

OPINION

by Prof. Vassil Guliashki, PhD
Institute of Information and Communication Technologies - BAS
on a dissertation thesis for awarding the educational and scientific degree "Doctor"
in professional direction 4.6 "Informatics and computer sciences" under doctoral program:
"Informatics"

**titled: "Models and Methods for Decision Making and Process Management
within ITIL (Information Technology Infrastructure Library)"**

by Yassen Rumenov Mitev

By order 65/08.03.2024 of the Rector of the director of IICT-BAS – cor. member D.Sc. Svetozar Margenov – in connection with the procedure for acquiring the educational and scientific degree "Doctor" in the professional field 4.6 "Informatics and computer sciences" under doctoral program: "Informatics" by Yassen Rumenov Mitev with a dissertation thesis titled "Models and methods for decision-making for managing processes in the infrastructure library for information technologies (Information Technology Infrastructure Library)" I have been included in the Scientific Jury as a member.

As a member of the scientific jury, I received:

1. Dissertation thesis for awarding the educational and scientific degree „Doctor“ in Bulgarian.
2. Abstract of Dissertation thesis in Bulgarian.
3. Abstract of Dissertation thesis in English.
4. Reference on the fulfillment of the minimum national requirements.

When evaluating the dissertation, the terms of the Law for development of the academic staff in the Republic of Bulgaria (LDASRB), the Regulations for Implementation of LDASRB (Decree No. 26 of February 13, 2019) and the Regulations of IICT - BAS for application of the Law for the development of the academic staff in the Republic of Bulgaria are decisive.

1. According to Art. 27 (1) of LDASRB "the dissertation work shall contain scientific or applied research results that represent an original contribution to science. The dissertation shall show that the candidate has profound theoretical knowledge in the respective subject, as well as their abilities of independent scientific research."
2. According to Art. 27 (2) of LDASRB the dissertation work should be presented in a form and volume corresponding to the specific requirements of the primary unit. The dissertation work should contain: title page; contents; introduction; presentation; conclusion – summary of the obtained results, accompanied by declaration of originality; bibliography.

The scientific supervisor of the dissertation thesis is Assoc Prof. Dr. Leoneed Mihaylov Kirilov.

Relevance of the topic

The topic of the dissertation is very relevant. With the development of information technologies and the entry of digitization into practice, more and more organizations invest efforts in the implementation of quality management systems, optimization of work and production processes, implementation of electronic technologies to increase productivity and quality. The implementation of such management systems is a complex process. It takes considerable time, resources and commitment from all parts of the organization. In order for such a project to be successful, it is necessary for the changes to be carried out in a coordinated manner in all directorates, and these processes affect the use of various tools, the work process, as well as the culture of the directorate. It is necessary to apply formal decision-making methods and methodologies to facilitate organizations in solving these tasks. The need for hiring external consultants and developing and/or using structured decision-making methods and systems is undeniable.

GENERAL CHARACTERISTICS OF THE DISSERTATION THESIS

The dissertation thesis is in a volume of 172 pages with 10 tables, 17 figures, and includes: an introduction, four chapters, contributions, declaration of originality, list of publications on the topic of the dissertation, and bibliography of 124.

The goal of the dissertation work is to develop and apply formal models and methods to support decision-making in the implementation of the ITIL structural library (Information Technologies Infrastructure Library), at its various stages in large organizations - initial implementation, specifics when implementing specific services, linking with others infrastructure frameworks. To achieve this goal, the following tasks have been formulated:

- 1) To create models and methods that support decision-making during the initial implementation of the structural framework ITIL in large organizations.
- 2) To create models and decision support methods for evaluating implementation, quality and performance and the related Key Performance Indicators (KPIs) in the process of managing IT-related services in organizations.
- 3) Creation of an operational model and method of integration of the most widely used frameworks for managing services and architectures related to IT: ITIL (Information Technologies Infrastructure Library) and TOGAF (The Open Group Architecture Framework). The goal is to join the logically related elements of the frameworks (processes, operations and roles), as well.

The formulated goal and tasks have scientific and scientific-applicational potential for research and application in the field of the organization and management of information processes.

The dissertation work includes **3 publications**, which are co-authored. Two of them have been published in scientific journals, one of which has an impact factor, and one of the articles is in the proceedings of an international scientific conference. All articles carry points and exceed the threshold of national minimum requirements. The publications presented give reason to assume that the research has the necessary publicity. There are 8 citations noted. The PhD student has also 5 other citations of articles that are not included in the list of publications on the dissertation, but are works in the same scientific research area.

CONTRIBUTIONS

The **results** obtained can be summarized in the following **contributions**

Scientific contributions:

- 1) An analysis of ITIL was made including related tasks; significance; implementation approaches in organizations and the role of decision-making methods in this whole process.
- 2) A structural process-oriented method for ITIL integration is proposed. The method does not require knowledge or experience in implementing management frameworks.
- 3) A model and method for group decision-making in the initial implementation of the ITIL structure library/framework in large organizations is proposed. The model is in the form of a two-dimensional matrix. In it, the individual components of ITIL are represented as a string of binary variables. Panel of experts presents individual ratings on a selected scale for each component of the library. The method is based on the median evaluation of the evaluations of the individual experts.
- 4) Following the principles of ITIL, a comprehensive set of 18 criteria (Key Performance Indicators - KPI) has been proposed, united in 5 groups to evaluate the implementation, quality and performance of the e-mail service. A group decision-making model for implementing the e-mail service in organizations is proposed.
- 5) An operational model and a method for the integration between ITIL and TOGAF are proposed. ITIL version v.3 and TOGAF version v.9.1 are used in the model. The method is two-step. At the first stage, the interface is at process level. In the second stage, the communication is done at role level.

Scientific and applied contributions:

- 6) Group decision-making model for the implementation of the e-mail service in organizations is proposed. It uses user-friendly statistical method developed by Don(ald) Krapohl, 2010, USA.
- 7) The ITIL-TOGAF library coupling communication method has been implemented/demonstrated for the first level: in one touch point (Preliminary phase (TOGAF) – Service strategy (ITIL)) and for 6 ITIL roles for level 2 touch points. The duties of the individual roles are split between ITIL or TOGAF through a table of responsibilities RACI (Responsible, Accountable, Consulted, Informed).
- 8) The proposed model and method for the initial implementation of ITIL in an organization is demonstrated on a real example of modernizing IT services in a large pharmaceutical distribution company from Great Britain (Case study), in which the PhD student took part within their commissioned project of Hewlett-Packard (Service Center), Bulgaria.
- 9) The proposed model and a set of KPIs for the implementation of the e-mail service are demonstrated on a real example of a large educational organization (Case study) in a project implemented by Hewlett-Packard (Service Center), Bulgaria, in which the PhD student took part.

It can be assumed that the presented results sufficiently cover the scope of the set goal and tasks.

The **abstract** in Bulgarian is in the volume of 55 pages and presents the dissertation thesis. The **abstract** in English is in the volume of 51 pages and presents the dissertation thesis.

CRITICAL NOTES

- 1) There are too many contributions (9). They could be more tightly defined and consolidated into a smaller number.

2) In the Fourth Chapter of the dissertation, some of the terms and subheadings have not been translated from English to Bulgarian. The corresponding tables are also not translated into Bulgarian.

3) In the dissertation and in the abstract in Bulgarian, some spelling mistakes, as well as grammatical errors such as the use of the full and short article, have been noticed. These errors could have been avoided.

FINAL COMPLEX ASSESSMENT

The critical remarks made are mainly technical and do not belittle the scientific and scientific-applied contributions achieved by the doctoral student. I believe that the submitted dissertation **meets** the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria. The achieved results give me the reason to propose to the respected Scientific Jury to award **Yasen Mitev** the educational and scientific degree "Doctor" (PhD) in the professional direction – 4.6 "Informatics and computer sciences" under the doctoral program: "Informatics".

30.04.2024.
Sofia city

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