MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 1943 - A
The thesis of this article is that the pace and load of force modernization has overcome our capability to integrate the management of total weapons systems fielding. It presents a brief overview of force modernization management roles, the management products required to achieve total systems fielding and the LCSMM. The author specifically addresses the products provided from the personnel community: manpower, MOS, documentation, training and qualified personnel. These five products are discussed in light of the continued...
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FORCE MODERNIZATION: SYSTEMS OR HARDWARE?

INDIVIDUAL ESSAY

by

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ABSTRACT

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The thesis of this article is that the pace and load of force modernization has overcome our capability to integrate the management of total weapons systems fielding. It presents a brief overview of force modernization management roles, the management products required to achieve total systems fielding and the LCSMM. The author specifically addresses the products provided from the personnel community: manpower, MOS, documentation, training and qualified personnel. These five products are discussed in light of the management disconnects at the margins of the LCSMM, the PPBES, and the five elements. Specific management initiatives planned to integrate the margin disconnects are presented at the conclusion of the article.
FORCE MODERNIZATION: SYSTEMS OR HARDWARE?

We've done it! We have begun to field new equipment throughout the Army in the greatest modernization effort since the second world war. In the face of a vastly improved Soviet Army which has unceasingly fielded technologically advanced weapons since the Cuban Missile Crisis, we have launched our campaign to catch up. Analysts estimate that Soviet procurement of new military equipment over the past decade has surpassed ours by as much as $100 billion. In 1975, for example, Soviet spending was $37 billion compared to our $22 billion. This decade's disparity in spending for new equipment produced the current advantage in both numbers and technological levels of Soviet Army equipment.

In response to this marked increase in the capability of the Soviet Army, our modernization campaign is expected to field some 500 new systems within the next few years. Our armor units will fight from the most deadly tank on the battlefield, the Abrams main battle tank. The infantry will move in and fight from the best protected and most lethal armored carrier ever fielded, the Bradley fighting vehicle. The artillery will employ the devastating firepower of the Multiple Launched Rocket System. The Division Air Defense Gun, the Apache Attack Helicopter, and literally hundreds of other technologically advanced materiel items should transform our battlefield capability from what we have today to the levels of power and precision required to fight the AirLand battle.

During my tour with US Army Europe in 1979-1982 I was involved with the personnel planning to support modernization in Europe. Participation in the USAREUR portion of the DAIG study of force modernization confirmed
my experience that supporting modernization was abnormally difficult. In order to learn more about the magnitude of the management effort devoted to modernization, I was recently able to observe modernization related meetings at HQDA and to discuss modernization management with members of key agencies in the personnel community; Soldier Support Center-Capital Region (SSC-NCR), USA Military Personnel Center, and the Office of the DCSPER at HQDA. It became apparent to me that fielding new tactical systems requires much more than delivering hardware to units. Accomplishing our modernization program has become an enormous task which is straining our basic systems for managing the growth and development of the Army. Management systems, policies and procedures which possess barely sufficient vitality to run the status quo are being overtaxed by the load and complexities of managing modernization. Its impact extends vertically through all levels from unit training to budget formulation at HQDA. It extends horizontally across the scope of our management systems from intelligence analysis to logistics planning.

In my opinion the strain is stretching the management fabric most notably at its weakest points, the seams. We have only recently become aware of the need to "manage the margins" by focusing on those ill-defined seams where one functional management process impacts on another and for which no single command or organizational element is responsible. Management of modernization requires a new focus on the integration of our traditional processes and organizations. Each of our traditional functional areas provides its portion of the system to be fielded. The task of management is to field a total system in which the associated items of equipment, repair parts stockages, trained operators and maintainers, employment doctrine, etc., come together with the equipment item at the right time and place. Ultimately, it appears that modernization will be
successful to the degree that this integration of the traditional functional elements of the new system occurs. The opposite of integrated modernization can best be described as hardware delivery. In order to function, even the most technologically developed weapons system requires the doctrine, structure, personnel, maintenance, supplies, and the management support to operate and sustain it. (Chart 1.)

In this paper, I intend to look at how well we have integrated the personnel functional area with the management of development, and acquisition and fielding new systems. Reviewing the pertinent organizational roles in modernization will highlight the complexity and scope of the management effort. A brief outline of the systems management model will point out the design for integrated systems fielding. I will then describe the significant margins of interaction between the personnel functional systems and other elements of modernization management.

To begin with, no single agency or command appears to have sole responsibility, or capability, to integrate the total modernization management effort. Traditionally, the integration of our functional areas is achieved through our formal planning and staffing procedures. However, the margins of interaction between functional areas within modernization management appear to have surpassed that traditional capability for integration. The key organizational roles of force modernization players are as follows.

- DARCOM is the primary materiel developer and is responsible for the development, acquisition, and fielding of most new equipment (other commands/agencies such as USA Communications Command, Health Services Command, Office of the Chief of Engineers are the materiel developers for their unique equipment and systems). The DARCOM project manager (PM) directs the
WHAT MAKES AN INTEGRATED TOTAL SYSTEM?

CHART 1

- END ITEM, E.G., AN/TTC-41
- PRIME MOVER (WHEN REQUIRED), E.G., 5/4T TRUCK
- SUPPORT EQUIPMENT, E.G., TLR MTD GENERATOR
- ANCILLARY EQUIPMENT, E.G., TMDE, TOOL SETS
- ASL/PLL
- PUBLICATIONS: TECH MANUALS, SOLDIERS MANUALS, SQRT, ARTEP
- AMMUNITION
- MANPOWER SPACES
- DESIGNATED PMOS
- QUALIFIED PERSONNEL
- FIELDING FUNDS
- DOCUMENTATION: TOE, MTOE
- MCA FACILITIES
- NEW EQUIPMENT: TRAINING, TRAINING TEAM, INTRODUCTORY BRIEFING TEAM, MATERIEL FIELDING TEAM
- TRAINING AIDS

Development, acquisition and fielding of the new systems and coordinates the planning of other management functions.

TRADOC is responsible for development of the doctrine and organization for employment of new equipment. The TRADOC Systems Manager (TSM) ensures that user requirements such as training, personnel and logistics support, are incorporated in the equipment development and fielding.
EDQ-DCSRDA is responsible for research, development, testing and evaluation of new equipment. The DCSRDA DA System Coordinator (DASC) is the primary HQDA point of contact for all aspects of development and acquisition and coordinates all the events leading to fielding.

HQDQ-DCSLOG and HQDA-DCSPER are responsible for supporting new systems from the logistics and personnel perspectives respectively.

HQDA-DCSOPS is responsible for validation of system materiel requirements and for its force structure and distribution. The DCSOPS Force Integration Staff Officer (FISO) provides the continuous coordination to integrate the full-scale of supporting sub-systems into the fielding of complete systems. Additionally, within the DCSOPS, is the Army Force Modernization Coordination Office (AFMCO) which is responsible for planning, monitoring and integrating our total force modernization program.

These are the principal players in managing the modernization of the Army. The process itself follows the events prescribed in the management model called the Life Cycle System Management Model (LCSMM). It prescribes the integration of our functional systems to determine our future needs and to define, develop and field the materiel systems to meet those needs. The process model is designed to produce integrated systems fielding to include employment doctrine, appropriate organization and structure, logistics and personnel support. The cycle proceeds through four sequential phases leading to higher levels of approval and consequent continued allocation of resources: concept exploration, demonstration and validation, full-scale development, and finally production. (Chart 2.) Within the LCSMM, the
logistic and personnel support planning is managed by the materiel developer, usually DARCOM, by means of the Integrated Logistics Support (ILS) plan. TRADOC, the combat developer, then conducts a Logistics System Analysis to insure that the system being developed fulfills the user requirements. This analysis includes finalization of manpower and training needs for the operation and maintenance requirements of the system.

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**LIFE CYCLE SYSTEM MANAGEMENT MODEL**
**PHASES AND DECISION POINTS**

**CHART 2**

<table>
<thead>
<tr>
<th>DECISION POINTS</th>
<th>MILESTONE</th>
<th>ASARC I</th>
<th>ASARC II</th>
<th>ASARC III</th>
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<tr>
<td>ASARC - Army Systems Acquisition Review Council</td>
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<td>DSARC - Defense Systems Acquisition Review Council</td>
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It is the proper and timely definition of a system's manpower and training needs and provision of the requisite trained personnel to meet those needs which appears to overwhelm our management capability. Managing the margins where the materiel development and acquisition process and the combat development process interact with the training and personnel functions has not been done well. In several instances we were not able to provide "the right people, at the right place, at the right time" to operate and maintain newly fielded systems. In other cases it took enormous effort to "manage off-line" or to "hand jam" to overcome this inability to integrate. The terms "manage off-line" and "hand jam" are synonymous and
refer to specific actions initiated by HQDA action officers to compensate for gaps at the margins.

For example, furnishing USAREUR with M-1 trained tankers as replacements for those initially trained in Europe was begun off-line. The replacements were provided despite the absence of the appropriate personnel authorizations within the personnel and training systems. In other words, without the hand jamming of these personnel requirements for the M-1 battalions, the functional systems of manpower, training and personnel could not have supported the new M-1 tank in the field. Management of the M-1 fielding was not integrated with management of the personnel functions.

Other examples of margin disintegration were discovered:

- TACFIRE, the new field artillery fire control system, encountered shortages of both operators and repairpersons upon its introduction.

- Signal systems, such as the VINSON secure voice equipment, was initially fielded without authorizations for maintenance personnel.

- Certain fixed signal communications equipment was installed before personnel authorizations for operators had been obtained.

- Requirements (FY82) to train 120 Firefinder Radar operators were developed within the LCSMM when the actual training need was for 216.

- Requirements for system peculiar DS/GS maintenance personnel have not been identified to support the M-1 tank and the M-2 fighting vehicle even though they are already being fielded.

An additional consideration, and a further complicating factor across the modernization spectrum, is the simultaneous reorganization of the
division structure. As the new tactical systems are being fielded, the
division structures are changing to the Division 86 configuration in con-
formance with our new doctrine of the AirLand battle. The management goal
is to convert each division to the new structure as it receives its major
new tactical systems. However, as the transition to the new structure
takes place, the structure itself is undergoing changes due primarily to
the buffeting of resource restrictions—e.g., recent reductions in the
number of battalions in the mechanized infantry Division 86 configuration.
Therefore, division conversions from current H series TOE to the J series
TOE for Division 86 create a changing structure into which the major new
tactical systems are being fielded. As a consequence, modernization manag-
ers find that the requirements for the system itself and for its supporting
elements are subject to significant and unprogrammed changes.

The five personnel support elements of an integrated total system are
manpower spaces, designated MOS, documentation of the system in TOE and
MTOE, training, and qualified personnel. Each of these elements has a
specific meaning relevant to managing modernization.

  o Manpower spaces refers to the total number of soldiers required
to man the Army structure in its three categories of officers,
warrant officers and enlisted. Once congressional approval
and funding are obtained, manpower spaces are allocated to the
various Army commands and agencies. Grade and MOS are not
considered during the manpower process and only the number of
spaces in each category is allocated. The total spaces funded
by Congress for the Army remains relatively constant so that
as units change structure and field new systems, manpower
spaces are continually reallocated from within.
Designated MOS is that MOS which cites the specific skills for which a manpower space is to be used. It cites the grade, skills and quality criteria required to perform the duties of a certain position. The genesis of a designated MOS occurs during the concept exploration phase of the LCSMM and its development continues into the production phase. The final MOS decision is made at HQDA to create a new MOS or change an existing MOS to incorporate the skills necessary to operate and maintain the new system. The TRADOC school center is the proponent, however, for the MOS decision. The designated MOS may include an ASI or SSI if determined appropriate for the duties and skills.

Documentation of the system in the TOE, to include the designated MOS and the number of spaces required, is developed by TRADOC as the combat developer. The TOE prescribes a military mission and the structure, equipment, and personnel required to accomplish the unit's mission. Once designated MOSs are changed in a TOE, Consolidated Change Tables are published at HQDA to the appropriate MTOE units to update their structures and authorizations accordingly. The distinction is that the TOE represents the standard requirements for a type unit while the MTOE is tailored and constrained to a specific unit and contains the funded authorizations.

Training for the designated MOS is determined at HQDA by aggregating all the authorized MOS on MTOEs (TDAs as well) and comparing that figure with the current inventory of those MOS, subtracting the projected losses, and thereby identifying the
training requirements. The computation of training requirements includes projected MOS authorizations for a five year period when published in the Army Program For Individual Training (ARPRINT) twice a year. In addition, the training requirements are also provided to the recruiting command in the RECRUIT QUOTA SYSTEM (REQUEST) to manage recruitment and training of new soldiers to meet the authorized needs (manned spaces).

Qualified personnel are those soldiers trained in the operation and maintenance of new system equipment who are assigned to authorized positions and who arrive at the desired time in the unit. If the modernization managers have provided its first four elements above, then the assignment of qualified personnel should result.

Manpower

To provide qualified personnel at the right place and time is a function of determining the requisite qualifications sufficiently in advance of the desired time to allow for the recruitment, training and assignment actions. Two documents of the ILS are employed to accomplish the task of determining in advance the number and the skills of the personnel required to man new systems: the Basis of Issue Plan (BOIP) and the Qualitative and Quantitative Requirements Information (QQPRI) documents. The process is initiated by the materiel developer (DARCOM, HSC, USACC, OCE) who forwards a BOIP feeder report to the combat developer with the materiel requirement document. The BOIP feeder report lists the major and associated items of equipment which comprise the system hardware and its test, measurement and diagnostic sets. At the same time, the materiel developer forwards the
QQPRI which lists the skills, tasks and learning requirements to operate and maintain the new equipment.

TRADOC, the combat developer, combines the two documents and adds the system doctrinal, support and training implications to form the final BOIP. This document reflects how the equipment will be used, to which units it will be distributed, and the numbers and skills of the personnel required. TRADOC then forwards the final BOIP and completed QQPRI to Soldier Support Center-National Capitol Region (SSC-NCR) 26 months prior to fielding. After HQDA-ODCSPER approval of the MOS decision, notification to the field is given of how the personnel community will support the system.

Additionally, the DA ODCSOPS enters the BOIP into the Structure and Composition System (SACS) to provide advance notice of future requirements. Presently, however, the BOIP is not applied to the personnel portion of the SACS—the PERSACS—so that future personnel modernization requirements are not included. Advance personnel requirements in the PERSACS are generated mainly through data computed from TOE and MTOE which exist. In the absence of this documentation, the personnel requirements for force modernization are generated off-line by hand jamming.

The impact of the BOIP/QQPRI process on the management of personnel resources to support force modernization is fundamental. Certain procedures and policies of the process impact adversely.

- The BOIP for major end items are held until the BOIP for all the associated equipment is completed. Often delay is caused by late addition of associated equipment which, in some cases, is eventually not funded because of its low criticality. The major equipment BOIP cannot be applied until type classification for its associated and test equipment is completed and standard line numbers assigned. Since associated items are in
some cases added even after the major equipment is fielded, the delays in system BOIP finalization undermine the related actions of the personnel portion of system modernization.

- Changes to the organizational and operational concept for a new system causes the BOIP feeder data to be incomplete and further delays development and transmission of the information to agencies concerned.

- The BOIP/QQPRI process itself appears to need updating and resourcing to accommodate the influx of the force modernization workload. Consequently, the force modernization momentum and pace exceed the management capability and many new tactical systems are initially fielded without documentation of relevant authorizations.

- The Manpower Authorization Criteria (MACRIT) used to determine maintenance personnel requirements is often unrealistic. As a result, maintenance personnel requirements all too often prove unreliable and therefore generate revisions in the planning for maintenance personnel requirements.

**MOS Designation**

Once the BOIP/QQPRI has been forwarded to the SSC-NCR, the MOS decision process is begun. The first consideration is to determine the tasking of the proposed new or revised MOS: whether it is over- or undertasked. The MOS 34G, Fire Control Computer Repairer, for example, was at one point tasked to support some 50 systems and required over a year of training. Subsequently, the proponent recommended dividing the tasks into two MOS. One year later, one of the two new MOS, 34Y Field Artillery Computer
Repairer, was programmed to increase its tasking from 10 to 21 systems causing potential overload again.

A second consideration of the MOS decision is promotion potential within the MOS and CMF. Too few E6 positions, for example, could unreasonably restrict advancement of E5's in their CMF. A third consideration is affordability from the standpoint of quality criteria and supportability from the standpoint of current strengths and rotation balance. Equipment distribution schedules impact significantly on the MOS rotation balance between CONUS and overseas (space imbalanced MOS-SIMOS). Continued SIMOS causes either unacceptable turn around times or training of additional soldiers beyond programmed requirements. Changes to equipment distribution schedules are not always supportable from the personnel aspect and have resulted in delivering hardware. One final element of the MOS decision process with perhaps its greatest impact, is the implication for the training base in terms of course loads, facilities, equipment, and instructors. Without adequate planning time, resources can not be requested and allocated within the PPBS five year cycle to conduct the system training.

Documentation

Documentation of the personnel requirements for force modernization has been cited by many as the "margin of margins," the activity where all of our management areas interact. The MACOM and sub-MACOM capability to integrate the resource guidance and manpower allocations from HQDA in the form of Program Budget Guidance (PBGs), the Army Modernization Information Memorandum (AMIMs), the Consolidated Change Table (CCTs), the Force Modernization Master Plan (FMMPs), the Vertical The Army Authorization Document System (VTAADS), the Total Army Analysis (TAA), and various TOE proposals has been overwhelmed. Merely attending the modernization related conferences
to sort out the latest guidance occupies the normal duty day. Manpower allocations received three times a year from HQDA are to be applied against specific requirements of the CCTs through submission of MTOE changes via the VTAADS. These are aggregated in the HQDA TAADS data base as personnel authorizations twice yearly during the Management of Change (MOC) windows: January-March and July-September. However, the sequenced event driven steps of the materiel development, acquisition and fielding processes (of the LCSMM) are not phased to the cyclic time oriented events of the PPBES.

For example, the May 1983 Program and Budget Guidance (PBG) containing manpower allocations is documented by the MACOM's in the January-March 1984 MOC window. The next update of the TAADS occurs in the April 1984 PERSACS. However, two other PBGs have been issued by that time and, therefore, the HQDA and MACOM authorization files are not balanced. Further, the documentation changes from the CCTs are usually at least one MOC window behind HQDA. Therefore, the authorization status of a unit is usually inconsistent with the realities of fielding schedules. In the absence of personnel authorization documentation, management of the training and distribution process is done off-line using a BOIP, if available, or the most current data from the FISO both of which will subsequently change.

Training

Any change to the personnel area impacts on management of the training area. For example, an extension in training time causes fewer soldiers to be available for assignment to units. When a new system's personnel authorizations are not documented in MTOE, the training manager is unable to obtain personnel resources via the PPBES to train soldiers to support the system fielding. The information concerning numbers of soldiers and types of MOS training is often not available early enough in the PPBES.
cycle to permit submission in TRADOC budget requests. As the information becomes available through manual manipulation of tentative BOIPs, latest distribution schedules, and budget decisions it is reflected in the semi-annual publication of the Army Program for Individual Training (ARPRINT). The ARPRINT is derived from the PERSACS data after processing through the Personnel Inventory Analysis (PIA) which determines the active Army non-prior service needs estimate. The PIA model develops forecasts of MOS inventory levels by projecting losses against the Enlisted Master File. The PIA data is then combined with training data such as class schedules and course lengths in the Army Training Requirements and Resources System (ATRRS) to produce the training loads for TRADOC and accession requirements for recruitment. However, MILPERCEN manually inputs the accession training seat data into the Recruit Quota System (REQUEST) through off-line procedures. MILPERCEN operates REQUEST separately from the ODCSCPS operation of ATTRS/ARRINT and severe disconnects in training management occur.

**Qualified Personnel**

Distribution and assignment of qualified personnel to the units fielding the new tactical systems is hindered primarily by the absence of authorizations spaces documented in MTOE. The BOIF/QPQPRI process develops requirements as opposed to authorized spaces. These documents are used to estimate projected requirements but they do not provide unit personnel authorizations. The Requisition Validation Report developed from the PERSACS constitutes the start point for distribution of personnel by MILPERCEN by MOS/ASI/SSI/Grade. Even with proper authorizations, other factors constrain the distribution-assignment function:

- An individual's needs or limitations, e.g., profile and deletion/deferments.
o Delayed Entry Plan (DEP) and BCT/AIT unprogrammed losted, e.g., early separation or discharge.

o Tour lengths.

o Space Imbalanced MOS/Turn Around Time (SIMOS and TAT).

o Requisition constraints to eliminate overfill or to distribute according to "fair share" worldwide.

o Priorities set by the DA Master Priority List or by directed exception policy.

o Priorities within MACOM.

**Timing**

A primary consideration in managing the margins of interaction between any activity is timing. Timing is crucial to the interaction of the LCSMM ILS and the personnel planning activities to assure total systems fielding. The interactive time phasing between them is depicted in the chart on the accompanying page.

The absence of synchronization between this time line and the PPBES is evident when we recall that the TRADOC PARR is due each January, 20 months before the execution year. Thus, TRADOC requests its manpower resources in advance of the documentation and training seat determination events at 12 months. However, further fluctuations in both training load and resources continue to impact the training and assessment goals. Certain of these changes are in many instances not Army driven but are generated by our external environment.

o Army end strength changes directed by Congress.

o Increase or decrease in equipment buys resulting from the country's economic events such as strikes, mergers, etc.
### Time Line Activities

**BOIP & OOPRI**

<table>
<thead>
<tr>
<th>MOS</th>
<th>TOE</th>
<th>Decision &amp; Approval</th>
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<td>Requisition &amp; Distribution</td>
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<td>First Unit Equipped</td>
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</table>

**Time in Months**

-36 - 27 - 18 - 12 - 6

**Sustain**

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**Manpower Requirements**

Designated MOS Documentation Training Qualified Personnel Arrival

**Total System Elements**
Changes in deployment schedules also resulting from these economic changes.

Other unresourced changes occur because of internal reasons such as change in the organizational/operational concept due to observations during first unit operations with a new system. MOS decisions with early implementation dates constitute yet another factor contributing to the difficulty of resourcing the training base.

Improvements

Several initiatives have been taken to manage the margins of interaction between the materiel and combat development communities and the personnel community. The first has been the inclusion since 1979 of the personnel community representatives in the Army Systems Acquisition Review Council (ASARC) which reviews major modernization programs at prescribed milestones. The council is chaired by the VCSA and includes all the principal Army Staff Chiefs, the CGs of DARCOM and TRADOC and key members of the Secretariat. The participation of the DCSPER assists in focusing early developmental effort on the personnel elements of total system fielding and informs the personnel community of major decisions and their impact for the future.

Additionally, the DCSPER initiated a series of Functional Reviews which examines the personnel status of each functional area—e.g., Air Defense, Armor, Infantry. The Functional Reviews are chaired by the DCSPER and include representatives from all organizations involved with force modernization. They provide the planning data to begin the personnel processes required for systems development and fielding and consider the total personnel requirements of the functional area. Most importantly, they provide direct interface of the materiel and combat developers with
the personnel community to directly manage the margins. Similar interface is obtained through meetings of a new Training Review Committee which meets at the colonel level and is chaired by an ODCSPER representative. This meeting is also attended by representatives of all involved agencies but with a primary focus on training resources and requirements. It reviews the ARPRINT requirements to insure accuracy of assessments and training demands and attempts to resolve resource constraints on the training base.

Two short-term improvements are planned to improve the capabilities of the personnel community in determining authorization changes and future requirements. The first is to incorporate future personnel requirements of BOP into the SACS to improve the accuracy of the FERSACS to project personnel requirements. The second is to create a single data base of personnel authorizations which can be updated continuously. The primary objective will be to insure that all new system authorizations are captured as changes occur. This automated system will produce the Personnel Management Authorization Document (PMAD) which can be used not only by the personnel community but by ODCSOPS, TRADOC, and the MACOMs as well. The PMAD will be used to support accession and training requirements and personnel distribution plans. Additionally, beginning in June 1984, the responsibility for management of the ARPRINT/ATRRS will be transferred from ODCSOPS to ODCSPER. This organizational change will integrate HQDA management of training resources and training loads with the assessment management function.

The longer term solution to the FBMES/force management/manpower interface is the Force Development Integrated Management system (FORDIMS) at HQDA and the Vertical Force Development Management Information System (VFDMIS) throughout the Army. These highly automated, secure communications capability systems will integrate the dollars and manpower spaces
while fully automating all authorization reports. They are designed to extend to the MACOM standard automated force management tools while providing the same data for the MACOM as that used by HQDA.

**Summary**

The pace and workload of force modernization has surpassed our management capability to integrate the requisite support elements for integrated fielding of new tactical systems. The weakest points of modernization are occurring at the margins of interface between our traditional functional management areas and the steps of the Life Cycle Systems Management Model. Within the personnel functional area, management effort is needed to focus on integrating the generation of system personnel requirements, the identification of system skills, the authorization of system specific manpower spaces, the resourcing of the training base and programming of the training load, and the assessment and distribution of qualified personnel to operate and maintain new systems. It appears that during the decade of modernization our ability to manage the margins may well catch up with the pace of force modernization so that, at some point, we will field only total systems and not hardware.