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Influences of Computer Network Technology on Army Equipment Informatization Construction

Tianpeng Zhang\textsuperscript{1,2,*}, Tielin Liu\textsuperscript{1}, Jian Gao\textsuperscript{1}, Can Li\textsuperscript{1} and Hui Xue\textsuperscript{1}

\textsuperscript{1}Shijiazhuang Campus of Army Engineering University, Shijiazhuang, China
\textsuperscript{2}The 324 brigade of border defense forces of the PLA, AErShan, China

*Corresponding author e-mail: zwjzt1815@163.com

Abstract. Computer network technology has brought revolutionary changes to Modern Warfare. The computer network is the product of information age. In this paper, the concept of network technology and information equipment is introduced, and the role of network technology in promoting the army's information equipment construction is highlighted.

1. Introduction

With the development of national economy and society and the establishment of scientific and technological innovation system, Our army must get rid of the idea of "follow-up development", and Walk out a road of independent innovation and development with Chinese characteristics. Designing equipment is to design future wars, Only based on the new situation and new requirements, Boldly get rid of the existing rules and regulations. Exploring and Innovating the Concept of Combat and Weapon Equipment in Advance, we can gain the competitive advantage of military technology, Ultimately win the right of war discourse. The network is the inevitable requirement and product of information equipment development to combat theory at a stage, and it is the most effective mode of combat to bring its potential and effectiveness into full play. At the same time, the network is an effective way to adapt to the multi-dimensional, non-linear and non-contact characteristics of the battlefield in the information age, which has a profound impact on the construction of army information equipment.

2. Development Status of Equipment Informatization Construction

Informatization of equipment construction is an information revolution covering the whole field of equipment construction (including the whole process of equipment development, demand demonstration, planning, equipment development, equipment ordering, equipment delivery and
service). Its purpose is to guide the development strategy of informatization of the country and the army, under the unified planning and organization of the army. To improve the business process and organizational structure of equipment construction with information technology, integrate information resources, eliminate "information island", develop and utilize information resources in all fields of equipment construction and at all stages of equipment construction, promote information exchange and knowledge sharing of equipment construction, and improve the overall benefit of equipment construction and equipment life-cycle management.

At present, due to the lack of unified equipment construction information resources planning at the top level, there are many practical problems in the information management of our army equipment construction, such as multi-head management, mutual restriction and so on. It is mainly manifested in the following two aspects:

Interoperability between military and civilian networks is difficult to achieve

The military and civilian sides have built many different application systems and technology platforms, and the equipment data and information are confused, forming a large number of "information islands" where information is difficult to flow in an all-round way. The information resources can not be shared between applications and systems, and the full utilization of information resources can not be achieved. The deeper problem caused by this is that the information resources can not be fully utilized. On the other hand, the development of the military network is slow, and there is no unified, integrated information resources network platform for military interconnection.

“Chimney-like” Development Model

It is not difficult to see from the current situation of our army's equipment construction information system that the system construction is self-governing.

Firstly, Lack of top-level and overall design, there is a phenomenon of repeated development and blind follow-up, which wastes a lot of manpower, material, and financial resources.

Second, system development standards and norms are not uniform; it is difficult to achieve interconnection and information sharing between systems.

Thirdly, poor system, single function, and poor scalability.

Fourthly, lack of decision support. Systematic support, which lacks or is relatively weak in assisting decision-making, can not meet the needs of decision-making support for headquarters organs.

These problems are not only not conducive to the overall, coordinated and sustainable development of equipment construction informatization, but also cause a great waste of resources due to repeated construction, seriously affecting and restricting the whole process of equipment construction informatization.

3. The Important Role of Computer Network Technology

3.1 The network has changed the overall pattern of army information equipment construction

In recent years, the general idea of the development of information equipment in the U.S. Army is horizontal technology integration, which is a revolution in equipment construction. It requires: to make use of existing civil and military technology and common software, standards
and regulations, to transform and improve the existing weapon systems horizontally, so that they can smoothly integrate into the integrated information warfare network system, make it universal and linkage, and facilitate the flow of information between weapon systems and combat units. Thus, the overall operational effectiveness of all weapon systems and operational systems can be greatly improved. The information equipment construction of the US Army is divided into two steps to implement the horizontal technology integration plan. The first step is to equip the existing main battle equipment with digital communication equipment, the second generation forward-looking infrared radar, IFF identification device and global positioning system, to initially establish lateral information flow management among this equipment. The second step is to implement a variety of plans to make the command and control systems of troops at all levels of digital networking.

3.2 Computer network technology strengthens the supporting position of army information equipment

Network application refers to the organic and integrated connection of various reconnaissance and detection systems, communication and liaison systems, command and control systems and weapon systems that are geographically dispersed on land, sea, air and sky to form a computer-centric information grid system, in which combatants at all levels make use of this unified and efficient information technology. The operational system understands battlefield situation, exchanges operational information, carries out command and operational operations, and achieves the operational style of overall superiority of operational operations through information superiority. The information warfare system required by the use of network consists of three logical networks connected seamlessly, namely, detection network, warfare network and communication network. The above logical networks are all constructed by information equipment. The emergence of network strengthens the supporting position of information equipment. Since the idea of network-centric warfare was put forward, the army information equipment construction of the U.S. Army has been constantly consolidated and developed. There are four main types of information equipment in the U.S. Army: information ammunition, information warfare platform, C4ISR system and individual digital equipment. These informationized equipment have strong ability of information processing and exchange. This kind of combat system highlights the characteristics of rapid network response, accurate attack and high-efficiency integrated combat capability.

3.3 The progress of network technology clarifies the key content and development direction of army information equipment construction

Since the beginning of the 21st century, the network has established the key content of the information equipment construction of the Army around the cooperative engagement capability, focusing on three areas: shipbuilding, unmanned navigator and information technology system integration. In the field of shipbuilding and unmanned aerial vehicles, it is emphasized that the Navy and air force need a network-centric platform. One of the key contents of army information equipment construction is to develop and build a new platform for the transformation promoters. In the field of information technology system integration, it is emphasized that the system
integration is necessary to provide networked information equipment. Ability, which will dominate the defense industry. The theory of network-centric warfare proposed by the US Army is still in the stage of continuous innovation and enrichment. With the change in operational requirements and the breakthrough of information technology, the idea of network-centric warfare will be applied to more specific strategies and tactics. The development direction of army informatization equipment construction will always aim at the new functional requirements put forward by network theory.

3.4 Information equipment expands the application field of network technology

Because the US army uses a large number of information equipment, the network is not only widely used in reconnaissance, command and control, information warfare, electronic countermeasures, but also extended to logistics support and other applications. Taking the US military tactical command and control system as an example, situational awareness system releases real-time information such as fuel, ammunition and spare parts of the US Armored Forces in the network, to facilitate the logistics forces to formulate support plans in time. With the increasing interoperability of the joint system, the informationization, networking and intensive level of the logistics management of the U.S. Army are constantly improving. The U.S. Army's distribution-based logistics emphasizes the visualization level of all assets relying on technology. The concept of "focused logistics", "accurate logistics" and "sensitive logistics" in line with the basic concepts of the network was put forward by the three armed forces of the United States.

3.5 Guided the development direction of army information equipment technology

To adapt to the strategic objectives of the 21st century, the U.S. Army vigorously promotes the military strategic transformation, which establishes that the mode of operations of the U.S. Army in the information age will shift from platform-centered to network-centered. That is to say, operations are not mainly carried out around weapon platforms, and can not rely solely on the detectors of each operational platform to obtain battlefield information. Provide weapon platforms for combat. Edmund Brasi, former Military Intelligence Officer of the Central Command of the United States Army, pointed out that "Network is a new and developed way of guiding military struggle, and the actual combat platform itself constitutes the first generation; the second generation is composed of multiple independent platforms and the automatic command and control system; and the third generation is a network." System integration that can process dynamic and distributed information. Thus, the development of network has set a clear direction and core content for the development of information technology: dynamic distributed integrated information system. The technical development direction of army informatization equipment construction will be guided by the development of network theory.
3.6 Network Technology Promotes Soft and Hard Emphasis in Army Informatization Equipment Construction

The U.S. Army believes that insisting on the idea of network-centric army information equipment construction must take the development path of system integration and system integration. In order to achieve the goal of system integration and system integration, under the condition of modern information technology, information equipment is not only embedded with chips, but also filled with software, that is, equipment has become Army information technology. Innovative concept of equipment construction. This software include all kinds of architecture products, common standards, specifications and processes. These contents are also an important part of the army information equipment construction.

4. Conclusions

Strengthening the theoretical research of equipment construction informationization has important academic and theoretical significance for guiding equipment construction informationization practice, training military equipment construction informationization management talents, and enriching and perfecting the theoretical system of military equipment discipline. Value plays an important role in promoting the informatization development of our army's equipment construction.

Under the background of the current military adjustment and reform and the transformation of the new army combat forces. Standing at the Height of Network Information Integration Joint Operations, the role of computer network technology in promoting the construction of army information equipment is explained in this paper. Relevant analysis has certain guiding significance for army information equipment construction and system operational efficiency improvement.

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