

## Embarking on a Home Station Training Revolution

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### ABSTRACT

As the US Army has been at war for over a decade, the art of developing and conducting Home Station Training (HST) has not been a focal point for our next generation of leaders. Units have become accustomed to having their training provided to them by others prior to overseas deployment. This diminished capability has made it difficult to develop and execute effective HST when that training includes live, virtual and constructive (LVC) environmental considerations. To fully understand the scope of the problem, this paper articulates the processes in which HST is currently designed and developed, and how that training could be supported by Mission Training Centers (MTCs). The process, while not the same for all units, demonstrates the genesis of how training is developed at home station. To help overcome the challenges, the Training Brain Repository-Exercise Design Tool (TBR-EDT), a collaborative, web-based repository and exercise design tool has been created. It enables commanders and staffs to reuse storylines, events, and other exercise related items from within the repository. It allows units to work closely with MTCs to automate and modernize HST lifecycles. The TBR-EDT revolutionizes the current mainstream exercise design process; reducing the time required to develop an exercise and its associated training support package (TSP), due to the enhanced collaborative opportunities between the training unit and the supporting MTC. The TBR-EDT currently supports simulations with start of the exercise (STARTEX) data, provided in multiple machine readable order of battle service, extensible markup language (OBS XML) versions for import into simulation systems. In the future, more robust STARTEX conditions such as terrain, C2, and parametric data will further enhance the simulations environment, and better replicate the operational environment. Finally, the paper will present the TBR-EDT as a game changer for Army and Joint trainers; significantly shortening the design process for realistic and economical HST exercises.

### ABOUT THE AUTHORS

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## Embarking on a Home Station Training Revolution

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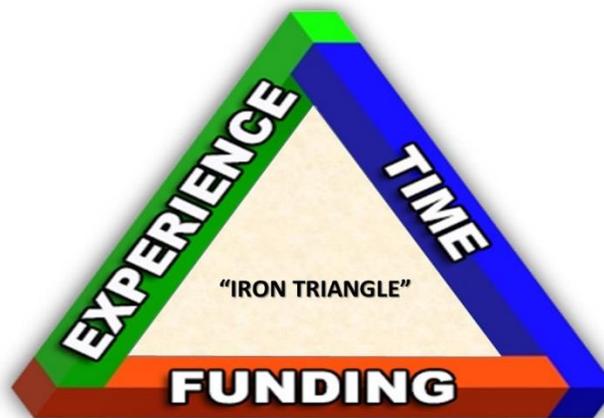
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### INTRODUCTION

Following the attack on America on September 11<sup>th</sup> of 2001, the United States Army quickly ramped up units in preparation for combat operations overseas. The resulting cycle of multiple deployments in support of Operation Enduring Freedom (OEF), and later for Operation Iraqi Freedom (OIF), significantly changed the way Army units prepare for war. To sustain force generation requirements, units needed to train hard and train fast on the collective tasks that they would be expected to execute while deployed. To meet those requirements over the last decade, Army units continuously rolled into various training centers and complexes, where they conducted externally developed and scripted training exercises, which were managed by an external cadre of professional trainers. Following the completion of the exercise, the training units departed back to home stations and then onward for their eventual deployments overseas.

This training methodology was effective; as it drew upon the combat experiences of previously deployed units. Over time however, an unintended consequence surfaced. As the planning and execution of collective training is a perishable skill, many units today are not as experienced in how to internally plan, develop and execute a Home Station Training (HST) exercise as they were in the past. This is through no fault of their own, as they've never had to do it for themselves, or with the Soldiers within their commands. To combat this potential training deficiency, the Army must undergo a revamped Home Station Training Revolution; where it relearns how to internally plan and conduct collective training. The TRADOC G-27's Training Brain Repository - Exercise Design Tool (TBR-EDT) supports that solution.

### PROBLEM SET



**Figure 1: The Training Iron Triangle**

While the unit leaders of today's Army may not be as experienced at conducting home station collective training as they were in the past, they are unquestionably the best trained, best led and most combat experienced army in the world. This is partly due to the very fact that they were trained by a cadre of professional unit trainers. That cadre was established specifically to support an army preparing for wartime deployment; and they set a very high standard for many years. However, the cost in both dollars and manpower to support that training methodology has been expensive, and will be impossible to maintain based upon the realities of today's diminished military budgets. Preparing effective HST is also time consuming, and time is a commodity in short supply at most units. In effect, Commanders are faced with a training resource "iron triangle," whose critical factors are the three interdependent

sides; represented by training experience, available training time and sufficient funding (See Figure 1). Any change made to one side, has an immediate effect on the other two sides.

Operation Iraqi Freedom is now over and combat operations in Afghanistan are drawing down. We must transition from an Army at war to one in preparation, compensating for reductions in unit manning and operating with reduced staffs, all while addressing the hard realities imposed by the training iron triangle for each and every training event.

That transition must not be taken lightly, as Soldiers have become accustomed to receiving training that reproduces the challenges and complexities that they have witnessed while deployed. They will not remain professionally satisfied by simply returning to routine, day-to-day garrison operations. They will expect and demand the replication of a complex training environment that simulates the situations they've experienced in real life (Wallace, 2013).

To do so successfully, as an army, we must reexamine and refocus our overall approach to collective training. The training of troops will inevitably revert back to Home Station locations, and more importantly, directly back into the hands of unit commanders and staffs. Units being trained by someone else will soon become the exception rather than the norm. Those unit commanders and staffs will now have to take the place of those full time trainers that were relied upon in the past. Unfortunately for today's unit commanders, as they were busy fighting two wars, the design of training at the unit level has become a lost art for an entire generation of soldiers.

To help overcome this problem, the past *road to war* training philosophy that ramped up units for combat operations and fostered a *centralized, top-down and externally evaluated* approach to collective training must be overwritten. It has inadvertently contributed to the reduction of intuitional knowledge at the unit level. Leaders must once again become the "chief trainers, teachers and assessors within their units, the Army must relearn its own training doctrine...and dispel the illusion that we all know how to train" (Dubik, 2012).

Commanders are rediscovering that the planning and design of a HST exercise is a lengthy and laborious task that is sometimes beyond the capabilities of their staffs. They oftentimes do not have the people, the experience, nor the time to do it correctly. How to address this problem was a key discussion point during Army Training Summit (ATS) II held in May, 2011. General Martin Dempsey, then TRADOC's commanding general, recommended the creation of a training repository. He proposed a repository that would allow any unit, regardless of their home station location, to access and share relevant training data. He envisioned constructing a data repository; a place to store training scenarios, storylines, events, operation orders and supporting message traffic developed for and used in past exercises. In effect, it would be a one-stop shop that contained an entire collection of quality assured training support packages (TSP) produced by Army units. The task to create this training repository was originally given to the Training Brain Operations Center's (TBOC) Data Transformation Lab (DTL). The TBOC and DTL have since been renamed. The TBOC is now called the G27 Operational Environment Training Support Center (OE TSC), while the DTL is now called the Data Science, Models, Simulations (DSMS).

During the initial development of the repository, it was soon apparent to the designers that just storing various training data elements, while meeting Gen Dempsey's intent, would not satisfy his overall vision. To support the Army's simulations requirements, the simple storage of the selected data was not the answer. The solution lay in the ability to reuse authoritative data, in effect, taking an entire TSP, selecting the appropriate parts that fit the Commander's intent and training guidance, and modifying those elements to create an entirely new exercise. This methodology is faster and cheaper and it capitalizes on the shared experiences of many units. "That is the philosophy behind the TBR-EDT. It is both a repository and exercise design tool that is intended to put the power back in the users' hands, instead of having to go talk to a simulationist" (Todaro, 2014).

## **CHALLENGES**

Unit commanders and their staffs will encounter challenges along the transitional path from being an Army at war to an Army of preparation. As depicted by the training iron triangle, two of the significant resource challenges that they face are experience and time. TRADOC also contends that, an Army of preparation requires "home station and unit training strategies to be sufficiently resourced to support the commanders' responsibility to train and prepare soldiers, leaders and units to successfully execute the Army mission in any operational environment they may encounter" (Bridgwater, 2012).

Combat experience does not necessarily equate equally to training experience, nor to the ability to create a quality HST exercise. Training experience is different, and that level of experience plays a significant role in the design of a successful training exercise. In relation to the training iron triangle, TRADOC's contention of units being *sufficiently resourced*, equates directly to having experienced people, having enough time and having adequate funding. The first challenge that unit commanders are faced with is inexperienced people; a new generation of soldiers who possess very limited familiarity in the exercise design process at brigade level and below. Secondly it relates to time, as represented by the amount of time it takes to collectively train to standard, and to the amount of time it takes to develop and design a quality training exercise. The result is a vicious circle, where a generational lack of training experience affects the time it takes to develop an exercise, while an overall lack of time significantly impedes the people with the least amount of training experience. As usual, everyone across the board is seemingly affected by a lack of funding. In an article published in *Foreign Affairs* magazine, General Raymond Odierno was asked the question, "How can the Army broaden its scope and maintain its readiness even as the available resources decline?" General Odierno believes the answer lies in enhancing training and investing in new capabilities (Odierno, 2012).

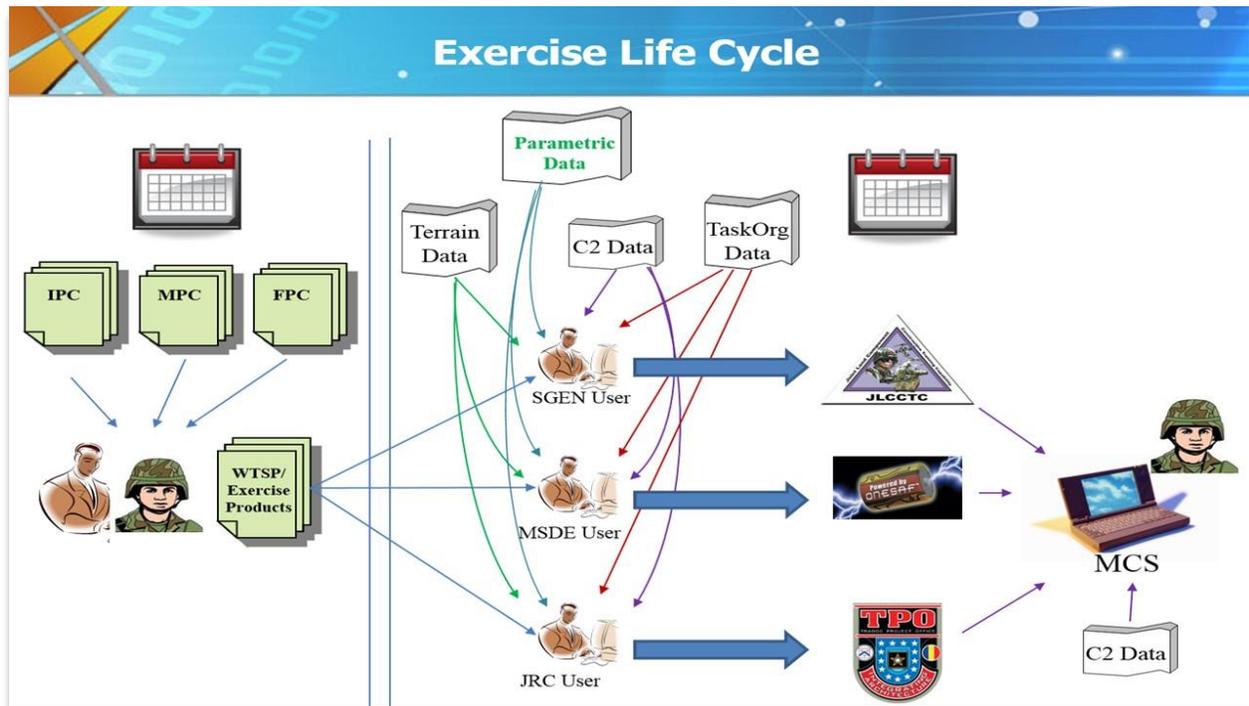
The foundation of any program to potentially enhance future training is an established doctrine that is easily understood and followed. To assist and guide units in developing their collective training, TRADOC publishes Training Circular 7-101, Exercise Design. TC 7-101 lays out the methodology to design and build exercises. It describes what has to be done and who has the responsibility for doing it. It points out not just what to do, but more importantly in this case, how to actually do it. The TC's easy to follow sequence assists those unfamiliar with developing collective training. It outlines:

"...a methodology for designing and executing training exercises. It describes planning procedures and methodologies, responsibilities, and analysis for those who plan and control Army exercises intended as culminating collective training events that critically assess unit-training status. The objective of exercise design is to structure a training event that establishes the conditions to facilitate performance-oriented training on properly selected, directed, and mission essential training objectives" (TC 7-101, 2010).

As stated, the second piece of the unit training challenge is time. It is the commodity that units never seem to have enough of, and never get back once used. The current exercise life cycle normally takes months to run its course; from organizing the initial planning conference to publishing the post-exercise unit after action report. That time is valuable at the unit level. Everything they must do to develop an exercise reduces their overall training time on something else. Reducing the time required to develop an exercise also significantly reduces the overall cost of an exercise. TC-7-101 recognizes that problem. One of the document's stated goals is to provide the exercise planner with "a backbone methodology for scenario development and establishment of the exercise Operational Environment (OE). The approach to exercise design and analysis is sequential, and structured to get the planner to the "bottom-line" as quickly as possible" (2010).

As the current training transition continues, other challenges are faced by units preparing both collective and individual training at home station. These challenges include: restrained budgets, a limited availability of relevant data, and the difficulty in measuring the overall effectiveness of the training. Units will not invest their precious and valuable time to design and develop training, if the training is not effective, or relative to supporting their overarching mission essential task list (METL). In order for an exercise or training scenario to be effective, it must be relevant to the units' combat requirements. The Commander's task is ultimately to create realistic training that incorporates the depth and complexity of real-world operational environments, all while remaining within the confines of a unit's budget (Paschal and Gunnerson, 2015).

To develop realistic training, it is essential that the unit's staff has access to and understands where to retrieve relevant information that incorporates both the depth and complexity to sustain an effective HST exercise. Regardless of the



**Figure 2: The Current Exercise Design Process**

experience level of the staff, data mining for this information is a methodical and time-consuming process that takes away from the time available to develop and execute the training itself.

The time that it takes to create an effective and realistic training exercise is stressful to a unit. In an integrated training environment, where agile and adaptive leaders are trained, the development of a HST exercise is a very detailed process. For example, developing a constructive simulation supported command post exercise (CPX) may take months. While the process to generate a constructive simulation enabled exercise may be done differently at various installations, it generally follows a standardized path. That path includes several planning events, such as an initial, main and final planning working group. These resource intensive, pre-planned working groups are each held over a period of several months (See Figure 2).

It is during these planning working groups that many of the exercise related products are generated; usually including the road to war (RTW), the higher unit's operation order, accompanying annexes and the associated operational graphics, along with the exercise storylines, events and timelines. These products, normally created in Microsoft Office, are generally used in support of any exercise, regardless of the exercise type. These products are then passed on to the operators of a simulation center.

At the simulation centers, operators or contractors generally require several weeks or months to prepare the simulation aspects of an exercise. Their preparatory tasks include, but are not limited to, inputting the STARTEX data such as all initial unit locations and all initial unit conditions for personnel, equipment and supplies, along with terrain generation for the exercise play box, and creating the exercise Task Organizations within the confines of the exercise databases, for both friendly and opposition forces (OPFOR). This convoluted process of data manipulation and generation takes time, and must be developed separately for each exercise driver that is being leveraged; such as when using the Warfighters' Simulation (WARSIM), One Semi-Automated Forces (ONESAF) or the Joint Conflict and Tactical Simulation (JCATS). Further complicating the process, each of the previously mentioned exercise drivers have similar yet unique input formats. Once the data has been generated and formatted to support the various requirements of the constructive simulation, and inputted into the system, the exercise can begin.

## **REQUIREMENTS**

While this complicated and labor intensive process has been being used, technology has been rapidly advancing. The developmental expertise has evolved so much that many of the steps described in the process can be easily automated, reducing the heavy reliance of humans in the loop. As these processes become streamlined, the ensuing mechanisms and applications save time, money and produce a higher fidelity of output for the users.

Combat-proven Soldiers and leaders are accustomed to a fast paced, complex and ever-changing operational environment. Leaders and their soldiers require planning tools that allow them to design and manage training just as quickly and expertly. Exercise developers are currently spending an inordinate amount of time searching for relevant and realistic data, from either other operational environments or material from previous training exercises (Paschal and Gunnerson, 2014). How does the Army revolutionize the way training exercises are designed and developed?

Any proposed solution would have to satisfy multiple technical challenges for an exercise design tool to be successful. It would have to be web-based, accessible and available to low band-width users. It would have to support multiple domains, to include NIPR and SIPR, while potentially supporting both Joint and Coalition exercises. It would be Common Access Card (CAC) enabled and secure, preferably using just a single sign on for all users. It must store digital maps of the world in various scales and formats, and depict established training area boundaries, ranges, impact areas and firing points. It would allow a user to create an exercise from scratch or build one by cloning a stored exercise. All data would be searchable, available to support a multitude of potential tools. All exercises under construction would be available only to certified users, and not visible to the public (hence available for re-use) until published by the overall exercise owner. All published exercise output would be shareable, using various OBSXML formats to support multiple simulation formats. Finally, it would be cloud enabled, scalable and easily expandable to support a future generation of users.

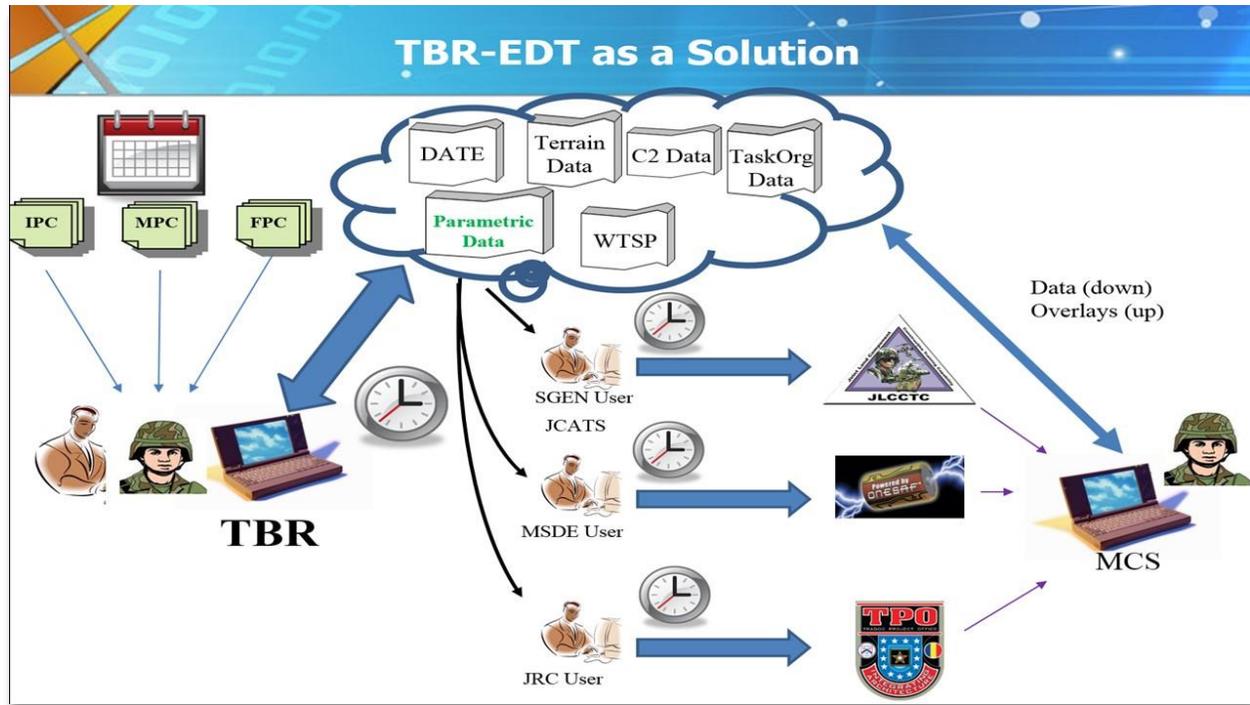
Beyond the technical challenges, there are also a series of practical challenges that any Exercise Design Tool must overcome. It must above all, be simple enough that it can be used by Soldiers at any level, who have only a limited amount of pre-training. While being simple to use, it must be able to satisfy the requirements established in TC 7-101. It must set exercise parameters, such as commander's intent, and guidance. It must be based upon authoritative data, capable of building a task organization (TASKORG) for Blue, Red, Green, Black, Grey and White elements on the battlefield, as well as selectively assign collective and individual tasks. It must support multiple operational environments (OEs) such as the Decisive Action Training Environment (DATE), and others. It must use a stored data base to create or reuse PMESII-PT searchable storylines, events and role players. It must create and accurately depict easily readable timelines and MSEL lists. It must support staff collaboration to build entire multiple levels of operation orders and associated annexes, that are automatically populated based upon input provided to the higher level document. Operational graphics must be easily constructed to military standards, and be exportable to populate other training areas, as required. The output must be printable and readable using commonly supported tools, such as MS Office. Finally the end-product must be exportable, and able to be seamlessly integrated into various simulations systems.

## **THE TBR-EDT AS A SOLUTION**

To embrace the latest technological advances, the G27 OE TSC has developed the TBR-EDT as an automated tool that provides an intuitive yet streamlined approach to exercise design, as articulated in TC 7-101. This tool specifically addresses many of the training challenges identified by an integrated training environment (ITE) and faced by home station commanders. By reducing the design process time line from months to hours, it empowers commanders, enabling them to be able to spend more time actually conducting training, instead of spending their time designing the training (See Figure 3).

The TBR-EDT is a collaborative, web-based, open-sourced repository and an exercise design tool that considerably abbreviates the HST exercise lifecycle. This lifecycle modification enables commanders and staffs to significantly reduce the amount of time that it once took to develop a complete training exercise. A user from Fort Campbell declared that he spent over a month creating an exercise, and when he later used the TBR-EDT to create a similar exercise, it only took him a few days to create one of similar complexity and scope.

“Soldiers want realism as manifested by a well-trained opposing force, good training areas, role players, and all the things that make combat the complex event that it is” according to Mr. Gary Philips, the director of TRADOC’s G2 22 (formerly TRISA) (Bridgwater, 2012). To help promote that realism, the TBR-EDT’s more innovative approach



**Figure 3: The Improved Exercise Design Process**

to exercise design at home station follows a generalized process, which still facilitates, if desired, the planning working groups, as did the previous approach. However, that is where the process similarities stop.

This new approach allows for the collaborative development, storage, and retrieval of exercises and various exercise support products from one centralized database or repository. Instead of the old standard of developing exercise support products using a word processor application to create operation orders, storyline, events and role players, users are now collaboratively developing everything within the TBR-EDT through their web browser. This approach ensures that each step of the exercise design process is being addressed and that the latest doctrine is being used. While that in itself is noteworthy, the key take away is that everything created within the tool can be reused once the exercise is published. The time savings generated using the repository’s library of storylines, events or role players is striking. This new approach is different in that the simulation operators will no longer be required to develop the terrain, parametric or other data such as Command and Control (C2) because it will already all be resident within the tool and repository.

One modeling and simulations officer familiar with the tool made the comment that using the “TBR-EDT would improve the development of TSPs at the brigade, division and corps levels. He said it would make FA 57 officers look like *rock stars when they get to their first assignment*” (Paschal and Gunnerson, 2015). The TBR-EDT is not just a glorified way of creating training support packages. Users can now leverage the output produced by the TBR-EDT to support simulations at various levels. In addition to training units and simulations centers, the tool lends itself to supporting all Army Centers of Excellence (COEs). According to Gen David G. Perkins, TRADOC’s Commanding General, “the tool enables trainers to build their own exercises to meet specific training objectives without a team of script writers” (2014). This in and of itself could foster the following scenarios:

- A Brigade Operations Officer at Fort Campbell searches for and finds a TSP from an exercise held last year at Joint Base Lewis-McCord. He directs his subordinates

to clone the old exercise and they begin using it to build a brand new one that borrows from the original's storylines and events, while modifying them to support their own unit's specific training requirements. Building storylines and event tasks for a large exercise can sometimes take months when done from scratch. With the TBR-EDT it takes this unit less than two weeks to create the same level of complexity. To save further time, the Brigade staff also uses the TBR-EDT's collaborative tools to create their respective staff portions of the higher unit's operation order. The completed TSP output is digitally shared with the Mission Training Complex (MTC).

- While developing a Battalion level CPX within the TBR-EDT, a remote Vermont Army National Guard (VTARNG) unit shares exercise ownership with their regional MTC. This joint ownership of the exercise during development enables a new level of collaboration between the guard unit and the supporting MTC. At the MTC, the support staff can now log into the exercise on a daily basis, and can access and monitor the progress of the exercise during development, all while providing support to the Guard unit during the entire development cycle. Even before the entire TSP is completed, the unit staff can provide generated OBSXML data files to their MTC for a direct import into JCATS or any other exercise driver as required. This OBSXML data file provides a mechanism for the MTC to correct any data issues, in ample time to support the scheduled start date of the exercise.
- An instructor at an Army Center of Excellence notices that students continually have difficulty understanding their required actions during a certain classroom scenario. Using the TBR-EDT, she clones an exercise used during the last training cycle and reuses it to create an enhanced set of events for use within that same storyline, giving her students a better understanding of the complex problem. Her students then use those same events to help develop better solutions to their classroom assignments.
- A Company Commander wants to make sure his unit understands their responsibilities related to sexual harassment / assault response prevention (SHARP). He instructs his XO to create a SHARP storyline that he can use in the next scheduled professional development class. The XO searches for and easily finds SHARP storylines within the TBR-EDT database. The storylines are cloned, the associated events are modified, and the entire updated storyline is reused to meet the Commander's intent for SHARP training.

Unquestionably, these scenarios potentially save valuable time for MTCs and training units from around the world (Paschal and Krus, 2015). This is time that commanders and staffs can better spend assisting and overseeing the actual execution of an exercise vice developing the exercise elements themselves. One recent user, described the TBR-EDT in an email to the TBR-EDT Help Desk as, "an enduring virtual training tool-that arguably-will be the training benchmark for the Operating Force Commanders when evaluating the training of their respective units" (Patterson, 2015).

The TBR-EDT repository currently stores over 30 completed and published exercises available for reuse. There are approximately 150 other exercises, in various stages of completion, being worked that will be available for reuse upon publication. While still a work in progress, the TBR-EDT has been embraced by Army Active, Reserve and National Guard units to date, while attracting attention from the US Marine Corps, Joint and Allied elements. Users have seen the significance of reusing data to save time and money, but more importantly, they recognize the value of delivering a more complex operational environment for their soldier's training exercises.

## CONCLUSION

Major General Larry B. Wyche, then commanding general of the Combined Arms Support Command and Sustainment Center stated that, “The transition from being an Army at war to an Army of preparation requires two critical resources: leader development and training” (2014). With its ease of use, accessibility, collaboration capabilities, processes and outputs, the Training Brain Repository-Exercise Design Tool is a game changer for Army units, supporting both of those critical resources for units conducting Home Station Training.

As the Army transitions to an Army of preparation, it must provide high-quality training experiences that replicate real-world operational environments and stimulate agility and adaptability. The TBR-EDT facilitates developing these critical skills, by enabling leaders to focus more on the actual training execution, and less on training design. This is made possible due to the TBR-EDT’s compliance with Army doctrine and the automation of processes that are found within the Army Training Circular 7-101, *Exercise Design*. Furthermore, the TBR-EDT stores the TSP data in accordance with TRADOC Pamphlet 350-70-1, *Training Development in Support of the Operational Domain*. More importantly, the TBR-EDT is integral to the development of the Army’s Integrated Training Environment, another training tool that links live, virtual, constructive, and gaming capabilities to accurately replicate operational environments. The TBR-EDT is quietly revolutionizing how today’s Army develops home station training and more importantly, how the Army will train its next generation of leaders.

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