



OPINION

by Assoc. Prof. Dr. Stoyan Tranev Tranev,
University "Prof. Dr. Asen Zlatarov" Burgas
on the dissertation for acquiring of the educational and scientific degree "Doctor"
in the doctoral program "Computer Systems and Technologies",
professional field 5.3. "Communication and Computer Technology",
scientific field 5. "Technical Sciences"
Author of the dissertation: Aleksander Janusz Kacprzyk
Topic of the dissertation:
"Design of a compensation system for management executives using generalized nets"

This opinion was prepared on the basis of Order № UD-71-A of 20.05.2020, the Rector of the University "Prof. Dr. Asen Zlatarov" - Burgas, Prof. Dr. Magdalena Mitkova, as well as on the grounds of Art. 44 of the current Regulations on the terms and conditions for obtaining scientific degrees and holding academic positions at the University "Prof. Dr. Asen Zlatarov" - Burgas, in connection with a decision of the Faculty Council at the Faculty of Technical Sciences, for opening a procedure for defence of a dissertation in the Faculty of Technical Sciences of the doctoral student Aleksander Janusz Kacprzyk for obtaining an educational and scientific degree "Doctor" in the doctoral program "Computer Systems and Technologies", professional field 5.3. "Communication and computer technology", scientific field 5. "Technical sciences", on "Design of a software system for remuneration of managers with the help of generalized networks", with supervisors: Corr. Member Prof. Krassimir Atanasov DSc DSc, and Prof. Dr. Bratoy Koprinarov.

Aleksander Janusz Kacprzyk was born in Warsaw, Poland. He obtained a master's degree in Management in 1996, in Finance and Banking in 1996, and in 2001 -- in Business Administration.

As a member of the Scientific Jury, I have received:

1. Order № UD-71-A dated 20.05.2020 of the Rector of the University "Prof. Dr. Asen Zlatarov" - Burgas, Prof. Dr. Magdalena Mitkova.
2. A copy of the dissertation thesis.
3. A copy of the synopsis of the dissertation thesis.
4. Curriculum vitae of Aleksander Janusz Kacprzyk.
5. Copies of the publications on the dissertation thesis.
6. A list of citations.

The opinion has been prepared on the basis of the requirements of the Academic Staff Development Act in the Republic of Bulgaria, Regulations for implementation of the Academic Staff Development Act, and Rules for the conditions and terms of acquiring scientific degrees and academic positions at the University "Prof. Dr. Asen Zlatarov" - Burgas.

Dissertation thesis

The dissertation thesis has a volume of 152 pages, structured in six chapters. It contains 13 tables and 6 figures. The bibliography includes 124 titles.

The dissertation thesis makes a good impression with its clear problem formulations, expressiveness and clarity of the exposition.

Actuality of the problem

The topic of the dissertation thesis is relevant and the obtained results are of scientific and applied science interest. In my opinion, the dissertation thesis of **Aleksander J. Kacprzyk** corresponds to the scientific direction 5.3 "Communication and Computer Technology".

Knowledge of scientific achievements

124 literary sources are cited in the dissertation. More than the half of them have been published in the last 20 years. The PhD student's knowledgeability of the subject matter makes a particularly good impression, more specifically the significant number of monographs cited.

Aim and tasks of the dissertation thesis

The aim of the dissertation research is first of all to propose a new model for designing a system for remuneration of management staff in different types of organizations, private and public, smaller and larger, with the powerful tools of Atanasov's generalized nets. In addition, some original solutions are presented on how to formalize and implement elements of a specific reduced generalized net for the needs of a practical application.

The following thesis of the dissertation has been formulated: Atanasov's generalized nets can be an effective and efficient tool for solving the problem of determining management compensations for different types of companies and the method is conceptually understandable, intuitively attractive and has good computational efficiency.

Content and contributions of the dissertation

In my opinion, the developed generalized net model for designing a system for remuneration of management staff is an effective innovative solution for incentives in modern management. In addition, some original solutions for formalizing and implementing elements of a specific reduced generalized nets are presented.

Chapter 1 raises the issue of the design of the management compensation system. The thesis of the dissertation research and the ensuing three main research tasks are formulated.

Chapter 2 discusses the main issues related to the work of companies and the importance of proper remuneration of managers.

Chapter 3 presents the apparatus of generalized nets as a powerful extension of Petri nets. Their definition, their main properties, the way of their functioning and the algorithms for token transition are introduced. A brief overview of some new extensions of the generalized nets has been made.

Chapter 4 presents a generalized net model of the process of determining the management staff's compensation in a company or institution, which is an important issue in the corporate economy. The role of compensation systems for motivating the employees has been outlined. A new generalized nets-based approach is proposed to create an algorithm for compensation of the executives. The created generalized nets model contains nine transitions for the implementation of the proposed approach for executive compensation. The chapter identifies and structures the key components needed for the development, testing, implementation and evaluation of the compensation model, and shows how they can be realized through the concept of Atanasov's generalized nets.

Chapter 5 presents an illustrative example of the application of the generalized net model developed in the previous chapter to determine the managerial compensation of an important executive position in a company, that of the Chief Financial Officer (CFO). The model was used to design management remuneration systems in two medium-sized

enterprises in Poland – one industrial company and one company in the FMCG (fast moving consumer goods) sector.

Case 1: a medium-size manufacturing company, located in small Polish town, with 300 employees.

Case 2: a medium-size, fast growing FMCG (fast moving consumer goods) company with a strong brand and a highly attractive work atmosphere located in Warsaw, the capital of the country.

Chapter 6 "Concluding remarks and possible future directions of research" concludes and proves the thesis of the dissertation research, and outlines some guidelines for future development of research.

Results obtained in the dissertation

After getting acquainted with the dissertation, I find that the thesis formulated in it has been achieved.

The results obtained in the dissertation work have scientific and scientific-applied contributions, which I approve.

Publications on the dissertation and their citations

The list of publications on the topic of the dissertation includes 6 papers, of which 1 has an impact rank. The required number of publications has been satisfied.

Citations: Two citations of the PhD student's publication with impact factor have been found in Scopus.

Critical remarks and recommendations

When evaluating the dissertation thesis, of decisive significance are the conditions of the Academic Staff Development Act in the Republic of Bulgaria (Decree № 56 of 2018), the Regulations of the University "Prof. Dr. Asen Zlatarov" - Burgas for the application of the Law, which requires to be precisely defined:

According to Art. 27. (1) of the Law, "The dissertation must contain scientific or scientifically applied results, which represent an original contribution to science. The dissertation must show that the candidate has in-depth theoretical knowledge in the relevant field, and ability to conduct an independent research. "

According to Art. 27. (2) of the Law, "The dissertation must be presented in a form and volume corresponding to the specific requirements of the primary unit. The dissertation must contain: title page; content, introduction; exposition; conclusion - summary of the results obtained with a declaration of originality; bibliography. "

According to the Law, the minimum required points for defence of PhD degree, by indicators, are:

Indicator group	Contents	Points of the candidate
A	Indicator 1	50
Г	Sum of indicators from 5 to 11	30

I have the following critical notes and recommendations:

1. The introduction of Chapter 1 is not a separate part. The same is true for Chapter 6, which contains the Conclusion.
2. The contributions, both in the dissertation and in the author's synopsis are not discriminated as scientific and applied-scientific.

3. The dissertation will become even stronger if it simulates the generalized net-based model of the management compensation determination process using platform-independent software called the GN Integrated Development Environment (GN IDE).

Strengths

The author shows a good knowledge of the achievements in the relevant scientific fields. His ability to generate and develop interesting theoretical formulations and their applications on this basis is impressive.

Synopsis

The synopsis is in both Bulgarian and English, and correctly reflects the content of the dissertation and gives an idea of the subject matter, as well as the contributions of the dissertation.

CONCLUSION

All requirements and criteria have been met, as defined in the Academic Staff Development Act in the Republic of Bulgaria, the Regulations for its application of the Law for the development of the academic staff in the Republic of Bulgaria and the Rules for the conditions for acquiring scientific degrees and holding academic positions at the University "Prof. . Dr. Asen Zlatarov "Burgas. In this regard, I strongly and categorically give **my positive assessment** and recommend to the esteemed Scientific Jury to award Aleksander Janusz Kacprzyk with the educational and scientific degree "Doctor" in the doctoral program "Computer Systems and Technologies", professional field 5.3. "Communication and computer technology", scientific field 5. "Technical sciences".

03.07.2020 г.

Подпис заличен
Чл.2 от ЗЗЛД

(Assoc. Prof. Dr. Stoyan Tranev Tranev)