

VYTAUTO DIDŽIOJO UNIVERSITETO  
ŽEMĖS ŪKIO AKADEMIJA

**12-osios tarptautinės mokslinės konferencijos**

**APSKAITA IR FINANSAI:  
INOVATYVŪS SPRENDIMAI DARNIAI  
BIOEKONOMIKOS IR KAIMO PLĖTRAI**

**PROGRAMA IR SANTRAUKOS**

2020 m. lapkričio 19–20 d.

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**12<sup>th</sup> International Scientific Conference**

**ACCOUNTING AND FINANCE:  
INNOVATIVE SOLUTIONS FOR  
SUSTAINABLE BIOECONOMY AND  
RURAL DEVELOPMENT**

**PROGRAMME AND ABSTRACTS**

November 19<sup>th</sup>–20<sup>th</sup>, 2020



2020

**Konferenciją organizuoja:**

Vytauto Didžiojo universiteto Žemės ūkio akademijos Bioekonomikos plėtros fakultetas

**The Conference is organised by:**

Faculty of Bioeconomy Development of Vytautas Magnus University Agriculture Academy

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Aurelija Markelytė, Jūratė Savickienė, Aušra Nausėdienė

**Rėmėjai / Sponsors**

Lietuvos  
mokslo  
taryba

ISBN 978-609-467-464-8 (internetinis)  
<https://doi.org/10.7220/9786094674648>

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# GERBIAMI KONFERENCIJOS DALYVIAI IR SVEČIAI,

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sveikiname Jus, dalyvaujančius dvyliktojoje tarptautinėje mokslinėje konferencijoje „Apskaita ir finansai: inovatyvūs sprendimai darniai bioekonomikos ir kaimo plėtrai“. Konferencija skirta pristatyti apskaitos ir finansų mokslinių tyrimų idėjas bei rezultatus, aktualius ieškant inovatyvių ir rezultatyvių praktinių sprendimų verslo ir viešosiose organizacijose, veikiančiose bioekonomikos sektoriuje ir kaimo vietovėse, didinti ūkio subjektų darnų vystymąsi ir sprendimų efektyvumą bei skatinti mažų ir vidutinių įmonių bei viešojo sektoriaus institucijų tvarią bioekonomiką ir veiklos efektyvumą bei šių sektorių partnerystę.

Džiaugiamės ir didžiuojamės, kad norą dalyvauti konferencijoje pareiškė Baltarusijos, Estijos, Ispanijos, Indijos, Italijos, Kazakstano, Latvijos, Nigerijos, Lenkijos, Sakartvelo, Ukrainos ir gausus būrys Lietuvos mokslo ir studijų institucijų mokslininkų. Labai vertiname sustiprėjusią partnerystę su verslo, viešojo sektoriaus ir konsultavimo institucijomis bei tikimės, kad mokslininkų pranešimai pasitarnaus dar glaudesnio bendradarbiavimo ir tarpusavio supratimo plėtojimui.

Mes, Vytauto Didžiojo universiteto Bioekonomikos tyrimų instituto kolektyvas, nuoširdžiai dėkojame, Lietuvos mokslo tarybai ir Lietuvos kaimo tinklui, padėjusiems suorganizuoti šią konferenciją.

Linkime Jums sėkmingos mokslinių idėjų sklaidos, konstruktyvių diskusijų ir tolesnės partnerystės plėtojimo.

Mokslinio ir organizacinio komiteto vardu  
*Prof. dr. Vilija Aleknevičienė*  
*Doc. dr. Jūratė Savickienė*

# DEAR PARTICIPANTS AND GUESTS OF THE CONFERENCE,

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We welcome you to to the 12<sup>th</sup> international scientific conference “Accounting and Finance: Innovative Solutions for Sustainable Bioeconomy and Rural Development”. The aim of the conference is to discuss research ideas in area of accounting and finance and share research results that are relevant to business and public organisations operating in bioeconomy sector and rural areas. Our goal is to identify innovative sustainable development and appropriate solutions, in order to increase business sustainability bioeconomy and efficiency to promote partnership of small and medium-sized enterprises and public sector.

We are very happy and proud that the representatives of academic and scientific institutions from Estonia, Belarus, India, Italy, Georgia, Kazakhstan, Latvia, Poland, Nigeria, Spain, Ukraine, and large number of participants from various institutions in Lithuania are interested in the conference. We highly appreciate the strengthened partnerships with business, public sector and consulting institutions and hope that the presentations of researchers will serve as accelerator for even greater cooperation and mutual understanding.

We, the staff of Research Institute for Bioeconomy of Vytautas Magnus University, are thankful to Research Council of Lithuania and Lithuanian Rural Network, who helped us in organising this conference.

We wish you a successful dissemination of scientific ideas, constructive discussions and further development of the partnership.

On behalf of Scientific and Organising Committee  
*Prof. dr. Vilija Aleknevičienė*  
*Doc. dr. Jūratė Savickienė*

# KONFERENCIJOS DARBOTVARKĖ

## Lapkričio 19 d., ketvirtadienis

8.00–9.00	Dalyvių registracija
9.00–9.10	Konferencijos atidarymas
9.10–11.10	Plenarinė sesija
11.10–11.30	Pertrauka
11.30–13.30	Paneliniai pranešimai
13.30–14.00	Pertrauka
14.00–17.00	Paneliniai pranešimai

## Lapkričio 20 d., penktadienis

### **Forumas „Ateities apskaita ir finansai: į kokias kompetencijas turime investuoti?“**

8.00–9.00	Dalyvių registracija
9.00–9.10	Forumo atidarymas
9.10–10.00	Paneliniai pranešimai
10.00–10.20	Pertrauka
10.20–12.40	Forumo I dalis – panelinė diskusija
12.40–13.30	Pertrauka
13.30–16.00	Forumo II dalis – gerosios patirties sklaida

# CONFERENCE PROGRAMME

## Thursday, 19<sup>th</sup> November

8.00–9.00	Registration of Participants
9.00–9.10	Opening Ceremony
9.10–11.10	Plenary Session
11.10–11.30	Break
11.30–13.30	Parallel Sessions
13.30–14.00	Break
14.00–17.00	Parallel Sessions

## Friday, 20<sup>th</sup> November

### **Forum “Future of Accounting and Finance: What Competencies do We Need to Invest Already?”**

8.00–9.00	Registration of Participants
9.00–9.10	Opening Ceremony
9.10–10.00	Panel Presentations
10.00–10.20	Break
10.20–12.40	Forum Part I – Panel Discussion
12.40–13.30	Break
13.30–16.00	Forum Part II – Dissemination of Good Practice

Plenarinė sesija / Plenary Session

9.10–11.10

Pirmininkauja / Chairpersons

*prof. dr. Vilija Aleknevičienė*

9.10–9.40

Juan J. García-Machado (Spain)  
LAST RESEARCH IN SUSTAINABLE BIOECONOMY:  
AN UPDATED BIBLIOMETRIC MAPPING BASED ON  
CO-OCCURRENCE DATA

9.40–10.10

Eimantas Gudonis (Lithuania)  
METHODS AND CHALLENGES OF ACCOUNTING IN THE  
AGRICULTURAL SECTOR

10.10–10.40

Paulius Morkūnas (Lithuania)  
ECONOMIC EXPECTATIONS AND BUSINESS LENDING:  
HOW DOES THE PICTURE LOOK LIKE?

10.40–11.10

Astrida Miceikienė, Danutė Zinkevičienė (Lithuania)  
THE TRENDS OF ENVIRONMENTAL TAXES AND SOCIAL  
ACCOUNTING IN THE CONTEXT OF SUSTAINABILITY

11.10–11.30

Break



Juan J. García-Machado ▲



Eimantas Gudonis ▲



Paulius Morkūnas ▲



▲ Astrida  
Miceikienė



▲ Danutė  
Zinkevičienė

## Paneliniai pranešimai / Parallel Sessions

### I SEKCIJA / SESSION I

Tvarios bioekonomikos ir kaimo plėtros viešieji finansai

Public Finance for Sustainable Bioeconomy and Rural Development

**11.30–13.30**

Pirmininkauja / Chairpersons *assoc. prof. dr. Jurgita Baranauskienė*  
*assoc. prof. dr. Anastasija Novikova*

Jurgita Baranauskienė

EVALUATION OF SOCIO-ECONOMIC IMPACT OF BIOECONOMY

Kristina Gesevičienė, Astrida Miceikienė

METHODS AND EXPERIENCE FOR IDENTIFYING AND ASSESSING  
ENVIRONMENTALLY HARMFUL SUBSIDIES

Oluwaseun James Oguntuase

UNLOCKING INVESTMENT AND FINANCE FOR TRANSITION TO A BIOECONOMY

Jevgenija Česnauskė, Astrida Miceikienė

DIRECTIONS FOR RESTRUCTURING TAX SYSTEMS CAUSED BY TECHNOLOGICAL  
PROGRESS

Aidas Malakauskas, Aušrinė Lakštutienė

MODELLING CREDIT RATING OUTLOOK FOR SME ENTITIES IN  
THE BALTIC STATES

Anastasija Novikova, Lucia Rocchi

VALUATION OF NON-MARKET OUTPUTS IN DAIRY SYSTEM

Laima Skauronė

THE ASSESSMENT OF THE FINANCIAL AUTONOMY OF RURAL MUNICIPALITIES

Poster presentations

Arturs Stiebrins, Ingrida Jakusonoka

CROWDFUNDING PLATFORM DEVELOPMENT TRENDS IN THE BALTICS STATES

Evija Uljanova, Baiba Rivza

THE IMPORTANCE OF SHORT FOOD CHAINS AND ITS EFFECTS ON LATVIAN  
AND LITHUANIAN DAILY HABBITS

## II SEKCIJA / SESSION II

Verslo finansavimas ir finansų valdymas siekiant tvarios  
bioekonomikos ir kaimo plėtros

Business Finance and Financial Management for Sustainable  
Bioeconomy and Rural Development

**11.30–15.30**

Pirmininkauja / Chairpersons

*prof. dr. Neringa Stončiuvienė*

*lect. Aušra Nausėdienė*

Vilija Aleknevičienė, Gerda Mušeikytė

ASSET ALLOCATION IN GLOBAL PORTFOLIO OVER BUSINESS CYCLES

Česlovas Bartkus

THE DYNAMIC OF PRESENT VALUES IN LITHUANIAN STOCK MARKET

Francesco Calciolari

FARMERS AND CLIMATE CHANGE: IMPLEMENTATION OF MITIGATION AND ADAPTATION MEASURES

Silva Katutytė

EARNINGS MANAGEMENT IN VILNIUS STOCK EXCHANGE COMPANIES

Lia Kekelidze

THE INVESTMENT ENVIRONMENT AND THE PROBLEMS OF ORIGINATION OF INVESTORS' OWNERSHIP OVER REAL ESTATE IN GEORGIA

Rūta Kudevičiūtė, Aušra Nausėdienė

EVALUATING THE EFFECTIVENESS OF PROMOTING RESEARCH AND EXPERIMENTAL DEVELOPMENT IN EUROPEAN COUNTRIES

Aušrinė Lakštutienė

IMPACT OF INNOVATIVE FINANCIAL SERVICES ON THE PROFITABILITY OF THE BANKING SECTOR

Rasa Norvaišienė, Jurgita Stankevičienė

PECULIARITIES OF WORKING CAPITAL MANAGEMENT IN LITHUANIAN MANUFACTURING COMPANIES

Aistė Padgureckienė

ASSESSMENT OF VENTURE CAPITAL IMPACT ON THE COUNTRY'S COMPETITIVENESS: LITERATURE REVIEW

Kristina Rudžionienė, Remigija Lukošūnaitė  
APPLICATION OF THE FAIR VALUE METHOD IN LITHUANIAN LISTED COMPANIES

Žaneta Sederavičiūtė  
KPIs ARE AN ALTERNATIVE TO ASSESING THE FINANCIAL PERFORMANCE OF COMPANIES

Jurgita Stankevičienė, Gabija Prazdeckaitė  
ANALYSIS OF THE ACCURACY OF BANKRUPTCY PREDICTION MODELS: THE CASE OF LITHUANIAN COMPANIES

Rosita Šiaulytė, Aušrinė Lakštutienė  
P2P LENDING PLATFORM EVALUATION OF OPERATING PECULIARITIES

Rimantė Vaičekauskaitė, Rasa Norvaišienė  
EFFECT OF OWNERSHIP STRUCTURE ON CAPITAL STRUCTURE OF LITHUANIAN LISTED COMPANIES

### III SEKCIJA / SESSION III

Inovatyvūs apskaitos ir audito sprendimai verslo  
ir viešosiose organizacijose, veikiančiose bioekonomikos  
sektoriuje ir kaimo vietovėse

Innovative Solutions for Accounting and Audit in Business and Public  
Organisations Operating in Bioeconomy Sector and Rural Areas

**14.00–17.00**

Pirmininkauja / Chairpersons

*assoc. prof. dr. Dalia Juočiūnienė*

*PhD student Kristina Gesevičienė*

Erika Besusparienė

WHY GREEN ACCOUNTING IS NECESSARY FOR THE GOVERNMENT AND  
BUSINESS?

Odeta Gluoksnytė, Živilė Myru

BENEFITS OF SOCIAL BUSINESS IN MODERN SOCIETY IN THE CONTEXT OF  
BIOECONOMY DEVELOPMENT

Indrė Bernotaitė, Renata Legenzova

TRANSITION TO IFRS 9- DID IT MAKE A DIFFERENCE IN REPORTING OF  
FINANCIAL INSTRUMENTS ACCROSS COMPANIES LISTED ON THE NASDAQ OMX  
BALTIC?

Dalia Juočiūnienė, Danutė Zinkevičienė, Neringa Stončiuvienė

FORMATION OF COSTING POLICY FOR BIOLOGICAL ASSETS AND  
AGRICULTURAL PRODUCTS

Aurelija Kustienė

DEALING WITH CONFLICTS IN AUDIT PROCESS

Daiva Raziūnienė

THE EVIDENTIAL PROCEDURES OF ACCOUNTING ERRORS AND FRAUD

Jūratė Savickienė

COMPLEX ASSESSMENT OF ECONOMIC VIABILITY AND ECONOMIC EFFICIENCY  
OF A FAMILY FARM AND BANKRUPTCY PROBABILITY MODELS

Linas Stabingis

PROPER USE OF THE CONCEPTS OF COMPUTERISATION, AUTOMATION,  
ROBOTISATION, AND DIGITISATION WHEN DISCUSSING ACCOUNTING DATA  
PROCESSING

Asta Šalienė, Daiva Tamulevičienė  
THE CONCEPT AND FUNCTIONS OF PERFORMANCE AUDIT: THEORETICAL  
STUDY

Agnė Šneiderienė, Judita Jonuševičienė, Liucija Budrienė  
RESEARCH OF THE ACCOUNTANTS LEADERSHIP IN A LEARNING  
ORGANIZATION

#### Poster presentations

Rūta Klimaitienė, Rolandas Kundzelevičius  
BENEFITS AND CHALLENGES OF TIME-DRIVEN ACTIVITY-BASED COSTING  
IMPLEMENTATION IN WEAVING SERVICES

Ana Samuilova  
ANALYSIS OF THE TAX INCOME OF PANEVEZYS CITY AND DISTRICT  
MUNICIPALITIES

Lapkričio 20 d., penktadienis  
Friday, 20<sup>th</sup> November

Forumas „Ateities apskaita ir finansai:  
į kokias kompetencijas turime investuoti?“

Forum “Future of Accounting and Finance:  
What Competencies do We Need to Invest Already?”

8.00–9.00 Registration of Participants

9.00–9.10 Opening Ceremony

9.10–9.30

**SPECIFICS OF THE FUTURE LABOR MARKET: YOUR MAIN COMPETITOR IS NOT ARTIFICIAL INTELLIGENCE, BUT A PERSON WHO IS ABLE TO USE ARTIFICIAL INTELLIGENCE TECHNOLOGIES**

Assoc. prof. dr. Darius AMILEVIČIUS, Head of Intelligent Systems Laboratory, VMU Faculty of Informatics

9.30–10.00

**COMPETENCE OF ACCOUNTING AND FINANCE SPECIALIST: TOWARDS A DIGITAL INDUSTRY**

Prof. dr. Astrida MICEIKIENĖ, Dean of Faculty of Bioeconomy Development, Temporary Chancellor of VMU Agriculture Academy

10.00–10.20

Break



Darius Amilevičius ▲



Astrida Miceikienė ▲

## **CHANGES IN ACCOUNTING AND FINANCE STUDIES IN THE CONTEXT OF TECHNOLOGICAL INNOVATION**

10.20–12.20

Key issues for discussion:

- Robotization and digitization of accounting and financial management processes in business
- Changes in the competencies of accounting and financial professionals in recent years and in the future
- Good practice in the training of accounting and finance specialists in higher education institutions in the context of technological innovations
- Needed changes in the study process of accounting and finance in order to meet business needs
- Opportunities for partnerships between science and study institutions and business in activating digitalisation processes

Moderator prof. dr. Danutė ZINKEVIČIENĖ, Chair of the Accounting and Finance Bachelor's Degree Program Committee, VMU Agriculture Academy Faculty of Bioeconomy Development

### **Panel members:**

Vaida BUTKUVIENĖ, director of UAB „Aurita“

Daiva ČIBIRIENĖ, president of Lithuanian Association of Accountants and Auditors

Rita DABKUVIENĖ, Head of Accounting Services of Department of Advisory Services and Product Management, Lithuanian Agricultural Advisory Service Development division

Assoc. prof. dr. Arvydas KAZAKEVIČIUS, Chairman of the Finance Studies Program Committee, Kaunas University of Applied Sciences, director of UAB „Auditum“

Assoc. prof. dr. Kristina KUNDELIENĖ, Head of Accounting and Finance Study Programmes, KTU School of Economics and business

Assoc. prof. dr. Renata LEGENZOVA, Head of Master Study Programmes, VMU Faculty of Economics and Management

Birutė PETRAUSKIENĖ, Chairwoman of the Lithuanian Association of Auditors

Assoc. prof. dr. Gediminas SARGŪNAS, director of Panevėžio kolegija / University of Applied Sciences

Zita SINICKIENĖ, Head of Accounting Department, Lithuanian Agricultural Advisory Service Professional Competence Division

Kęstutis VIPARTAS, director of UAB STEKAS



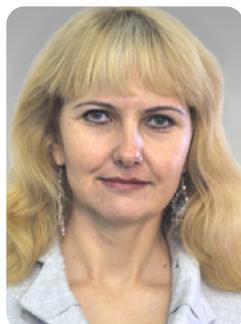
Danutė Zinkevičienė



Vaida Butkuvienė



Daiva Čibirienė



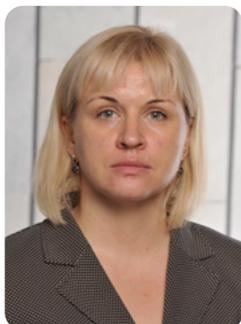
Rita Dabkuvienė



Arvydas Kazakevičius



Kristina Kundelienė



Renata Legenzova



Birutė Petrauskienė



Gediminas Sargūnas



Žita Sinickienė



Kęstutis Vipartas

12.20–12.40 Summary of the Discussion

12.40–13.30 Break

Forum Part II – Dissemination of Good Practice

**ROBOTISATION AND DIGITALIZATION OF ACCOUNTING AND FINANCIAL DECISIONS IN ENTERPRISES**  
13.30–16.00 Moderator dr. Erika BESUSPARIENĖ, lector of Research Institute for Bioeconomy, VMU Agriculture Academy Faculty of Bioeconomy Development

**THE BENEFITS OF DIGITIZATION PROCESSES IN THE ADMINISTRATION OF INVOICES**  
13.30–14.00 Danguolė SAMMAL, Logistics business consultant for the Lithuanian market, “OMNIVA LT” Ltd

**WILL WE BE SMART IN THE FUTURE OR NOT?**  
14.00–14.30 Eglė RAMANAUSKIENĖ, Director of the Control Department, State Tax Inspectorate Under the Ministry of Finance of the Republic of Lithuania

**HOW THE TOOLS OF THE FUTURE ACCOUNTANT ARE CHANGING?**  
14.30–15.00 Filip BORCOV, CEO, UAB “B1.It”

**AUTOMATION OF THE ACCOUNTING MANAGEMENT CYCLE AT LAAS**  
15.00–15.30 Rita DABKUVIENĖ, Head of Accounting Services of Department of Advisory Services and Product Management, Lithuanian Agricultural Advisory Service Development division

15.30–16.00 Summary of the Forum



Erika Besusparienė



Danguolė Sammal



Eglė Ramauskienė



Filip Borcov



Rita Dabkuvienė

# SANTRAUKŲ SĄRAŠAS

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# LAST RESEARCH IN SUSTAINABLE BIOECONOMY: AN UPDATED BIBLIOMETRIC MAPPING BASED ON CO-OCCURRENCE DATA

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In recent years, economic, ecological and social aspects of sustainability are being taken into account as a measure against climate and demographic changes, as well as the use of limited resources. Currently, Sustainable Bioeconomy is becoming a relevant subject (or topic) for scholars and policymakers in their research concern and designing of strategies aligned with the United Nations' Sustainable Development Goals (SDG)s.

Many developments have occurred in Bioeconomy since this concept was firstly published in 2005. Thanks to the release of several software tools for analysing bibliometric networks, it can in fact be used to create, visualize, and explore maps based on any type of network data. User friendly software makes social science scholars much more efficient and effective in both, constructing networks of scientific publications, scientific journals, researchers, research organizations, countries, keywords, or terms, and in reaching their research and publication goals.

The aim of this study is to analyse the last streams in Sustainable Bioeconomy research using bibliographic mapping in order to identify the most relevant topics, journals, universities and countries, and to visualize the interrelations among them. For this purpose, a bibliometric mapping of the publications indexed in WoS and Scopus was conducted using WOSviewer software. During the search process, a set of 294 references for the last decade 2010-2020 were obtained, based on co-occurrence frequencies of key terms, our term map provides a visual representation of the latest research in Sustainable Bioeconomy and, more specifically, of the organization around four main clusters related with energy, biology, sustainable economy and environmental care.

**Keywords:** Sustainable Bioeconomy, Bibliometric Mapping, Clustering, Scopus, WoS, WOSviewer.

# ECONOMIC EXPECTATIONS AND BUSINESS LENDING: HOW DOES THE PICTURE LOOK LIKE?

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In economic terms, this year has been special for everyone: households, businesses and governments. Due to the consequences of the COVID-19 pandemic, in 2020 the world's economy is facing with the biggest downturn in decades.

In the presentation, I will focus on the current year's economic and corporate situation of Lithuania. Our country's economy has withstood the first COVID-19 wave surprisingly well. However, the country's case is also unique as the non-financial corporations' financing from monetary financial institutions has decreased more than in other euro area countries. So, it is worth taking a look and understand the reasons behind it.

What is more, I will review the condition of corporates' financial situation, the structure of financing and remedies provided for the economy. Finally, macroeconomic forecasts and some other potential risks and future challenges will be identified.

**Keywords:** finance, risk, economy.

# THE TRENDS OF ENVIRONMENTAL TAXES AND SOCIAL ACCOUNTING IN THE CONTEXT OF SUSTAINABILITY

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Implementation of the sustainable development and the EU's Green Deal strategy, and the increasing corporate social responsibility give rise to new challenges and expectations in relation to review of the tax system and social accounting. This suggests the need for analysis of the global and Lithuania's practice and development trends of environmental taxes and social accounting.

The environmental taxes are referred to as one of the key fiscal measures by researchers and experts at international organisations. The future trends in terms of application of these taxes are associated with the possibility to regulate the environmental impact. The most recent trends in terms of changes in the taxes have shown that the environmental taxes are increasingly positioned as the means to compensate for the reductions in the labour taxes. Future research in the area of environmental taxes should be related to the integrated economic, social and environmental effect there of on the climate change related solutions, promotion of replacement of the fossil raw materials with the renewable resources, and increase of the capacities of circular economy.

For the various consumer groups to receive transparent information on the social and environmental activity of the companies, annual financial statements should include the information on social accounting. The system would include social and environmental financial and managerial accounting, social and environmental control, and social and environmental audit. After the implementation of the Accounting Directive (2013/34/EU) in Lithuania has shown that the information provided in the social responsibility reports submitted along with the financial statements, has become more comparable. Future research in the area of social accounting should be related to more detailed investigation of corporate social responsibility by employing a multi-stage approach; the assessment of the impact of CSR sustainable growth; analysis of the trends of social responsibility in the context of digitalisation and the Fourth Industrial Revolution.

**Keywords:** environmental taxes, social accounting, sustainability.

# EVALUATION OF SOCIO-ECONOMIC IMPACT OF BIOECONOMY

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There are many research and discussions, that aims to make existing information on bioeconomy products and processes available to stakeholders and the public. But no less important social and economic impacts of bioeconomy development.

Socio-economic impact of bioeconomy is characterized by a large number of indicators, including quality of life, health, employment, change of income and cost, etc. Social phenomena are among the most complex ones and related with economic impacts. This being the case, the assessment of socio-economic impact must be comprehensive, by carefully selecting indicators that are most representative of the situation since a single indicator taken out of context fails to reveal socio-economic phenomena and leads to wrong conclusions and decisions

The aim of research is to select the socio-economic indicators and to design a theoretical model for evaluation of socio-economic impact of bioeconomy. The methods of scientific literature analysis and synthesis as well as comparison were used to determine the bioeconomy economic and social processes and to reveal evaluation indicators. The multi-criteria evaluation methods are proposed for evaluation model of socio-economic impact of bioeconomy.

This theoretical research disclosed bioeconomy economic and social processes and indicators. In addition, the problem field for potential researches was identified: the analyzed indicators need to be combined and the evaluation methods need to be found for evaluation of socio-economic impact of bioeconomy.

As a result of rational valuation of socio-economic impact of bioeconomy, the goals of bioeconomy development should be deeply analyzed.

**Keywords:** bioeconomy, social impact, economic impact.

# METHODS AND EXPERIENCE FOR IDENTIFYING AND ASSESSING ENVIRONMENTALLY HARMFUL SUBSIDIES

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Global warming is identified as one of the main consequences of reckless exploitation of the environment. The countries of the world devote a significant part of their budget expenditures to subsidies, which affects the growth of production; as demand and supply grow, resources are overexploited, and negatively affect the environment. International organizations emphasize the need to reform or eliminate environmentally harmful subsidies, identifying them as one of the factors that do not contribute to the goals of sustainable development policy. The European Union is committed to eliminating or phasing out environmentally harmful subsidies (EHS). The aim of the research is to analyze the methods of identification and assessment of EHS, and to reveal the experience of the practical application of the methods.

In order to substantiate the relevance of the problem, the analysis of scientific literature, comparative analysis, systematic analysis, document analysis, summary analysis was performed. The operationalization method was used to assess the stages of the EHS evaluation tools.

International organizations and scientists note the importance of reforming EHS and cite it as one of the ways to implement climate change mitigation policies more effectively. In order to choose the right subsidies, it is necessary to evaluate their effectiveness. The Institute for European Environmental Policy refers to the tools developed by OECD to identify and evaluate EHS, tools can be used both as a complement to analysis and separately in decision-making on EHS reform.

An analysis of the identification and assessment of the EHS evaluation tools used shows that the environmental impact of the subsidy is assessed using qualitative criteria, that there is no precise assessment of the extent of the subsidy's environmental impact. Therefore, in assessing the impact of a subsidy, there is needed to identify and measure the size of the subsidy and its economic, environmental and social impact in order to choose right subsidies for sustainable development.

**Keywords:** environmentally harmful subsidy, sustainable development, environmental impact, evaluation tools.

# UNLOCKING INVESTMENT AND FINANCE FOR TRANSITION TO A BIOECONOMY

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Bioeconomy, as a conceptual and practical approach, has been recognized as a response to the challenge of reconciling economic activities within the planetary boundaries. Expectedly, question is often raised about how to unlock investments to finance transition to bioeconomy. This paper strives to answer this question by highlighting the following in respect of the transition to a bioeconomy: processes and instruments of value creation; risks and uncertainties involved, and financing instruments.

To achieve its objective, this paper presents a result of comprehensive literature review complemented by multiple case studies to generate in-depth knowledge about such a complex phenomenon.

Presenting transition to a bioeconomy as a promissory site of innovation, entrepreneurship and capitalism, the paper begins with a brief overview of bioeconomy as a knowledge-based innovative economy before outlining how value is created in a bioeconomy. The paper also identifies risks and uncertainties associated with the transition that will be of interest to entrepreneurs, investors and researchers. Furthermore, it presents array of instruments applicable to financing the transition to a bioeconomy.

The paper highlights the importance of risk-sharing mechanisms to attract investments and capital required for the transition. In total, the paper asserts that the financial sector is already capitalizing on the opportunities in the emerging bioeconomy sectors by adapting existing products and services. However, there is need to do it better and faster to meet the enormous investment required for the transition to a sustainable bioeconomy.

**Keywords:** bioeconomy, entrepreneurship, finance, innovation, investment, value creation.

# DIRECTIONS FOR RESTRUCTURING TAX SYSTEMS CAUSED BY TECHNOLOGICAL PROGRESS

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The beginning of the XXI century is characterised by rapid, deep and wide penetration of high-technologies into every area of the economy, state, society or human activity. The tax system must adapt to the changes caused by the technological progress, use their potential and ensure economic development, stable budget revenues and fair and proportional distribution of taxes.

Research problem: what are the possible directions of reforming the tax system in the context of the challenges of the technological progress to ensure sufficient tax revenues? The aim of the study is to identify the challenges and directions for restructuring tax systems caused by technological progress. To achieve this aim, the research of scientists and expert opinions of international organizations were analyzed and systematized using the methods of operationalization, systematic analysis, induction and deduction.

The obtained results of the study provide the following challenges for tax systems due to technological progress: tax base erosion and profit shifting, problems in determining permanent establishment, the need for international tax regulation, complicated taxation of international activities and changes in the labor market. There are two directions for restructuring tax systems: introduction of new taxes, such as robot tax, digital tax, etc., and the reorganization of existing tax, such as environmental, property taxes, etc., by adapting them to new conditions in the context of technological progress. Further studies, after assessing and justifying the possibilities of reforming the tax system, can provide recommendations for maintaining a balanced budget of the country.

**Keywords:** technological progress, tax system, labor market.

# MODELLING CREDIT RATING OUTLOOK FOR SME ENTITIES IN THE BALTIC STATES

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Borrower creditworthiness evaluation is one of the key problems every lender face, when deciding, whether an applicant should be financed. Limited data availability, high financial flexibility and varying accounting standards are few of many factors, which make creditworthiness evaluation for small and medium enterprises (SMEs) complicated, therefore increasing credit risk and finally cost of financing.

To improve creditworthiness evaluation for SMEs, this paper used data on 12.000 SMEs to estimate binomial classifiers for financial distress prediction using Logistic Regression, Artificial Neural Networks and Random Forest techniques. Classical financial ratios were used to estimate initial single-period predictors, which were later enhanced with time, credit history and age factors to retrieve multi-period models.

Highest pan-Baltic financial distress prediction accuracy was 62.3%, which was reached using Random Forest ensemble, by employing multi-period factors. It was concluded that adjusting for period-at-risk by using hazard factors is an important stage when predicting financial distress for SMEs.

Estimated model should make it easier for decision makers to assess SME creditworthiness and have a positive impact on lender bottom-line through lower total capital requirements. A reduction in relative cost of capital for major lenders should positively improve SME entity access to financing.

**Keywords:** financial distress prediction, credit risk, probability of default, machine learning, Small and Medium Enterprises.

# VALUATION OF NON-MARKET OUTPUTS IN DAIRY SYSTEM

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This study aims to present the results of evaluation of non-marketable outputs of milk production in Lithuania. For the case study, we constructed the evaluation framework considering both organic and conventional milk production. Choice experiments were invoked for valuation. The present research employs the Nested Logit model because of its ability to accommodate differential degrees of interdependence between subsets of alternatives in a choice set. For comparison of the results, the general model as multinomial logit is employed to see the importance of the choice attributes in explaining consumer preferences towards different options of non-market farming outputs.

Four attributes of non-market dairy farming outputs were analyzed during the research: scenic views and aesthetic value of landscape, water quality soil erosion, biodiversity and climate change. Personal payment for five years in the future was included to the choice set as the cost attribute. Both the MNL and NL models' results showed that all the attributes are significant except for the climate change attribute. Research results show that an additional price for ecosystem services produced were more than twice for organic farming than for conventional. More than 80% of the respondents thought that organic livestock had a positive effect on the natural environment and human wellbeing, and only about 60% for conventional. The respondents were mostly concerned about water quality (about 80%), climate change (about 55%) and landscape formation (45%). In addition, the results suggest that there are differences between the organic and conventional farming systems in terms of consumers' willingness to pay. Organic farming seems to be under higher preference in comparison to conventional farming.

**Keywords:** conventional farming, dairy system, non-market outputs, organic farming; milk production.

# THE ASSESSMENT OF THE FINANCIAL AUTONOMY OF RURAL MUNICIPALITIES

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The financial autonomy of rural municipalities is closely related to the theories of economics, fiscal policy, fiscal decentralization, and regional development. Therefore, the phenomenon of financial autonomy is considered as multiple, with alternatives belonging to an infinite set of solutions. This phenomenon is characterized by a number of indicators that show the level of financial autonomy in various aspects (level of own income, own income and PIT per capita, level of tax income, per capita transfers, etc.). Due to the different indicators used, the results of the research are contradictory, in some cases even incomparable. To solve the problem, an integrated method should be found, which would summarize the indicators by individual researchers. The outcomes of the method would reveal the financial autonomy of the surveyed rural municipalities.

Recently, the scientific literature places special emphasis on the perspectives of multi-criteria assessment methods for the complex evaluation of complex quantities. Due to their versatility, these methods are applied to solve tasks in various fields, therefore, their application in assessing the financial autonomy of rural municipalities is relevant. One of the multi-objective methods, i.e. TOPSIS, can be used to examine the possibilities of assessing financial autonomy as a multidimensional phenomenon. The TOPSIS method allows to assess the financial autonomy of rural municipalities properly by providing a single generalizing indicator.

This report presents the possibilities for assessing the financial autonomy of rural municipalities using the TOPSIS method. During the empirical research, a complex integrated system of financial autonomy assessment of rural municipalities was developed. In order to reveal the practical applicability of the TOPSIS method, a fragment of empirical research is presented, i.e. the assessment of the financial autonomy of rural municipalities in one Lithuanian region in the period of 2009-2019.

The novelty of the research results is revealed by the developed multi-criteria evaluation system/ methodology, which allows to assess the financial autonomy of rural municipalities using one indicator.

**Keywords:** financial autonomy, assessment of financial autonomy, multicriteria methods, TOPSIS method, rural municipalities.

# CROWDFUNDING PLATFORM DEVELOPMENT TRENDS IN THE BALTICS STATES

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The co-financing industry has grown rapidly worldwide over the last decade, mainly due to the opportunities created by the IT industry development and other changes in society habits, with an increase in both the number of platforms and supporters. With the development of the industry all over the world, several platforms have also appeared in the Baltics. Some of the platforms even have successfully proven themselves as leaders within certain crowdfunding models in the entire European Union. The rapid development of the sector in the EU and the Baltics has provoked various discussions about the general legal order of the sector and has also revealed various risks, as a result of which the further development of the sector may be different and limited.

The authors has proposed hypothesis that the rapid development of the crowdfunding industry in the Baltic States is related to the successful operation of certain crowdfunding models and platforms which have successfully expanded their operations in Europe.

The theoretical framework for the research is based on the analysis of statistical data, expert interviews and other scientific articles.

The results of the research accept the hypothesis that the Baltic state revenue and overall growth is mainly due to impact from debt-based crowdfunding P2P platforms.

In order to form and unify the fast-growing crowdfunding industry in the EU and protect all involved sides, the authors recommends that the European Parliament and the Council of Europe, should not dwell on further development of regulation and it should be accepted in practice not later than year 2021.

**Keywords:** crowdfunding platform, crowdfunding models, Baltic states.

# ASSET ALLOCATION IN GLOBAL PORTFOLIO OVER BUSINESS CYCLES

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Dynamic management of investment portfolio is a key focus of each investor. Asset reallocation taking into consideration business cycles allows increasing portfolio efficiency. Previous researches on asset allocation over business cycles was focused on numerous issues: included different asset classes in portfolios, investigated various dynamic asset allocation strategies, and applied different indicators for identification of turning points. This study is designed to identify asset allocation in global portfolio over business cycle using Sharpe ratio as a function of maximisation.

Four phases of business cycle were identified using OECD Composite Leading Indicator: a peak, a contraction, a trough and an expansion. The global portfolio includes five asset classes (stocks, bonds, real estate, gold and commodities), and six indices representing them: S&P 500, MSCI EAFE, Barclays Capital Aggregate Bond, FTSE Nareit, Gold Spot and S&P GSCI Total Return. T-test, f-test, and fisher-z transformation test were applied to check the robustness of returns, standard deviations and correlations. The portfolio is optimised using variance-covariance matrix and Solver function. The research period is 1979-2018.

The results of the study revealed that in the peak and expansion phases most of the portfolio should be allocated to stocks and gold. Gold is a safe investment as it reduces the total risk of the portfolio. Meanwhile, stocks and bonds should dominate in the portfolio during the contraction phase, while bonds and gold – during the trough phase. Extremely sharp asset reallocation is observed in the portfolio during the phases of contraction and trough: the portfolio includes only 2-3 asset classes instead of 5-6 during the expansion and peak. Both real estate and commodities have the most significant weight in the portfolio during the expansion phase. Meanwhile, real estate and commodities are not desirable investment in contraction and trough phases.

**Keywords:** global portfolio, asset allocation, business cycle.

# THE DYNAMIC OF PRESENT VALUES IN LITHUANIAN STOCK MARKET

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Lithuanian stock market still lacks of attention from big investments despite its merger with Latvian and Estonian stock markets. Now all three markets are part of NASDAQ stock exchange group and making new steps to be more attractive. And the main attraction for investors is growing value of their portfolios.

The main purpose of presentation is reveal changes of present value in Lithuanian stock market during past 10 years from 2010 till 2020 by using present value calculations.

Research methods: here were used calculations of Present Value of Uneven Cash Flow. The data on Uneven Cash Flows contains received dividends from 2011 till 2020 and stock price which could be received on 2020 ex-dividend day. Information about dividends and stock prices were obtained from NASDAQ OMX Baltic. Cash Flows were discounted by Lithuanian annual inflation rate at the same period.

The results show positive growth of portfolios by at least for 50% per last 10 years with inflation taken into account. Such growth was assured by cash flows received from dividends and stock prices on ex-dividend day of 2020. The advancers of Lithuanian stock market are Telia Lietuva, Ignitis and Apranga. These companies apply stable dividend policy and it made impact on growth of their value from 100% to 200%. Few companies showed negative growth of their present value during last decade. As a rule, such companies have poor dividend history, i.e. the amount of paid dividends was small or equal to zero. At last, COVID-19 has made the negative impact on all stock markets and present value ratios.

**Keywords:** stock market, NASDAQ OMX Baltic, present value.

# FARMERS AND CLIMATE CHANGE: IMPLEMENTATION OF MITIGATION AND ADAPTATION MEASURES

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Climate change is a global topic that almost the entire population of Europe is aware of, and it is generally accepted by scientists that livestock production sector contributes to it.

This study aims at analyzing livestock holders' perception of climate change and to acknowledge whether and why they adopt mitigation and/or adaptation techniques in relation to this phenomenon and what limitations delay the spread of these measures.

To achieve this purpose, a survey was conducted among a livestock holding's sample from Umbria, a region of central Italy, and in Lithuania. Surveys were provided either directly to farmers or conducted via email or phone. The questionnaire was adapted from a similar questionnaire prepared by the Italian Rural Network for a study on large-sized livestock holdings in Italy.

Data from Umbria show that 78% of farmers were aware of climate change, but only 45% of them had implemented mitigation and/or adaptation measures. The remaining part mostly claimed they did not plan any measures for economic reasons. On the other hand, data provided by the Italian Rural Network showed that 95% of farmers were aware and 68% of them had implemented the same measures, whereas economic factors were still the main explanation given by the rest. Data from Lithuania shows that 87% were aware of climate change, but only 32% of them had implemented measures in relation to it. Besides the economic reasons, the latter referred to the lack of information, which also had a significant percentage (15%).

The findings suggest that holders from the regions where livestock production is not very economically advanced and with a small number of animals have difficulties in adopting measures in relation to climate change because they do not have sufficient funds to implement them and they are not really aware of the possibilities for them.

**Keywords:** climate change, adaptation measures, mitigation measures, farmers' perception, livestock producers.

# EARNINGS MANAGEMENT IN VILNIUS STOCK EXCHANGE COMPANIES

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Financial information is one of the most important sources of information used for decision making of internal and external interested parties. Therefore, the quality of financial information determines the quality of decisions based on this information. Managers experience the pressure of various interested parties. On one hand, interested parties expect receiving qualitatively prepared financial reports disclosing precise and true information. On the other hand, managers feel pressure to reach the set targets. Striving to combine expectations of all interested parties may encourage managers using various earning management patterns.

The aim of this research is to detect whether Vilnius stock exchange companies are using earnings management and which pattern of earnings management – accrual based or real earnings management – they use. Discretionary accruals estimation model is used for detecting usage of accrual based earnings management. The abnormal cash flow, abnormal production costs and abnormal discretionary expenses valuation model is used for detecting real earnings management. The research in this paper is implemented by using comparative analysis, generalization, content analysis, monography and statistical methods.

Prior implemented empirical researches' analysis shows that managers apply earnings management in order to show better results. Accrual based earnings management is implemented through accounting policy. Real earnings management is implemented through operations that differ from typical structure and timing of the company.

The results of this research show that Vilnius stock exchange companies use earnings management by applying both patterns of earnings management – accrual based or real earnings management. The companies did not give priority to any of the pattern of earnings management. The results of this research imply the expediency of evaluation of both patterns of earnings management for obtaining more precise earnings management valuation results. Not applying of one of the earnings management patterns by itself does not mean that the other pattern of earnings management is not applied.

**Keywords:** earnings management, accrual based earnings management, real earnings management, stock exchange.

# THE INVESTMENT ENVIRONMENT AND THE PROBLEMS OF ORIGINATION OF INVESTORS' OWNERSHIP OVER REAL ESTATE IN GEORGIA

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**Research background:** In this research we have discussed the importance of attraction of the direct foreign investments and the problems existing in the economy of Georgia. Besides, we have analyzed the direct foreign investments based on the statistic data and proved the effective role of the direct foreign investments in stimulation of the Georgian economy. In our research we have analyzed the problematic aspects preventing attraction of investments in Georgia. Also we have considered the ways and methods promoting influx of direct foreign investments in Georgia.

**Methods:** For the research purpose the qualitative methods were chosen. First of all, the literature on the research topic was analyzed by the methods of comparative and historical methods of the research. Use of qualitative methods allows fixing such nuances which may remain unnoticed in the other types of research. Qualitative methods allow gaining of the deeper knowledge in the matter under research. During the qualitative research we not only fix the investment environment and the problems of origination of investors' ownership over real estate in Georgia, but try to explain the existing situation. Also, the paper used the method of statistical research, through which we assessed the current situation in Georgia in terms of investment development.

**Findings & Value added:** the new legislative policy of Georgia in respect of land is directed to protection of national interests of Georgia and promotion of investors. So, according to the legislation of Georgia, a foreign investor can retain a land in his/her possession only in case of implementation of investment plan, but he/she is not limited in drawing a plan up. Investors can precisely schedule all the activities which he/she intends to execute on the land belonging to him/her and retain ownership over the land without any problems.

**Keywords:** investment environment, foreign direct investment, ownership, legal regulation, land.

# EVALUATING THE EFFECTIVENESS OF PROMOTING RESEARCH AND EXPERIMENTAL DEVELOPMENT IN EUROPEAN COUNTRIES

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Promoting research and experimental development (R&D) is one of the European Union's strategies. EU member states commit to devoting 3% of Gross Domestic Product to R&D development in the country, arguing that it is one of the most important tools for achieving economic and social prosperity, moreover, R&D contributes to the bioeconomy development. Incentives and funds for R&D promote and shape the bioeconomy development and foster the use of biomass and biotechnology.

The aim of this study is to evaluate the effectiveness of measures to promote research and experimental development in member states of the European Union. The descriptive statistics, comparative analysis of statistical data, regression analysis are used.

The evaluation of the effectiveness of R&D in the European Union countries revealed that it is necessary to calculate the ratio of R&D activities to costs. Significant R&D is underway to develop needed innovations and business development. The effectiveness of R&D in the countries of the European Union is assessed taking into account the transformation of R&D costs incurred in the countries into innovation results. The study shows that R&D expenditures have to be increased gradually in order to achieve best results, and the evaluation of their effectiveness is the ratio between the expenditures incurred in the country and the result achieved in the development of the bioeconomy.

**Keywords:** R&D, effectiveness, bioeconomy development.

# IMPACT OF INNOVATIVE FINANCIAL SERVICES ON THE PROFITABILITY OF THE BANKING SECTOR

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The growing importance of the financial sector in the modern economy and the rising level of innovation in financial services is one of the most debated issues in the scientific literature. Empirical studies conducted by various countries showed that the implementation of innovative payment services increases the return on banks' property and assets. Innovative bank payment services help to optimize operating costs, increase profitability, and are less risky than traditional banking products. According to research, there are not clear position about innovative services and how it has an impact on banking sector profitability.

Therefore, a study was conducted of the banking sector in the EU countries and was determined the impact of innovative financial services on the return on banks assets and equity. The study covers 12 years and was investigated of the banking sector in the European Union. The modified multiple regression model of Akhisar et al. (2015) was used with involving additional variables to evaluate the profitability of banks.

The results of the study showed that innovative payment services have an impact on the profitability of the banking sector, but the impact of not all services is significant. The obtained research results allow to partially agree with the opinion of Abaenewe et al. (2013) that innovative payment services are more significant for banks' return on equity and less significant for return on asset. In research was found that the profitability of European banking sectors is recovering from particularly high losses affected by the 2008 financial crisis. While Greece, Cyprus, and Ireland are still facing with losses or low profitability in the banking sector which is showing a strong link between the banking sector and economic growth. The results of research confirm Vekya (2017) and Akhisar et al. (2015) and showed that by implementing innovative financial services, banks can generate higher income and by improving innovative payment services, banks not only earn higher profits but become able to withstand competition from the entry of FinTech companies into the financial market.

**Keywords:** banks profitability, banking sector, innovative financial services.

# PECULIARITIES OF WORKING CAPITAL MANAGEMENT IN LITHUANIAN MANUFACTURING COMPANIES

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The aim of this study is to investigate the working capital management policies used by Lithuanian manufacturing companies, their specific features in particular industries, trends of alterations in these policies due to changes in the economic environment, as well as to assess relationship between the efficiency of working capital management and profitability. The research includes companies of the largest Lithuanian manufacturing branches. To achieve the aim and objectives of the study, a comparative analysis of indicators for the period of 2004–2018 and correlation analysis using Pearson correlation coefficient are used.

During the global financial crisis, majority of Lithuanian manufacturing companies have taken means to increase the efficiency of working capital management, which conditioned a relatively stable or even shortening cash conversion cycle; however, increasing trends for this indicator have evidenced in recent years. During the period of 2004–2010, a moderate working capital investment policy with a tendency to insignificant aggression prevailed in Lithuanian manufacturing companies; however, since 2014, there is a tendency to increase the conservatism of working capital investment. Lithuanian manufacturing companies applied a conservative working capital financing policy and it remained relatively stable, regardless of the changing economic environment. We did not observe any statistically significant relationship between the cash conversion cycle and profitability indicators of Lithuanian manufacturing companies. However, a weak positive relationship was found between the working capital investment policy ratio and the return on assets as well as return on equity. The weak negative relationship was found between the ratio of working capital financing by short-term bank loan and all profitability indicators.

**Keywords:** working capital management, cash conversion cycle, profitability, manufacturing companies, economic environment.

# ASSESSMENT OF VENTURE CAPITAL IMPACT ON THE COUNTRY'S COMPETITIVENESS: LITERATURE REVIEW

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The analyzed abundance of empirical studies in the field of venture capital shows the importance of the latter for the national economy. Start-up and expansion companies need capital, which can be provided by venture capital investments. Venture capital investment promotes the development of new sectors, companies that receive it are more innovative, generate new products and their businesses are more profitable. The added value of venture capital investment in the economy is a cornerstone of national competitiveness.

The aim of the research is to analyze empirical research on the assessment of venture capital impact on a country's competitiveness.

The research methods are comparative and systematic analysis of scientific literature.

The results of literature review show, that the components of the knowledge economy, such as innovation, technology and scientific research, are directly related to venture capital and enables to analyze the impact of these areas not only on economic growth but also on the competitiveness of countries. Scientific and technological development are shaping the motivating policy of science and the economic force aimed to ensure economic growth and development. Successful linking of innovation, technology and R&D levels requires that business has access to appropriate sources of finance, such as venture capital.

Competitiveness is a complex and multifaceted phenomenon. This concept is often described as a way of measuring whether a country is doing everything in its power to achieve continuous prosperity of its inhabitants. After summarizing and systematizing the conceptual statements, following factors determining the country's competitiveness were distinguished: macroeconomic, institutional, and technological environment, labor market, financial market, venture capital, education, and innovation.

**Keywords:** venture capital, innovation, country competitiveness.

# APPLICATION OF THE FAIR VALUE METHOD IN LITHUANIAN LISTED COMPANIES

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The fair value approach, although causing a lot of controversy, is the only method of valuation for which a separate accounting standard is intended. When assessing some accounting items, it has been applied and in some cases companies are given the right to choose.

The purpose of this article is to evaluate the application of the fair value method in listed companies of the Republic of Lithuania. Notes of financial statements of 17 listed companies investigated in 2008, 2013 and 2018. International accounting standards have been analysed, according to which listed companies keep accounting and measure assets and liabilities.

It was determined which standards require the fair value is to be applied and which companies have the right to choose the historical cost or fair value. Financial leases, revenues, employee benefits, financial assets and liabilities, biological assets, assets and liabilities of the acquired company and investments in associates and joint ventures (at the time of financial reporting) must be measured exclusively at fair value. When IAS allows companies to choose a valuation method, generally Lithuanian listed companies choose the historical cost method. This method was applied to all companies analysed for the accounting of intangible assets at all periods analysed. Fair value method is more popular for fixed tangible assets: 2008 it was estimated at 17.65% companies and 23.53% in 2018, but this method is increasingly applied to the valuation of investment property: in 2008, at fair value, the investment property was presented for 50% and in 2018 14% of the companies analysed.

**Keywords:** fair value, asset measurement, Lithuanian listed companies.

# KPIS ARE AN ALTERNATIVE TO ASSESING THE FINANCIAL PERFORMANCE OF COMPANIES

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Because of new business conditions and everyday changing business environment companies are facing challenges every day, as a result, there is a rising need for the methods that could assess the position of companies more accurately. One of the most popular methods of financial performance assessment disclosed in many research articles is the measurement system via key performance indicators (KPI). Due to that fact, the aim of this paper is to investigate the benefit of KPIs and present practical possibilities of application of these indicators. To achieve this objective, the analysis of scientific literature sources is performed and the significance and benefits of KPIs on a theoretical basis are discussed, then specific examples of calculation of KPIs are presented, which are performed on the basis of data from the Lithuanian Department of Statistics. The theoretical analysis found that several studies have been conducted to substantiate the benefits of applying KPIs to companies and emphasizes that such an assessment will only be effective if KPIs are chosen correctly according to the company's objectives. For this reason, in this paper will be shown some of the KPIs' calculations that organizations from the "G475 Retail sale of other household equipment in specializes stores" sector are able to use in their business. The selected KPIs are suitable for all companies operating in this sector because by looking at the level of the sector's indicators it is possible to determine the goal that the company is supposed to achieve. The results showed that the use of KPIs are very useful because that helps organizations to testify how successful they are by achieving their goals. Therefore, the selection of KPIs are highly dependent on the specifics of the company and the sector in which it operates. For the companies that are operating in the G475 sector, the proposed indicators are: KPIs related to costs, employee productivity indicators, EBITDA, and EBITDA margin.

**Keywords:** key performance indicators (KPI), financial performance, sector's analysis.

# ANALYSIS OF THE ACCURACY OF BANKRUPTCY PREDICTION MODELS: THE CASE OF LITHUANIAN COMPANIES

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The aim of this research is to analyze the accuracy of selected bankruptcy prediction models on the example of Lithuanian companies. The research involves financial statements of 23 companies that have gone bankrupt over the period of 2013-2019. We used three different groups of models to test their accuracy in predicting the likelihood of bankruptcy of selected companies. The first two are considered as classic models which were developed using discriminant analysis (Altman, modified Altman, Springate, Taffler and Tishaw, and Grover models) and logistic regression (Ohlson, Zmijewski, and Grigaravičius models). The third group is based on artificial intelligence (we used a decision tree model).

The analysis evidenced that the logistic regression models, such as Zmijewski and Ohlson, demonstrated the best results in the group of classic prediction models, i.e. high probability of bankruptcy even earlier than one year prior to actual bankruptcy in the case of most companies. However, the decision tree must be considered as the most accurate model as it predicted bankruptcy of all analyzed companies one year before actual bankruptcy; this could be interpreted as 100 % accuracy.

Too late bankruptcy process causes many negative consequences for company's employees, partners, and the state. Though problems with financial resources such as growing accounts payable and the shortfall of working capital which contribute to insolvency can be seen in the financial statements, in addition to the analysis of financial indicators, it is particularly important to use the above-mentioned bankruptcy prediction models, which help to detect financial problems in time and make the right decisions concerning future activities.

**Keywords:** bankruptcy, bankruptcy prediction models, insolvency, Lithuanian companies.

# P2P LENDING PLATFORM EVALUATION OF OPERATING PECULIARITIES

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The aim of the research is to evaluate the activities and peculiarities by comparison between operating P2P (peer – to – peer) lending platforms in Lithuania and AB NEO Finance.

Firstly, by using scientific literature is purpose to substantiate the importance of the analysis of the development of the financial technology sector and P2P lending platforms. Furthermore, by using financial reports and statistics to perform a comparative analysis of the activities of P2P lending platform operators and AB NEO Finance and to reveal the peculiarities of the activities.

All in all, the theoretical aspects of the development of the financial technology (FinTech) sector, was showed that the innovative financial services provided by FinTech is changing needs of consumers and create a competitive environment in the financial sector. The FinTech industry and economic growth was highlighted by development of the FinTech credit. It is noted the uniqueness of this sector, due to the operation of P2P lending platforms. By the comparative analysis of the P2P lending platform market and AB NEO Finance, was found that AB NEO Finance secures a leading position in the market in terms of the amount and number of disbursed consumer loans and AB NEO Finance's sales revenue related to P2P lending has a significant impact on the company's financial performance evaluation.

By obtained results is recommended to invest in P2P lending platforms, because this market is expanding and is offered the opportunity to invest in this sector by using financial services of leader in Lithuania - AB NEO Finance platform.

**Keywords:** P2P, lending platform, FinTech.

# EFFECT OF OWNERSHIP STRUCTURE ON CAPITAL STRUCTURE OF LITHUANIAN LISTED COMPANIES

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The aim of this study is to investigate the impact of ownership structure on the capital structure of Lithuanian listed companies.

A ten-year period from 2009 to 2018 has been selected for this study. The study includes non-financial companies listed on the Nasdaq Vilnius Stock Exchange. The ownership structure was assessed according to the concentration of ownership and according to the identity of the owner. In the first part of the study, a comparative analysis of the capital structure of companies with different ownership structures was performed. In the second stage of the study, a regression analysis was performed to determine the impact of the ownership structure on capital structure of listed companies.

The research revealed that the effect of ownership structure on the capital structure of Lithuanian listed companies is in the form of a U (parable) shape - when the concentration of corporate ownership is low (less than 24 percent) and high (more than 50 percent) leverage ratio increases. The study also showed that in some companies, the ownership of which is more than 25 percent owned by institutional units, the leverage ratio is higher than that of companies whose ownership is held by non-institutional units or whose share of the company is less than 24 percent held by institutional units.

The obtained results allowed to conclude that the ownership structure has a significant impact on the capital structure of Lithuanian listed companies.

**Keywords:** ownership structure, capital structure, ownership concentration, ownership identity, leverage ratio.

# WHY GREEN ACCOUNTING IS NECESSARY FOR THE GOVERNMENT AND BUSINESS?

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Nowadays governments and businesses seek to be socially responsible. One of the socially responsible areas is environmental issues. In order to assess changes in environmental activities, governments and businesses need to keep environmental accounting, which is often named as green accounting. Therefore, the aim of the research is to identify the advantages of green accounting for governments and businesses.

To achieve the aim of the research, precisely, to reveal the similarities and differences of traditional and green accounting and disclose the methods and the significance of green accounting for governments and businesses, scientific literature analysis, synthesis, systematisation, and comparison were applied

It has been identified that businesses can use financial resources more efficiently and contribute to the reduction of environmentally harmful activities in a long-term strategy if they integrate green accounting into the traditional accounting system and make the analysis and control of the green accounting data. According to the green accounting data of various businesses, the government could also make various analyses at the national level. Accumulated data and their analysis would ensure timely and appropriate government decisions on environmental issues.

**Keywords:** accounting; environmental accounting; green accounting.

# BENEFITS OF SOCIAL BUSINESS IN MODERN SOCIETY IN THE CONTEXT OF BIOECONOMY DEVELOPMENT

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Modern society still interprets social business as a socially responsible enterprise that receives a state incentive to employ people with disabilities. The aim of the research is to evaluate the opinion of consumers about the benefits of social business in a modern society in the context of bioeconomy development. This article aims to emphasize that social business has a greater advantage over traditional business organizations, as it is an opportunity to solve social problems relevant to a society in entrepreneurial ways, to show the benefits created for a more resource-efficient society.

The object of the research is the benefits of social business in modern society in the context of bioeconomy development.

The first part analyses the concept of social business, differences between social business and social responsibility. The second part discusses the benefits of social business. The third part presents the results of the study, which aim to overview evaluation of benefits and bioeconomy of social business activities.

The aim of the research was to assess the respondents' awareness about the concept of social business, its recognition features, identification of social business activities and the benefits to a modern society.

For social business economic development is necessary for stable and sustainable economic growth, for a fair distribution of income and wealth, for services to meet needs, and to increase the value of economic activities that meet social needs.

To maintain continuity of the survey, it is planned to evaluate consumers' opinion about development and opportunities of social business in the future.

**Keywords:** bioeconomy, economic activity, social business, social exclusion.

# TRANSITION TO IFRS 9-DID IT MAKE A DIFFERENCE IN REPORTING OF FINANCIAL INSTRUMENTS ACCROSS COMPANIES LISTED ON THE NASDAQ OMX BALTIC?

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This paper addresses the problem on how changes in financial instruments accounting regulations affect corporate financial reporting. The aim of the research is to evaluate what changes in reporting of financial instruments across companies listed on the Nasdaq OMX Baltic were triggered by transition to IFRS 9 and if those changes are relevant and material to the users of financial statement.

The paper starts with literature review where the concept of financial instruments and their significance to companies are discussed; the key changes in accounting regulation under IFRS 9 are presented and their possible impact on financial reporting is indicated. In the empirical part, the changes in reporting of financial instruments are evaluated using content, textual and comparative analysis and then their relevance and materiality to the users of financial statement is discussed from qualitative characteristics perspective. The obtained results reveal that after introduction of IFRS 9 changes in financial reporting of companies listed on the Nasdaq OMX Baltic were minor – 27% of the researched companies did not rename any titles of the financial instruments after IFRS 9 was introduced, 67% of them made insignificant changes, whereas the remaining 6% of companies have changed the titles of their financial instruments in a significant manner. The results show, that comparability of the company accounting policies has increased as the methods for classifying financial assets and calculation of impairment loss became more comparable. After IFRS 9 was introduced 88% of the companies of the research sample had not restated previous years' comparative information of their financial instruments, while the changes made by the remaining 12% of the sample companies were immaterial. In general, the effect of IFRS 9 introduction is relevant yet not material to reporting of financial instruments across companies listed on the Nasdaq OMX Baltic.

**Keywords:** financial instruments, financial assets, financial liabilities, IAS 39, IFRS 9, financial reporting.

# FORMATION OF COSTING POLICY FOR BIOLOGICAL ASSETS AND AGRICULTURAL PRODUCTS

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In the context of modern agribusiness, it is important to form correct management accounting policy for agricultural business entities and to properly collect information on costs in order to use it for cost calculation of biological assets and agricultural products, prepare financial and tax reports, analyse and make innovative management decisions. Therefore, the aim of this study was to systematically analyse possible methodologies for costing of biological assets and agricultural products in order to propose alternatives for the formation of costing policy for these assets and determine their impact on the entity's financial result.

The methodological basis of the research is the positive accounting theory. The research methods used for this study were logical analysis, comparison, synthesis, questionnaire survey and logical abstraction.

The methodology of cost accounting and costing for agricultural business organizations has been developed after the analysis of scientific literature, accounting regulations and practical experience of cost accounting in agricultural business entities. During the research, the alternatives of costing policy formation were analysed. Based on the results of the study, it is suggested to classify costs according to the following objectives: pricing, management decision-making, control and regulation. It is suggested to single out the following key classification features: relationship to the product being produced, relationship to the technological process, inclusion in production cost, relationship to volume of activity, relationship to management decisions, and ability to control. It is recommended to select the cultivated plants or groups of animals as the cost objects and to record the costs in the accounts using the perpetual inventory method and the process costing method; to allocate indirect production costs using a unified or differentiated distribution bases, linking them by cause and effect relationships. It is recommended to allocate the costs to the products of the complex production using the remaining cost, value and coefficient methods for the purpose of compiling financial and tax statements; calculate full and/or commercial cost for management purposes.

**Keywords:** biological assets, agricultural products, cost accounting, costing policy.

# DEALING WITH CONFLICTS IN AUDIT PROCESS

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A conflict is an inherent reality in the auditing process. There is always a risk that conflict will erupt in the audit process. That's why the auditors should develop expertise in how to deal with it.

The problem of the research – how to deal with conflicts in the audit process.

The objective of the research – to find ways how to deal with avoidable and unavoidable conflicts in audit process.

Methodology of the research – analysis of scientific literature of psychology and management, analysis of practical experience in auditing. Analysis is based on the comparative aspect and methods of systematization, logical analysis and generalization.

The results of the study showed that conflicts can be avoidable as well as unavoidable. Conflicts assume a variety of forms and may occur when least expected. Working to eliminate unnecessary conflict and resolve unavoidable conflict is a worthy objective.

The study came to the conclusion that sometimes, the best way to deal with conflict is to find a way to avoid it in the first place. Applying psychological knowledge to the audit process helps auditors avoid conflicts until there is a real threat. There are proposed ways to address impending conflicts: build trust, be able to convince, be clear about your objectives, choose words carefully. If the conflict is unavoidable, the auditor should recognize the positive effects of the conflict, make compromises when necessary, learn to negotiate, seek the support of management, and avoid feeling responsible for others' problems.

Auditors who know how to deal positively with audit conflicts will enhance their performance, their organizational contributions, and their personal effectiveness.

**Keywords:** audit, auditor, conflict, management, psychology.

# THE EVIDENTIAL PROCEDURES OF ACCOUNTING ERRORS AND FRAUD

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Three most popular methodologies are used for identification of accounting errors and frauds during financial audit in the process of gathering audit evidence. The triangle of fraud, ratio analysis, and forensic accounting can be valuable instruments for proving right professional decision. The research question is how to evaluate accounting inaccuracies trying to distinguish the fraud and accounting errors.

This presentation examines a case study, which aims to determine the progress of investigating errors and fraud and the applicable illegal actions after examining a case of documentary forgery. This presentation uses the case study analysis method. In the case study fraud was found in the company's accounting by using document verification and comparison as well as interviewing employees.

The triangle of fraud is based on three psychological components pressure, opportunity, and attitude. The ration analysis method uses calculation, comparison, and identification of material changes. The methods used in the forensic accounting: document verification, staff interviews and comparison of documents – can provide reliable additional evidence. Without proving accounting inaccuracies are fraudulent, they should be considered as errors. The situation can be seen as fraudulent even there is at least one assurance that mistakes are being made deliberately.

The case study presents the scheme how the director of the company concealed the true meaning of transactions. The results of case study analysis prove that by combining two different methods – inspections of documents and interviews of employee, it is possible to reveal fraud enforcement schemes in the company.

**Keywords:** accounting error, forensic accounting, fraud.

# COMPLEX ASSESSMENT OF ECONOMIC VIABILITY AND ECONOMIC EFFICIENCY OF A FAMILY FARM AND BANKRUPTCY PROBABILITY MODELS

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Any farm performing its activities under the contemporary conditions encounters certain financial difficulties. The problem raised in the paper therefore is as follows: whether or not the economic viability and economic efficiency indicators of a farm indicative of bankruptcy probability of the farm. Indicators from three groups were analysed as part of the research: the indicators defining economic viability, economic efficiency, and bankruptcy probability of farms. The methods of convergent and discriminant validation and correlation analysis were employed in the research.

The analysis has shown that the indicators of economic viability and economic efficiency of family farms as well as the bankruptcy probability forecasting models do not correlate to each other, but measure different phenomena. The *Pearson* correlation analysis has shown that there are no indicators of the economic viability and bankruptcy probability of a family farm that would correlate strongly to each other. The correlation coefficient values vary from 0.038 to 0.041, indicating weak correlation. This correlation may therefore be considered as the identifier of weak convergence and relatively strong indicator of discriminant validity. It can therefore be claimed that the indicators of economic viability and economic efficiency of a family farm do not measure the bankruptcy probability and are not applicable to forecasting of farm bankruptcy. The indicators of economic viability and efficiency of a family farm measure a different context, namely, economic viability of the family farm which may show the development prospects of the farm.

**Keywords:** farms economic viability, farm economic efficiency, bankruptcy probability models, family farm.

# PROPER USE OF THE CONCEPTS OF COMPUTERISATION, AUTOMATION, ROBOTISATION, AND DIGITISATION WHEN DISCUSSING ACCOUNTING DATA PROCESSING

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The use of computer and communication equipment as well as software tools, is currently increasing very rapidly in various areas of our life, including accounting data processing. The actions in development, implementation and promotion of tools for accounting data processing intertwined, but the development of concepts that adequately reflect the changing situation delay.

The last two decades institutions have focused on integrated internal data processing and receiving data from or transference to others institutions using communication infrastructure, now the focus is on uploading data fixed in paper document to computer media without the keyboard use, because this task requires a lot of staff time and diligence. The use of computer vision devices and elements of artificial intelligence allows automation accounting data input process. Unfortunately, the use of concepts describing full spectrum of new activities and devices in accounting data processing is not accurate enough.

The purpose of this investigation – to define, which cases such concepts as Computerisation, Automation, Robotisation and Digitisation it is worth to use seeking properly describe the accounting data processing. Methods used for investigation – analysis of scientific publications and summarising practice of use of mentioned above concepts. This presentation provide an answer to the question of what terms have been used to properly describe innovations in nowadays accounting data processing.

**Keywords:** Accounting data processing, Computerisation, Automation, Robotisation and Digitisation.

# THE CONCEPT AND FUNCTIONS OF PERFORMANCE AUDIT: THEORETICAL STUDY

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The aim of the research is to evaluate the concepts of performance audit and the development of functions. Provide an analysis of performance audit concepts and suggest an improved definition of performance audit.

Methods used in the study: content analysis, classification of data by attributes, data systematization, and text abstraction.

The implementation of performance audit reports and recommendations plays a key role in improving the performance of public sector bodies. During the implementation concept of the new public management (NPM) and public sector reforms in recent decades, the concept of performance audit has been changing. Recent research has revealed that the totality of activities in the public space has expanded, strategies and state programs are being developed to cover new areas, and a set of various functions have been assigned to performance auditing. Recent research has shown that public auditors do not always perform performance audits in line with the 3E approach. Increasingly, performance audit reports demonstrate a focus on building public value in line with democratic principles.

This raises the question of the accuracy of the current definition of performance auditing and compliance with the set of performance audit functions. Based on the results of recent research in the field of performance auditing, the authors of the presentation provide insights into the need to review the definition and functions of performance auditing in the light of current issues. The authors presented a concept that more accurately reflects the concept of performance audit.

**Keywords:** performance audit, concept of performance audit, functions of performance audit, elements of performance audit.

# RESEARCH OF THE ACCOUNTANTS LEADERSHIP IN A LEARNING ORGANIZATION

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In an increasingly competitive environment, organizations adopt their business strategies in order to create a knowledge-based environment. An accountant who is constantly upgrading his qualifications and involved in management decisions faces very complex situations that require not only professional competencies. The need for leadership of accountants' in all types of companies, but especially in a learning organization, becomes apparent. The aim is to evaluate the leadership possibilities of the accountants' in a learning organization. In order to identify the possibilities of the accountants' leadership in a learning organization, questionnaire survey was conducted. The survey was conducted in January-May of 2020. 114 accountants from different size and form of activity participated in this research. Data were analyzed using the software package SPSS.26.0 for social research. Graphical analysis was performed on an Ms Excel spread sheet. The study found that accountants are constantly improving their qualifications, but they tend to share new experience and acquired knowledge with colleagues only if the number of subordinates is higher and the company pays for the professional development. In addition, there is a correlation between the size of the company and the source of funding for increase of qualification. The responsibilities of accountants are fragmented, limited to the management of accounting and the calculation and declaration of taxes. The study revealed that 75 per cent of the surveyed accountants' believe that the leadership has a significant impact on the company's performance and all employees are responsible for the company's success, accountants contribute to the changes in their organizations. However, it is noticeable that the possibilities to express accountants' leadership is greater in larger companies. In addition, as surveyed accountants stated some of managers are indifferent to the development of accountants' leadership. This statement can be explained by the fact that less than half respondents indicated that current system in company encourage leadership of accountant's.

**Keywords:** accountant, leadership, learning organization.

# BENEFITS AND CHALLENGES OF TIME-DRIVEN ACTIVITY-BASED COSTING IMPLEMENTATION IN WEAVING SERVICES

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The feasibility of the application of the TDABC method have been investigated in practice for a while now. However, there has been no research conducted at enterprises providing weaving services regarding the challenges arising in the course of its installation and the ways of dealing with these challenges. The aim of the research is to identify the challenges and opportunities stemming from the adoption of the TD-ABC system at a weaving enterprise after the completion of the adoption process. Similar researches, which focus on the efficiency of TDABC and the benefits it provides are conducted at specific enterprises by employing the interventionist and interpretive approach. This interventionist and interpretive research focused on analytically disclosing these meaning-making practices, while showing how these practices configure to generate observable outcomes. The implementation of TDABC required different measures, while different interviews were conducted, and historical data was used at the engineering department. The project team for TDABC implementation was created and the plan of TDABC implementation was prepared. When assembling the project team, the qualification of the staff and their practical experience related with the manufacturing processes was considered. The research identified the challenges and opportunities stemming from the adoption of the TDABC system at a weaving enterprise after the completion of the adoption process. After applying all stages of the TDABC system at an enterprise providing weaving services the main challenges which were encountered by the enterprise in the course of installing the TDABC system were disclosed and suggestions how to bypass them were presented. TDABC system helped the enterprise identify the processes which should be improved.

**Keywords:** management accounting, activity-based costing, time-driven activity-based costing, weaving services.

# ANALYSIS OF THE TAX INCOME OF PANEVEZYS CITY AND DISTRICT MUNICIPALITIES

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The aim of the work is to perform the analysis of the tax income of Panevezys city and Panevezys district municipalities.

Objective of the work is to describe and analyse municipal tax income and its use in the Panevezys city and Panevezys district municipalities during the period 2016-2019.

Research methods: analysis of documents, comparative analysis of statistical data, graphical representation.

Municipal income consists of tax revenue; income from municipal property - income received for leased or granted to use state land, water bodies of the State Inland Water Fund and distribution of funds for land sold according to the procedure established by laws; grants and other funds transferred by the State budget; non-repayable financial assistance (funds); other statutory income.

Tax revenues entering municipal budgets are divided into three groups: profit and income taxes, property taxes, taxes on goods and services.

The analysis of the implementation of the tax income plan of Panevezys city municipality for the year 2016-2019 demonstrated that the largest share of the tax income in Panevezys city municipality is income and corporation taxes (93.86 %), the lowest – taxes on goods and services (0.33 %).

Most of the total tax income received in Panevezys city municipality was used for the education and education programme (in 2019 about 43%).

Panevezys district municipality collected more tax income from personal income tax than had been planned throughout the period under analysis. Nevertheless, the total amount of tax income shrank. In 2016, tax income amounted to EUR 28403.2 thousand, in 2019 – EUR 5526.3 thousand.

The tax income received in the municipalities was used to finance various programmes.

**Keywords:** tax income, municipal budget, analysis.

12-osios tarptautinės mokslinės konferencijos  
**Apskaita ir finansai: inovatyvūs sprendimai darniai  
bioekonomikos ir kaimo plėtrai** programa ir santraukos

Uš teksto kalbą atsako autoriai  
Korektorius Kristijonas Valius  
Maketuotoja Kristina Saveljeva

2020 11 16. Užsakymo Nr. K20-120

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