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## ABSTRACTS

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### **SIMULATION AS A TOOL FOR PROCESS OPTIMIZATION OF LOGISTIC SYSTEMS**

(pages 1-5)

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**Keywords:** digital factory, simulation, process simulate

**Abstract:** The paper deals with the simulation of the production processes, especially module of Siemens Tecnomatix software. Tecnomatix Process Simulate is designed for building new or modifying existing production processes. The simulation created in this software has a possibility for fast testing of planned changes or improvements of the production processes. On the base of simulation you can imagine the future picture of the real production system. 3D Simulation can reflect the actual status and conditions on the running system and of course, after some improvements, it can show the possible figure of the production system.

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### **THE ANALYSIS OF THE COMMODITY PRICE FORECASTING SUCCESS CONSIDERING DIFFERENT LENGTHS OF THE INITIAL CONDITION DRIFT**

(pages 7-12)

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**Keywords:** exponential approximation, numerical modelling, price forecasting, commodity exchange

**Abstract:** In the paper the numerical model based on the exponential approximation of commodity stock exchanges was derived. The price prognoses of aluminium on the London Metal Exchange were determined as numerical solution of the Cauchy initial problem for the 1<sup>st</sup> order ordinary differential equation. To make the numerical model more accurate the idea of the modification of the initial condition value by the stock exchange was realized. By having analyzed the forecasting success of the chosen initial condition drift types, the initial condition drift providing the most accurate prognoses for the commodity price movements was determined. The suggested modification of the original model made the commodity price prognoses more accurate.

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## VALUE STREAM MAPPING AND ITS SIGNIFICANCE IN THE PRODUCTION PROCESS

(pages 13-16)

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**Keywords:** value stream mapping, value added, value flow

**Abstract:** Monitoring of flows (material, information, personal, energy, financial, etc.) in the production process is always inevitable approach while searching for improvements. There are, radical improvements known as innovations, and continuous improvement established by KAIZEN principles and its useful methods. Both approaches focus on processes that add value, and minimise or eliminate those without added value. The main target of this paper is to analyse the Value stream mapping approach and its benefit to the practical world.

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## ANALYSE OF ELECTROMOBILE CHARGING STATIONS FOR THE NEEDS OF URBAN PROJECTION

(pages 17-20)

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**Keywords:** analyse, electromobile, charging station, urban elements, system

**Abstract:** Electrification of road vehicles is one of the basic characteristics for energy transformation in the future. An important prerequisite to this is to transform the results of research and development to many areas of practice. This includes development of efficient, affordable and practically usable accumulators or safe charging equipment and communication tools. Electromobility is a process that presents a considerable challenge for energy companies. The concept of electromobility offers a complex solution for expansion of electric vehicles and its infrastructure to be needed. There are battery manufacturers, electric vehicles manufacturers, end users, cities and countries (should provide some benefits for users of electric vehicles), as well as electricity distributors that play an important role.

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## THE POSSIBILITIES OF THE STRUCTURE AND VARIABILITY EVALUATION OF INVENTORY CONSUMPTION

(pages 21-25)

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**Keywords:** inventories, logistics, variability, costs

**Abstract:** Inventory can be evaluated from the point of view of a number of aspects. Production and trade organizations nowadays are under great pressure from their competitors and face high expectations from their customers. That is why the cost cutting in all areas can provide a significant competitive advantage. Inventory and its management and administration can therefore represent a source of substantial potential savings. Large inventory volume can significantly increase the costs, but its shortage influences the course of the manufacturing process and, ultimately, the customer satisfaction. It is therefore necessary to continuously optimize the inventory management system in the enterprise. The conducted research also involved an analysis of the structure and variability of the inventory consumption in a business organization dealing with the sale and storage of metallurgical materials. The objective of this article is to evaluate the possibility of the application of the tools used to analyze the structure and variability of inventories in the industrial and commercial practice.

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