

# Evaluation of approaches to MENTAL

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## Abstract

The purpose of this article, "Evaluation of approaches to MENTAL" is a concise description of the MENTAL knowledge system, analyze the history of user accesses a staff information system to information published in the atom2 and an analysis of knowledge-based approach in terms of users. In addition, emphasis is placed on the evaluation of the most visited concepts connection between concepts and also the analysis of visitors each month.

*Key words:* Knowledge management, Topic Maps, MENTAL, AToM2.

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## 1. Introduction

If we glance back around and looking for something valuable, important for life today, so after some consideration we concluded that one of the most important values with which we meet each day's information. Set the price of information is in many cases unfortunately impossible. On the other hand can be quite accurately determined the consequences resulting from the loss or compromise of information important to us. It was deliberately mentioned important information for us here, because the information that is valuable for us, it may be for other people or entities worthless and vice versa. And of course the information we do not attach any weight, it may be for others very valuable.

Another important factor in terms of sensitivity information is its aggregation. We can certainly say that the price of information increases with the aggregation. For easier handling information is important to analyze this information in order to provide further meaning or its value in order to gain knowledge. The issue of knowledge work addresses the knowledge management in terms of collection, storage, distribution and implementation of knowledge in the data files. Areas addressed in the knowledge management environment of the Czech Armed Forces (CAF) project MENTAL. Brief description of the project and evaluation of approaches to knowledge will be the main subject of this article.

## 2. Knowledge system MENTAL

Knowledge system MENTAL solves the problem of knowledge management of the Czech Armed Forces Network Enabled Capability (CAF NEC). Knowledge system MENTAL is the result of the defense research project and development project for the Department of Communication and Information Systems. MENTAL project was

launched in 2008 with the aim of processing the analysis of knowledge-based approaches, ontologies and ontology languages, assessing their suitability for use in the Army. Emphasis was placed on evaluating the state of security solutions at CAF NEC, formalize a strategy NEC and develop conceptual NEC encyclopedia, design methodology for developing knowledge-based systems in the Army, develop ontologies of Operational Tactical System of Command and Control (OTS VR), and security of NEC.

For the practical implementation of the knowledge system has been selected MENTAL SW tool AToM, a product of AION CS. AToM is a set of software tools for the construction, maintenance and presentation of the information and knowledge and it is backed organized on principles of TM (Topic Maps). AToM can implement taxonomies, faceted classifications, thesauri, network keywords, dictionaries, encyclopedias, thesauri, indexes, catalogs, information collection documents, photo bank, timeline of events with easy creation of interconnections and clusters.

At the end of 2011 was functional model of MENTAL knowledge system (FV v2.0) implemented to Army Staff Information System (SIS CAF). SIS CAF is designed to support and integrate command and staff operations at the strategic, operational and tactical levels.

In 2011, the project went through review process. Opponent conclusions noted strong potential for implementation of the project MENTAL in the CAF environment. Therefore MENTAL was implemented in the SIS environment for CAF personnel. That's better than military personnel can easily familiarize with the project in an environment in which information is support for command and control of the Ministry of Defence.

To the SIS system have been implemented:

- MENTAL - Knowledge Management System CAF
- Army.
- NEC - Glossary.
- Laws for the people.

To the installed systems were also attached documents:

- Functional model of MENTAL.
- The methodology for creating knowledge systems version 1.0.
- User documentation for working with AToM SW version 2.1.

### 3. Evaluation of approaches to MENTAL (statistics)

Preparation of implementation took place in cooperation with AION CS from Zlin and 34zKIS (Communication and Information System Base) from Prague. Basic installation requirements have been prepared in the report "Installation of the knowledge systems MENTAL - Knowledge Management CAF NEC to SIS" [2], which took place on the basis of cooperative negotiation.

One of the tasks of the project was to analyse user access of Staff Information System to the information stated in the MENTAL. The emphasis was placed on evaluating of terms with the highest number of visitors, associations between terms and also the analysis of visitors access in each month.

Collection and evaluation of approach was implemented in two phases. The first data collection was carried out on 17 November 2012, and contains information on the period from 1 January 2012 to 16 November 2012. There were 532 visits to the MENTAL in this period. The second data collection was carried out on 15 June 2013, and contains information on the 17 November 2012 to 15 June 2013. There were only 90 approaches in the second period. The big difference of the two periods can be explained by the ongoing organizational changes and dislocation of services and facilities of the CAF. Due to the small number of approaches in the second period and the possibility of total results distortion from the first phase, will be further analysed only the first period.

#### Access Analysis by month

As mentioned above, the further analysis of access to MENTAL is focused on only the first part of measurement. From January to November 2012 looked for information in the AToM CAF 118 employees in a total of 532 visits. The largest number of accesses was carried out in March (see Fig. 1.), when there were 110 visitors. The least approaches were recorded in May with a total of four approaches.

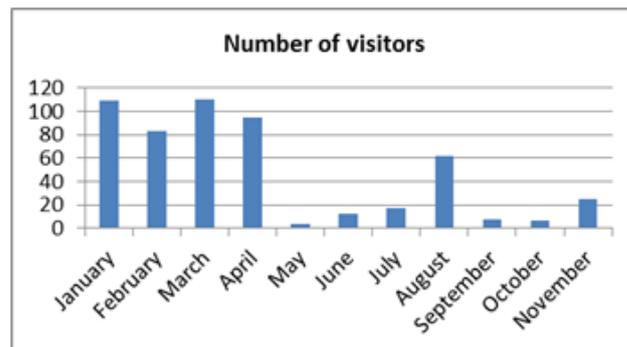


Fig. 1. Number of visitors

#### Analysis of user access

The highest number of visits recorded members of the research team Prof. Ladislav Buřita and lieutenant-colonel Kamil Halouzka, who edited the existing data, put the new data and monitors the usage status.

The largest number of visits was than recorded at Miroslav Kuric (30 accesses) and Miroslav Svejda (28 accesses), who works for Policy and Strategy Department. Mr. Kuric was a member of the opponent council of the project. From a total number of the 532 approaches, the approach of the first ten users of the SIS was total of 45% of all visits. Each of these ten users was interested in an average of 24 fields-terms. From a total number of users each of them was interested in average of 4.5 fields-terms, whereas 57% of users (67 users out of 118) attended only one or two areas-term.

#### Analysis of the search terms

Further analysis was focused on the terms with the highest number of visits. SIS users most looked for The Promise and Code of Ethics of a Professional Soldier, which discussed the implementation of the Concept of the professional Army of the Czech Republic and the mobilization of the armed forces of the Czech Republic.

The second most frequented term was Operational Tactical System of Command and Control. OTS VR is an extensive project that brings not only the introduction of new technical features and technologies, but also a means for the necessary change in the style and content of work activities commanders and their staffs, and consequently a means to optimize their organizational structures. The user's attention was completely focused on both the OTS VR of Ground Forces, and the OTS VR of Air Forces. Further was detected interest of user to Manuals of the OTS VR of Ground Forces, Common view of the situation in an integrated environment NEC issues and SOANEC (Service Oriented Architecture NEC).

The third term with the highest number of visits was NEC (Network Enabled Capability). NEC is understood as a coherent integration of sensors, commanders and staffs, weapon systems, developing the army's ability to act flexibly and efficiently. In an integrated environment, commanders will be better informed about the situation on the battlefield. At the event will be able to adequately respond to voice and data communications. NEC is a long-term transformation program, it will take many more years before communication and information systems, operational procedures and knowledge will be connected with result of a significant improvement of military operations.

Table 1. Ten the most popular terms

| Searching concept  | Number of visitors |
|--|--------------------|
| The promise and Code of Ethics of a professional soldier | 26                 |
| OTS VR   | 14                 |
| NEC  | 8                  |
| Armed forces   | 7                  |
| MENTAL - Knowledge Management<br>NEC of the ACR          | 7                  |
| SPEC   | 7                  |
| Defence Planning   | 5                  |
| Armed Forces of the Czech Republic                       | 5                  |
| The system of goals                                      | 5                  |
| SOANEC   | 5                  |

#### 4. Conclusion

The aim of this article was to briefly describe implementation of MENTAL knowledge-based system that uses software product AToM2. The product AToM2 was developed by AION CS. User accesses analysis of the Staff Information System was implemented in two phases. For analysis was used only first eleven months of operation. The rest of the analysed data were not used because of possible distortion of the results due to the decrease of access by users. The decrease of visitors was due to ongoing organizational change and dislocation of services and facilities of the CAF. From the results of analysis is possible to say that in the first 11 months visited pages concerning the knowledge management on SIS 118 employees of CAF in a total of 532 accesses. Most visited were The Promise and Code of Ethics of a Professional Soldier, operational tactical system of command and control and Network Enabled Capability. The largest number of accesses was carried out in March. It is possible to say, that the functional model of the knowledge system MENTAL implemented to Army Staff Information System is a great progress in the knowledge management in the CAF. But of course it is a big task to authors to maintain the project MENTAL actual all the time.

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