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Multidimensional Management in the 21st Century

2023
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1st
International Scientific Conference

23.02.2023



CZESTOCHOWA, POLAND

BOOK OF ABSTRACTS

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Part 1

Presentation prepared for the 1st International Scientific Conference "Multidimensional Management in the 21st Century" refer to the extremely important and current problems that the organizations had to experience in periods of the Russian aggression against Ukraine and ongoing the humanitarian crises, the Covid-19 pandemic and the global economic recession. The multidimensionality of the decision-making process in crisis conditions requires not only flexibility of the organization's strategy, but also access to current information on macroeconomic, financial, political, social or legal changes affecting the activities of various types of organizations. Conference participants in their presentations proposed new methods of enterprise management at the strategic, financial and operational level, corresponding to dynamic changes taking place in their business environment. These changes include the intensive process of digitization of the economy, which is conducive to the development of new digital channels to improve the services of companies and customer service. In the prepared presentations, attention has been drawn to the need to implement new predictive methods based on machine learning models both in the activities of bank branches in order to assess the dynamics of online transactions, as well as in identifying the seasonality effect of demand in hostilities. It has been also proposed to use new mathematical models and IT tools for matching patient cases to clinical trials. In the context of digital transformation, the issue of money laundering was also addressed, highlighting the need for changes in the law at the EU level. The model of crisis management has been presented in the context of solving problems faced by non-government organizations and the textile industry enterprises. On the one hand, it has been shown how the transformation of consumer lifestyle, the lockdown period caused by the COVID-19 pandemic and the development of omni-channel distribution have changed the activities of textile companies. On the other hand, it has been shown how market contractors perceived external business communications of enterprises and stimulated their sales volume and customer base in the period of martial law in Ukraine.

Another important research issue considered by the participants of the MdM_FaMa'2023 conference is the sustainable development of organizations, regions and countries. In the prepared presentations, attention has been drawn to business dimension of cross-sectoral entrepreneurship of entities from the cultural and creative industries. In addition, several strategic objectives have been created for the sustainable development of cultural and creative industries in Slovakia. In the context of identifying factors supporting the socio-economic development of Ukraine, it has been found that performance marketing

competencies are necessary for the sustainable development of startups. Sustainable agriculture can help solve some ecological problems and mitigate climatic changes, which has been emphasized in the analysis of the motivational effect and the importance of subsidies for the development of agricultural business in the Czech Republic. The issues of environmental management have been presented in the context of the assessment of the quality of surface waters located nearby highways by means of express monitoring methods, as well as the implementation zero waste philosophy in cities. The papers, presented during the MdM_FaMa'2023 conference containing interesting theoretical conclusions and practical guidelines for managing an organization in the 21st century in times of dynamic changes in the business environment, indicate at the complexity and multidimensionality of this process.

We would like to thank all conference participants, who have put a lot of effort in preparing very interesting presentations devoted to the newest and crucial issues of multidimensional organization management. Your scientific inquisitiveness a wide spectrum of knowledge in the field of organization management in a dynamic business environment, the diversity of scientific interests have made this event interdisciplinary. Thank you for great commitment and willingness to share the results of own research with the conference participants, we also thank everyone for the inspiring discussions and comments that can contribute to solving many scientific problems considered during this conference.

The 1st International Scientific Conference "Multidimensional Management in the 21st Century" has been held thanks to the great kindness and support of the authorities of the Faculty of Management of the Czestochowa University of Technology, for which we would like to thank the Dean of Faculty of Management, **dr hab. inż. Iwona Otola, prof. PCz**. We would like to acknowledge with gratitude all members of the Scientific Committee of the MdM_FaMa'2023 Conference, on whose substantive assistance, valuable suggestions and commitment to promoting the idea of the conference we could always count. In particular, we would like to thank the Chair of the Scientific Committee, **dr hab. Agata Mesjasz-Lech, prof. PCz** for their valuable help and continuous involvement in the preparation of this scientific event.

The 1st International Scientific Conference "Multidimensional Management in the 21st Century" has been organized in cooperation with Partners, whom we would like to thank very much for their help and support. We would like to express our special gratitude to **Mateusz Zajac** - Regional Director of Economic Education Programs, Banking's Law and Information Center, whose great commitment and reach experience in organizing educational events allowed researchers, doctoral students and students representing 12 universities, academic centers and institutions from Europe to exchange views and discuss the multidimensional aspects of managing organizations in the 21st century. We are deeply indebted Mateusz Zajac for devoted time to cooperation with us and providing us the technological support during the MdM_FaMa'2023 Conference.

We would like to acknowledge with gratitude the people who made our scientific conference possible thanks to their engagement to disseminate information about the Mdm_FaMa'2023 Conference:

Prof. Bernd Hallier - President of the European Retail Academy, Germany,

Prof. José-María Montero - Presidente of C.U. Economía Aplicada, Universidad de Castilla-La Mancha, Spain,

Prof. Ludmila Shulgina - National Technical University of Ukraine "KPI", Ukraine,

Ing. Jakub Kintler, Ph.D. - Vice-Rector for Development of University of Economics in Bratislava, Slovakia.

We hope to continue the initiated cooperation between our universities and organizations.

We would like to express our sincere thanks to:

- **Prof. dr hab. inż. Leszek Kiełtyka** - President of the Main Board of the Scientific Society for Organization and Management (TNOiK), Poland,
- **Dr hab. inż. Robert Ulewicz, prof. PCz** - President of the Managers of Quality and Production Association, Poland,
- **Dr inż. Edyta Kulej-Dudek** - President of the Scientific Society for Organization and Management, branch in Czestochowa,

for their kindness and substantive support provided to us during organization of the 1st International Scientific Conference "Multidimensional Management in the 21st Century".

The Organizing Committee of the Mdm_FaMa'2023 Conference

The aim of the conference is to activate the scientific development of students, doctoral students and young scientists by creating an international forum for discussion and presentation of the latest scientific research highlighting the theoretical and practical aspects of multidimensional organization management in the 21st century and creating a cooperation networks.

The main topics of the conference are focused on, but not limited to, the following titles:

ORGANIZATION MANAGEMENT IN TIMES OF CRISIS		
THEORETICAL CONCEPTS AND METHODS OF MANAGEMENT - INTERDISCIPLINARY APPROACH	DECISION-MAKING PROCESSES IN ORGANIZATIONS	INFORMATION AND IT TECHNOLOGIES IN MANAGEMENT
STRATEGIC MANAGEMENT	QUALITY MANAGEMENT	INNOVATION MANAGEMENT
HUMAN CAPITAL MANAGEMENT	KNOWLEDGE MANAGEMENT	MARKETING
RISK MANAGEMENT	CRISIS MANAGEMENT	FINANCE MANAGEMENT
WASTE MANAGEMENT	REAL ESTATE MANAGEMENT	NETWORK ORGANIZATIONS
SUSTAINABLE DEVELOPMENT MANAGEMENT	SUPPLY CHAIN MANAGEMENT	SAFETY MANAGEMENT

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Part 2

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MATCHING PATIENT CASES TO CLINICAL TRIALS

The clinical decision process is many times supported by eHealth platforms that help medics and other health professionals make the best decisions to their patients. The regular workflow is to decide the exam, to determine the causes and finally decide the treatment. In cases where the treatment is not successful, the last resort is a clinical trial where a new possible treatment is tested on patients. Unfortunately, the vast majority of clinical trials fail to meet their patient recruitment goal. NIH has estimated that 80% of clinical trials fail to meet their patient recruitment timeline and, more critically, many (or most) fail to recruit the minimum number of patients to power the study as originally anticipated. Efficient patient trial recruitment is thus one of the major barriers to medical research, both delaying trials and forcing others to terminate entirely.

Byba Volodymyr

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Ukraine

USING OF SEASONALITY EFFECT IN PREDICTING DEMAND IN HOSTILITIES

With the beginning of war in Ukraine, most retail networks have faced the problems of destruction of distribution centers. It cause great loses of goods. In addition, the turnover of companies has also decreased significantly. Important factors influencing this are the internal movement of the population and the change in consumer values. In order to survive companies of the domestic retail market are forced to look for ways to release working capital.

The most effective methods of release of working capital are reduction of stock, optimization of assortment and improving the efficiency of internal service level. All these methods are directly related to the forecasting methods used by the companies work. The practice of attracting external vendors for improvement of forecasting models has become widespread. There are examples of significant investments in IT companies that have ready-to-work solutions in forecasting area.

Levels of forecasts are usually divided for:

- short -term forecast (up to 30 days, granulation on store / SKU / day level);
- medium -term forecast (up to 6 months, granulation on SKU/week level);
- long -term forecast (6 to 18 months, granulation on product category/week level);

Common practice is the adjustment of the replenishment system to two main types :

- baseline forecast;
- promo Forecast.

Methods of forecasting based on machine learning models today are becoming more widespread than simple statistical models, due to the possibility of taking into account and automatic calculation of special periods (holidays), changes in the structure of consumption within product categories and seasonality.

Considering seasonality in the basic forecast allows:

- to sign up volumes with suppliers;
- prepare the system of replenishment for the need for additional shipment at the time of start of the season;
- to agree the volumes of deliveries with transport companies.

Czajkowska Dorota

Bachelor's degree

Nicolaus Copernicus University in Toruń, Poland

THE ISSUE OF CRISIS MANAGEMENT WITH SPECIAL FOCUS ON NON-GOVERNMENTAL ORGANIZATION

The crisis caused by the Covid-19 pandemic has confronted many organizations with new, difficult to predict problems. This also applies to non-governmental organizations. In the presentation, I will focus on this particular segment, bringing its specifics closer. I will cite examples of new problems that it had to face and their solutions, as well as the conclusions resulting from them.

Hallier Bernd

Professor Doctor, President of the European Retail Academy
European Retail Academy, Germany

Nencheva Violena

Ph.D.
European Retail Academy, Germany

**IMPACTS OF CRISES 2020–2023 ONTO THE MANAGEMENT
OF THE TEXTILE SECTOR**

The Textile Business is an excellent example for permanent transformations of the life-style of consumers. The oldest reports come from the traditional Silk Road which connected Asia and Europe and which was a chain of traders which was connecting local transport knowledge step by step over thousands of kilometers. From the 14th century onwards in Europe in this sector history has information about families which had an important impact on the development of the products, their processing and distribution. The major innovations can be summarized in sector cycles. The first cycle in the European textile sector was dominated by traders 'knowledge about the sources of the product-materials and opportunities for processing. The main focus of sales in that phases had been the upper classes which could afford the import of exclusive materials. In a second phase covering the start of industrial mass-production and professional mass-distribution outlets for textiles were established with benchmarks at high frequency spots in down-towns of agglomerations like Berlin, Cologne, London or Paris. Department stores became the anchor of cities and for life-style driven citizens. This period lasted till the 20ies of the last century. In the third phases the outlet-dominance is attacked first by catalogues replacing new stores during the Economic Crisis of the last century and after World War II by IT-driven businesses by the development of tools like the European Article Numbering-system, chips and QR-codes, clouds for big data and data-mining. Phase 4 is the omni-channel distribution with Artificial Intelligence and Virtual Reality. For the textile traders it is an improvement of the efficiency by the ability to control the total supply chain electronically; for the consumer the potential interconnectivity with the internet and smartphones is an empowerment of demand because the choices for alternative points of sales are permanently increasing and mobile shopping decreases the dependence on locations of brick-and stone. Of course, this is resulting in big changes for the supply patterns and results in a Darwinism of retailers in the competition to adapt quick enough to create a return on investment.

Additionally in the 20ies of the 21st century the sector is challenged by a series of strong global external factors which cannot be influenced by the companies directly – but only by defensive actions for resilience. Within the cluster of most hit companies are small and medium sized family businesses – often textile traders.

Kintler Jakub

Ing. Ph.D.
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BUSINESS DIMENSIONS OF CCI ENTITIES

The cultural and creative industries, with their limitless growth potential, are seen as a pathway to sustainable development (Buček et al., 2015; Florida, 2003). The European Union emphasizes the role of the cultural and creative industries as a driving force in the European Union, pointing out the need to analyse CCIs and the impact of their activities on the European economy, and to identify, define and describe their different sectors in order to take into account each particularity, to better understand their objectives and problems, and to put in place effective measures to promote and develop them. CCI entities represent a value shift in the use of traditional productive business factors (labour, land and capital), towards the use of inputs with increasing added value, such as: knowledge, creativity and innovation (EC, 2010). The importance of CCIs can be also seen in their links with other economic sectors, to which they bring important innovative elements for the development of their competitiveness, particularly in relation to information and communication technologies. At this scientific conference we will present our first outcomes of the scientific work related to the concept of the cross-sectorial business dimensions of the CCI entities, examined under the scientific project VEGA 1/0582/22 "Dimensions of cross-sectorial entrepreneurship of cultural and creative industry entities in the context of sustainable development". In our research we analyse the CCIs economy performance, monetization aspects and specifics of their businesses and their contribution to the employment and cross-sectorial development in local, national and international meaning. The second part of prepared analyses are oriented on the business sustainability of the CCIs (e.g. economy, environment, gender balance, etc.).

Kmety Bartekova Maria

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CREATION OF STRATEGIC DOCUMENTS FOR THE DEVELOPMENT OF CULTURAL AND CREATIVE INDUSTRIES IN SLOVAKIA

The Strategy of Culture and Creative Industry of the Slovak Republic 2030 is a project of the Ministry of Culture of the Slovak Republic. Its aim is to formulate long-term strategic objectives of the state cultural policy with regularly updated action plans and to link these objectives with the policies of other ministries with a view to 2030. The Strategy of Culture and Creative Industry of the Slovak Republic 2030 is based on the review of cultural spending prepared by the Institute of Cultural Policy, an assessment of data-driven results, an evaluation of the Cultural Development Strategy 2014-2020, other sub-strategies and the international context. The strategy focuses on cross-cutting themes that affect several sectors of the cultural and creative industries at the same time (cultural infrastructure, cultural heritage, working conditions, defining cultural actors, etc.); on themes that have long been pushed into the future (private sources of funding, foreign presentation, etc.); but also on highlighting current themes that come with crises (e.g. cultural resilience, environmental responsibility, inclusiveness, or support for democracy). These themes are broken down into seven strategic objectives. The development of the CCI 2030 strategy will result in a number of outputs.

This abstract is a partial result of the research project VEGA 1/0582/22 "Dimensions of cross-sectoral entrepreneurship of cultural and creative industry entities in the context of sustainable development".

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ENVIRONMENTAL MANAGEMENT AND EXPRESS MONITORING OF SURFACE WATERS QUALITY

Mobile pollution sources have a very significant impact on the state of the environment contaminating it with harmful substances, which also include greenhouse gases. It is also important that toxicants emissions with the exhaust gases of engines occur in the humans respiratory zone, get into the soil, surface and underground waters, significantly worsening their quality. Thus, management and monitoring of surface water quality is an important component of the state environmental management and monitoring system. As a result of the investigation, it was determined that the lack of express monitoring methods implementation in the environmental management system in urban territories is one of the issues which do not allow to timely evaluate the state of the environment and make appropriate management decisions to reduce the negative impact on the health of citizens. So, in our study, we focus on express monitoring methods for the assessment of the quality of surface waters, located nearby highways, combining such methods with mathematical modeling. To obtain actual data on the potential pollution of water bodies a set of physicochemical methods of analysis was used, namely: potentiometric, conductometric, and optical research methods, which are quite sensitive and do not require much time for analysis. When it was possible, organoleptic parameters were also studied. The computational experiment as a part of the mathematical modeling of air pollution level and, eventually, water bodies contamination, by such components of vehicle exhausts as nitrogen and carbon oxides, particulate matter was carried out using the differential equation of turbulent diffusion at different weather conditions. Qualitative and quantitative analysis was used to determine the content of chemical elements and the concentration of ions in water samples. Based on the obtained results, recommendations for environmental management system improvement were given and substantiated.

Malik Ghulam Mujtaba

Ph.D.

University of Szeged, Hungary

MONEY LAUNDERING LEGAL FRAMEWORK IN 21ST CENTURY: EU AND FATF ROLE

Money laundering has the potential to turn a global financial hub into a financial harbour. To combat the problem of money laundering, legislation must be correctly read and applied in accordance with EU directives and FATF recommendations. Terrorist organizations use money-laundering networks to acquire weapons. Money laundering in the digital age may even include the use of technological advancement for criminal purposes. To address the problem of money laundering, legislation must be correctly read and applied in order to correct the problem. The purpose of the regulation should be "fully put into effect," as emphasized by the regulatory bodies such as the EU and FATF.

Mazancová Kateřina

Ing.

Economic Faculty University of South Bohemia, Czech Republic

THE MOTIVATIONAL EFFECT AND IMPORTANCE OF SUBSIDIES AND PAYMENTS FOR AGRICULTURAL BUSINESS IN THE CZECH REPUBLIC

The market for agricultural commodities is fundamentally influenced by the amount of subsidies and payments, but also quotas for production, import or export. The result is essentially a non-market position of own agricultural production resulting in a distortion of the relationship of agricultural entrepreneurs to the land and location of their business, which are the basis of the development of rural areas. Subsidies, flowing mainly from the European Union (EU) budget since 2004, represent one of the largest sources of income for rural development and agriculture in the entire Czech Republic. The main objectives of subsidies with visible microeconomic consequences include a wide range of topics - e.g. production of quality and affordable food, support of competitive agriculture, public interest in landscape protection and rural development, etc. At the same time, the inflow of money in the form of subsidies limits the increase in unemployment in the countryside and on the contrary, it supports the development of service offerings in small municipalities.

In the context of current climate and ecological problems, the issue of agriculture is becoming an increasingly discussed sector. Subsidies also act as a stimulus for the desirable behavior of farmers and their retention in the countryside. The provision of subsidies over the years has literally made agriculture and the countryside dependent on subsidies. Without subsidies, farmers are pushed more towards non-organic farming, unethical treatment of animals and inappropriate management of the landscape. The results of the provision of payments and subsidies are thus largely contrary to the purpose of their provision.

Mendoza Aguilar Judit

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Instituto Tecnológico de Canarias, Spain

TRANSACTION VOLUME PREDICTION MODELS IN BANK BRANCHES: A CASE STUDY

In the context of digital transformation accelerated by the covid crisis, companies have been forced to strengthen their digital channels to improve their services and customer service. In particular, in the banking sector, customers carry out an increasing number of transactions in digital channels (through the web or mobile applications) and the transactions managed by the on-site branch network are decreasing. The objective of this study is to model the number of transactions by branch and communication channel, distinguishing between face-to-face and online, for the prediction of the number of transactions to be managed in a bank branch. To do this, it is based on the data series of branches, clients and transactions of a real entity that operates in Spain. Three types of machine learning predictive models are performed, implemented in Python: Sarima, Bayesian, and LST Neural Networks. After the comparative analysis of the results, in addition to verifying the increase in online transactions compared to face-to-face transactions, it is verified that: the Bayesian model is the one that best predicts face-to-face transactions, the SARIMA models are the ones that best predict the volume of online transactions and the LST neural network models are the ones that show the worst behavior for the prediction of the series of face-to-face transactions, with errors superior to those of models such as SARIMA or Bayesians.

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PERFORMANCE MARKETER ATTRIBUTES FOR STARTUP DEVELOPMENT

The development of innovative infrastructure and startups is essential for the socio-economic growth of Ukraine, Poland, and other European Union countries. Our previous studies show that well-thought-out marketing is key for startup development. At the same time, startup marketing has both similar and distinctive features in comparison with traditional business templates. And it was found, that performance marketing competencies are essential both for traditional businesses and startups' sustainable growth. The research was conducted in 2020-2022 by the method of in-depth interviews, in particular, graduates of the Department of Industrial Marketing of Igor Sikorsky Kyiv Polytechnic Institute, who perform the functions of performance marketers. Analysis of the scientific and professional literature was also conducted. The following has been determined as a result of the investigation. The first and most important aspect for startup teams is to know their business, product, and customers in order to clearly define the value that the project provides to the world. Other essential issues include monetizing traffic sources, connecting products with audiences and buyers, generating massive revenue and awareness for the brand, scaling customer acquisition, optimizing various promotional activities to improve customer acquisition, and finally – developing digital skills. It was also determined, that the biggest winners in performance marketing can be startup teams who can determine and utilize the opportunity, develop the right mindset, sharpen the right set of skills, surround themselves with the right people and creative atmosphere, and constantly improve their work every day.

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A ROLE OF EXTERNAL BUSINESS COMMUNICATIONS UNDER CONDITIONS OF MARTIAL LAW IN UKRAINE

The deterioration of economic, social, demographic, technical, etc. factors in the field of activity of enterprises in Ukraine from the beginning of the full-scale war has considerably increased business risks, and strengthened a level of stress and uneasiness among employees. In such conditions, demand for support, humanness, the importance of human values, and the presence of leaders who are ready to fight, continue to develop themselves, and develop a business has become obvious and sharply escalated. A pilot study conducted by the method of the enterprises' websites content analysis in the sphere of service showed that an important role in this development was adequate business communication, thanks to which enterprises saved and even strengthened an ability to constantly communicate with the audience, support and express empathy.

Characteristics with which market contractors perceive external business communications of enterprises as adequate to the modern conditions were established. Such enactors have a clear position on the war and boldly express it in general; they emphasize that the company has no ties with the aggressor country (does not work on its territory, does not support its economy, does not use its resources); they provide information about the company's involvement in charitable organizations or the creation of its funds, in the work of which employees actively participate; they demonstrate that the company's employees (including its management) understand the difficult economic situation in the country and try to create a product with a minimum price and decent quality; they motivate consumers to purchase the product of this particular enterprise, because a percentage of the sale of each unit of the product or service will be transferred to the needs of the Armed Forces of Ukraine. Information about such noble causes forms a positive image of the enterprise on the market and therefore stimulates the growth of sales volume and customer base.

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