Titel der Arbeit:	Entscheidungsunterstützung & Analyse militärischer Szenarien mithilfe von Data Farming am Beispiel Virtual Battle Space 3
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Hochschule:	Universität der Bundeswehr München
Name des Verfassers:	Maximilian Ströbel & Stefan Luther
Betreuender Professor:	Prof. Dr. Ulrike Lechner

*Kurze Beschreibung (1 Seite !) der **Kernthesen**.*

Was ist die Quintessenz der Arbeit?

Decision support and optimization are gaining relevance especially in a military context. The quality of military decisions and standard practices have huge impact on military success. Computer aided methods and procedures can support decision making, but are still only being used sporadically. Data Farming - as a possible method for supporting decision makers - offers huge potential and opportunities. On the other hand, we noticed a high demand for utilization of already available commercial software to support decision making. This impression intensified through national military projects and multinational conferences such as the NATO CAX Forum 2015. With this project we take those trends into account and use a commercial software that was built for training of military personnel as tool for decision support (through Data Farming).

The project focuses on feasibility, costs and possible hitches of using the software Virtual Battle Space 3 (VBS 3) for Data Farming. Therefore, we developed two test scenarios and implemented them in VBS 3. The first one is rather basic in order to get used to VBS and investigate possibilities of Data Farming with VBS in general. The second one is more complex and simulates a logistic operation under combat conditions. It focuses on the quality of VBS 3 as simulation engine and investigates the limits.

Data Farming and in particular multiple repetitions of a mission with varied parameters after each or every e.g. 50 simulations is not possible with VBS 3 itself. Therefore, we developed a comprehensive plugin with VBSFusion to meet these requirements. This plugin takes an experiment design matrix and sets the parameters in the VBS mission according to the values in the input file. After simulating the scenario in VBS once the plugin collects and calculates the specified measurements of performance and restarts the mission with the appropriate parameter values. Having all design points calculated the plugin writes all data into an output file and sends them attached to an e-mail (to the user). The plugin is easily extensible in order to support possible further users.

After simulating both scenarios based on a Nearly Orthogonal Latin Hypercube design we analyzed and visualized the data to provide decision support for the given mission objectives and research question.

The results confirm the feasibility of Data Farmig with VBS 3 with the aid of the developed plugin. Having evaluated the software's strengths and weaknesses it offers an alternative with great opportunities to conventional simulation systems and decision support systems.

To sum it up, we showed successfully that Data Farming is possible with VBS 3 and that useful decision support and recommendations for action can be deduced.