MAIN EVENTS LIST/ MAIN INCIDENTS LIST DEVELOPMENT PROCESS FOR COMPUTER ASSISTED EXERCISES

Diana-Ioana NEAGOE(ZINCA)*, Ghiță BÂRSAN**

***Multinational Division South-East, Bucharest, Romania**

****“Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania**

zinca_diana@yahoo.com, ghbarsan@gmail.com

Abstract: *In order to train commanders in the decision making process we cannot rely only on simulation systems. It takes more than war-gaming to be able to train higher-headquarters and a proven solution to achieve that is by using computer assisted exercises (CAX). The higher the headquarters that needs to be trained, the more complicated the systems' architecture becomes, for both functional area services and simulation systems together with their auxiliary tools. It takes subject matter experts in different domains and up to 18 months to plan a computer assisted exercise. Every stage of the exercise planning process involves using different systems and building their databases. In order for the commanders to be successfully trained in the decision making process, they need to face operational dilemmas. The Main Events List/ Main Incidents List (MEL/MIL) planning team's job during the exercise planning phase is to develop the major events, incidents and injects which will trigger the operational dilemmas and will force the commanders to make decisions in dynamic and fast-paced environments. The MEL/MIL plays a key role in ensuring a successful execution phase of an exercise and this study explains in detail the complex 8 month process of building the MEL/MIL database.*

Keywords: Computer Assisted Exercise, Main Events List, Main Incidents List

1. Introduction

In an environment that is constantly changing, facing new threats and reacting properly to them can be challenging. Training might be the key to overcoming those challenges, or at least to be able to limit their negative effects. CAX has proven to be a very efficient way to train the military higher-headquarters in Major Joint Operations (MJOs), as well as to achieve and maintain their full operational capability and accomplish various missions. The CAX is comprised of specific scenarios, written to provide for the training audience/ TA the opportunity to accomplish the required training objectives/TO.

The training opportunity is provided through constructive simulation systems which are able to replicate the environment and to support conducting the MJOs. The process of planning a CAX can take up to two years and its complexity is directly linked to the level of ambition of the training audience [12]. Integrating the CAX into an educational platform might be a time optimization solution for the exercise planning process (EPP) [9]. For a better understanding of the exercise planning process we will start with a brief description of the CAX's architecture and phases, then we will focus our study on

describing in detail the MEL/MIL process, since it is considered to be one of the main tools for conducting an exercise. Also, these CAX's may be integrated into an educational platform [1].

2. CAX structure

The basic CAX structure is organized into two main bodies: the TA and the Exercise CONTROL (EXCON). The former is the structure which receives the training, while the latter is focused on providing the training. They play completely different roles, therefore the systems used by each structure are driven by the “need to know” principle. In terms of systems, the most important difference is related to the simulation systems and their auxiliary tools. The TA does not see either the simulation program, or the MEL/MIL system (Joint Exercise Management Module - JEMM). All the TA has the Functional Area Systems (FAS) like LOGFAS, TOPFAS, INTELFS, etc that they are using on a daily basis. EXCON personnel on the other hand are double-headed. They are using both

simulation and FASSs. Some cells from EXCON, like Higher CONTROL (HICON) and Lower CONTROL (LOCON) play double roles during the exercise. They represent not only the higher echelon and the subordinate units for the TA, but also the response cells (RC) for EXCON. In the first role they are entrusted to support the TA's mission accomplishment by providing reports and returns via FASSs, while as a RC they are sending injects via JEMM and operating the simulation system based on the orders received from the TA.

Another thing worth mentioning is that the exercise planning process is conducted by EXCON personnel, assisted only by a few trusted agents from each TA team, while the Operational Planning Process (OPP) is developed only by the TA. These two processes are completely different, but they overlap and one product from the OPP becomes an input for an EPP stage, as it is further detailed in the following point and figure 1.

Figure 1: Scenario and MEL/MIL Development Timeline and Interactions [2]

3. EPP phases and the OPP products

The EPP comprises of four stages, linked and even overlapping for periods of time:

- Specification Development;
- Planning and Product Development;
- Collective Training & Exercise Conduct;
- Analysis & Reporting [2].

The third EPP stage is generally conducted by the TA and also includes the part where they run their OPP. The 3rd Stage of the EPP is divided into four phases, allowing the tracking and controlling of the TA's training progression. Within the first phase (foundation training), the TA is conducting battle staff, key leader, academics and cross-functional training sessions in order to enhance their skills in working with functional area services, and to ensure that they understand the future mission and to rehearse their command post procedures focused on the Battle Rhythm. The next phase of the exercise, Crisis Response Planning (CRP), is specially designed for the TA to conduct their OPP. Exercise scenario modules four and five provide all the information that the TA needs to be able to develop the Operational Plan (OPLAN). It is worth mentioning the fact that the OPP usually takes 10-14 days, is conducted only by the TAs and its main outcomes are the OPLAN and the CONcept of OperationS (CONOPS). The OPP has a great impact on the EPP since the OPLAN is a valuable asset for the MEL/MIL team, as it is one of the inputs needed for developing the Main Incidents List as it can be seen in figure 1. The last 2 phases of the Collective Training and Exercise Conduct are the exercise execution phase, where the TA plans and conducts the operations (during this phase they are being evaluated to see if the TOs are reached) and the assessment phase, where the after action reviews are conducted. As you can see, starting with

and triggered by the CRP exercise phase, the TA begins conducting their own processes. Nevertheless, the products that TA develops directly influence the EPP.

4. MEL/MIL process

"The MEL/MIL is a script designed to create a training environment with opportunities for the TA to achieve their training objectives while executing an agreed portion of their OPLAN" [2].

The MEL/MIL is a script developed based on the exercise settings and scenario and is built in order to support both the Exercise and Training Objectives (EO and TO). The script is structured on three levels: events, incidents or storylines and injects. The events are the broad operational themes, the umbrellas that hold the incidents/ storylines which provide the contextual situation or describes the activity that is going to be played and brought to the TA's attention through injects.

The MEL/MIL is stored in the JEMM system and during the execution phase of the exercise, it is presented to the TA through injects/ reports which will trigger decisions and will generate specific effects in order to provide the most accurate training opportunities. The Chief MEL/MIL and his planning team are in charge of leading the MEL/MIL process during all the stages of the exercise, conducting the working groups (WG) and populating the JEMM database (DB).

4.1. MEL/MIL planning team and WGs

MEL/MIL is the main tool for EXCON to control the exercise and to ensure that the TAs are going to accomplish their TOs. This responsibility falls under the MEL/MIL team, which usually has a Chief and a Deputy, a MEL/MIL Manager and for each event, an Event Manager and its Deputy. Another important person to have

is the JEMM Manager who will deal with the JEMM DB. The Chief MEL/MIL is the team's leader and usually he is an experienced officer able to coordinate the process starting with the development stage and continuing all the way through the execution phase of the exercise, mainly focused on the script's content. The MEL/MIL Manager is the project manager, who is focused on mechanisms, tools and support processes regarding the MEL/MIL's development and delivery. The incidents and injects development are the responsibility of each Event Manager. They are in charge of the coherence, synchronization as well as quality control of all the storylines for their event. The DB is built by the JEMM manager. He is the one who operates the JEMM system and populates the DB with all the information regarding the events, incidents and their link with the TOs. All the other users usually operate the DB only to input the injects.

The MEL/MIL is developed in three steps, each represented by a WG which has specific outputs, as explained below:

- Strategy Workshop (WS)→ Events
- Incident development WS→ Incidents
- Scripting WS→ Injects

4.2. MEL/MIL Strategy WS

This is the starting point for the MEL/MIL development, and the first meeting that the Chief MEL/MIL and his team conduct. The WS lasts for 2-3 days and it is scheduled after the exercise Main Planning Conference (MPC), usually 7-8 months prior starting the exercise (STARTEX). As external participants, the attendance of the Trusted Agents from the TA, the Officers of Primary Responsibility (OPR), TA Senior Mentors, EXCON Senior Advisors and Subject Matter Experts (SMEs) is recommended. In order to make sure that everyone has the same information, the MEL/MIL team can provide the attendees

briefings with the key inputs regarding: the Exercise Specifications (EXSPEC), TOs, Scenario and the Opposing FORces (OPFOR) campaign plan and intent.

This WS can be seen as a brainstorming session to agree on the MEL/MIL framework, to identify the operational dilemmas and to establish the events (usually between 3 and 5 events/ exercise). The operational dilemmas (OD) are the starting point for each event development since they represent "a situation where a commander has to make a choice between equally undesirable alternatives" [2]. This will help the planning team identify the decision points and develop further stories to help the TA to achieve their TOs.

As an output of the Strategy WS, the Chief MEL/MIL should have all the Event Managers established and the events developed and linked with the TOs. As a "best practice" identified from experience, each Event Manager briefs a slide presenting the event they are in charge of at the end of the Strategy WS. The slide contains information regarding: the event's name, main topics, TOs that his event will train, possible key incidents to be further developed and the ODs for the event. Once the Chief MEL/MIL has all of that information, he can start organizing the next event, the Incident Development WS (IDWS).

4.3. MEL/MIL Incident development WS

By the time that the IDWS is taking place, the TA has already conducted the CRP and has also developed the OPLANs. This one week conference is meant to develop the key storylines which will be played during the exercise execution phase. In order to properly achieve that, new members are invited to participate in the conference, as the exercise analysts and the Observers/ Trainers who have also participated at TA's CRP process. At the beginning of IDWS, a

briefing package will be presented to the guests, including the operational level OPFOR plans and the blue forces OPLANs. Prior to the IDWS, the Chief MEL/MIL builds a storyline synchronization matrix based on the key incidents that were identified during the Strategy WS, highlighting the period of time when the major incidents will be played during the execution phase. The Chief MEL/MIL's vision together with the matrix will be briefed to the IDWS participants in order to give them a broad understanding about the time and space. Having all of this information, the participants will split into syndicates which are led by the event managers and will develop the key incidents in detail, as well as adding new ones able to support the EOs and the TOs. Each storyboard developed within the workshop should contain at least the following details:

- Title - storyline's name;
- Cause - especially if the storylines need further scenario development for the conditions to be set prior to the STARTEX;
- Event manager intent - the purpose of the storyline, which might be coordinated with the TO desired to be achieved;
- Expected outcome - what are the desired TA's reactions for this incident;
- EXCON coordination remarks - if support is needed from other specialists, like the CAX team or other SMEs;
- Key injections.

The new incidents that are developed during the workshop should also be integrated into the synchronization matrix. Daily, or at the end of the conference, the event managers or the designated storyline owners should back brief the Chief MEL/MIL regarding their products, highlighting if there are any requirements to

be added into the scenario module.

4.4. MEL/MIL Scripting WS

Once the IDWS is finalized, the MEL/MIL team double check and readjust both the incidents and the synchronization matrix where needed. Once everything is approved, the documents go to the JEMM manager in order to put them into the database and the MEL/MIL team starts preparing the last WS, the Scripting. This two-week event will provide not only all the materials that the TA will receive during the execution phase of the exercise, but also it will ratify the STARTEX conditions. Therefore, the Strategy WS usually takes place at least four weeks prior to the execution phase IOT provide enough time for final readjustments and synchronization with the CAX team for the simulation system. The number of participants at this WS will increase due to the amount of work and the inputs that are needed. Experts from the TA, RCs and external sources, as well as supplementary CAX personnel will join the team. Prior to this workshop, the MEL/MIL team will develop briefings regarding the outcome of the IDWS, the friendly forces' OPLAN, OPFOR and their campaign plan, as well as JEMM user trainings.

Username and passwords for JEMM will be created by the JEMM manager and provided to the Scripting WS attendees. For the introduction briefings, the Chief MEL/MIL updates and presents the synchronization matrix with the key injects that were developed during the IDWS. After all the briefings are delivered, the Strategy WS attendees are split into syndicates, and the inject development begins. Since everyone is trained to log into JEMM, the best way to conduct this workshop is by working directly with the

system, creating the injects within the DB. Figure 2 shows what both the JEMM DB

and the inject look like.

Figure 2: JEMM DB for an exercise [5]

I have highlighted three elements which are helping the scripter's to better coordinate with each other. The planned date and time for each inject will actually build into JEMM the synchronization matrix automatically and will be easier to check if the proposed injects match the TA's Battle Rhythm. The functional area message and the attached files from JEMM are the only texts that the TA will receive from the DB, therefore those have to be developed properly. Another helpful input that JEMM requests is the injects' intended outcome. This is actually an evaluation tool which allows the observers to understand how the TA is supposed to react when they receive the inject. The actions are also built during the Scripting WS. These are related to the simulation system and are setting the conditions to support a specific storyline. The actions are usually developed by the CAX team and are linked with the injects in the JEMM DB through the "coordinating cell" and the "timing details".

The output of the Strategy WS will be the complete MEL/MIL DB, the incident level synchronization matrix, as well as the STARTEX conditions' validation and the key OPFOR actions synchronized with the simulation system. The final brief of the Strategy WS will be provided by the Chief MEL/MIL to the TA COM/ the Officer Conducting the Exercise to ensure that the exercise expectations are met. Once the WS is over, the MEL/MIL team double checks the JEMM DB and makes the final readjustments in order to set everything up for the STARTEX. More details about JEMM DB and its use during the execution phase of the exercise will be provided in the last point of this chapter.

4.5. JEMM DB

JEMM is a software which supports the preparation, execution and control of the exercise. We have already discussed how JEMM supports the exercise planning process. When it comes to the execution phase of the exercise, JEMM is able to

manage both the information sharing within EXCON and the information flow between EXCON and the TA, through the “functional area message” from the injects (remember that JEMM and the simulation systems are not seen by the TA). Therefore, JEMM becomes an important control tool in EXCON’s hands. Based on the TAs’ reactions during the execution, the injects can be held, postponed, cancelled or created through dynamic scripting in order to support the TA to achieve their TOs (which are linked with the injects in JEMM DB). This will allow EXCON to better control, adjust and coordinate the events played. During the execution phase, the MEL/MIL team is comprised of the chief, the MEL/MIL and JEMM managers, the event managers and the JEMM operators from each RC. They are responsible for keeping the game on track. To achieve this, a very structured process is followed. One day in advance, the RCs’ JEMM operators check the injects that are supposed to be played the following day and propose them to the RC chief. Once the RC chief approves them, they go to the event manager for validation. The last step is done by the MEL/MIL manager who does the final check and schedules all the injects for the next day. Two MEL/MIL meetings are held daily by the Chief MEL/MIL. One in the evening to coordinate what EXCON is going to play the next day, and one every morning, after the TA’s commander update briefing because the injects might suffer some last-minute changes, based on the TA COM’s decisions. Once the Chief MEL/MIL makes sure that everyone is on track with the changes (including the CAX team), the injects are updated and scheduled to be sent to the TA. The TA’s reactions to the injects are evaluated by the observers. JEMM helps the observers in this process through a special tool called OPCAR and through checking the “intended outcome” developed for the injects. The JEMM system has proven itself to be a great tool for EXCON, able to support the exercise

planning process in all its stages, therefore more than 90 organizations are using it.

5. Conclusions

The MEL/MIL is the best tool for EXCON to control the exercise and make sure that the EOs and TOs are accomplished. It provides insight into training effects by linking training opportunities to observations and to analysis [5]. The eighth month MEL/MIL process is complex, well-structured and is supported by a user-friendly software.

We are entitled to say that without the MEL/MIL process, the exercise would be driven by the simulations systems’ outcomes. All the events and incidents that the TA would receive would rely only on the CAX operators’ skills. The training opportunities would seriously decrease, not to mention that reaching all the EOs and the TOs would be almost impossible. Therefore, the MEL/MIL is the process which makes the difference between a video-game and a computer assisted exercise. It is not only the process that provides training opportunities for the TA, but also the management module which assures the EXCON that the TOs are met. Using JEMM as a tool for the MEL/MIL allows the EXCON to better control the activities during the execution phase of the exercise and also provides them a good opportunity for coordination between different EXCON cells. After all, the exercises are collective activities where the headquarters and/or units are prepared to fulfil their missions, which are driven by external stimuli of a scenario and typically assessed on their readiness [11]. This definition highlights the importance of the MEL/MIL process for an exercise. The storylines created for the MEL/MIL are actually the external stimuli from the exercises’ definition, and unit mission achievement translates into the TA meeting the training objectives. Therefore, building the MEL/MIL is not an easy task. It takes a team of subject matter experts able to

understand both the EPP and the military doctrines in order to find and explore the weaknesses of the headquarters' campaign plans. The MEL/MIL becomes the

instrument which trains the TA to hope for the best but to expect the worst. As Callum Gentry JP says "*It takes real planning to organize this kind of chaos*".

References

- [1] Gabriel Mănescu, Ghiță Bârsan, Dorel Badea, Dumitru Iancu, *Cluster-Type Collaborative Models Specific to the Field of Defense*, in Proceedings of the 12th International Management Conference "Management Perspectives in the Digital Era" (IMC 2018), November 1st-2nd, 2018, Bucharest, Romania, pp.282-292;
- [2] NATO Allied Command Transformation, *BI-STRATEGIC COMMAND DIRECTIVE 075-003, COLLECTIVE TRAINING & EXERCISE DIRECTIVE*, Annex M, pp. 29,275-288, 2020;
- [3] North Atlantic Military Committee, *NATO Education, Training, Exercises and Evaluation (ETEE) Policy*, pp.14-18, 2014;
- [4] NATO Allied Command Transformation, *BI-STRATEGIC COMMAND DIRECTIVE 075-002, EDUCATION AND TRAINING (E&T) DIRECTIVE*, pp. 41-48, 2016;
- [5] H.W.M.P. van den BROEK, *Main Events List / Main Incidents List (MEL/MIL)*, Exercise Planning Course, pp. 19-45, Lille, France, February, 2020;
- [6] NATO Allied Command Transformation, *SACEUR'S Annual Guidance on NATO Education, Training, Exercise and Evaluation 2015 (SAGE 15)*, Annex B, pp. 27-42, 2015;
- [7] Badea, D., Bârsan, Gh., Mosteanu, D., Iancu, D., *Landmarks of The Military Organisation's Approach as a Management Model*, The 10th International Management Conference, Management and Innovation for Competitive Advantage ICM 2016, November 3-4, Bucharest University of Economic Studies in partnership with Management Academic Society in Romania (SAMRO), Romania, ISSN 2286-1440, ISSN-L 2286-1440, p. 219-223;
- [8] J Mares, AH Camara, G Bârsan, D Moșteanu, *Environmental Protection of Port Logistics Using Phase Analysis*, in Polish Journal of Environmental Studies, Vol. 28, issue 6, 2019, pp. 4287-4295;
- [9] Giurgiu, L., Bârsan, Gh., Mosteanu, D., *The Technical Dimension of Knowledge Management in the Context of Learning and Training*, The 9th International Management Conference, Management and Innovation for Competitive Advantage ICM 2015, November 5-6, Bucharest University of Economic Studies in partnership with Management Academic Society in Romania (SAMRO), Romania, ISSN 2286-1440, p.506-513;
- [10] Dorin Ioniță, Sorin Pînzariu, Ghiță Bârsan, Aurelian Rațiu, Dănuț Moșteanu, *Interinstitutional Dimension Concerning Planning, Training And Force Engagement as Response to The Hybrid War*, in Journal of Science of the Military Academy of Land Forces, Volume 49 Number 4(186) 2017, pp.38-48.
- [11] NATO School Oberammergau, *Introduction to NATO's ETEE - Global Programming Course*, 2020, pp.12-36;
- [12] <https://emtep.exonaut.com/ExonautWeb/rmp/#/rmp/start>
- [13] <https://portal.transnet.act.nato.int/Pages/home.aspx>