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APPLICATION OF SYSTEM DYNAMICS IN THE FIELD OF MANAGEMENT CONSULTING AND STRATEGIC MANAGEMENT

Computer technologies are currently one of the most important aspects of economic and mathematical modeling. The high rates of their development have now led to the emergence of many software tools that allow to create computer models of socio-economic processes. With a sufficiently deep knowledge of the behavior of a real system and the correct presentation of the initial information, simulation models are characterized by a greater proximity to the real system than analytical and numerical models. With the help of simulation modeling and the corresponding modern software tools, it is possible to create even those models that cannot be formulated using traditional methods. In addition, simulation allows to create models of those systems with which experiments in real life are impossible.

System dynamics is a tool that can facilitate understanding of the complex relationships between the behavior of a system over time and its structure for analysis and problem structuring process. System dynamics focuses on dynamics rather than static relationships. The goal of dynamic model building is to visualize complex processes and create tools for simulation, scenario testing, and awareness raising. Systems dynamics models are used to solve various problems in the social, economic and natural sciences. Currently, special popularity gains system dynamics for management consulting and corporate governance.

The applications of system dynamics in the field of management consulting and strategic management are very wide:

- company structure and dynamics: dynamic analysis of relationships and the formation of an enterprise strategy based on a generalized system-dynamic model, analysis of the causes of corporate growth;
- management of the production program and logistics processes: production volume, assessment of real production capabilities, development and renewal of the equipment fleet, inventory management, warehouse and transport logistics.
- budgeting and management of financial flows: mechanisms for the distribution and management of financial flows, integrated cost management, tax planning, servicing credit debt, dividend policy;
- analysis of market dynamics and the competitive environment of corporation;
- development of a strategy for crisis management;
- investment planning and project management: development of investment plans and projects, testing different decisions and innovations, their impact on corporation performance.

The main emphasis in working with system-dynamic models is made on the formation of the manager's ability to make decisions that are necessary for the study of systems with complex interdependent relationships between subsystems. This method is widely used in business modeling by the largest consulting companies in the world. With its help all business processes and scenarios are modeled and simulated. This opportunity allows to assess the consequences of innovations in the business environment and, if possible, prevent all undesirable consequences for the company.

The following advantages of system-dynamic models can be named:

- modeling of different possible scenarios: identification of different variants of the situation when changing the input data;
- clarity of input data and obtained results: the software allows you to present results using graphs, tables and causal diagrams;
- interactivity of the simulation model: possibility to control the influence of factors and set the right adjustments at the right time;

- a wide range of modeling capabilities, which include the use of any type of equation, the ability to set the desired goal and various constraints.

Thus, given all the advantages and the large number of opportunities provided by system dynamics, it is taught and actively used at the Department of Finance at National University of Kyiv-mohyla academy. This approach became an extremely valuable for researchers, teachers and students. Regardless of whether the graduates of the Department of Finance will work in consulting, large corporations or government agencies, this method will definitely be a useful addition to their skills.

References

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FACTORS OF GROWING SHADOW ECONOMY IN UKRAINE, POLICIES TO REDUCE IT

Object of the investigation is a growing dynamic of the shadow economy in Ukraine from 2005 to 2018. Three main factors on shadow economy determined by our model are: Amount of cash (M0), Unemployment rate and Level of financial development [1, 2]. Detailed reasoning of the chosen factors:

- **Monetary aggregate M0** (as an indicator of the amount of cash outside banks in the economy of Ukraine) can be considered as one of the factors that either provoke the development of the shadow economy, or indicate its presence. Presence of a huge share of cash in the economy makes it harder or even impossible to