

# EVALUAREA ȘI ANALIZA PRIN SIMULARE A CAPACITĂȚII A UNUI SISTEM DE PRODUCȚIE

## SIMULATION BASED EVALUATION AND ANALYSIS OF THE PRODUCTION CAPACITY

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**Abstract:** This paper presents the findings of a project that was carried out in order to assess whether the acquisition of new production lines would ensure the expected increase in the capacity of a pipe plant. The project has been undertaken in a real and complex system that consisted of several production lines, storage areas, conveyors and cranes. The main idea that has shaped the development process of the simulation model was generated by the intention to track the movement of all pipes throughout the entire system. Consequently, the model provided information on the phenomenon of pipe accumulation generated by lower productivity production lines. A particular attention was given to the modeling of crane movements as these components of the manufacturing system played a critical role for the performance of the system as a whole. The output data of the simulation model provided detailed information on utilization of equipment, storage areas, conveyors and on the response times of all cranes proved that simulation is a useful and reliable technique in performing dynamic analyses of large and complex systems.

**Keywords:** capacity evaluation and analysis, discrete event simulation, large and complex systems.