



ERP AND CODIFICATION TOOL STRUCTURES WITHIN THE NATO CODIFICATION SYSTEM (NCS)

Introduction

This paper aims to explore some of the different ERP and codification tool combinations and interactions present within the NCS from various perspectives, including materiel, codification, procurement, logistics and supply chain management.

Background

The NATO Codification System (NCS) is a well-established global cooperation that allows for interoperability between 32 NATO and more than 30 sponsored non-NATO nations. It is a system that is designed to support global military and governmental logistics operations.

The NATO Codification process uniquely identifies the materiel and allocates a NATO Stock Number (NSN) based on the "one item of supply-one number" principle. The NSN (as the primary key) is required to manage the Ministry/Department of Defence's (MoD/DoD) inventory for both materiel and financial accounting purposes. By clearly classifying and identifying items of supply, it prevents duplication of items within the supply chain, thus reducing inventory.

The NSN record also identifies various suppliers of items though NATO Commercial and Government Entity codes (NCAGE) which builds supply chain resilience. A NCAGE is a five-character code which identifies the Design Control Authority, supplier, seller or service provider of individual items. A NSN can have multiple NCAGEs reflecting the available Items of Production and can assist with identifying alternative suppliers; thus building resilience within the supply chain.

Diversity in ERP and Codification Structures Supporting NCS

Each nation using the NCS, establishes its own National Codification Bureau (NCB) which acts as the authority for Codification and is responsible for the implementation and management of participation in the NATO Codification System within their country. Given the wide variety of codification, materiel management and financial systems globally available, each nation must determine the configuration of infrastructure supports suitable for their national requirements.



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Some of the current national infrastructures active within the NCS:

A. Spain:

SICAD, a Government off the Shelf (GOTS) product, has defined a standard interface based on Web Services to communicate with any appropriately configured information system. This interface updates four Spanish military logistics systems with NSN data, Auxiliary files (H4, H2, H6 and System Tables), technical documentation and images daily.

For some new NSN requests, the logistics systems need "Temporary NSNs" to manage the items pending official NSNs. SICAD'S process to create and replace these temporary NSNs:

- 1) New Codification request from a logistic system or created directly in SICAD (associating one or more references), then:
 - SICAD generates a Temporary NSN (identified by a letter in position 7) and links the request with this Temporary NSN and
 - SICAD sends this Temporary NSN with related references to the corresponding logistics system (via the standard interface).
- 2) SICAD receives the request reply (national or international NSN) and sends a cancel with replacement action of the Temporary NSN in favor of the definitive NSN to the corresponding logistic system (again via the Standard Interface).
- 3) Future modifications to the definitive NSN are sent to the logistics systems through the same standard interface.
- B. Portugal:

The bespoke software SPCAT 4X (acronym for Portuguese Codification System) was created and developed by a Portuguese software company for the NCB.

The technical infrastructure has been integrated into the MoD network with full web access. SPCAT 4X allows a layer of applications and services between client users and the ORACLE Database allowing for differentiated access modes depending on the user profile level.

Internal logistics interfaces exist via web services with MoD/ERP-SAP (Portuguese Navy, Army and Air Force) and with the Portuguese Air Force automatically transferring codification data daily.

For example, MoD/ERP-SAP transfers codification data related to all 3 branches of the Armed Forces (Navy, Army and Air Force) and separately, only data related to the Air Force.



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C. Canada:

The Canadian Government Catalogue System (CGCS) uses a standard queue two-way interface to communicate hourly with the MoD's ERP system (SAP). The Canadian MoD recently changed their ERP system from having the NSN as the primary identifier in SAP to the Manufacturer's Part Number and NCAGE. The NSN is now listed as a subset under the NCAGE.

CGCS receives requests from the MoD ERP as follows:

- 1) MoD creates new request in their ERP and requests a new NSN assignment, NSN adoption or a NSN change request.
- 2) Interface between ERP and CGCS creates a transaction in CGCS.
- 3) Once transaction is completed, the NSN details are sent to ERP via interface. ERP responds with some of the related internal management data.

CGCS provides a web-based query tool contained within the MoD's secure Defence Wide Area Network (DWAN). MoD personnel with access can search for NSN's that are Canadian or that Canada is a registered user of. For other personnel without access to the DWAN, a monthly disk version of the database is available. National departments without a CGCS interface send NSN requests via email which are manually loaded for processing.

D. Slovakia:

The Slovak codification tool MC CATALOGUE WEB (MCC WEB, a Commercial off the Shelf (COTS) product) defined a standard interface based on web services for communication with any appropriately configured information system.

The technical infrastructure was integrated into the network of the Ministry of Interior. MCC WEB is installed in the government cloud with full web access and is connected through an interface with the Integrated Information System of the Ministry of Defense of the Slovak Republic (SAP platform).

This standard interface is used daily to update NSN data and is bidirectional. Information about the life cycle of an item of supply is transferred from the SAP platform to MCC WEB.

For new requests for NSN assignment, SAP needs the Military Material Number (VČM) so that logisticians can manage items awaiting NSN assignment. Upon NSN assignment, a link between NSN and VČM is created. A list of selected data (NSN, NSC, NSG, INC, RN, NCAGE, Life Cycle Code) and selected logistical data are sent from MCC WEB to SAP. MCC WEB is the gateway for the Integrated Information System of the Ministry of Defense of the Slovak Republic.

MCC WEB procedure for creating a link between NSN and VČM:

- A new codification request comes from the end user and is created directly in the MCC WEB system by the end user of the supply item.
- For national NSN, a direct link between NSN and VČM is created. For foreign NSN, a link between the Assign NIIN and Register User request and VČM or a link between the Add User request and VČM is created.



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 Once MCC WEB receives a response, it creates a link between NSN and VČM and sends an update batch with data to SAP.

MCC WEB sends an update batch with data to SAP when NSN's are updated.

E. Finland:

The Finnish codification tool MC CATALOGUE (MCC, a Commercial off the Shelf (COTS) product) interfaces with the national materiel management system (an SAP platform) with one-way data exchange from MCC to SAP only. Updates in SAP require manual work to update the codification tool. The primary key is the SAP stock number containing one or many references but linked to only one NSN. Screening and recognition of NSNs is conducted during SAP stock number assignment. After registering Finland as a User of the NSN, the SAP stock number is added as an informative reference. The Finnish configuration of MCC includes a dedicated field for the SAP stock number.

MCC triggers a communication to SAP when Finnish User is added and the request receives the related NSN, adding the SAP number for the first time or receiving an update on an NSN with an SAP number.

F. Further codification tools

The list A to E represents only a selection of different national solutions. For a more detailed overview, we recommend taking a look at the AC/135 website at the following link: https://www.nato.int/structur/AC/135/index.html#/about/tools

To obtain further details on the individual products and their interaction with ERP systems, we recommend contacting the software provider directly or the relevant user countries.

Conclusion

The benefits of NATO Codification to logistics, materiel and financial accounting, and interoperability perspective are numerous. While AC/135 nations implement various software infrastructures, many different configurations support compliant participation in the NCS. The ability to account for national considerations in NCS implementation is a crucial step towards optimising defence logistics and fostering interoperability with allied forces.