

ABSTRACT

Master's thesis: 94 pages, 28 figures, 27 tables, 1 appendix, 30 references.

Relevance: Today, most business leaders who serve certain territories or sell products in certain territories often have questions such as when, where, and how to sell their products? Answers to these questions greatly affect the profitability of corporations. One of the ways to increase the profitability of companies is to automate management processes. One way to bypass competitors and strengthen their position in the market is to optimally divide managers' territories and areas of responsibility, as this can increase the number of products or services provided, which also has a positive impact on the success of most companies or enterprises. One way to increase profitability is to effectively manage resources. That is why it becomes relevant to create an application that allows you to optimize the process of dividing the territory into service areas by a given number of managers.

Relationship of work with scientific programs, plans, themes. The purpose of the study The thesis was written at the branch of The Department of Computer-aided management and data processing systems of the National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute» at the V. M. Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine under the topic VF.180.11 «To develop a mathematical apparatus focused on the creation of intelligent information technologies for solving combinatorial optimization and information security problems» (2017-2021 biennium), which is executed by the Resolution of the Bureau of Informatics of the National Academy of Sciences of Ukraine from 23.06.2016 p. № 2.

The purpose of the study is developing a formal approach to increase the efficiency of uniform burden-sharing for workers serving the designated area.

To achieve this goal, you must complete the following tasks:

- review relevant research;
- to develop a mathematical model and applied algorithms for solving the arising optimization problem;
- design and implement software;

- to conduct experimental researches of the developed software and algorithmic tools.

The object of study is the process of effectively dividing a territory into a specified number of zones in order to optimize their maintenance.

The subject of study – mathematical models and algorithms for solving the problem of distribution of a given territory.

The research methods are based on modified combinatorial optimization algorithms, according to the set tasks, graph theory and mathematical modeling.

The scientific novelty of the obtained results is the development of new applied algorithms, the topic of optimal design of service areas has been further developed.

Publications.

Abstracts: Kostycheva K. Formalization of the problem of distribution of territories for service. Conference: International scientific-practical conference «Mathematical and imitation modeling of systems. MODS 2019 » – Chernihiv: Chernihiv National Technological University June 24-27. – 2019, – Pg. 38-41.

Kostycheva K. Optimization of the process of division of the territory into service areas by a given number of managers / Hulianytskyi L. // «Ukrainian Scientific and Practical Conference of Young Scientists and Students "Information Systems and Management Technologies – ISTU-2019». Department of Automated Information Processing and Control Systems. Conference materials. – Kiev. – 2019.

Article:

Kostycheva K. The Problem of Territory Allocation for Service // Polish journal of science. – 2019. – №16. – Pg. 53-55.

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