

---

**ABSTRACTS**

---

DOI: 10.22306/al.v3i4.71

Received: 29 Nov. 2016

Accepted: 10 Dec. 2016

**LOGISTICS AND PRODUCTION PROCESSES  
TODAY AND TOMORROW**

(pages 1-5)

**György Kovács**

University of Miskolc, Faculty of Mechanical Engineering and Informatics, Institute of Logistics, H-3515 Miskolc-Egyetemváros, Miskolc, Hungary, altkovac@uni-miskolc.hu

**Keywords:** logistics, global objectives, intermittent production, continuous production, industry 4.0**Abstract:** The production process consists of activities that are required in transforming an input set to valuable outputs. Input set includes human resources, raw materials, components, equipments, energy, money, information, etc. Market globalization, increasing global competition, and more complex products result in application of new production and logistics technologies, methods and business processes. Fast changing market environment and fluctuating customer demands require efficient operation of production and logistics processes. In this study the intermitted and continuous production processes are introduced. The essence of Industry 4.0 conception is also detailed.

DOI: 10.22306/al.v3i4.72

Received: 03 Dec. 2016

Accepted: 11 Dec. 2016

**THE ANALYSIS OF THE COMMODITY PRICE FORECASTING SUCCESS  
CONSIDERING DIFFERENT NUMERICAL MODELS SENSITIVITY  
TO PROGNOSIS ERROR**

(pages 7-15)

**Marcela Lascsáková**

Technical University of Kosice, Faculty of Mechanical Engineering, Department of Applied Mathematics and Informatics, Letná 9, 042 00 Kosice, Slovak Republic, marcela.lascsakova@tuke.sk

**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. The derived numerical model was observed to determine the accuracy of forecast prices with regard to two size setting of the limiting value error causing the modification of the initial condition value by chosen stock exchange. The advantage of chosen sizes of the limiting value error 7 % and 8 % with regard to different lengths of the initial condition drift within movements of aluminium prices was studied. By having analyzed obtained results, it was found out that the limiting value error 7 % was more advantageous for commodity price forecasting.

DOI: 10.22306/al.v3i4.73

Received: 25 Nov. 2016

Accepted: 12 Dec. 2016

## POSSIBILITIES OF BUILDING OF WIDE-GAUGE RAILWAY IN THE SLOVAK REPUBLIC

(pages 17-21)

**Marcel Štubňa**

Faurecia Automotive Slovakia, s. r. o., Košice-Barca 1408, 040 17, Košice, Slovakia  
marcel.stubna@faurecia.com

**Keywords:** transportation, railway, wide-gauge railway, analysis

**Abstract:** The contribution deals with an ambitious project, which is the extension of the current wide-gauge railway from Haniska near Košice to Vienna, thus eliminating the transshipment of wagons and overall it should rapidly increase in volume of goods transported by railway from Asian countries without transshipment to Central Europe. The problem itself lies in the disunited view to building a wide-gauge railway led from the territory of Ukraine across the Slovak Republic for needs of the raw materials transportation to Western Europe. The aim is to establish a theoretical base, to evaluate current infrastructure, to analyze the current status and the overall profitability of the project of wide-gauge railway for Slovakia. The aim is to evaluate the advantage or disadvantage of the possibility of extending the already existing wide-gauge railway across the whole territory of the Slovak Republic, which should in practice, meant the construction of approximately 390 to 430 kilometers of new railway track and at least one terminal of combined transport in the Slovak Republic and the European Union. Although the project has been known for a relatively long time, the discussion about this project is conducted in professional circles for nearly 10 years.

---

DOI: 10.22306/al.v3i4.74

Received: 02 Dec. 2016

Accepted: 12 Dec. 2016

## HOW TO MEASURE THE SOCIAL CAPITAL IN A SUPPLY CHAIN?

(pages 23-30)

**Anna Baraniecka**

Wroclaw University of Economics, Faculty of Economics, Management and Tourism, Department of Strategic Management and Logistics, Nowowiejska Street 3, 58-500 Jelenia Gora, Poland, anna.baraniecka@ue.wroc.pl

**Keywords:** social capital, supply chain, the measurement of social capital in a supply chain

**Abstract:** The purpose of this article is to characterize the concept of a social capital of supply chain and identify ways to measure this capital for the needs of supply chain management. In addition to traditional methods author brings new proposals to assess the social capital of the supply chain. The author also presents the results of scientific research obtained in two research projects which examined the relationships of social capital and supply chain management.

---

DOI: 10.22306/al.v3i4.75

Received: 30 Nov. 2016

Accepted: 14 Dec. 2016

## SELECTED IT SOLUTIONS IN LOGISTICS STRATEGIES OF SUPPLY CHAINS

(pages 31-37)

### **Krzysztof Witkowski**

University of Zielona Gora, Faculty of Economics and Management, Department of Logistics, Podgorna 50, 65-248  
Zielona Gora, Poland, k.witkowski@wez.uz.zgora.pl

### **Katarzyna Huk**

University of Zielona Gora, Faculty of Economics and Management, Department of Logistics, Podgorna 50, 65-248  
Zielona Gora, Poland, k.huk@wez.uz.zgora.pl

### **Agnieszka Perzyńska**

University of Zielona Gora, Faculty of Economics and Management, Department of Logistics, Podgorna 50, 65-248  
Zielona Gora, Poland, a.perzynska@wez.uz.zgora.pl

**Keywords:** logistics, supply chain management, IT solutions

**Abstract:** The aim of the chapter is to present some IT solutions which could be recognised as innovative solutions in both areas: technology and organisation. The above mentioned solution could be implemented by logistics. Currently, logistics is the field of knowledge which on the basis of IT systems is aim-ing at the integration of organizational divisions of enterprises. It is supposed to ensure the optimum shaping of the supply chains from the moment of acquiring materials, through processing and distribution in various fields of commerce, until the final purchaser. Companies are forced to constantly introduce more and more new solutions, resulting in innovation driving the progress of the market. This article is a part of research, which is considered to the problem of implementation of IT solutions logistics.

---