide open and should be addressed as closed questions • There should be a minimum standard for ROE in order to know how all “cyber elements” could at least be used. This ROE example or minimum standard should be available in the MDCO.

• Also it should be predictable which minimum capacities have to be reached to participate in a mission. A fixed chain of command should be established to enable the COM to act if the shit hits the fan (responsibility of DCO if its needed to compare all cyber elements, national vs. international needs).

• LEGAD with cyber knowledge needed and the LEGAD has to do the legal part.

Player opinion/statement Run 2 Issue Legal Framework OPG\_III

operational risk: In some columns there is an output missing, because the dependencies are not clear, national strategy has to be emphasized

Player opinion/statement Run 2 Issue Operational Risk OPG\_III

General discussion: The guideline is too much detailed and not appropriate on the operational level At the moment there is a mixture of procedures, principles, Is this process within the COPD where are the reference points to COPD	Player opinion/stater	Run 2	Issue	Executive Summary	OPG_III
One of the intensions of the MDCO Guideline was to gather information ahead to the planning (TCN)	Other	Run 2	General		OPG_III
Wrap up : Questions: A tactical level of context versus possible mismatch for operational level; releasing sensitive information between nations; what is the difference between multinational CDO and FMN CDO? Clarification needed	Other	Run 2	General		OPG_III
Request for simplifying the document, adoption to operational level (e.: there is not CAOC planning in the OPP!) General idea is what information is needed (output) for the commander	Player opinion/stater	Run 2	General		OPG_III
Disclosure of national sensitive information must be clarified	Player opinion/stater	Run 2	General		OPG_III
Identify key cyber terrain: it was helpful to have the 12 key questions for the commander in mind, There is a mixture of the operational and tactical level within the document; the main focus should be on effects and capabilities how to support the mission objectives; Is the information about Cyber defensive teams to early, or the cyber order of battle?	Player opinion/stater	Run 2	General		OPG_III

**Issues with and suggested improvements to guidebook**

Issues raised about how to use the Guidebook in the planning process.	Player action	Run 2	Issue	General	OPG_I	Not sufficient information about how to use the guidebook and what is expected from the OPG team. The experiment have not been clear on this part.
Issues about the different approached on abstraction/resolution of the chapters vs the templates	Player opinion/stater	Run 2	General	General	OPG_I	The chapters are more on operational level but some of the template are very tactical.
The OPG are developing a RFI concerning kill chain analys (line 217 in the GB).	Player action	Run 2	Completen	Cyber Key Terrain	OPG_I	reference is made to the Cyber Key terrain chapter but kill chain is not discussed or mentioned in that chapter.
The OPG are working pairwise whit vulnerability analysis and threat analysis.	Player action	Run 2	Practicabili	General	OPG_I	lot of readeing in the guidebook. Seems to be a bit annoying for the participants that the template affiliated to a certain chapter is at a different location in the Guidebook.
Risk assessment	Player opinion/stater	Run 2	Completeness		OPG_I	The risk matrix in BH (line 735) is a useful tool but the OPG misses how to mitigate operational risks in the GB (a so what perspective).
so far indentified issues with the Guidebook	Player opinion/stater	Run 2	Improvemε	General	OPG_I	There is no chronological order in the GB, much back and forward in the GB.
If the Guidebook should be an additional document to the COPD there must be a link between them. No references in the Guidebook on who are doing what and no references to the COPD process.	Player opinion/stater	Run 2	Improvemε	General	OPG_I	If the Guidebook are a complement to the planning process (COPD), the guidebook must be more linked to the COPD process, like the CICOA guidelines.
There is missing links between the chapters and some of the templates	Player opinion/stater	Run 2	Improvemε	General	OPG_I	Could be due to that the OPG members have not have sufficient time to read the Guidebook
There are some analysis/processes that are mentioned in the Guidebook (risk mitigation, cyber kill chain etc.) that are not explained further. The solution developers should look over their chapters and see what analysis/processes they mention and propose that should be further explained.	Your own opinion/int	Run 2	Improvemε	General	OPG_I	

The main problem with the Guidebook for the OPG seems to be the missing link to COPD.	Your own opinion/int	Run 2	Improvement	General	OPG_I	
Restructuring of the Guidebook. There should be a logic and as far as possible a chronological order of the chapters based on the four step process described at line 209-233 in the Guidebook.	Your own opinion/int	Run 2	Improvement	General	OPG_I	for example: step 1 identify CKT, and CKT are explained in chapter 6...Also better internal references in the Guidebook to chapters and relevant templates.
If we ask the OPG to work with and fill the templates, there should be templates for them to work with, but operational risk template is not a template and the resolution and abstraction between templates are high.	Your own opinion/int	Run 2	Improvement	General	OPG_I	
Eric observed that most templates contain tactical level data for a process that should address OP-level issues	Other	Run 2	Improvement	Not Applicable	OPG_I	
P4 Diagram: many points do not make sense to ordinary ops officers - OPG lacks general knowledge of even basic terms	Player opinion/stater	Run 2	Issue	Not Applicable	OPG_I	GrpLdr alerted that fully developed end product of staff work not possible in time available
Recapping brief with some important observations:	Player action	Run 2	General	Not Applicable	OPG_I	
* Guidebook lacks description of internal interaction / collaboration with OPG/staff functional areas	Player opinion/stater	Run 2	Completen	Concept of Operations	OPG_I	
* Threat analysis (line 619) results need to be fed to J2 to combine overall picture	Player opinion/stater	Run 2	Utility/rele	Concept of Operations	OPG_I	
* Vulnerability Assessment needs input (copy) from COF Friendly Forces	Player opinion/stater	Run 2	Practicabili	Operational Risk	OPG_I	
* Consequences Assessment needs input (copy) from COF Friendly Forces	Player opinion/stater	Run 2	Practicabili	Operational Risk	OPG_I	
* Risk Matrix presented in RiskMgmt chapter nice for briefings but lacks "So what"-part i.e. mitigation actions	Player opinion/stater	Run 2	Completen	Operational Risk	OPG_I	
* OPG1 presented their own proposed diagram to capture risk mitigation activities	Player opinion/stater	Run 2	Improvement	Operational Risk	OPG_I	* => proposed diagram useful
* Short mention of risk mitigation in the chapter is too short to be useful	Player opinion/stater	Run 2	Completen	Operational Risk	OPG_I	
* Generally Guidebook lacks temporal/chronological considerations and dependencies altogether	Player opinion/stater	Run 2	Utility/rele	Concept of Operations	OPG_I	
* Generally Guidebook lacks links between GB chapters and appropriate COPD phases, cross-referencing needed!	Player opinion/stater	Run 2	Utility/rele	General	OPG_I	* =>COPD not used at all today, focusing only in GB
* Generally Guidebook texts and templates do not have linkages - thus txt and specific cell in templates do not connect	Player opinion/stater	Run 2	Utility/rele	General	OPG_I	
* Who is the audience of the GB ? Who should be using it?	Player opinion/stater	Run 2	Utility/rele	General	OPG_I	
Definition of "Kill chain" not provided and linked in any chapter in the entire guidebook. (Line 213)	Player opinion/stater	Run 2	Improvement	Introduction	OPG_I	the expression "kill chain" is not relected nowhere in the guidebook. Nor a definition.
Operational Risk Template not provided. Discription and way through very good understandable, but no template to fill in provided! Template of COPD is unusable.	Player opinion/stater	Run 2	Practicabili	Operational Risk	OPG_I	Useage of COPD template with guidebook though the guidebook is an assistance to the COPD, the relationship between the COPD and CDO guidebook must be highlighted and available for each chapter.
Linkage of guidebook chapter to COPD chapter.	Player action	Run 2	Practicabili	Not Applicable	OPG_I	
Links from Introduction (steps 1-4) to each chapters. Structired/chronological and in line chapter structure	Your own opinion/int	Run 2	Practicabili	Introduction	OPG_I	
Risk matrix	Player opinion/stater	Run 2	Improvement	Operational Risk	OPG_I	Need to have a better way to present the risk to a commander.

Line 691:	Player opinion/stater Run 2	General	Operational Risk	OPG_I	missing link to who can answer this question or have a template provided in the guidebook.
Definition and discription of how to use the guidebook	Player opinion/stater Run 2	Improvemε	Introduction	OPG_I	within the introduction the status of the guidebook must be more clear.
Planning lev of the guidebook?	Player opinion/stater Run 2	Uncertain	Introduction	OPG_I	To be used by whom (S3/5/6 or 7)?, to be use besides or with COPD or some other document.
Players doesn't know who has to apply GB instructions	Player opinion/stater Run 2	Improvemε	Introduction	OPG_I	Analysis of CD aspects needed for OPG process, is a CD cell task or all staff must know and use it?
What is the goal of MDCO process (pag 4)?	Your own opinion/int Run 2	Improvemε	Introduction	OPG_I	Provide CD information for COPD process? To be carried out simultaneously with COPD process?
OPG I identified an issue with the lack of annotated linkage between the COPD (planning process) and the MDCO Guide (tools to support planning). The newness of the guide made it difficult to cross walk back to the COPD and recommended annotating cross reference COPD section/page within the MDCO guide	Player opinion/stater Run 2	Improvemε	General	OPG_I	
OPG I is discussing who is the user of the planning guide?; identified the need for cyber planners integration into the OPT and various options (joint function, Cyber planning process, Cmd group cyber experts	Player opinion/stater Run 2	Practicabili	General	OPG_I	
within the C-KT planning: usage of the C-KT template by J6 seems to be too much tactical	Your own opinion/int Run 2	Improvemε	Cyber Key Terrain	OPG_II	maybe create many templates per chapter: one tactical, one operational
MISSING Process: it would have been usefull to have a compatibility table between the MDCO Chapter handbook and the COPD process. So the handbook user's, who is familiar with the COPD process, knows in every chapter to what COPD process he can compare/rely on.	Player opinion/stater Run 2	Improvemε	General	OPG_II	Create a summary table at the beginning of our handbook + write in every chapter "based on COPD XXYY"
Rewrite the 4 steps on page 4 from our guide book, using a "proposed process" how to use this hand book and re-arranging the chapter in order to follow a logical process (one chapter need to be done before the other, etc...)	Your own opinion/int Run 2	Improvemε	Introduction	OPG_II	it's just a suggestion
First appretiation: the Group tends to plan to a lower level, tactical one...	Your own opinion/int Run 2	Practicabili	General	OPG_II	Tactical orientation is due to the planners or because of the Guidebook templates level of detail????
Related to OOB Template the OPG identifies again that the info required is too tactical and too detailed	Player opinion/stater Run 2	Improvemε	Order of battle	OPG_II	The OPG considers that instead of asking for number of soldiers in the template, the question must be oriented to capabilities.The rational is that it depends on national TTPs. Different nations may have the same capability but with different number of soldiers, that is to say that different nations have same capabilities but varies in the numerical composition of people (i.e RRTs).
Regarding the Legal aspects the OPG belives that it's ok and in the right operational level focused	Player opinion/stater Run 2	Improvemε	Legal Framework	OPG_II	Recorded by facilitator
MDCO Capabilities template is too especific, it is helpful but need some improvement in the level of detail (too technical)	Player opinion/stater Run 2	Improvemε	MDCO Capabilities	OPG_II	Recorded by facilitator
C-KT very good template but needs refinement regarding the excessive granularity of the questions	Player opinion/stater Run 2	Improvemε	Cyber Key Terrain	OPG_II	Recorded by facilitator
Operational risk: use a combination of questions in the guidebook and the template (?), otherwise information gets lost.	Player opinion/stater Run 2	Completen	Operational Risk	OPG_II	Stein is discussing this directly with the players to get input for improvements

Template 9.5 is too detailed, too technical, too specific - too much information is missing to fill it out	Player opinion/stater	Run 2	Uncertain	MDCO Capabilities	OPG_II	
Template 9.7 seems too functional so far (even though the players state they don't really know what phase they are in now ...)	Player opinion/stater	Run 2		Practicabili C2 Requirements	OPG_II	
Conduct cyberspace operations 101 workshop. Establish shared understanding of key terms of reference.	Improvement		2	General NA	OPG_III	Expand lexicon, brief to participants
MDCO planning guide states FMN operations are to be assumed to have been completed, but the MDCO capabilities template tends to drive planners to examine FMN operations considerations in detail.	Issue			General NA	OPG_III	MDCO capabilities template information outside the stated scope of the document. However, the information should be summarized and presented for further consideration in mission analysis.
Discussion about starting point: should the planning process for the experiment start with the evaluation of the 12 questions for the commander's key objectives	Player opinion/stater	Run 2		Issue Introduction	OPG_III	
Discussion about the red line in the guidebook: How do we get to the staff estimate with using the guide?	Player opinion/stater	Run 2		Issue Introduction	OPG_III	
Discussion about the using of the guidebook,Should it be used in logical order or could it be used just when there is a link age within the process by following the planningaccording to COPD, Is there a logical order in the guidebook?	Player opinion/stater	Run 2		Issue	OPG_III	
Discussion about the process: How to use the guidebook? How can the workload be splitted to the J- functions and roles in the team to make planning more effective?	Player action	Run 2		Practicability	OPG_III	
Workflow for developing the staff estimate: 1) Identify key cyber Terrain all team members (Template) and develop COA 2) Team A uses the guidebook to further produce COA in the area MDCO capabilities (Template 9.6) and to identify the operational risk (Template 9.4) Team B is focussing on the area Legal framework and Policy and procedures (template 9.2 and 9,3) 3) Team B is focussing on Order of battle (template 9,8) and team a is developing the C2 organisation (template 9.5 and 9.7) staff estimate will not be produced; most important are the findings for the key cyber terrain to ensure that the most critical risks are covered, Within the further process, the first input and findings for the key cyber terrain could be changed to further outcomes of the planning; every step has a single template to be used but it can be seen somehow as spiral development	Player action	Run 2		Practicability	OPG_III	The main question is how does this kind o conducting the planning process fit into the process of the COPD: Why was this spiral process developed instead of using the steps outlined in the MDCO guidebook? Is the sequential planning process described in the MDCO guidebook linked to the COPD process and where are the exit and entry points and does the templates provided support the COPD process in the area MDCO planning at all?
the team started to fill the templates as outlined above by splitting the team into 2 groups to fill in the requested information --> discussion started about the usage of templates Is the whole template to be filled in or is it possible just to fill in parts of the templates in specific due to a lack of information	Player action	Run 2		General	OPG_III	
The problem was to understand how to use the guide to support the initial staff estimate process	Player opinion/stater	Run 2		General General	OPG_III	
Quick review OPG's products - trial 1. Each group chosen different way to show product	Your own opinion/int	Run 1		General General	OPG_III	In my opinion MDCO guidebook could be usefull to unify process and product.

Lack of example of final product of Initial staff estimate

Your own opinion/int: other

General

General

OPG\_III

We described MDCO process and described how to consider policies and procedures, legal aspects, risk, MDCO capabilities, Intel and CKT, C2 requirements, COB. We have prepared many detailed examples but it lacks the final instance document (power point, word), which contain the most important information of the above documents. Thanks to this example of final product, OPG know, that to prepare it correctly, they must prepare, consider or fill up examples of : policies and procedures, legal aspects, risk, MDCO capabilities, Intel and CKT, C2 requirements, COB



Observation (what, who, when, why, where)	Observation type	Exp run	Theme	GB Chapter	Team	Own comments and Interpretation
<b>GENERAL</b>						
OPG I did not have sufficient time and understanding of the MDCO guide to actually attempt to use the templates; this significantly impacted the groups ability to provide feedback during the chapter review when questions were specific to template utility format recommendation was to put the template and the narrative description together rather than have all the templates in the back	Your own opinion/interç	Run 3	Issue	General	OPG_I	
	Player opinion/statemer	Run 3	Improvemε	General	OPG_I	
discussion was to parse info based on the user - senior leaders, operational planner and the cyber action officer	Player opinion/statemer	Run 3	Utility/rele	General	OPG_I	another observe commended on maybe taking the senior leader portion out but seperating into two documents
need acroynm /abbreviation section	Player opinion/statemer	Run 3	Improvemε	General	OPG_I	
the Guidebook must have correct internal references, for example there is no C2 requirment template	Player opinion/statemer	Run 3	Improvemε	General	OPG_I	Chapter 1 discussion
Cross reference system must be included for a more smooth, logic and pedagogical outline of the guidebook	Your own opinion/interç	Run 3	Improvemε	General	OPG_I	Chapter 1 discussion
The Guidebook must be defined for whom is it written for? To technical for senior levels and not technical enough for real function experts.	Player opinion/statemer	Run 3	General	General	OPG_I	This issue as well as the issue about cross reference the Gudiebook to an operational planning process is issues that is constantly raised by the OPG members
The introduction should describe who can use what part of the guidebook. Example, template 1-3 for J6, template 4-5 for operational planners etc. Who can benefit from what from the Guidebook.	Other	Run 3	Utility/rele	General	OPG_I	Idéa launched by Chris Hoffman. Something to be discussed by the solution developers-
The format of the templates should be in the same format.	Your own opinion/interç	Run 3	Improvemε	General	OPG_I	
GENERAL: some chapter are too little (only a few sentences) and the template are too big. We need to put more text in the chapter and to limit to the strict necessary the templates	Other	Run 3	Practicabili	General	OPG_II	
The document needs a list of references, abbreviations and lexicon.	Player opinion/statemer	Run 3	Improvemε	General	OPG_II	
Coherence between the text and the template has to be better. Example text should explain how to use the template.	Player opinion/statemer	Run 3	General	General	OPG_II	
Line 1733 full definition needed for federated mission network (FNM) -- refers to Eric C to provide info	Player action	Run 3	Completen	General	OPG_III	
Relate the content and process in document to mission analysis (COPD)		Run 3				
The text in chapters should advice what to fill out in the templates.		Run 3				
MDCO Guidebook is not linked to COPD. The document is agnostic and not just for NATO		Run 3				
NATO PfP nations It should be outlined in that way		Run 3				
Lexicon. line 1733. FMN definitions. not defined yet		Run 3				
general. the process of MDCO planning is unclear, the chapters are somehow stand alone, the proper way should be to define the process from the very beginning and to define the steps them in the chapters to be capable to to produce at the end of the process as main output the staff estimate; that would lead to a restructuring of the overall document and to a clear understanding of the overall document (process flow) There should be a clear outcome of this step for the operational planning addressees shortfalls, capabilities and constraints		Run 3				
Who is the target audience for this document. It should be for operational planners		Run 3				

Do you know the purpose of the document. YES Run 3

Do you think the templates is the right output. not in the current form, but the direction is quite ok Run 3

**EXECUTIVE SUMMARY**

Chapter 0: Lines 23-25 confirm FMN security measures are not addressed in MDCO project COS 1.1 who will fill in the templates. It should be someone with cyber knowledg who fill in the imformation.	Your own opinion/interç Run 3	Issue	Executive Summary	OPG_I	Most part of chapter 5 and dara required in MDCO Capabilities template are not useful for the GB
Connection between the product and the COPD is not clear. It could be better pictured for example in fig 1.3	Player opinion/statemer Run 3	General	Executive Summary	OPG_II	
Steps: maybe mission analysis should be before key cyber terrain.	Player opinion/statemer Run 3	Improvemε	Executive Summary	OPG_II	
fig 9.3 should be the first step to find the needed infromation for the planning.	Player opinion/statemer Run 3	Improvemε	Executive Summary	OPG_II	
OCO is emphasized too much, especially since it has been declared out of scope in the beginning	Player opinion/statemer Run 3	Improvemε	Executive Summary	OPG_II	
Lexicon is a key issue to have a common understanding.	Player opinion/statemer Run 3	Practicabili	Executive Summary	OPG_II	
The 12 questions seems to be completed and good list	Player opinion/statemer Run 3	Utility/rele	Executive Summary	OPG_II	
Concept of operations were used from the COPD on Monday. The handbook did not give that much additional help	Player opinion/statemer Run 3	Issue	Executive Summary	OPG_II	
Classification. Filled in templats MIGHT become classified.	Player opinion/statemer Run 3	Issue	Executive Summary	OPG_II	
1.5 multinational crisis respons timeline. Picture should use common terminology accordngly to the rest of the document	Player opinion/statemer Run 3	Improvemε	Executive Summary	OPG_II	
Chapter summary: order is different than the rest . It makes more sense as it is in the chapter summary.	Player opinion/statemer Run 3	Improvemε	Executive Summary	OPG_II	
In a general overview it would be necessary to change the order of the chapters: First the policy and procedures and KCT is the first thing to consider with the CPDAL list to be analyzed.	Player opinion/statemer Run 3	Improvemε	Executive Summary	OPG_II	
Facilitator and group began review of chapter 1 of MDCO Guidebook	Player action Run 3	Completen	Executive Summary	OPG_III	
Line 201 abreviation CIE should be MNIE	Player action Run 3	Completen	Executive Summary	OPG_III	
Line 207 (p. 3) Figure 2 - seems to clash with Steps 1 to 4 on page 4; perhaps retitle it and decouple from steps 1 to 4	Player action Run 3	Completen	Executive Summary	OPG_III	
Mission Analysis (figure 3) on page 7 should be better intergrated with the 4 steps mentioned on p. 4	Player action Run 3	Completen	Executive Summary	OPG_III	
Should not be tied to the COPD process.	Run 3		Executive Summary	OPG_III	
Figure: expand to make more readable	Run 3		Executive Summary	OPG_III	
Para I Line 44. Diagram is too small	Run 3				
Para II Line 47. Footnote is missing	Run 3				

**CHAPTER 1: INTRODUCTION**

Chapter 1: It's not clear the defined scope of the document	Your own opinion/interç Run 3	General	Introduction	OPG_I	Although some explanation about the scope of GB is said, it's necessary a more defined goal and role of the GB in the OPP process Paragraphs 241-262 are enough for Senior Leaders information needs To introduce links between some paragraphs and information included in other chapters (templates) Templates includes information of Strat, Op and Tac levels. It's necessary to define the scope of the templates and the info to fulfill in them.
Chapter 1: GB focussed on Senior Leaders	Player opinion/statemer Run 3	Improvemε	Introduction	OPG_I	
Chapter 1: Some paragraphs or sentences needs aclarations	Player opinion/statemer Run 3	Improvemε	Introduction	OPG_I	
Chapter 1: GB really supports Action Officers to complete the templates?	Your own opinion/interç Run 3	Practicabili	Introduction	OPG_I	

Chapter 1: Too much Operational Concept Theory	Your own opinion/interç	Run 3	Improvemç	Introduction	OPG_I	People who use this GB knows that information and want to find just concrete information
1.5 Multinational Force Planning: Figure 4, consistency between the text and Fig 4 different names with the same concepts	Player opinion/statemer	Run 2	Improvemç	Introduction	OPG_II	
Figure 1 should indicate that OCO is out of scope	Player opinion/statemer	Run 3	Improvemç	Introduction		
Make a reference to figure 4 in the text. Harmonize the text in chapter to the notions in figure.	Player opinion/statemer	Run 3				
The order between steps (1.6), chapters and templates differ.	Player opinion/statemer	Run 3				
1.6 Chapter summary: the order of the chapters is differnt form the description of the chapter in the Chapter summary. Consistency!!!. It is better to keep the order as it is described in the Chapter summary.		Run 3		Introduction	OPG_II	
footnote missing		Run 3		Introduction	OPG_III	
Figure 1: expand to make more readable and add definitions		Run 3		Introduction	OPG_III	
ensure all definitions are "agreed upon" by partners		Run 3		Introduction	OPG_III	
CIE not defined-doesn't reflect phrasing		Run 3		Introduction	OPG_III	
FMN definitions not complete in Lexicon		Run 3		Introduction	OPG_III	
Figure 2: need additional diagram to explain step process		Run 3		Introduction	OPG_III	
page 4-5. more discussion on commander's key cyber objectives and seven lines of effort - sources		Run 3		Introduction	OPG_III	
page 4. match colors to figure to enhance process flow understanding		Run 3		Introduction	OPG_III	
This document should be structured to represent the process flow. As written, most Chapters could be considered as "stand alone" but should show dependence on each other/refer to previous information provided? Definitions should be targeted to this process but where additional information is required, which could drive to separate annexes or documents/doctrine.		Run 3		Introduction	OPG_III	
page 6/Line 313. Footnote		Run 3		Introduction	OPG_III	
figure 3 should be tied to the steps on page 4		Run 3		Introduction	OPG_III	
figure 4. one-size does not fit all, realize each nation has a defined process. Terms inside chart need to be defined as to who they are and what function they perform if this is the first time referenced. (Cyber Key Terrain WG)		Run 3		Introduction	OPG_III	
Add relevant footnote on the page where discussed.		Run 3		Introduction	OPG_III	
Content of information tracks with intent but should be restructed to reflect doctrine, policy, and procedures. Consider using examples inside text boxes.		Run 3		Introduction	OPG_III	
Line 165. Terminology. Definitions should refer to the source and key definitions should be up front		Run 3				
Line 195. Diagram is too small		Run 3				
line 201. multinational Force information environment (CIE) does not match		Run 3				
Understanding of DCO should be outlined from the very beginning		Run 3				
line 208. MDCO process figure 2. MDCO process is a system to system analysis not a process --> renaming needed? Colour scheme should be adopted an overarching diagram should lead to this one, to guide to the step to step process		Run 3				
line 238, 263. The structure should be more clear. 12 key cyber objectives and 7 lines of effort as a separate subchapter		Run 3				
line 209, 233. grey boxes. there should be a header: example Input for .... Consider ...		Run 3				

line 209, 233. Are those 4 steps correct. Was helpful is the right order for the planning, it is not mandatory to do it in a sequential order, could be don in a parallel way as well, should be more prominent outlined in the book , sometimes the reference to the 6 layer model is missing Run 3

The document should be complete. The book should try to refer as much as possible to other documents but should be as complete to be able to actually do the MDCO planning, Definitions should be terms widely used (common used terms) Run 3

line 265. Legal framework. ROE are to included, What is the national and international law for cyber space operations!! There could be a transition period in specify in the preparation and deployment phase ROE is a ANNEX to OPORDER (Law of arms of conflict, ...) Run 3

Page 6. footnotes. Should be consistent Run 3

line 358 Figure 3. Figure should have a reference to step 1 - 4 , the diagram should be similar with COPD page 2 -6 Run 3

line 376 TIMELINE Figure 4. There should be a headline integrated, this is an example and could be adjusted to .... For a better understanding figure 2 could be interconnected with figure 4 , The chapter should be split up in two sections (doctrine, processes, ...) Run 3

line 375 Figure 4. Cyber Key Terrain WG is a new term (inconsistency in the overall document) Run 3

Page 9.1 Process is described. insert a similar diagram the sections are correlating Run 3

General. Restructuring of the overall chapter proposed with a summary at the end, add some examples, in the templates there are examples maybe they could be shifted to the main part; discussion about advantages and disadvantages in this case Run 3

**CHAPTER 1: CONCEPT OF OPERATIONS**

common understanding of the terminology/ lexicon was discussed (i.e.kill chain was not understood and recommendation was to add more operational level examples) Player opinion/statemer Run 3

**CHAPTER 2: POLICY AND PROCEDURE**

Doctrin, policy and concept should be explained, but is it at the right place in the document? Officers at this level should now the definition of these constructs. Player opinion/statemer Run 3

Chapter 2 & 3: Too much concepts definitions Player opinion/statemer Run 3

2.1 General talks about doctrines, policies, procedures. It should be ammended with UN resolutions and mandates Player opinion/statemer Run 3

Lexicon is missing Player opinion/statemer Run 3

paragraph 2.2 is not coherent with paragraph 2.1. Player opinion/statemer Run 3

Paragraph 2.2 is not "military" enough. There is no talk about warning order, planning order... etc (too strategical talk, should address operational level). Commanders intent, Template is better than the actual chapter described. Player opinion/statemer Run 3

Linkage with templates is not that good Player opinion/statemer Run 3

Mission analysis is done in general and not cyber specific. Could be a reson why it is not discussed in the text. Player opinion/statemer Run 3

Concept of Operations OPG\_I

Utility/rele Policy and Procedures OPG\_I

Improvemε Policy and Procedures OPG\_I

Issue Policy and Procedures OPG\_II

Issue Policy and Procedures OPG\_II

Issue Policy and Procedures OPG\_II

Issue Policy and Procedures OPG\_II

Issue Policy and Procedures OPG\_II

Issue Policy and Procedures OPG\_II

Chapter 2 discussion  
It's really needed to include so much detailed concepts definitions in this GB?

Mission analysis should be last template and it should be explained HOW cyber analysis should be included.	Player opinion/statemer	Run 3	Issue	Policy and Procedures	OPG_II
Chapter information has to be more coherent with the templates	Player opinion/statemer	Run 3	Issue	Policy and Procedures	OPG_II
Inputs, actions output. (template 1.3). The important part is the output. Not the description of actions.	Player opinion/statemer	Run 3	Issue	Policy and Procedures	OPG_II
from template "actions" should be moeved to the chapter text. In the template it should be inputs and outputs.	Player opinion/statemer	Run 3	Improvement	Policy and Procedures	OPG_II
CHAPTER 2 POLICIES AND PROCEDURES: The text is too strategical and must be more operational focused although the template has the appropriate operational level. The text doesn't really go into mission specific. Template: regarding the inputs, activities, outputs columns, the activities have to be described in the chapter text, it is better to move it to the text.		Run 3		Policy and Procedures	OPG_II
Facilitator and group began review of chapter 2 of MDCO Guidebook	Player action	Run 3	Completen	Policy and Procedures	OPG_III
recommendation to add upfront that the guide supports a national level OPT/ working group (which includes expertise from J2, J3, J4, J5, and J6) in preparation of supporting a MN OPT.	Your own opinion/interç	Run 3	Utility/relevance		OPG_I
Template is ok, but need to harmonize chapter and template. Link chapter and template	Player opinion/statemer	Run 3			
Staff estimate template is general - should be more related to cyber.		Run 3			
Explanation given in template table should be in chapter 2. Emphasise output in the template.		Run 3			
Home nation and whole of government considerations.		Run 3		Policy and Procedures	OPG_III
Define: Charter, policy, concept, doctrine		Run 3		Policy and Procedures	OPG_III
lines 533-545. Good initial document references for consideration		Run 3		Policy and Procedures	OPG_III
More defined link to the template - what information is now expected from this chapter to be resident in the template.		Run 3		Policy and Procedures	OPG_III
Page 11 Definitions. Many definitions are in this chapter, could be shifted to the chapter lexicon and then the focus could be more on policies and procedures; Interaction and dependencies should be outlined in a better way		Run 3			
Page 11 Comprehensive approach. The interdependencies should be better outlined to the civilian portion and to possible impact to the home country as a new dimension in the area cyber and terrorism; the last 4 para on page 11 could be deleted, due to the experience of the planners on the operational level;		Run 3			
line 535 listed table of chapter 9.3. The table is helpful as a kind of checklist for the planning, as a planner it is important to have a complete picture by identifying relevant input, dependencies from the different documents to be able to give the right advice to the commander There is as well the need for other advisory bodies like LEGAD, POLAD, ...		Run 3			
The audience should be more clear and should be outlined, What is the role of the Planner in the JOPG ?		Run 3			
Page 11.12 General. Should be restructured and maybe merged with chapter 1 (new structure of both chapters to be rethought) There are no procedures in this chapter misbalance between policy and procedures The desired outcome of the template should be more clear is it a waste of time, what do you need in the planning process, suggestion put some summary at the end of the chapter the outcome is ... the steps taken are ....The role of you is ...And there is no clear reverence to the templates what are to be used in this chapter		Run 3			



Page 34 Footnotes needed. legal bases and legal regime	Run 3
Page 13.14 General. Is there a need to have the legal advisor in the planning group in specific with related responsibilities, so the legal part has to be done by the LEGAD to the OPG How does the process work	Run 3
Page 34, 50 General. Is there a dependency of the templates 34 and 50: 9.2 is done by the AO together with the LEGAD, out of 9,2 you could do the input to the second template	Run 3
Page 34 General. The outcome should be are there any caveats, challenges with the legal framework and with initiatives have to be started	Run 3
Page 34 General. The status of each part of the FORCE (OPCOM, TACOM, ...) should be clear when referring to the legal framework	Run 3

**CHAPTER 4: OPERATIONAL RISK**

section was clear, comment was made that the cyber expert knows this info; real uncertainty as to who the book is intended, operational planner or cyber planner. discussion was this effort is asking too much of the booklet to be intended for senior leaders, operational planners, and action officers.	Player opinion/statem	Run 3	Operational Risk	OPG_I	Assumption based on discussion is that there are no dedicated cyber operations planners (vice network ops planners) and this document might be viewed as the bridging process/tools between network ops planners and operations planners. The OPG believes that the chapter is good, missing some description of the differences between operational level and tactical level.
Chapter 4 is clear and a good explanation of operational risk, although, a cyber SME knows this by heart, but for the no-cyber-guys it was useful.	Player opinion/statem	Run 3	Utility/rele Operational Risk	OPG_I	
Some parts are very detailed and is it necessary with that level of detail on operational level? But it can still be in the document	Player opinion/statem	Run 3	Practicabili Operational Risk	OPG_I	Some questions in the operational risk template/chapter are a bit technical for non cyber officers.
Why are the document so split up? For example the operational risk chapter and template could be put together for better readability and you could probably shorten the text as well.	Player opinion/statem	Run 3	Practicabili Operational Risk	OPG_I	well, in the beginning every template were attached to a chapter... Audience og GB and the adequate level to use it must be defined
Chapter 4: Tactical level data included in templates lines 1366-1378: too detailed questions for a military planner	Player opinion/statem	Run 3	General Operational Risk	OPG_I	
chapter 9.4: Op Risk Template is not really a template, it is more a guideline, with usefull question to answer. But still not really relevant for a military planner with no cyber knowledge	Player opinion/statem	Run 3	Improvem€ Operational Risk	OPG_II	
The list given as CDPAL was not coherent with PDAL. Should be accordingly to AD 70/80. Line 687-681 has the same question as on page 39. Repeated key questions. There is no need to have it twice. Stated that table 1 which is actually table 2.	Player opinion/statem	Run 3	Improvem€ Operational Risk	OPG_II	
would be helpful for the vulnerability analysis to have a list of all the assests. Includind techical data that the SME could deal with	Player opinion/statem	Run 3	Issue Operational Risk	OPG_II	
	Player opinion/statem	Run 3	Improvem€ Operational Risk	OPG_II	
4.6, the matrix. Group tried to do that . It could be helpful to have an example how to do. Linkage of cyber risk to the operational risk needs to be emphasised	Player opinion/statem	Run 3	Improvem€ Operational Risk	OPG_II	
Analysis of key terrain has to yield into recommendations for the commander IN TERMINOLOGY HE/SHE UNDERSTANDS	Player opinion/statem	Run 3	Issue Operational Risk	OPG_II	
632- 634. If these questions can be answered the commander would probably be satisfied	Player opinion/statem	Run 3	Issue Operational Risk	OPG_II	
1309- are questions that the planner would ask their SMEs.	Player opinion/statem	Run 3	Issue Operational Risk	OPG_II	

page 39. "where are the targets localized" needs rephrasing and more explanation. For example by giving examples	Player opinion/statement	Run 3	Improvement	Operational Risk	OPG_II
page 40. Vulnerability analysis. Key questions are too detailed for operational planner to answer. These needs to be addressed by SMEs	Player opinion/statement	Run 3	Issue	Operational Risk	OPG_II
pages 38-41 are the same as in chapter 4. It was not possible to do analysis according to this due to too detailed information	Player opinion/statement	Run 3	Issue	Operational Risk	OPG_II
How should the organisation be formulated is a important aspect to be able to deal with the operational risk assessment (Tuesday was more j3 focused and Wednesday was cyber focused)	Player opinion/statement	Run 3	Practicability	Operational Risk	OPG_II
CHAPTER 4 OPERATIONAL RISK: CPDAL reference important referenced in the chapter. Same questions in the text and in the template are repeated to consider them in the document once (page 16 and 39). Regarding the vulnerabilities you need a cyber SME to discuss that. Acceptable risks no clear definition. Also needed a National CPDAL for the OPG to be presented to the Commander to decide regarding risk/vulnerability factor. 3 main questions are the ones in lines 632 to 634. In the Template questions 1305 to 1309 are too technical so the help of a SME is needed. Template line 1344 (chart) lines about targets need to be SME answered. Vulnerability analysis questions in the template (page 40 lines 1367 to 1378) too technical. From page 38 to 41 transform/put the questions in template format (chart). Discussion about that OPG is a group and has to plan jointly all branches together with same taking in account the cross cutting character of cyber, affecting all branches of the OPG.		Run 3		Operational Risk	OPG_II
CPDAL: develop a template for this? The same as JPTDL but need to be adapted		Run 3			
Questions are too detailed - need cyber expertise.		Run 3			
Repeat questions in chapter and template is not necessary		Run 3			
Need technical knowledge to discuss vulnerabilities		Run 3			
Example of threat scenarios in matrix.		Run 3			
Need a probability discussion before probability is introduced in the matrix.		Run 3			
Commercial software make vulnerabilities		Run 3			
Answer the questions 633-635		Run 3			
Add explanations to potential targets and target location. Legal aspects. More concrete examples.		Run 3			
Detailed vulnerability questions in template.		Run 3			
Facilitator and group began review of chapter 4 of MDCO Guidebook	Player action	Run 3	Completion	Operational Risk	OPG_III
Define Cyber Risk		Run 3		Operational Risk	OPG_III
Define Cyber Key Terrain or explain application - list in Chapter 6		Run 3		Operational Risk	OPG_III
Page 41. Add Summary		Run 3		Operational Risk	OPG_III
Line 682. Footnote reference with more information		Run 3		Operational Risk	OPG_III
Line 687. Define MNE7		Run 3		Operational Risk	OPG_III
Line 698. Should this reflect AAP #?		Run 3		Operational Risk	OPG_III
Chart. add COPD Fig. 4-12 (USE here)		Run 3		Operational Risk	OPG_III
Page 38. Merge COPD FIG 4-12 with Table 2 (page 39)		Run 3		Operational Risk	OPG_III
Line 1304. change four to five main steps		Run 3		Operational Risk	OPG_III
Page 38-41. Make these five steps into Tables		Run 3		Operational Risk	OPG_III
line 643 CPDAL Cyber Prioritized Defended Asset List (footnote needed) and interaction with the Cyber key terrain analysis as an input should be mentioned there An template is missing as well		Run 3			



Page 38 Template. Questions are ok, but they do not lead to a product, outcome of this step and what are the next steps to be taken as a summary on the end of the chapter 4 line 682 (HARRIS 2013). refence to footnote Run 3

line 698 NATO. refence to footnote Run 3

line 686 MNE. refence to footnote Run 3

line 735 general. page 450 from COPD rephrase the tamplate according to risk template COPD or use common terminology Run 3

Page 38 template. Question of different nature, but themain purpose is to use table 2 as template, COPD template could be taken; instead 5 main steps, but there are 5 steps ; can the 5 questions be merged with the text below to be better understood ; queston are repeating or repeating part of the content Run 3

General. Chapter was useful for planning and gave an excellent description about risk analysis in the area cyber; the 5 steps and questions are quite ok, but reorder and combine them in a better way Run 3

**CHAPTER 5: MDCO CAPABILITIES**

Ref line 24/25 on p l of executive summary: " the architectures and procedures for operating and maintaining a FMN and its embedded security are considered as provided and not addressed in the MDCO project." Thus the recommendation is to remove the "MDCO capabilities template". Potentially you could keep it (as an appendix) to show example of level of network ops/technical level planning which could inform/support the operational level MDCO planning Your own opinion/interç Run 3

MDCO Capabilities templates are interesting but maybe not for officers in the JOPG. The templates are more for analyst etc. Player opinion/statemer Run 3

Utility/rele MDCO Capabilities OPG\_I

Utility/rele MDCO Capabilities OPG\_I

When NATO FMN concept will be implemented (around 2025) most of this data and security procedures will be implemented by nations on mandatory basis

Chapter 5: Lots of data to fulfill in template 5.2, points 6 & 7 are the same and should be re-formulated Your own opinion/interç Run 3

MDCO capabilities chapter does not been even reference to the template 9.5. Chapter is only a overview of the issue Player opinion/statemer Run 3

MDCO capabilities template is too tactical techical oriented for an INITIAL STAFF ESTIMATE Chapter text is on operal level, template too technical/tactical. In the template there is not an operational level "colum/row". Player opinion/statemer Run 3

line 792-799: Input cannot be hanedled properly Player opinion/statemer Run 3

Some consideraton on page 19. Lines 6 and 7 are same as 9 and 10 Player opinion/statemer Run 3

Issue MDCO Capabilities OPG\_I

Improvemε MDCO Capabilities OPG\_II

Issue MDCO Capabilities OPG\_II

Issue MDCO Capabilities OPG\_II

Improvemε MDCO Capabilities OPG\_II

Issue MDCO Capabilities OPG\_II

Issue MDCO Capabilities OPG\_II

Improvemε MDCO Capabilities OPG\_II

CHAPTER 5 MDCO CAPABILITIES: Chapter not even reference the template. Text is too little and template too much. It has to be better connected, linked between them. Template too tactical/technical going to down in detail. In the text line 789 and 792 repeated in 798 and 799. Run 3

No reference to template Run 3

Template is too tactical and technical oriented. Run 3

More text in documnet less in template (need to simplify). Run 3

Facilitator and group began review of chapter 5 of MDCO Guidebook Player action Run 3

MDCO Capabilities OPG\_II

Completen MDCO Capabilities OPG\_III

Page 44. TemplateTopic 5 does not fit into OPG's application. This information on the emplate would be provided by Tactical SMEs.	Run 3	MDCO Capabilities	OPG_III	
Line 781. Delete one "C" in CFCCC to reflect CFCC (CJTF Cyber Functional Component Commander)	Run 3	MDCO Capabilities	OPG_III	
Summary of disclosure risks with Partners and should be to an established standard (TBI). This should also be reflected in the template.	Run 3	MDCO Capabilities	OPG_III	
Line 764 disagree with template. Chapter 5 should give the OPG an better understanding of the capabilities, and if not support with assumptions and conclusions; The template does not give the OPG a broad view about capabilities, the template is too strongly focused on technical specifications, proposal is to skip this template and replace it with requested information for this level	Run 3			
line 781 abbreviation CFCCC. one C to much at the end --> CFCC	Run 3			
Page 42 General remark template. Who needs this information, will this detailed information be provided by a nation?	Run 3			
Page 42 General remark template. Is there a need to outline principles of information sharing in this chapter	Run 3			
<b>CHAPTER 6: CYBER KEY TERRAIN</b>				
line 1059 p. 27 Last sentence is misleading and likely inaccurate as C-KT per guide (i.e., line 1062/63) is assurance of (mission critical) assets as defined by the JFC's priorities and not necessarily defined by enemy's objectives in cyberspace. Fig 8 on p.26 also includes the inaccurate information	Your own opinion/interç Run 3	ImprovemεCyber Key Terrain	OPG_I	
Good to know about the layers (fig 6) but what is the pupose with figure 7? Skip this figure.	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_I	
Table 1 (6.2) is good, gives the OPG/Commander an idéa on cyberspace levels and what it means	Player opinion/statemer Run 3	Utility/rele Cyber Key Terrain	OPG_I	
last scentence under Commanders Definition (6.3 line 1059) is wrong. Aslo the section should be renamed for better capture the meaning of the section.	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_I	Refrase or delete last sentence?
CKT picture and idea ok, more and better examples to differentiate strat-op-tact level issues needed	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_I	
L1047 CDRs priorities versus CKT discussed, miswording ? Enemy may prioritize something else, CKT may be outside own networks	Player opinion/statemer Run 3	Uncertain Cyber Key Terrain	OPG_I	
Network attibutes (4 points) would need an introductory lead-in sentence	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_I	
Threat assesment: change word critical to severity (to be compliant with COPD terminology)	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_I	
Template p51 useful but missing column for conclusions, header missing	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_I	
Lexicon and definitions were missing from the GB rvision made available	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_I	Those definitions are known by J6 actors and don't provide additional value to GB
Chapter 6: Definitions about networks features (Availability...)	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_I	
Chapter 6: Template doesn't include a "Conclusion" field	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_I	Some operational conclusion about each cyber critical asset included in the template, would be very useful
general comment: connection of C-KT with mission analysis are not well made	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_II	
C-KT chapter need to be put before the MDCO chapter	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_II	
C-KT and Op Risk is process you need to done in parallel, but in any case the list of cyber critical asset need to be done before all the rest (it is the start of the C-KT identification and Op Risk identification of assets	Player opinion/statemer Run 3	ImprovemεCyber Key Terrain	OPG_II	

Figure 7 is very good to explain the different point of view, but we need to highlight the MDCO point of view	Player opinion/statemer Run 3	Improvem€Cyber Key Terrain	OPG_II
rewrite line 879: delete "men" (or include women) and "terroristic" seems not the good word.	Player opinion/statemer Run 3	Improvem€Cyber Key Terrain	OPG_II
cyber ISR, not only write text about Intelligence, but also about Surveillance & Reconnaissance	Player opinion/statemer Run 3	Improvem€Cyber Key Terrain	OPG_II
reference the figure 8 in the text (not only put a figure and don't mention it in the text, otherwise we don't know how to use it)	Player opinion/statemer Run 3	Improvem€Cyber Key Terrain	OPG_II
C-KT is very close with the "Center of Gravity and Analysis", so we need to link it more clearly to bring operation closer to cyber. Cyber "center of gravity and analysis" could be also mentionned & developped...	Player opinion/statemer Run 3	Improvem€Cyber Key Terrain	OPG_II
C-KT template is very good and is not too tactical, because we need to put a label on the critical asset (real benefit!)	Player opinion/statemer Run 3	Utility/rele Cyber Key Terrain	OPG_II
put a definition of C-KT a te beginning of the 6.2 Cyber Key Terrain paragraph (line 941)	Player opinion/statemer Run 3	Improvem€Cyber Key Terrain	OPG_II
It should be clearly stated that availabel intelligence and cyber key terrain processes should be conducted simultainously	Player opinion/statemer Run 3	Issue Cyber Key Terrain	OPG_II
Chapter 6 should be before MDCO capabilities	Player opinion/statemer Run 3	Improvem€Cyber Key Terrain	OPG_II
Some of the introduction of chapter 6 should be moved to the introduction (layers, operational environment, definitions and so on.)	Player opinion/statemer Run 3	Improvem€Cyber Key Terrain	OPG_II
Figure 7 is good and shows the linkage between the different definitions and models	Player opinion/statemer Run 3	Utility/rele Cyber Key Terrain	OPG_II
A lot of details about cyber intelligence are presented but not about ISR, which have also discrepancy between countries	Player opinion/statemer Run 3	Issue Cyber Key Terrain	OPG_II
The whole of chater 6 is more addressed to the cyber SMEs than operational planners.	Player opinion/statemer Run 3	Issue Cyber Key Terrain	OPG_II
Cyber key terrain lingage to CoG is important. Termnology should be as close as possibly as used with the other domains.	Player opinion/statemer Run 3	Improvem€Cyber Key Terrain	OPG_II
Cyber key terrain template was easy to use, adequate and understandable. Good template (pages 51-52)	Player opinion/statemer Run 3	Completen Cyber Key Terrain	OPG_II
Template captured the chapter text (page 51-52). Examples on the page 52 was good.	Player opinion/statemer Run 3	Completen Cyber Key Terrain	OPG_II
Template on page 51. In colum blue, red, neutral. Add "unknown"	Player opinion/statemer Run 3	Improvem€Cyber Key Terrain	OPG_II
CHAPTER 6 AVAILABLE INTELLIGENCE AND CYBER KEY TERRAIN: This chapter has to be before the MDCO Capabilities and Operational Risk. Layer distribution of the Key terrain (CySA) must be consider in the Introduction chapter (Proposal after 1.3 Cyberspace Ops: 1.4 CySA). 6.2 CKT sub chapter to begin with the definition of CKT that is reflected further in the chapter in lines 986 to 989. About intellingce couldnt get the discussion :( . CKT is essential to identify many issues later on. In 6.3 CKT Identification Process tFIG. 8 has to be more linked with the text, and be more clear with who is responsible in each phase reflected in the Fig. 8. Template of the CKT easy to use and good one very well focused a real benefit to identify the own and the oponent assets and the examples are very good to guide the planner about the info to be considered.	Run 3	Cyber Key Terrain	OPG_II
Some of the text on CKT should be put into the introduction	Run 3		
Line 879 remove "Men"	Run 3		
Mention figure 8 in the text, more explanation	Run 3		

Chapter more written for specialists	Run 3		
Is CKT a part of cyber CoG analysis?	Run 3		
CKT template is ok, but should add headings to the tables	Run 3		
Move definition of CKT to line 941 (beginning of chapter)	Run 3		
Line 838. Definitions for MITRE and other could be in text box and/or LEXICON	Run 3	Cyber Key Terrain	OPG_III
Figure 6. OPG 3 offers a replacement picture/view.	Run 3	Cyber Key Terrain	OPG_III
Figure 7. Confusing - recommend remove	Run 3	Cyber Key Terrain	OPG_III
Page 22 Lines 894-897. Following pages do not address thses areas - restructuring required.	Run 3	Cyber Key Terrain	OPG_III
Page 24. Cyber Key Terrain definition is not needed.	Run 3	Cyber Key Terrain	OPG_III
Line 954. Should have heading of: Cyber Prioritized Defended Asset List (CPDAL)	Run 3	Cyber Key Terrain	OPG_III
Page 51. CKT Template needs CPDAL	Run 3	Cyber Key Terrain	OPG_III
Page 25. OKOKA should be fully defined.	Run 3	Cyber Key Terrain	OPG_III
6.3 Include CKT definition	Run 3	Cyber Key Terrain	OPG_III
1009-1022. move to 6.3 and remove duplication	Run 3	Cyber Key Terrain	OPG_III
Page 26. In text recommend identifying this as WG activities	Run 3	Cyber Key Terrain	OPG_III
Page 27. Would be helpful to have examples for planners input.	Run 3	Cyber Key Terrain	OPG_III
Page 26-28, Lines 1025-1103. Review topics and content to ensure fully supports actions CKT actions. Recommend diagram with supporting actions. (Is content is mission dependent or can a generic example be developed?)	Run 3	Cyber Key Terrain	OPG_III
Develop STANDING template examples, based on COAs, which would be steady state operations through to Crisis. Early analysis based on mission (HADR, NATO/UN Military, etc.). Systems employed will determine details of template.	Run 3	Cyber Key Terrain	OPG_III
line 853 Exchange picture Figure 6. There could be another picture be used to explain the six layers on abetter way for that issue source will be provided	Run 3		
Page 20.21 Definitions. couple of issues should be in the lexicon or in a footnote	Run 3		
line 882 relationship is a little bit confusing. where is the need for this kind of figure (it is irrelevant for this guidebook)	Run 3		
line 901, 939 All terms should be rewritten. Where do the definitions come from, rewrite the whole part and combine the relevant information	Run 3		
Page 24 definition cyber key terrain. The definition of page 24 is repeated on the template 9.6	Run 3		
line 954 Header needed. CPDAL (mentioned in chapter 2 and here is the place where it should be explained, making it more visible and to have an specific template for the list	Run 3		
Page 25 table 1 does not interact with the described process (delete that table) and put a new one related to the process in there	Run 3		
Page 25 Link from chapter 1. Reference should be done to the step 1 line 209 or vice versa	Run 3		
Page 26 What is the type of header and don't duplicate the information about the identifying the cyber key process line (1009 till 1041)	Run 3		
line 1041 Figure 8. Description of the activities of the working group, suggestion is to be more precise in the title of the figure to name exactly what it is about	Run 3		
page 27. Example. There is a need for an example with some main entries (Checklist) --> should make the work more efficient	Run 3		

line 1047 - 1103. restructuring of page 27. The proposal is to integrate some parts into the main chapter e.g. Key networks , risk management, ... In general there should be a flow (red line) available in the overall chapter, and should lead to a outcome supported by checklists (Means a total review and restructuring of the overall chapter, The figure 8 should be the central element of the chapter and be described in a clear way (how could it be simplified, maybe there is a way to learn from the figures used in the targeting process) Assessment of systems. Should there be a few para or a chapter plus template be included for pre crises planning for better preparedness

Run 3

Run 3

**CHAPTER 7: C2 REQUIREMENTS**

p29: Channels of Information for CDR, is this the right place, should be earlier

Player opinion/statement Run 3

Improvement C2 Requirements

OPG\_I

Some discussion reflecting that JMIE and MOU arrangements whereby nation joins the mission have been neglected and thus not reflected in the GB Chapter 7. 7.2 Change "red-line" to "red card" or to "national constrains"

Other Run 3  
Player opinion/statement Run 3

General C2 Requirements  
Improvement C2 Requirements

OPG\_I  
OPG\_II

The same issue of STRAT planning bordering OP planning was discussed more than once, pls cf. Chris H.

lines 1148-1150 might be difficult to capture due to restraints in sharing information. template 9.7 question 4. change "red line" to national constrains.

Player opinion/statement Run 3  
Player opinion/statement Run 3

General C2 Requirements  
Improvement C2 Requirements

OPG\_II  
OPG\_II

CHAPTER 7 C2 ORGANIZATION: Line 1135 change term "national red-line" for "national constrains". Line 1148 include sharing information too. Template: good template. In line 4. change "Limitations/red-card" for "constrains" for consistency reasons as it was stated before.

Facilitator and group began review of chapter 7 of MDCO Guidebook Examples are always helpful.

Player action Run 3  
Run 3

C2 Requirements  
Completion C2 Requirements  
C2 Requirements

OPG\_II  
OPG\_III  
OPG\_III

line 1111- 1150. In theatre and reach back capabilities. should be kept because of the difference of the nature, generally useful some examples could be added chapter is sufficient

Run 3

**CHAPTER 8: ORDER OF BATTLE**

template on p 54 is not needed ; redundant with other sections (C2 and key cyber terrain)

Player opinion/statement Run 3

Utility/relevance Order of battle

OPG\_I

COB section in general appears to have elements that either don't fit this section or redundant (i.e., C2/capabilities)- recommendation was to relook at chapter Why is it necessary to mention tasks in chapter 8? Template p54 is repetition of main body text, not needed as such

Player opinion/statement Run 3  
Player opinion/statement Run 3  
Player opinion/statement Run 3

Utility/relevance Order of battle  
Utility/relevance Order of battle  
Utility/relevance Order of battle

OPG\_I  
OPG\_I  
OPG\_I

L1177 sentence not well understood, i.e. "if you are stupid, read somewhere else" L1185 term "maneuver" introduced but relation to COB unclear In COB chapter division into main tasks and unit tasks not necessary COB chapter 8.6 overlapping with risk assessment

Player opinion/statement Run 3  
Player opinion/statement Run 3  
Player opinion/statement Run 3  
Player opinion/statement Run 3

Utility/relevance Order of battle  
Completion Order of battle  
Utility/relevance Order of battle  
Completion Order of battle

OPG\_I  
OPG\_I  
OPG\_I  
OPG\_I

COB chapter 8.7 redundant, it is not THE Order, but a working sheet for action officers: change name please and consider combining with C2 chapter

Player opinion/statement Run 3

Improvement Order of battle

OPG\_I

What Coalition forces must ask for the TCN are "Capacities", better than information about number of soldiers, teams or units.

Chapter 8: Detailed data required to Nations

Your own opinion/inter Run 3

Improvement Order of battle

OPG\_I

Chapter 8: Tasks to Units	Player opinion/statement	Run 3	Improvement	Order of battle	OPG_I	When this information is required, anybody knows which will be the units assigned and the tasks to be assigned
Template 9.8 is not good, since it deals with persons when it should in fact deal with capabilities. Some persons could provide capabilities to several functions and can not be divided in the template. Another aspect is that the nations have different structure, education of the personnel and tasks. Defining the structure in persons instead of capabilities will not give the correct information and is unnecessary information at this stage.	Player opinion/statement	Run 3	Issue	Order of battle	OPG_II	
Page 54. definition of "Unit" has two meanings according to this. Need to choose one to be used.	Player opinion/statement	Run 3	Issue	Order of battle	OPG_II	
Page 55. restructure the table without amount of soldiers, teams, units and groups and instead capabilities and restructure the table accordingly to page 51. Need to link capability to key cyber terrain and through that impact on mission.	Player opinion/statement	Run 3	Improvement	Order of battle	OPG_II	
CHAPTER 8 CYBER ORDER OF BATTLE: Text doesn't figure out the context of the template. Template is too tactical oriented. It has to reflect the capabilities instead of numbers that would be too tactical. Other comment regarding the charts the terms "mobile/stationary" should be "forward force/reach-back". Linkage with CKT template regarding the assets (CPDAL) and teams in the COB template to protect those critical assets.				Order of battle	OPG_II	
Facilitator and group began review of chapter 8 of MDCO Guidebook	Player action	Run 3	Completion	Order of battle	OPG_III	
Ch8.5 maybe to be detailed. More focus on capabilities that can be provided. Operational planners focus on capabilities (DCO, ISR, OCO,...). Forward force/reach-back		Run 3				
Page 54, table should be simplified (more like the CKT table on p. 51). Need to describe capabilities and link to critical assets		Run 3				
Fall back strategy - Yes or NO?		Run 3				
Cyber order of battle is not a good name, it is not an order, should be renamed		Run 3		Order of battle	OPG_I	
Page 55. How do you provide the number of personnel (soldiers) support planning? IS THIS NEEDED AT THE OPERATIONAL LEVEL?		Run 3		Order of battle	OPG_III	
Page 57. MORE TACTICAL THAN OPERATIONAL!		Run 3		Order of battle	OPG_III	
Page 58 Line 1510. Needs to be defined.		Run 3		Order of battle	OPG_III	
page 54. template. no remarks to the chapter --> just remarks to the template section basic definitions could be skipped or moved to the definitions or to a footer, and the template can start with the first bullet		Run 3				
page 54. template. C2 structure should be included in 9.8 as an overview		Run 3				
page 55. template. Table of personnel structure what is the value of this information on this level Should be simplified, the same issue occurs on table equipment! --> general question is what level of detail is needed and all templates should refer to the same level		Run 3				
page 58. possible risk (number 8). Link to the risk assessment is missing and why do we have to put this to the order of Battle --> it is as well not mentioned in chapter 8		Run 3				