To a question on application of the statistical theory for the description of industrial systems

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The application of the methods of Statistical Physics for its description is possible owing to the representation of the manufacturing firm with mass production output as a system with large number of elements (the basic products) of stochastic nature, which are in the production process. The behavior of the basic products along the technological chain depends on the definite manufacturing and technological laws in accordance with the technological process of the manufacturing firm, its production plan, the availability of manpower resources and equipment. The state of the production system's basic products at any instant of time is given as the point in two-dimensional phase space. The function of the basic product's distribution in the rate of expense's variation is set and the equation similar to the kinetic equation in Physics is written down. The engineer-production function, which is analogous to the force moving the basic product along the technological chain of the production process, is set and can be determined from the technical documentation of the manufactured article approved in the manufacturing firm. The producer function, that describes the interaction of the basic products (the system's elements) during their moving along the technological chain of production process with technical equipment, is based on the equipment disposition schemes and its technical characteristics according to operating mode of half-finished products. Using the kinetic equation a closed system of balances equations is written down in a zero approximation on a small parameter for the moments of distribution function. The system of balances equations describes the behavior of the basic economical macroscopic quantities of the production system, such as reserve, pace and dispersion of the production output along the technological chain. From the balances equations were obtained the well-known relations in business operation theory for calculation of reserves and paces of the production output.