Modeling information-communication system of financial investment management

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Abstract - In this paper modeling of financial investment management information-communication system is investigated based on applied system analysis and unified modeling language.

Keywords – Financial investment, information communication system, applied system analysis, modeling, UML.

I. INTRODUCTION

Development of information-communication systems (ICS) based on fundamental theory of applied system analysis provides significant benefits. Applied system analysis proposes to split projects not by functional properties, but by general system properties. This difference significantly improves the development cycle of ICS [1].

In financial investment industry modeling based on applied system analysis allows to significantly improve effectiveness of business processes, reduce investment risk, decrease time decision making, find optimal portfolio, decrease total cost investment portfolio ownership [2].

II. PURPOSE OF THE RESEARCH

Purpose of this paper is to research the ways of ICS modeling in investment industry and to develop the component model of financial investment management ICS. Developed ICS should provide automation of investment processes, interoperability, integration and scalability; make possible full-scale modeling of investment portfolio, its current and future risk-return characteristics. Also, ICS should provide the investor with relevant portfolio data in real-time.

III. COMPONENT MODEL OF FINANCIAL INVESTMENT MANAGEMENT ICS

Component model of financial investment management ICS consists of the following components (fig. 1): investor portal, investment portfolio optimization, risk management, forecasting, derivatives pricing, financial engineering, securitization, algorithmic trading, arbitrage, statistical arbitrage, strategic planning component, external data resources and external computational resources.

The primary mission of the components is to form an investment portfolio with optimal risk-return characteristics, which take into account risk tolerance of the investor [3]. Specification of ICS is described in [1] including attributes, operations, purpose and interfaces.

IV. CONCLUSION

Component modeling of financial investment management ICS provided interoperability, integration, interfaces settlement. Application of applied system analysis component modeling to financial investment industry allowed formalizing business processes, architecture and dependencies.

The practical value of this research is that it provides investment companies (hedge funds, mutual funds, pension funds, and investment banks) with integrated automated financial investment management system; decrease total cost of investment portfolio ownership, especially for large portfolios; decrease response time to changes on investment markets, which are real-time and highly liquid markets; improve decision making process.

REFERENCES

