

Marine Corps Equipment Readiness Information Tool (MERIT)

Information Paper

Background

MERIT uses a state of the art Graphical User Interface (GUI) that transforms existing legacy data into valuable information, providing a dynamic, adaptable view of Equipment Readiness for the Marine Corps. Featuring a user-friendly graphical analysis tool, MERIT allows for complex assessment of current and historical readiness trends with “drilldown” capabilities. The resulting Readiness Maps have drastically reduced the overall information gathering process—focusing the efforts of readiness experts away from making charts and towards solving and preventing mission critical readiness problems.

The MERIT Readiness Maps were created with a technology invented at the University of Maryland in 1992. Server space issues compelled a professor named Ben Shneiderman to seek a compact means of visualizing traditional directory tree structures (see figure 1). Over the years, a unique mathematical algorithm has been optimized to group, sort, and display large numbers of data elements in an informational graphical display. Dr. Shneiderman’s work was developed into a Commercial Off the Shelf (COTS) software package that has been adapted for Government application by Concurrent Technologies Corporation.

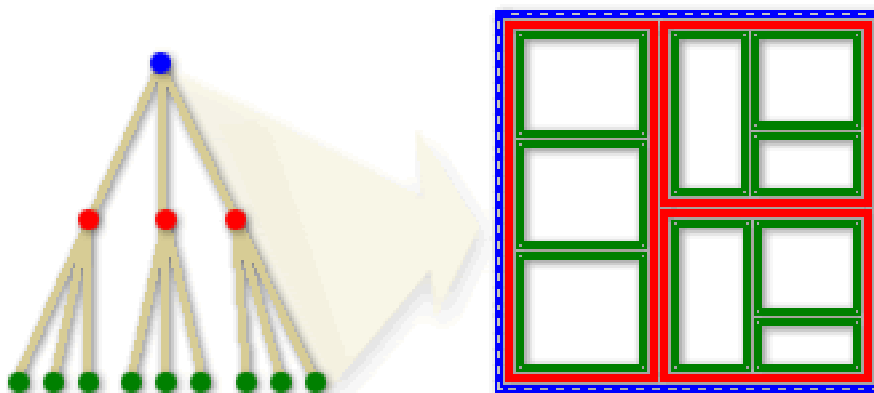


Figure 1

Technology

The technology behind MERIT is an open-source Java-based programming technique. The common delivery method is through a web browser using a Java Applet processed on the server and connected to a data source such as Oracle, XML or delimited text. The graphical results are embedded in HTML and displayed by the users web browser. The final product is a small, flexible file that runs on virtually any platform and handles a large number of users simultaneously. This established visualization technology is actively used by SmartMoney.com, The Smithsonian Institution, Peet’s Coffee, Inc. and other businesses to convert large, cumbersome data sets into crucial analysis tools.

There are three main means of manipulating data within the MERIT Readiness Maps (see figure 2). These controls can be combined and dynamically employed to display multiple calculations simultaneously.

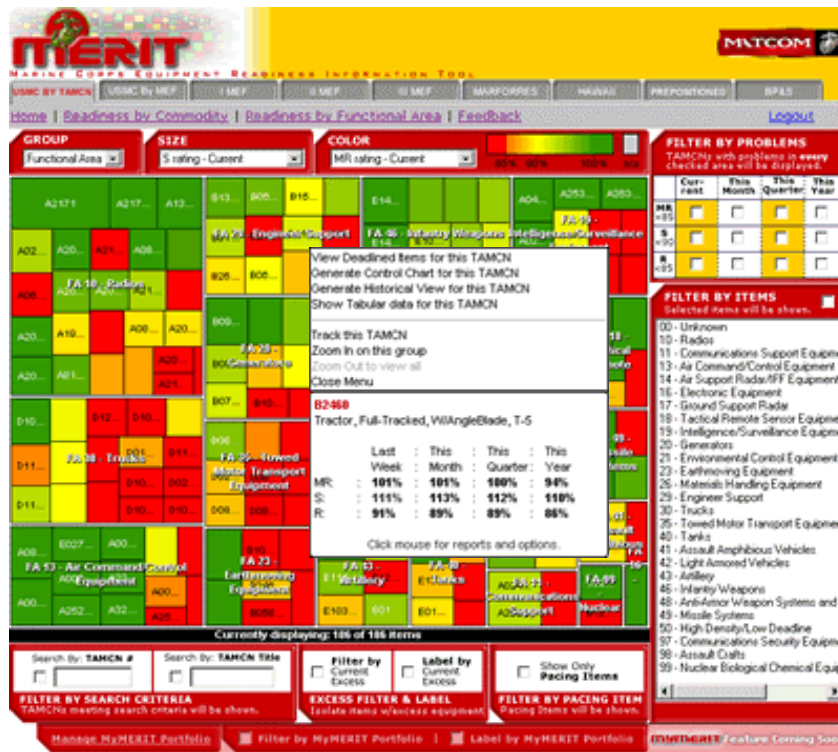


Figure 2

1. **Group:** data can be instantly arranged in a variety of different ways. MERIT Displays information by organizational level as well as equipment level.
2. **Size:** an item's size and position are determined by the value of a selected rating. MERIT Displays multiple calculations for current and historical USMC readiness data.

For instance, an item with the highest rating will occupy the largest surface area and will be positioned at the top-left of its grouping level. Items with the lowest rating will occupy the smallest surface area and will be positioned at the bottom-right of its grouping level.

3. **Color:** an item's color is determined by the value of a selected Rating. The value is displayed in the form of a color gradient that ranges from Red to Yellow to Green. MERIT Displays calculations for current and historical USMC readiness data.

MERIT compliments these controls with filters, labels and search tools that reveal complex patterns within the data. A "Mouse-Over" menu supplies detailed information about each item and a mouse-click hyperlinks to more detailed data, including critical supply chain information.

Applicability

MERIT provides a total view of the Marine Corps Readiness picture. Its breadth, versatility, and user-friendly environment make MERIT a crucial tool for anyone who needs fast, comprehensive analysis of equipment readiness. Force Commanders are given clear visibility of Readiness trends, revealing potential problems and associated causes. Weapon System Managers (WSM's), Program Managers (PM's), maintainers and analysts can access detailed information to focus on immediate solutions.

The MERIT technology is available through COTS integration for application to nearly any situation where large amounts of data must be rapidly analyzed and sorted into usable information. Successful application of the MERIT technology requires potential users to examine business processes prior to the development process. The key to successful application of the product is the proper definition of metrics and business rules for information processing. The optimized business process determines the information displayed providing insight into critical elements and enables the decision making process.

Benefits

- **Instant Outlier Detection**—enables rapid recognition of unusual data patterns.
- **Just-In-Time Results**—supports real-time data feeds.
- **Visibility of Large, Complex Data Sets**—compacts millions of data lines into a space small enough to be viewed by an Internet browser.
- **Decision Support**—directs users to the problem and helps them analyze the cause.
- **Multidimensional Analysis**—displays multiple calculations at one time to expedite thorough analysis.
- **Historical Data Patterns**—identifies long and short-term patterns within data.
- **Asset Tracking**—records and identifies items within a user profile.
- **Central Decision Point**—links to underlying data and generates charts dynamically.
- **Graphical Drill Down**—reveals data patterns from the highest levels of an information hierarchy to the lowest data reporting levels.

Carter Wilson

Sr. Applications Engineer

Raymond D. Nelson Jr.

Principal Supply Chain Analyst

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Concurrent Technologies Corporation