

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ ЦЕНТР**

**МАТЕРІАЛИ
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КОНФЕРЕНЦІЇ
ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО ЦЕНТРУ
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OPTIMIZATION OF FINANCIAL PROVIDING OF ENTERPRISES' INNOVATION ACTIVITY

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The recent financial instability in Ukraine and modern global tendencies in world economy have caused the necessity to find new financial recourses for innovation and investment activity of every competitive enterprise. Furthermore, the possibilities of self-financing and attraction of budgetary means, internal and external investments, banking credits, venture capital etc. are limited. This process is not only problematic, but expensive, risky and demanding highly experienced personnel. Besides it, every enterprise wants to receive maximum profit on the assumption of minimum costs. Thus the necessity to optimize the financial providing of enterprises' innovation activity is obvious, and chosen direction of scientific research is topical enough.

It should be said, that optimization methods in finance, linear and nonlinear programming, innovative management are research objects of many scientists, such as: V. Aleksandrova, F. Anderson, I. Balabanov, F. Black, I. Blank, S. Brown, T. Coleman, I. Fisher, R. Fletcher, V. Geets, G. Goldshtein, S. Leyffer, H. Markowitz, M. Miller, W. Sharpe etc. However, scientific and methodical approaches of optimization of financial capital structure require further development and improvement taking into account the peculiarities of national innovative enterprises' activity and global calls.

Modern finance has become increasingly technical, requiring the use of sophisticated mathematical tools in both research and practice. Many find the roots of this trend in the portfolio selection models and methods described by Markowitz in the 1950's and the option pricing formulas developed by Black, Scholes, and Merton in the late 1960's. For the enormous effect these works produced on modern financial practice, Markowitz was awarded the Nobel Prize in Economics in 1990, while Scholes and Merton won the Nobel Prize in Economics in 1997.

Obviously optimization models play an increasingly important role in management and financial decisions. Optimization techniques can serve as one of the tools for any financial institutions and companies to find better solutions and improve decision-making. Thus many computational finance problems ranging from asset allocation to risk management, from option pricing to model calibration can be solved efficiently using modern optimization methods including linear, quadratic, integer, dynamic, stochastic, conic, and robust programming etc.

In general optimization is a branch of applied mathematics that derives its importance both from the wide variety of its applications and from the availability of efficient algorithms. Mathematically, it refers to the minimization (or maximization) of a given objective function of several decision variables that satisfy functional constraints. In our research the optimization model of financial providing of enterprises' innovation activity addresses the allocation of scarce resources among possible alternative uses in order to maximize an objective function such as total profit. In such case the objective function, decision variables and constraints are three essential elements. The investigation involves building models, working out the implications or predictions and testing whether they fit with the facts.

Therefore the optimization of financial providing of enterprises' innovation activity is topical research field with significant contributions and important practical applications because of continual stream of challenging problems with obvious impact of uncertainty, high availability of data, competitive markets, risky and limited capital of enterprise etc.