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AUTOMATIC IDENTIFICATION OF PRODUCTS – A WAY OF STREAMLINING THE LOGISTICAL SUPPORT OF THE MILITARY UNIT

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ABSTRACT

The new products provided by the development of information technology (scanners, barcodes, RFIDs, etc.) can currently provide methods and techniques towards achieving important savings in terms of management of logistical support of military units, especially in terms of efficiency in providing material goods to combat forces that are preparing and training through military exercises. I set out to make an "x-ray" of this way of improving the logistical support, especially through the method of identification by labels that use radiofrequency (Radio Frequency Identification/RFID).

KEYWORDS:

Logistical support, streamlining, identification, visibility

1. Introduction

The total visibility over the equipment (Total Assets Visibility / TAV) is ensured, as we have presented above, through automatic identification (AIT) technologies, which ensure the collection of logistical information through the environment for the transfer of useful information. By using such equipment, the logistical support of military units in peacetime suffers extremely important influences, no longer being a tributary of the old means of obtaining, storing, processing and using useful information.

Automatic identification technologies ensure visibility over materials and equipment by using barcodes, radio frequency labels, Global Positioning Satellite (GPS), "smart" cards and the laser.

We believe that one of the most important technologies that ensure full visibility over equipment and materials, in storage or in transit, is coding. In this respect, we would like to point out that, within NATO, there is a specific codification system (NATO Codification System/NCS) that ensures the management of the necessary materials throughout its area of responsibility. Alliance member countries are required to implement NATO's codification system in their armies as soon as possible.

2. Product coding

In the field of coding, every nation (material holder), whether manufacturer or user, needs "*a system to identify its equipment. In the case of the manufacturer, this system will be centered to monitoring*

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the design, production and sale of material items. From the user's point of view, this system will allow him to manage resources through precise control of material stock and planning according to replenishment needs" (NATO Logistic Handbook, 2012, chap. 10, art. 1.023).

Thus, the same type of material item, but which is produced by different economic agents, will always be identifiable by means of a differentiated numbering system.

"*NATO's coding system cannot meet the requirement of users who manage their inventories by type of item, but who do not mention their provenance. NATO's coding system has been designed to meet existing supply / replenishment requirements (material acquisition, storage and resource management, maintenance and release for consumption)*" (NATO Logistic Handbook, 2012, chap. 10, art. 1.023., art. 1024).

NATO's coding system is based on the NATO Stock Number (NATO Stock Number/ NSN). According to this stock number, each supply item is assigned a unique number, consisting of 18 (eighteen) digits, regardless of how many items there are.

The NSN, by the numbers in the composition, provides data on the supply classification code, divided into two parts, the group (family) of articles having the same physical, performance or functional characteristics, the class to which it belongs within this group of articles, the country of production, by which the article is unequivocally identified throughout its life.

The NATO codification system is managed by the Group of National Coding Directors, which is supported by NAMSA. The members of this group elaborate the NATO Main List of Mutual Reference (N-MCRL), up to date, which lists all 15,000,000 NATO stock numbers, about 30,000,000 spare parts, as well as information about over 230,000 economic agents, manufacturers and sellers. To ensure the transfer of information between NATO member countries, NAMSA uses the NATO Mailbox System, which allows for the transfer of data.

3. Identification of the products

Regarding the identification by labels that use radiofrequency (Radio Frequency Identification/RFID) we would like to highlight the fact that this technology is one of the newest and most important, if we refer to those that ensure full visibility over equipment and materials. Unlike normal labels, which only identify the product, RFID labels can retain the type of product, the place of arrangement (storage), the expiration date or any other information related to the product.

The technology used to identify the mentioned devices requires the use of an RFID reader and RFID tags. This technology can provide multiple information about each material good in the supply chain with material goods in peacetime, as well as when and where they were manufactured, picked up, packed, shipped, etc. This amount of information must be transmitted and used in real time in accordance with the organization of material goods warehouses, the use of inventories, the management of financial departments and other logistics systems in other military units.

We believe that an important benefit of RFID tags is that they can be read automatically through electronic readers. This advantage ensures the automatic monitoring of the transport of materials through fixed points (ports, airports, etc.), without slowing down the transport for carrying out checks and on top of that these RFID labels also provide additional visibility in the supply chain with material goods in peacetime.

In the military environment, automatic identification technologies are found in many fields of activity (supply-delivery, transport, maintenance, medical support, contracting, etc.). In this regard, through their systems, military vehicles can transmit data about possible "*signs of performance degradation from the nominal operating*

parameters. The vehicle is capable of transmitting through the C4I2SR infrastructure the information that its weapon system needs repairs to the upper echelon. The message reaches the logistics structures that have the possibility to interrogate the affected system through the same C4I2SR integrated communications infrastructure, requesting data about the model, type, identification number, list of components that are part of the degraded weapon system" (Collectively, Network-based logistical support – force multiplier, 2008, p. 124).

After identifying the malfunctions (through the on-vehicle self-diagnosis system), the logistic structures can take measures to elaborate the requests for materials through which the damaged parts are remedied/ replaced. Having data about the location of this equipment (in real time), the structures involved can request "*the emergency deployment of new equipment, they can plan the maintenance so that all technicians can arrive simultaneously in the area intended for maintenance in the area of military actions. Thus, the vehicle can be temporarily removed from the fray, made redundant and subsequently returned for the continuation of the mission*" (Collectively, Network-based logistical support – force multiplier, 2008, p. 124). In the sense of the above, through coherent measures, we consider that the optimization and efficiency of the flows of insurance with material goods in peacetime can be achieved.

The automatic identification system for materials can be integrated into a possible logistical information system, which is relatively easy to use, either on national territory or in NATO-led operations outside its area of responsibility. Such a system can ensure not only the tracking of the movement of material goods in real time or electronic seal facilities, but also the permanent inventory of material goods in transit or stored, the electronic tracking of transports (entrances, exits, travel times, route information), the tracking of distributions, etc.

RFID contributes to reducing repetitive activities (control, inventory, article search), maintaining the quality of the transported goods, increasing compatibility at the level of the armies of NATO member states, implementing electronic security measures or, why not, increasing transport security.

The implementation in the military field of RFID technology contributes, in our opinion, to the increase in the quality of management in terms of material consumption during the military activities planned by the Plan with the main activities.

Another advantage of the use of automatic identification technologies is to increase the efficiency of the logistics support chain, by decreasing the logistical footprint during the conduct of military exercises in peacetime and the level of stocks of materials needed for the combat forces that are being trained. At the same time, the accumulation of materials (atypical, with slow movement) and mistakes that previously took place in the supply of various spare parts for the damaged technique and equipment are avoided. On the other hand, by properly managing the relationship with the economic operators in the area of military exercises, the logistical structures ensure the proper management of the stocks of materials necessary for the fighting forces. Thus, they can be designed so that, at the level of the military units participating in the military exercises, only the man/piece quota (payload) is ensured, which will allow for the optimization of the surplus of materials and the acceleration of the process of their capitalization.

4. Conclusion

In our opinion, the usefulness of the new automatic identification technologies is obvious, because the economic operators pursue the value brought by automatic identification, and the military logisticians aim to ensure a high degree of visibility to the large number of landmarks that are required by the fighting forces and which

can be found both in the military warehouses in the locality of deployment at peace, as well as in the warehouses in the area of military exercises. In the near future, the identification of various materials or people will have to take place using, more and more often, such state-of-the-art automated solutions.

Based on the requirements for the security and stability of the systems used to control the quantities of material goods in transit and storage, the access of vehicles within bases and on road communication routes, of transport by rail and by naval or air routes, we consider that the advantages of new RFID technologies and codification are increasingly obvious, they shall, through the short reading distances and the speed of recording the information, provide shortness of time for the material goods to reach the beneficiary military units. Last but not least, we believe that RFID technology contributes to accelerating the obtaining of data on material goods in stock and to eliminating human intervention in the control and sorting processes, as well as to increasing working speed and efficiency, eliminating errors and obtaining the necessary information in real time.

In conclusion, we would like to point out that the challenges generated by ensuring the current consumptions, the mobilization reserves and the combat stocks that constitute in peacetime compel the logisticians to provide stable and viable solutions for identifying the necessary material goods and for carrying out military exercises in peacetime in the most different environments and areas on the national territory.

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