
Foreword

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In this special issue, we present some researches in the new scientific area ‘event-related and digital management of the safety and quality of the economics and the State’ grounded on the algebra of logic and logical-probabilistic (LP) calculus. The most relevant researches and publication topics are listed below.

Safety and quality are the main criteria for the existence of economic and other systems. Therefore, we need appropriate mathematical methods and models for the quantitative assessment of safety criteria and system quality. The algebras of logic and LP method were selected, which provide the calculation of the mentioned criteria in all objects, systems and processes of the economics. Safety is defined by the concepts ‘risk’ and ‘acceptable safety’, quality by the validity of indicators, and efficiency by the mathematical expectation of losses and the price for quality in the market. Modelling of economic systems, construction and analysis of risk models, logical and arithmetic calculations have a large complexity and need special software.

The existing theory of economic management is unsatisfactory, and for a long time there have been no fundamental achievements in this area. Economic management is based on corrections and regulation and use of ephemeral concepts and goals without mathematical methods and models. Based on the economic management analysis (methods and objects of management, managers and security officials, the education system, economic and academic sciences), the conclusion is made that to overcome a critical situation is impossible without a new worldview, the emergence of new knowledge and new tasks in management. Ephemeral methods and objects of economic

management are used not only in Russia but also in other countries. Studies have found that economic problems cannot be solved without scientists and public opinion.

New objects of economic management are the following: objects, systems and processes – state authorities, socioeconomic systems, human life processes, and safe living space of the population. The quality of human life depends on health, education, and job satisfaction, which are represented by processes of treatment, education and decision-making rather than sets of indicators. Life, treatment, education, decision-making, scientific activity are processes and people themselves take part in the management of these processes. Economics in the 20th century was based on the dominant model – ‘economic man’, selfish and calculating, and this concept led to the goal of endless economic growth. A new two-ring economic model is considered. Going beyond the outer ring is going beyond the ecological limits of the Earth (climate, depletion of the ozone layer, etc.). Going beyond the inner ring is a lack of resources for a good life (food, housing, education, healthcare, democracy).

New knowledge for management of safety and quality of the economics and the State are methodological foundations of management, Boolean events-statements, scenarios of system failure, logical and probabilistic risk models and new management tasks. The concept of events-statements by G. Boole is expanded. To manage the economics, new events-statements were introduced: the failure of subjects and objects, signal events, events of invalidity, conceptual, indicative and repeated events, groups of incompatible events. In management tasks in the economics, the probabilities of success/failure, danger/non-danger, and validity/invalidity of events are used.

New types of LP models of safety and quality of systems: structural-logical models, hybrid failure models, invalid risk models, conceptual risk models, indicative hazard models, LP models for management the state and evolution of a system, LP models for the quality of control systems. These LP models should be used for a comprehensive analysis of each system. The dynamics of the LP model is ensured by the correction of probabilities of events-statements under signal events, which indicate the need to change probabilities of initiating events in the LP models of safety and quality.

New tasks for management: Modelling, analysis and management of safety and quality of one system and set of systems with their logical integration into one united system, research of different situations of success/failure of subsystems with use of a united logical model, research connections and dependencies of different systems with correct consideration repeated initiating events, control the state and evolution of systems, control system quality assessment.

Special management software: Orthogonalisation and analysis of the logical risk function for real systems is possible only with special software. The relationship has been established between the digital economics and the event management of the economics and the State. A unified set of new knowledge, models, tasks and special software tools is required, which ensures the wide and rapid implementation of innovations in digital economics.

Digital economics and event management: Event management is complex and interdisciplinary involving a new mathematical approach, using new knowledge and software, and large arithmetic and logical computational complexity, but it is difficult for economists to understand. Owing to automation and unification of knowledge, models and tasks, this problem is overcome.

The course of additional education: 'Event-based digital management of the safety and quality of the economics and state' is necessary for economists, managers, students and lecturers. This new scientific trend has generated new scientific directions:

- management of the human life quality
- proactive control of complex systems.