Israel Defense Forces

Multi-Arm Headquarters Trainer (MAMRAZ)

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Background

The Multi-Arm Headquarters Trainer (MAMRAZ) is a simulation system designed to plan, manage, and investigate training and headquarters exercises. The MAMRAZ was designed based on a previous simulator system that provided only a partial solution since it was not interconnected with other mechanized systems. This gap grew progressively with the introduction of various systems requiring network integration. Therefore, MAMRAZ was designed to enable headquarters exercises with imaging of the mechanized connection between the systems participating in combat. The IDF planned to develop the MAMRAZ in 2013–2017 and budgeted it in these years mainly from the Operations Directorate, Ground Forces, and Air Force budgets. The Operations Directorate defined the operational need for MAMRAZ, content development was led by the Information and Communication Technology (ICT) Directorate, and the Planning Directorate applied General Staff supervision of the plan in this period. Since 2018, no continuation plan has been determined for MAMRAZ, including budgets and responsible bodies, causing difficulties in continuing to develop MAMRAZ. With the need for training that simulates the complete and current battlefield as much as possible, it is essential to complete the development of the contents in the MAMRAZ project.

Key figures

Dozens of main headquarters exercises

conducted based on MAMRAZ in the years 2014—2020

Number of main headquarters exercises

due to the Covid-19 pandemic the number of exercises conducted in 2020 based on MAMRAZ decreased by 57% compared to 2018 (the year in which the peak number of exercises were conducted over the last seven years)

Approx. NIS 88 million

is the MAMRAZ budget for the years 2013—2017: NIS 56 million development budget in the plan + NIS 32 million civilian support budget in operating MAMRAZ in exercises

Approx. 45% of the interfaces

developed as part of the MAMRAZ plan were not fully completed

Since 2018 and onward

MAMRAZ development is not budgeted according to an order plan

Approx. NIS 12 million

of the Air Force budget was allocated for developing the MAMRAZ-Air Force interface, which was not completed

Audit actions

From October 2020 to June 2021, the State Comptroller of Israel audited MAMRAZ, mainly its plan for 2013—2017, its development and operation since 2018, its contents, and its imaging of the complete battlefield. The audit was conducted in the IDF and the Ministry of Defense.

This report was presented to the Prime Minister and the State Control Committee of the Knesset on December 30, 2021.

By the authority under Section 17(c) of the State Comptroller Law 1958 [Consolidated Version] and after considering the government's arguments, consulting with the protection of national security information bodies and coordination with the Chairman of the Knesset, and since the subcommittee of the State Control Committee failed to convene, it was decided to publish this report while imposing confidentiality on sections of it. These sections shall not be submitted to the Knesset, nor shall they be published.

The findings of the audit report and its recommendations are valid as of the above date of its presentation.

Key findings

🖓 **Scope of main headquarters exercises** – in 2014–2018, the main headquarters exercises conducted based on MAMRAZ – increased; however, in 2019 and 2020, there was a decrease due to operational events and the Covid-19 pandemic (an increase of 700% from 2014 to 2018, and then a decrease of 57% in exercise in 2020).

🖓 **The MAMRAZ plan budget for 2013–2017 and control thereof** – gaps were found in the data held by various IDF factors (approximately NIS 38 million according to Planning Directorate figures) and the Ministry of Defense (approximately NIS 75 million) regarding the actual costs of characterization and development of MAMRAZ and civilian support of its operation in exercises. The Planning Directorate did not have complete details of the realization of budgets as part of the MAMRAZ plan. It failed to examine the scope of the reduced overhead of military manpower that may occur following the development of MAMRAZ.

🖓 **Control and tracking by the Operations Directorate** – 12 years after the MAMRAZ operational requirements document was written, it was not updated, despite the changes in the requirements and the battlefield that MAMRAZ is supposed to simulate.

🖓 **Management of the MAMRAZ plan in the ICT Directorate** – the MAMRAZ plan and budget, approximately NIS 88 million, was managed by one official in the ICT Directorate without the support of any administrative apparatus. Since 2018, the end of the plan, the ICT Directorate had no military official familiarized with the system, in charge of MAMRAZ. Therefore, the ICT Directorate has not performed any effective control or tracking of the activity of the private company that created the MAMRAZ outcomes.

🖓 **Development and operation of MAMRAZ since 2018** – since the end of the MAMRAZ plan at the end of 2017 and until the audit end date, no designated multi-annual plan including budget or responsible factors has been made for MAMRAZ.

🖓 **Realization of connectivity content in the MAMRAZ plan** – at the audit's end date, the development of several interfaces – constituting approximately 45% of the interfaces planned had not yet been completed. This is due to malfunctions in development management and because the MAMRAZ plan ended at the end of 2017 and has not been renewed.

🖓 **Realization of applicative content in the MAMRAZ plan** – development of a particular model has not been completed regarding the field echelons, nor has any

investigation capability been developed in MAMRAZ, enabling mechanized comparison of exercise data to the data of other systems.

👎 **Imaging of the entire battlefield based on MAMRAZ** – despite the understanding among senior IDF echelons that systematic development and updating of doctrines and capabilities in MAMRAZ can ensure realistic imaging of our forces and those of the enemy, gaps exist in this field, such that compromise the system's ability to simulate the operational environment properly. The effectiveness of exercises and operational improvement obtainable through them are thus compromised.

👍

MAMRAZ serves as an essential system for the training of senior IDF headquarters – MAMRAZ is of great importance in the multi-branch exercises of senior headquarters in the IDF. Due to its being a simulation system connected to their system, it simulates the working environment in which they work, in routine and emergencies. From 2014 to 2020, the IDF carried out dozens of headquarters training, all using the MAMRAZ.

Key recommendations

💡 It is recommended that the Planning Directorate perform a periodic assessment to examine the degree of savings in costs resulting from the system's development, conclude, and improve decision-making regarding the continued management of the project.

💡 In cooperation with the Operations Directorate, it is recommended that the Planning Directorate formulate a new multi-annual plan for the MAMRAZ – reflecting the operational requirements document and including periodic tracking of the changes in functional requirements. It is recommended that complete MAMRAZ interfaces be considered, whether as a plan in itself or as part of another plan dealing with multi-branch exercises. In addition, it is recommended to determine contents, budget sources, schedules, milestones, and management and control mechanisms. In addition, it is recommended that in the MAMRAZ continuation plan, the Planning Directorate determine a management mechanism to ensure that the branches complete the development required of them and provide frequent updating of the system according to changes that occur, among other things, like the combat and enemy capabilities.

💡 It is recommended that as part of the new multi-annual MAMRAZ plan, an administrative mechanism be determined in the ICT Directorate to collect and retain the professional knowledge accumulated to avoid dependence on a civilian organization for this matter.

It is also recommended that the Planning Directorate, in cooperation with the Ministry of Defense, will consider integrating the Administration for the Development of Weapons and Technological Infrastructure (MAFAT) as a guide in the process, as defined from the outset in the master task document of the MAMRAZ project. Building and budgeting a multi-annual plan will enable the continued operation of MAMRAZ, including the update of content if the need should arise.

It is recommended that the Operations Directorate, as the operational customer, in cooperation with the ICT Directorate, verify completion of the investigative capability aspired to at the outset, i.e., the ability of comparative investigation of MAMRAZ data with data of other systems.

It is recommended that the Planning Directorate, in cooperation with the Operations Directorate, ICT Directorate, and branches, conduct staff work to suit the organizational framework for managing and operating simulation systems in the IDF, among other things, by examining how this is done in similar foreign organizations.

Abstract | **Multi-Arm Headquarters Trainer (MAMRAZ)**

Summary

The Multi-Arm Headquarters Trainer (MAMRAZ) serves many users in the IDF and is of great importance in multi-branch exercises of the senior IDF headquarters. Since the end of the MAMRAZ plan at the end of 2017 and until the audit end date, no designated multi-annual plan including budget or responsible factors has been made for MAMRAZ. This is although MAMRAZ continues to serve as the main system for simulative training requiring, among other things, completion of contents, updates due to changes in the battlefield, and technological adjustment for the branch systems. It is recommended that the Planning Directorate, in cooperation with the Operations Directorate, ICT Directorate, and branches, formulate a new multi-annual plan for MAMRAZ in which, among other things, a management mechanism will be determined to retain the knowledge and professional continuity in the ICT Directorate, for other future complex long-term ICT projects.