LIFE CYCLE MANAGEMENT AND THE QUALITY OF THE ISL DATABASE

In my previously published article in this periodical, I mentioned the importance of Life Cycle Management (LCM) of military equipment as a key task of the Ministry of Defence and the Czech Armed Forces. This issue encompasses various perspectives, primarily those of the manufacturer and the user.

Life Cycle Costing

The manufacturer monitors the market, customer interest and competitors, while innovating the product in line with modern trends and user requirements. Innovations usually bring technological improvements that increase the product's utility value. The user, on the other hand, emphasises the maximum utilisation of equipment and its reliability, the ability to plan operational costs, including the prediction of fuel consumption, spare parts, their storage, and the ability to schedule maintenance and repairs. This cost summary is used to verify the anticipated total costs (Life Cycle Costing – LCC) of the equipment.

For standard commercial equipment, the user relies on general operational data, addressing deviations through standard maintenance procedures or warranty claims. However, special and military equipment requires a specific approach: manufacturers often lack data on reliability and failure rates that would reflect different operating conditions. This lack of realistic data leads manufacturers to use mathematical models to calculate, in simplified terms, the ‚probable failure rate' of key structural components or technological systems. Based on this data, manufacturers define the equipment's maintenance requirements and necessary service actions.

Information System of Logistics

The Ministry of Defence and the Czech Armed Forces utilise the Information System of Logistics (ISL) to manage and evaluate the operation and maintenance of equipment. This system contains an extensive database and covers all organisational levels related to the operation and maintenance of equipment. It enables not only the collection of necessary data but also its long-term storage and aggregation, which is essential for analysing equipment reliability and failure rates.

In the future, the implemented methodology and software support for LCM monitoring of the selected equipment should be able to receive and subsequently process the recorded key operational data and information on the maintenance performed, and analyse everything in the required context. However, no information system on its own can fully replace human capacity and automatically ensure the completeness and accuracy of all necessary data on the use of the equipment and its maintenance. Continuous

attention must be given to the process of collecting operational data and recording it into the information system. Oversight activities will still be required in the future, particularly with the application of the NGVA (NATO Generic Vehicle Architecture) framework.

In order to eliminate human error in the recording of operational and maintenance data, a technological link between ISL and selected aircraft has been successfully developed and validated in the past. Similar interfaces can be introduced for other types of equipment acquired and operated.

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Today, the Ministry of Defence and the Czech Armed Forces have a wide network of ISL users and a robust database containing continuous, long-term operational data on equipment usage, along with related information on maintenance and spare parts consumption. This database forms an essential foundation for implementing any methodology for life cycle monitoring and cost analysis of selected equipment.

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Schema and photo: AURA archive