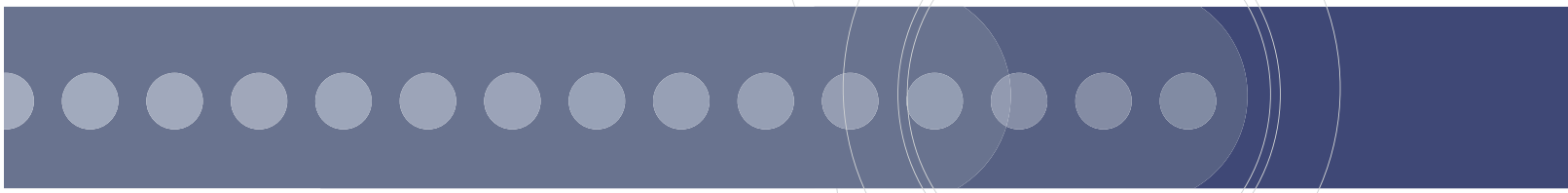
INFORMATICA®

CASE STUDY

Israel Defense Forces on Informatica



This edition published October 2004

Israel Defense Forces on Informatica

The storied history of the Israeli Defense Forces (IDF) is marked by milestones recognizable to even casual observers of the Middle East: The Six-day War of 1967 ... the Raid on Entebbe in 1976 ... the 1981 airstrike that crippled an Iraqi nuclear reactor.

In 2004, the Israeli military achieved another milestone that won't make the history books, but nevertheless ranks as a significant achievement that improves the IDF's ability to mobilize forces and materiel with greater speed, precision, and efficiency.

This time, the theater was not the Golan Heights or the Gaza Strip or the airport at Entebbe, Uganda. It was the data management environment of the IDF Technology and Logistics Directorate—a sprawl of incompatible applications that frustrated the Army's efforts to manage its equipment and resources.

"We had a forest of systems throughout Logistics," said Lt. Col. Yossi, the Technology and Logistics Directorate head of Enterprise Resource Planning Project Administration, based in Tel Aviv. "Each was a separate system that would speak its own language. We could do the job, but not in a fluent way."

The IDF Technology and Logistics Directorate embarked on an ambitious initiative that would migrate Army data from mainframe and legacy applications to a set of SAP R/3, selecting Informatica® PowerCenter® as the data integration system.

A first phase of the initiative aimed to migrate data from five key areas—spare parts, medical supplies, gas and oil, construction materials, and office materials—to SAP R/3 4.7, which was running under Linux on an IBM zSeries 990 with a DB2 database.

In production since April 2004, accessed by many users, and affecting more Army personnel, the integrated SAP logistics environment is helping the Army improve supply chain efficiency, reduce costs, and fine-tune operations based on a single, consolidated view of its data.

After quickly discovering the comprehensive capabilities of PowerCenter, the IDF has broadened the scope of the original integration initiative, and are now integrating data from all service branches (Army, Navy and Air Force) using Informatica.

PowerCenter: Above and Beyond the Call of Duty

"Originally, we thought we would have to expend 60 years of human work to perform the conversion," said Lt. Col. Yossi. "In reality, it only took 10 man-years. With PowerCenter, conversion was faster, data movement was faster, and because of the way Informatica uses mappings, we were able to identify data errors at the source level."

Among the first objectives was to examine the mainframe and legacy information for data quality—redundancy, inconsistent definitions, and differing codes for the same materials across disparate systems.

"We were about to install a new system, and didn't want the old 'garbage in, garbage out' problem," Lt. Col. Yossi said. "We wanted to do everything we could to ensure the new system would be as clean as possible."

The IDF team had created a custom application to perform data cleansing. PowerCenter provides the capability to seamlessly integrate such external applications as custom transformations. The highly visual Informatica PowerCenter

Robust Functionality Delivering Significant Benefits

According to Lt. Col. Yossi, PowerCenter's ease of use and robust functionality delivered benefits far beyond the expectations that IDF set during its project design phase. Informatica PowerCenter:

- Reduced the number of man-years by a factor of five to six. The project was completed with 10 man-years of labor versus an estimated 60.
- Decreased the project duration from three years to one.
- Enabled completion of the significantly-expanded project scope (all service data versus Army data only) within their new one-year timeline and 25 percent below budget.
- Supplied data quality validation that cleansed/standardized more than 100 million records.
- Was readily learned and adopted by 20 programmers—some no older than age 18.

development GUI provided a foundation for programmers to customize 24 mappings to use this external program as simply another transformation. PowerCenter moved data from source-to-target and cleansed data in one smooth operation. This exposed an alarming quantity of issues with source-level quality that would otherwise have gone undetected, Lt. Col. Yossi said. In some cases, the IDF used PowerCenter's Advanced External Procedures feature to streamline the most complex mappings.

The results were amazing, Lt. Col. Yossi said. Once data was migrated from mainframe and legacy systems to SAP R/3 instances in multiple locations across Israel. Moreover, cleansing and deduplication reduced data volumes by roughly 20 percent, saving on storage requirements.

Informatica/SAP Compatibility Streamlines Integration

In conversion and migration, the IDF took advantage of native SAP interoperability in PowerCenter and PowerConnect for SAP R/3. Compatibility with SAP's ABAP code and its IDOCS structured text file format simplified and accelerated processes that otherwise would have required time-consuming manual coding and far longer load times, Lt. Col. Yossi said.

For instance, PowerCenter's partitioning and parallel write technology enabled the IDF to simultaneously load multiple data sets into SAP R/3, overcoming SAP's limitation in loading one record at a time.

"After we wrote the mappings, PowerCenter did the work for us," Lt. Col. Yossi said. "It meant we didn't have to write any programs for moving the data off the main system." Logical mappings designed to move the data were easily configured to physically execute in a parallel fashion. This elegant separation of logical and physical within the PowerCenter design and execution environment tremendously improved and simplified the development process.

PowerCenter's exceptional ease of use meant that young programmers with no experience in mainframe sourcing or complex migrations could "connect the dots" to create and update business objects in SAP R/3, such as create new order, update material details, etc.

"These are young soldiers, 18 years old," Lt. Col. Yossi said. "We didn't even really teach them how to use PowerCenter—we just gave them the manual and told them they needed to know the system and how to operate it." In designing the system, the IDF capitalized on the expertise of Informatica personnel and the Tel Aviv-based systems integrator, Aman Computers.

For Army personnel who manage a vast supply of materials, the benefits are equally notable. By delivering a consolidated view of data, managers are better equipped to track costs, calibrate inventory, and manage storage facilities—and even monitor such details as the expiration dates on certain medical supplies, Lt. Col. Yossi noted.

"It enables our management to look at a material master across all of the organization," he said. "We can speak one language, and that means we can have fewer people taking care of the system and more people devoted to other tasks."

Component-Based Reusability for Future Integration

A key dividend from the project is that the IDF now has repeatable, component-based PowerCenter mappings that may be cost-effectively reused as the Technology and Logistics Directorate looks to build on its success with additional data integration initiatives.

The SAP migration that went live in April 2004 tackled five of 15 key functional areas for the military—spare parts, medical supplies, gas and oil, construction materials, and office materials. By 2006, the IDF expects to have migrated to SAP R/3 data on human resources, communications, vehicle maintenance, fuel depot management, and manufacturing of the 60-ton Merkava tank, the battlefield mainstay of Israeli defense.

"These expanded systems will add many new users to the SAP R/3 systems." Lt. Col. Yossi said. At the same time, the rollout enables the Army to reduce costs by retiring an array of mainframe and legacy systems, and by reducing the number of specialized IT staff required to run legacy systems.

Beside streamlining its operational applications, the Technology and Logistics Division is also looking to Informatica PowerCenter and SAP to team up for data insight and analysis with a data warehouse, based on SAP BW (Business Warehouse). Scheduled to go live in 2005, the system is expected to use PowerCenter to load data from R/3 operational systems to the SAP BW warehouse. PowerCenter 7.1.1 is integrated with the native BW load system, Business Content Integration (BCI). PowerCenter is able to invoke the BCI system which initiates execution of customized data load routines from R/3 to BW. This supports both initial and incremental data load.

The project has not gone unnoticed by IDF brass. After tackling data integration throughout the Army, IDF commanders are looking to expand the effort to cover the Air Force and Navy, as well.

Technical Details of the IDF Implementation

Much of the data focused on spare parts and thus entailed loading tremendous volumes via the IDocs DEBMAS (customer master), CREMAS (vendor master), and BLAORD (contracts). PowerCenter loaded over 46 million records into R/3 during the initial load process. PowerCenter loaded IDOCS in parallel into R/3 and was able to achieve throughputs or load rates of approximately 15 CREMAS IDocs per second.

Much cleansing of the data was required during the initial load process. The IDF team created a custom application to perform data cleansing which was integrated as an Advanced External Procedure (AEP). This "custom application" included 24 Informatica mappings to cleanse and transform the data for loading into R/3. These 24 mappings were reused for many of the applications and are still being used for on-going synchronization. Data was extracted from the source, cleansed by the external program via an AEP, and restructured as IDocs for loading into R/3 in one processing flow (i.e., no intermediate staging required).

The IDF application cleansed data, which translated into millions of records in SAP. In this whole cleansing and transformation process there were only 350 errors, which were quickly captured and corrected. The IDF reduced the number of parts tracked in SAP by 25 percent and reduced overall data volume by 20 percent.

SAP became the system of record once it was fully loaded. In addition to updating R/3 daily from related systems, R/3 in turn daily updated external systems. The R/3 system is updated daily via PowerCenter and SAP's Exchange Infrastructure (XI). PowerCenter performs batch synchronizations between R/3 and the remaining mainframe and AS400 systems. PowerCenter daily batch extracts data from the mainframe DB2 and loads this into R/3 via IDocs and by activating BAPIs and custom ABAP programs. Updates to R/3 during the day are provided via MQ and XI.

Similarly, legacy systems are updated daily by PowerCenter and XI. PowerCenter daily executes ABAP programs (generated by PowerCenter) which provide data files for legacy updates. PowerCenter loads these files directly into DB2 on the legacy systems. PowerCenter executes the ABAP programs, accesses the data files, and loads these into R/3 in one mapping or ETL routine. XI updates the legacy systems throughout the day via IDocs.

"As a result of the success of this project, it was decided to execute one overall project to provide a global perspective for the Army, the Navy, and the Air Force. The idea is to have one thinking, one methodology, so we will have all information integrated and can influence all three IDF branches at the same time."

Lt. Col. Yossi, Technology and Logistics Directorate
Head of Enterprise Resource Planning Project Administration

INFORMATICA®

Worldwide Headquarters, 2100 Seaport Boulevard, Redwood City, CA 94063, USA
phone: 650.385.5000 fax: 650.385.5500 toll-free in the US: 1.800.970.1179 www.informatica.com

Informatica Offices Around The Globe: Australia • Belgium • Canada • France • Germany • Japan • the Netherlands • Singapore • Switzerland • United Kingdom • USA

J50452 6554 (02/07/05)