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Oleksandr Karev¹, Gennady Snizhnoi²

¹ student RT-412m NU «Zaporizhzhia Polytechnic»

² Doctor of Technical Science, professor NU «Zaporizhzhia Polytechnic»

MODELING OF THE QUALITY MANAGEMENT SYSTEM IN MICROELECTRONICS

The quality management system (QMS) contains three interrelated processes: ensuring the required quality, quality control, and quality management. Currently, QMS models for simple technological processes are considered quite fully. The model for managing a complex technological process also assumes the presence of an input X (equipment, people, materials, technical documentation) and a manufacturing process Y in order to obtain a given output Z (product, service) based on the information obtained from each operation. Such a model allows you

to observe the “input”, “process” and “output”, remember various combinations of their deviations and, based on the accumulated statistical data (or specially planned experiments), establish the “measure” of the influence of the input and the process on the result. According to the received data, information is issued to the “management” of the process (to the head of the site, shop, to the chief engineer) about what and where to change. For quality control at the stages of development and production of microelectronic products (on the example of integrated microcircuits), a model is proposed, which is shown in Fig. 1. The model consists of three main subsystems. The basis of the system is the quality assurance subsystem V , which includes input X , process Y , and output Z . The subsystem $V(X, Y, Z)$ performs work Y , consumes everything necessary for the production process X , and produces products Z . We denote the controlling subsystem by $W(X, Y, Z)$, and the controlling one through $U(X, Y, Z)$. All three subsystems are autonomous. They process, accumulate and transfer X, Y, Z information in order to maintain a stable state of the entire QMS.

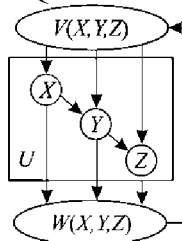


Figure 1 – Model of the quality management system in microelectronics