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# JEDMICS—Further Expansion of Automated Data

By

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[The following has been received from the Joint Engineering Data Management Information Control Systems (JEDMICS) Program Management Office, Arlington VA, and is provided to our readers for their information.]

Changes are taking place in the way digital data are managed within the U.S. Department of Defense (DoD) that are having a significant impact on the way DoD is doing business. Everything from supply records to tech manuals to engineering drawings is rapidly being converted from blue prints, aperture cards, published books, and other hard copy into automated formats. This conversion is showing benefits to the producers and the users of these data since it is often easier to reproduce, update, transfer, and store electronic data. Because these data can be readily transferred electronically, sites throughout DoD are enjoying rapid access to more current data and are able to have expanded libraries of engineering and technical data readily available.

This conversion has come about as the result of at least two forces. The first, and most obvious, is the availability of technology which make data storage and transfer more efficient and cost effective. The second is the recognition of the value of data in the management of virtually any technical program. This concept, called Product Data Management (PDM), recognizes data as a major resource, and seeks to design the most effective way to ensure that data are current and easily accessible to any part of the program team that has a demonstrated need for it. Clearly, PDM and digital data were made for each other, and they are coming together in DoD today. PDM solutions are normally dependent upon data stored in a digital format, to be shared, reviewed, updated, transmitted, and converted into video, hard copy, or other formats upon demand.

DoD is committed to converting active technical manuals, specifications, drawings, and other engineering and logistics material into digital format. The Joint Continuous Acquisition and Life-Cycle support (JCALS) Program has arisen in response to the need for digital data in the logistics and acquisition areas. The JEDMICS program has arisen in direct response to this need in the area of engineering data support. The development of JEDMICS will have a significant impact on the way engineering support will be provided to and by FMS customers. In the U.S. system, the volume of paper and aperture cards is diminishing rapidly, replaced by CD-ROMs or equivalent media which provide compressed, transportable, yet easily readable data. Manuals, directives, and other publications are being distributed through electronic mail systems. Volumes of large-format, detailed engineering drawings are being stored on compact disk. JEDMICS has created 34 depositories, with over 64 million images converted.

The standard way of doing business, which was most evident prior to 1995, is changing, and the use of hard copy is expected to continue its rapid decline within DoD to the year 2000. The operational difficulty of not having converted to digital data is being experienced within DoD in its dealings with commercial defense contractors. The large corporations that develop and produce the primary equipment used by the military are committed to the principles of PDM and the use of digital data in their internal operations. They normally get involved in aperture card production only when their government customers have specified that the data be delivered in that format. As more and more of those customers also convert to digital data, the contractors' ability to deliver digital engineering data in a timely fashion will be further

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enhanced. To an extent, aperture card technology survives today because the consumers of the contractors' products have not sufficiently advanced into the world of digital data to allow it to be turned off. The cost of keeping it alive is growing and, as a result, DoD expects to be largely out of the aperture card business within two years. After that time, FMS customers who have not converted to digital data may be the sole users of aperture cards. They are expected to become an exception to normal operating procedures. This could create delay and unnecessary expense as routine business processes of the manufacturer in providing engineering data are interrupted.

Why this change of direction? There are numerous benefits, and no discernible down-side beyond the disturbance of converting current business policies, including procedure adaptations to the new media. JEDMICS offers the opportunity to overcome many of the obstacles inherent in the aperture card system. The bulk of the storage requirement is eliminated with digital data, along with the volume problems associated with the transfer of data from one site to another. With electronic data, images are usually less likely to be lost or misfiled. If data are accidentally removed from a user's repository, it is often replaceable from backup systems. Additionally, folding, spindling, and mutilating—problems inherent in the aperture card system—are not normally associated with optical disk technology.

The impacts of these changes were quantified in a recent cost-benefit analysis which is being staffed for release. Preliminary results show that the operating cost estimates for the system being implemented in the United States have projected savings of almost 30 percent when working on a day-to-day basis with digital data instead of aperture cards. The savings potential in maintaining a full JEDMICS data repository was reported to be considerably greater. A ten-year life cycle cost study for operating a full JEDMICS system within the United States showed a savings-to-investment ratio of 2.7 : 1. It is recognized that these results could vary substantially in individual applications.

Naturally, the cost and benefits of conversion to digital data will vary from one defense establishment to another. Structure, culture, and volume of activity will influence quantification of benefits. But clearly the potential for significant savings exists for the FMS customer in spare parts, local manufacture, re-engineering, and maintenance. These savings might then be applied to the purchase of additional spare parts, training, or additional equipment, or perhaps even more extensive sets of engineering data. These savings may also be achieved through a system that provides more flexibility and responsiveness than traditional legacy systems.

While anticipated cost savings indicate that JEDMICS will be a benefit to participants in the program, there is more at stake than cost alone. Perhaps even more important is the ability of JEDMICS to keep up with emerging technology and interface with other developments which are coming into play. The JEDMICS structure will continue to evolve, taking advantage of opportunities to improve capability without disrupting current service. The principle initiative at this time is to make JEDMICS data accessible through the World-Wide Web, incorporating the best features of numerous commercial-off-the-shelf (COTS) products. This holds promise for making engineering data more accessible while providing appropriate safeguards for system security and database integrity.

Some nations have begun receiving technical data packages electronically. Portugal is accepting electronic data for its M-113 program. Saudi Arabia is receiving engineering data in JEDMICS format for its new M-1A2 tanks. Several other countries have requested briefings on how JEDMICS can be specifically tailored to meet their data needs.

We realize that generalizations about integrating JEDMICS into Security Assistance programs can be misleading. Each nation has unique levels of technical capability, military interest in data technology, and responsiveness to initiatives for change. The frequency of use

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of engineering data also fluctuates considerably, based on the logistics support policies a nation might adopt. Often there are significant differences among the different military services of a single country, just as there are variations on how the different military services of the United States manage their own programs. Furthermore, a nation that is supporting only older systems, with no present intention of buying into more modern systems, might find that they gain only minimal benefits from JEDMICS.

The JEDMICS Program Office is willing to work with any FMS customer to design a digital data strategy to fit individual needs. One nation might want a larger package of JEDMICS hardware, software, and digital data, to include technical support services. Another might prefer just the data and software, installing it on existing networks. Some might limit the request to digital data, using preexisting software and data storage structures. JEDMICS should be considered for each option or permutation of these options.

A customer who is integrating JEDMICS into his data support structure is buying into an established, modern, standardized system which can be used as a model on which to base his own PDM systems and data management business practices. The principles used in the design and development of an internal system are often easier to implement if they can be observed in and emulated from a working system which provides state-of-the-art data management structure. These benefits may have implications well beyond the defense establishment within a country.

If a country is interested in moving into the digital data environment, it should ensure this is considered in submitting Letters of Request (LORs) for price and availability or Letters of Offer and Acceptance (LOAs). The JEDMICS Program Office can provide any interested FMS customer further information regarding how JEDMICS might be applied to the unique circumstances of a particular nation.

To learn more about how the JEDMICS Program works, and how it might interface with unique situations, please feel free to contact Mr. Sam Gormley at (703) 607-3291, telefax (703) 607-3303, or via electronic mail to <sam\_gormley@navsup.navy.mil>. You may also write to: JEDMICS PMO, Crystal Square IV, Suite 501, 1745 Jefferson Davis Highway, Arlington, VA 22202.