



## Focused Management in Military Organizations: An Avenue for Future Industrial Engineering

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### Abstract

This paper demonstrates the effectiveness of the Focused Management approach, which integrates the philosophies and techniques of Just in Time (JIT), the Theory of Constraints (TOC), the Complete Kit (CK) concept, and Global Performance Measures (GPM), as well as Total Quality Management (TQM), in improving the performance of military units. It shows how these mission-oriented units can implement Focused Management to improve their long-term as well as their short-term results. The paper presents the methodology and illustrates with a case study.

Key words: focused management, TOC, JIT, TQM, complete kit, military logistics.

### 1 Introduction

Focused Management Technology (FMT) is a managerial approach to solving an organization's problems by improving processes and increasing profits. It is based on the integration of the well-established Just in Time (JIT) [Schonberger, 1986], Total Quality Management (TQM) [DoD 5000, 1989, Deming, 1986], Theory of Constraints (TOC) [Goldratt and Cox, 1986; Ronen and Starr, 1990], Global Performance Measurements (GPM) [Kaplan, 1984] and Complete Kit (CK) [Ronen, 1992] techniques. These techniques and their underlying philosophies are modified and tailored to meet the special environment and the specific needs of military organizations [see also Drucker, 1990; Cameron, 1986a, 1986b]. In an era of cutting budgets, where the drive is for better results with less resources, one answer is a change in managerial techniques and philosophies. This article explains the integration of FMT into the military environment, and demonstrates two successful implementations of FMT concepts in the Israeli Defense Forces (IDF).

Diverse as they are, the philosophies and theories that make up the foundation of FMT can be seen as complementing each other. FMT modifies and tailors them to meet the given environment, in our case - the military environment with all its special characteristics and needs.

In those units that have implemented the FMT approach the results have been evident and measurable: more throughput (defined as the effective output of the organization/unit); lower operating expenses; an improvement in the mission or service quality; less work in process, as defined specifically in each unit; better response time and better due date performance.

### 2 The Military Squadron Case

Operational performance measurements were chosen to evaluate the improvements following implementation of FMT methods in a fighter squadron of the Israeli Air Force (IAF).

One of the problems to be solved was the imbalance between ready aircraft and available pilots.

After a six-day seminar for top and middle-level commanding officers and NCOs, the DBR (Drum-Buffer-Rope) [Schragenheim and Ronen, 1990] approach was implemented in the squadron for better scheduling of the missions and allocating crews to aircraft.

Following Schragenheim and Ronen (1990), the "drum" is the exploitation of the constraint that dictates the overall pace of the system. In our case the drum was the "market demand" (the planned missions), which determines the number of prepared aircraft.

The "buffer" is the protection of the constraints from disruptions that may cause reduction in throughput. Throughput is defined as completed missions. In our case, buffers were formed dynamically by scheduling extra aircraft and extra pilots. The main change was that the pilots were subordinated to the daily number of missions.

The "rope" is a mechanism to force all parts of the system to work up to the pace dictated by the drum. In our case the rope was the scheduling of aircraft and flight crews to the various missions.

Several months after the implementation of the DBR mechanism, the following changes were recorded.

a. **Aircraft Utilization** - the percentage of utilized aircraft out of the total available aircraft each day: this parameter was improved by 15%.

b. **Daily Number of Aircraft** - the number of aircraft prepared each day by the maintenance team: the variance of this measurement was improved by a factor of 2.

c. **Daily Number of Flight Crews** - the number of flight crews flying daily in the squadron: the variance of this parameter was reduced by a factor of 3.

### 3 The Logistics Measurements Case

A major reduction in maintenance turnaround time was achieved by a change of performance measures. Focusing on local performance measurements such as "efficiency" and "repair time per unit" caused long lead times and high levels of work in process and inappropriate utilization of scarce maintenance resources.

The implementation of global performance measures was key to the improvement process. The following measures were introduced for most systems:

- a. **Throughput** - the effective "output" of the system.
- b. **Operating Expenses** - the total cost of the system's resources.
- c. **Inventory** - the amount of raw materials, work-in-process and finished goods.
- d. **Lead Time** - the measured time between the arrival of the part to its delivery.
- e. **Quality** - among these carefully chosen measures were the percentage of returned parts and non-confirmed failures.
- f. **Due Date Performance** - the extent to which maintenance orders were completed behind schedule.

### 4. Conclusions

The implementation of FMT methods in the IDF has shown that techniques developed in industry and services have an added value in a mission-oriented, non-profit environment.

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