# PECULIARITES' of SYNERGETIC APPROACH in COMPLEX SYSTEM ANALYSIS

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Synergetic models of social and natural processes are formulated in order to quantify relations of the most important parameters, forecast development trends and to determine complex system's demeanor in uncertain conditions. In result of interaction between systems in macro-system new structure is being developed at macroscopic level with congruous functional features. These models have specifications inherent to self-developing, evolution, open systems. This fact allows search of ways to effective managing from positions of synergetic analysis. This way formulated mathematical model allows picturing the evolution of system of interest through basic differential equations. Therefore process of interaction between external environment and complex system is focused in this article. With the change of controlling parameters environment is controlling the system. The main goal in synergetic approach realization is to formulate general mathematical model.

The highest uncertainity rates are inherent to humanitarian area. So algorithm of mathematical model of real impact of advertisement on off-take is shown. Solving this linear impure differential with constant coefficients allows finding time relation of goods sold because of advertisement effect. Therefore rotating time periods of negative and positive ad's reception by the audience was found. Those periods are quantitively similar and are determined by the equation:

$$T^{+(-)} = \frac{2\pi\alpha}{\sqrt{4\alpha\gamma - \beta^2}}$$

Where coefficient:

$\alpha$ - colligates terms favourable for advertisement development;

$\gamma$ - characterizes accessibility of this product in the market;

$\beta$ - shows, how change of income influences advertisement reception of moderate buyer.

Quantitative values of coefficients $\alpha$, $\beta$ and $\gamma$ are defined with usage of well-known econometric methods during the adaptation process of advertisement in specific region.