The development of a model for the equipment movement of the armed forces (especially land forces) in specific regrouping relations of these forces, and at the same time the consideration of the thesis adopted, was the main objective of the research conducted in the Ph.D. thesis. In view of the realisation of such a goal, the optimisation task of the land forces' equipment movement in regrouping relations along alternative routes in the examined transport network was developed for the criterion of equal average costs, the criterion of equal external costs and the criterion of movement time. This task is treated as a decision-making model.

The dissertation uses the following approach. In the first part of the dissertation, a detailed analysis of the concepts used was made and a critical analysis of the literature available in both Polish and foreign research was carried out. The literature analysis was conducted in three areas: presentation of selected principles of moving military equipment in the context of logistic demands, issues of alternative routes selection and methods and tools used in research similar in theme to the dissertation. Based on the presented literature analysis, a research gap was defined concerning the development of a decision-making model and its implementation in the form of a decision-making tool developed with the use of simulation methods.

The decision model, presented in Chapter 3, was developed using mathematical programming methods. For the developed decision model, the data applied to construct the model were established, including the characteristics of roads, the characteristics of army equipment and the means of transport to support the movement of equipment on roads. In addition, the decision variables, the constraints imposed on them, and the criterion functions were established.

The implementation of the decision model into a simulation model, is presented in Chapter 4. The assumption of modelling with simulation methods is that *what-if* scenario analyses can be carried out, and therefore the simulation model was developed with multiple options (alternative routes), which were commented on and compared. Due to the three different optimisation criteria used in the decision and simulation model, multi-criteria optimisation methods were used to evaluate the alternatives.

The paper concludes with a summary along with an indication of the theoretical, utilitarian values and at the same time further research opportunities in the considered issue.