СТОПАНСКА АКАДЕМИЯ „Д. А. ЦЕНОВ“ – СВИЩОВ

СЪЮЗ НА УЧЕНИТЕ В БЪЛГАРИЯ – КЛОН СВИЩОВ

Международна научна конференция

ПРОБЛЕМИ И ПРЕДИЗВИКАТЕЛСТВА ПРЕД ИКОНОМИЧЕСКИТЕ НАУКА И ОБРАЗОВАНИЕ ПРЕЗ XXI ВЕК

Свищов, 22 ноември 2024 г.

Сборник с доклади

Конференцията е посветена на 80 години от създаването на Съюза на учените в България

Академично издателство „Ценов“
Свищов
2024

СТОПАНСКА АКАДЕМИЯ „Д. А. ЦЕНОВ“ – СВИЩОВ

СЪЮЗ НА УЧЕНИТЕ В БЪЛГАРИЯ – КЛОН СВИЩОВ

Международна научна конференция

ПРОБЛЕМИ И ПРЕДИЗВИКАТЕЛСТВА ПРЕД ИКОНОМИЧЕСКИТЕ НАУКА И ОБРАЗОВАНИЕ ПРЕЗ XXI ВЕК

Свищов, 22 ноември 2024 г.

Сборник с доклади

Конференцията е посветена на 80 години от създаването на Съюза на учените в България

Академично издателство „Ценов“
Свищов
2024

ПРОГРАМЕН КОМИТЕТ

Доц. д-р Марин Маринов – Ректор на СА „Д. А. Ценов“ – Свищов
Проф. д.б.н. Диана Петкова – Председател на Съюза на учените в България
Проф. д-р Атанас Атанасов – Зам. ректор „Научноизследователска дейност и развитие на кадрите“ на СА „Д. А. Ценов“
Доц. д-р Красимира Славева – Председател СУБ – клон Свищов

ОРГАНИЗАЦИОНЕН КОМИТЕТ

Доц. д-р Христо Сирашки
Доц. д-р Пепа Стойкова
Доц. д-р Любка Илиева
Гл. ас. д-р Зоя Иванова

РЕДАКЦИОНЕН СЪВЕТ

Председател:
Проф. д-р Атанас Атанасов
Членове:
Проф. д-р Анета Денева
Доц. д-р Красимира Славева
Доц. д-р Христо Сирашки
Доц. д-р Пепа Стойкова
Доц. д-р Любка Илиева
Доц. д-р Пламен Петков
Доц. д-р Галина Чиприянова
Full Professor Carlos Coelho, PhD
Full Professor Jan Polowczyk, PhD
Full Professor Тадија Ђукић, PhD
Assoc. Prof. Tatiana Manasterska, PhD

НАУЧНИ СЕКРЕТАРИ

Доц. д-р Любка Илиева
Гл. ас. д-р Зоя Иванова
Гл. ас. д-р Асен Божиков

Публикуваните материали са рецензирани. Авторите носят отговорност за съдържанието на материалите, изразените мнения, използваните данни, цитираните източници и езиковото оформление на текстовете.

ISBN 978-954-23-2522-2 - Печатно
ISBN 978-954-23-2523-9 - Онлайн

СЪДЪРЖАНИЕ

ИКОНОМИКС, ФИНАНСИ, ЗАСТРАХОВАНЕ, СОЦИАЛНО ДЕЛО

ОБЕКТ, ЦЕЛ И РЕЗУЛТАТИ ОТ НАУЧНИТЕ ИЗСЛЕДВАНИЯ НА СЪВРЕМЕННОТО НАЦИОНАЛНО СТОПАНСТВО
Проф. д.ик.н Росица Чобанова **7**

КОНЦЕПТУАЛНА РАМКА НА ЕНЕРГИЙНАТА СИГУРНОСТ
Проф. д-р Андрей Захариев, докт. Илиан Илчев **15**

PARALLEL ANALYSIS OF THE INVESTMENT ATTRACTIVENESS OF THE LARGE LISTED COMPANIES FROM THE TOURISM SECTOR
Prof. Stefan Simeonov, PhD, PhD student Alexey Gudev **22**

МОДЕЛЪТ ЗА АНАЛИЗ „ДЮ ПОНТ“ КАТО ВЪЗМОЖНОСТ ЗА ОЦЕНКА НА ДЕЙНОСТТА НА ЖИВОТОЗАСТРАХОВАТЕЛНИТЕ ДРУЖЕСТВА В БЪЛГАРИЯ
Доц. д-р Венцислав Василев **32**

ЗА ЛИПСВАЩАТА ВРЪЗКА МЕЖДУ ДАНЪЧНАТА АВТОНОМНОСТ НА ОБЩИНИТЕ И МЕСТНАТА СТОПАНСКА АКТИВНОСТ
Доц. д-р Людмил Найденов **41**

ВЛИЯНИЕ НА НАРАСТВАЩАТА ПРОДЪЛЖИТЕЛНОСТ НА ЖИВОТ НА ЕВРОПЕЙСКИТЕ ГРАЖДАНИ ВЪРХУ ДЪЛГОСРОЧНИТЕ ГРИЖИ
Доц. д-р Николай Нинов **49**

ПАЗАРНИ ОСОБЕНОСТИ НА ПРОМЯНАТА НА УЧАСТИЕТО НА ОСИГУРЕНИТЕ ЛИЦА ВЪВ ФОНДОВЕТЕ ЗА ДОПЪЛНИТЕЛНО ДОБРОВОЛНО ПЕНСИОННО ОСИГУРЯВАНЕ В БЪЛГАРИЯ
Доц. д-р Пламен Йорданов, гл. ас. д-р Маргарита Николова **58**

ПРОБЛЕМИ В РАЗВИТИЕТО НА ЗАСТРАХОВАНЕТО „КАСКО НА МПС“ НА БЪЛГАРСКИЯ ЗАСТРАХОВАТЕЛЕН ПАЗАР
Доц. д-р Румен Ерусалимов **66**

РОЛЯТА НА ВИСШЕТО ИКОНОМИЧЕСКО ОБРАЗОВАНИЕ ЗА ФОРМИРАНЕТО И ПОВИШАВАНЕТО НА ЗАСТРАХОВАТЕЛНАТА ГРАМОТНОСТ
Гл. ас. д-р Анелия Панева **73**

АНАЛИТИЧЕН ПРЕГЛЕД НА ТОП 10 НА HEALTHTECH СТАРТЪПИТЕ В БЪЛГАРИЯ (СПОРЕД КЛАСАЦИИТЕ НА TRACXN)
Гл. ас. д-р Валентина Нинова 80

РАЗВИТИЕ И СЪСТОЯНИЕ НА ОСИГУРЯВАНЕТО В УНИВЕРСАЛЕН ПЕНСИОНЕН ФОНД В БЪЛГАРИЯ
Гл. ас. д-р Йордан Йорданов 91

ПАЗАРЪТ НА ТРУДА И ПРЕДИЗВИКАТЕЛСТВАТА ПРЕД УМЕНИЯТА НА РАБОТНАТА СИЛА
Гл. ас. д-р Таня Илиева 100

СТРЕС ТЕСТ НА ПУБЛИЧНИ ПРЕДПРИЯТИЯ ЧРЕЗ ALTMAN'S Z-SCORE МОДЕЛ
Ас. д-р Силвия Заркова 105

АНАЛИЗ НА СТРУКТУРАТА НА СОБСТВЕНИЯ КАПИТАЛ НА БАНКОВИЯ СЕКТОР В КОНТЕКСТА НА РЕГУЛАТОРНИТЕ ИЗИСКВАНИЯ БАЗЕЛ III
Д-р Беатрис Любенова 111

СОЦИАЛНО-ИКОНОМИЧЕСКИ ПАРАМЕТРИ НА ТРАНСПОРТНИЯ СЕКТОР - СРАВНИТЕЛЕН АНАЛИЗ
Докт. Васил Василев 123

ШОКОВИ ВЪЗДЕЙСТВИЯ НА ПАНДЕМИЯТА ВЪРХУ ОТРАСЛИ НА ИКОНОМИКАТА В БЪЛГАРИЯ И ЕС – ЕМПИРИЧНИ СВИДЕТЕЛСТВА
Докт. Горян Милев 131

ИКОНОМИЧЕСКИ ПОКАЗАТЕЛИ И ЕВОЛЮЦИЯ НА ДАНЪЧНАТА ОСНОВА В АГРАРНИЯ СЕКТОР В БЪЛГАРИЯ – ЕМПИРИЧНИ СВИДЕТЕЛСТВА
Докт. Ивайло Здравков 141

СЪСТОЯНИЕ НА ГЛОБАЛНИЯ ПАЗАР НА НЕДВИЖИМИ ИМОТИ - ТЕНДЕНЦИИ И ПРЕДИЗВИКАТЕЛСТВА
Докт. Пламен Илиев 150

ИКОНОМИЧЕСКИ ОСНОВАНИЯ ЗА ДЪРЖАВНАТА НАМЕСА: МОДЕЛИ ЗА ИНТЕРВЕНЦИЯ И COVID-19
Докт. Станислав Младенов 159

РЕГИОНАЛНА КОНВЕРГЕНЦИЯ И ДИВЕРГЕНЦИЯ НА ЦЕНОВИТЕ РАВНИЩА НА НЕДВИЖИМИТЕ ИМОТИ В БЪЛГАРИЯ: ДИНАМИКА И ТЕНДЕНЦИИ
Докт. Цондю Цондев 169

СЧЕТОВОДСТВО, КОНТРОЛ, АНАЛИЗ, СТАТИСТИКА

ВЪЗМОЖНОСТИ ЗА СЧЕТОВОДНО ОТЧИТАНЕ НА СПЕЦИФИЧНИТЕ ПРИХОДИ В ПЕНСИОННООСИГУРИТЕЛНИТЕ ДРУЖЕСТВА
Проф. д-р Атанас Атанасов 183

NEAR-EXACT DISTRIBUTIONS AND FINITE FORM REPRESENTATIONS: PROBLEMS THEY CAN SOLVE
Full Professor, Ph.D. & Hab., Carlos A. Coelho 190

НОРМАТИВНАТА РЕГЛАМЕНТАЦИЯ ОТНОСНО ОПОВЕСТЯВАНЕТО НА НЕФИНАНСОВА ИНФОРМАЦИЯ КАТО ПРЕДПОСТАВКА ЗА НАДЕЖДНА ОЦЕНКА НА УСТОЙЧИВОТО РАЗВИТИЕ НА БАНКИТЕ
Доц. д-р Венцислав Вечев 198

SUSTAINABILITY REPORTING CHALLENGES IN THE CONTEXT OF CHANGES IN ACCOUNTING LEGISLATION
Assoc. Prof. Galina Chipriyanova, PhD,
Assoc. Prof. Mihail Chipriyanov, PhD 204

ПРОБЛЕМИ И ПЕРСПЕКТИВИ ПРИ ОБУЧЕНИЕТО ПО СЧЕТОВОДСТВО В СЪВРЕМЕННИТЕ УСЛОВИЯ
Доц. д-р Галя Иванова-Кузманова 211

ПРОБЛЕМИ ПРИ ОТЧИТАНЕ НА ПРИХОДИТЕ И РАЗХОДИТЕ ПО ДОГОВОРИ ЗА СТРОИТЕЛСТВО
Доц. д-р Диана Крумова 218

COMPARATIVE ANALYSIS OF FINANCIAL INCLUSION IN ROMANIA, BULGARIA, AND THE REPUBLIC OF MOLDOVA THROUGH THE FINANCIAL INCLUSION INDEX OF TRADITIONAL AND FINTECH SERVICES
Assoc. Prof. Eduard Hîrbu, PhD, Hîrbu Ana 226

ИКОНОМИЧЕСКИ РАЗЛИЧИЯ И НЕРАВЕНСТВА МЕЖДУ СЕВЕРНА И ЮЖНА БЪЛГАРИЯ
Доц. д-р Красимира Славева..... 235

СТАТИСТИЧЕСКИ АНАЛИЗ НА СЕЗОННИТЕ КОЛЕБАНИЯ В ПОСЕЩЕНИЯТА НА БЪЛГАРСКИ ГРАЖДАНИ В ЧУЖБИНА
Доц. д-р Пламен Петков, докт. Пламена Колева 247

ДОКЛАДВАНЕ НА УСТОЙЧИВОСТТА НА БИЗНЕСА – СЪДЪРЖАНИЕ И АКТУАЛНИ НАСОКИ НА ЕВРОПЕЙСКИЯ СЪЮЗ
Доц. д-р Радосвета Кръстева-Христова 257

ПОЗИЦИОНИРАНЕ НА ПРИЕМА НА СТУДЕНТИ ПО АДМИНИСТРАЦИЯ И УПРАВЛЕНИЕ И ИКОНОМИКА ЗА УЧЕБНАТА 2023 – 2024 ГОДИНА В Р БЪЛГАРИЯ
доц. д-р Росица Колева 266

УСТОЙЧИВО РАЗВИТИЕ НА ОДИТОРСКИТЕ УСЛУГИ В УСЛОВИЯТА НА ДИГИТАЛНА ТРАНСФОРМАЦИЯ
Доц. д-р Силвия Костова 272

ОБЕЗЦЕНКА НА ВЗЕМАНИЯТА ОТ ПРОДАЖБИ В ПРЕДПРИЯТИЯТА
Доц. д-р Слави Генов 280

ВЛИЯНИЕ НА ДАНЪЧНИТЕ НЕСЪОТВЕТСТВИЯ ВЪРХУ ФИСКАЛНАТА СТАБИЛНОСТ
Гл. ас. д-р Жельо Желев 288

ПРЕДИЗВИКАТЕЛСТВА И ПОСЛЕДИЦИ ОТ ПРИЛАГАНЕТО НА МЕЖДУНАРОДНИЯ СТАНДАРТ ЗА ФИНАНСОВО ОТЧИТАНЕ 9 В МУЛТИНАЦИОНАЛНИТЕ КОРПОРАЦИИ: СРАВНИТЕЛЕН АНАЛИЗ
Гл. ас. д-р Кирил Димитров 296

ПРЕДИЗВИКАТЕЛСТВАТА ПРЕД ОБРАЗОВАНИЕТО ПО СЧЕТОВОДСТВО В КОНТЕКСТА НА ДИГИТАЛИЗАЦИЯТА
Гл. ас. д-р Ралица Данчева 302

НЕЗАВИСИМОСТТА НА ОДИТНИТЕ КОМИТЕТИ И ВЪТРЕШНИЯ ОДИТ В ПУБЛИЧНИЯ СЕКТОР В БЪЛГАРИЯ
Докт. Румен Гъбов 308

АНАЛИЗ НА КЛЮЧОВИ АСПЕКТИ ОТ ОРГАНИЗАЦИОННАТА СТРУКТУРА НА НАЦИОНАЛНИЯ СТАТИСТИЧЕСКИ ИНСТИТУТ
Докт. Цветозария Гатева 316

МЕНИДЖМЪНТ, МАРКЕТИНГ, МЕЖДУНАРОДНИ ОТНОШЕНИЯ, ПЛАНИРАНЕ, ИНФОРМАЦИОННИ ТЕХНОЛОГИИ

DIGITAL THREAT ANALYSIS
Professor Serghei Ohrimenco DSc, Associate Professor Lucia Gujuman, PhD, Valeriu Cernei 329

ДИГИТАЛИЗАЦИЯ НА ПОДБОРА НА ЧОВЕШКИ РЕСУРСИ В БЪЛГАРСКИТЕ ПРЕДПРИЯТИЯ
Проф. д-р Галина Захариева, докт. Маргарита Николова 336

GENERATION Z IN POLAND AND BULGARIA: CORE VALUES AND LIFE PRIORITIES
Prof. UEP. dr hab. Dariusz Nowak, Assist. Prof. Aleksandar Lichev, PhD, Szymon Nowak..... 344

СЪВРЕМЕННОТО УПРАВЛЕНИЕ НА МАРКЕТИНГОВИЯ ПЕРСОНАЛ – СПЕЦИФИКА И ПРОБЛЕМНИ АСПЕКТИ
Доц. д-р Ваня Григорова 352

ИНТЕЛИГЕНТНА СПЕЦИАЛИЗАЦИЯ И РАБОТА В МРЕЖИ
Доц. д-р Евелина Парашкевова, Доц. д-р Маргарита Шопова..... 360

POSITIVE ASPECTS AND CHALLENGES OF GENERATIVE ARTIFICIAL INTELLIGENCE APPLICATIONS
Assoc. Prof. Natalia Marinova, PhD..... 368

УСТОЙЧИВО ВНЕДРЯВАНЕ НА ОБУЧЕНИЕ ПО ПРОЕКТ №: 2022-1-BG01-KA220-VET-000089399 „ПРЕДОСТАВЯНЕ НА ВЪЗМОЖНОСТ НА МСП В СЕКТОРА ХОРЕКА ЗА ЕФЕКТИВНО УСВОЯВАНЕ НА ЗНАНИЯ И ИНСТРУМЕНТИ ЗА ИЗКУСТВЕН ИНТЕЛЕКТ (HORECA 5.0)“
Доц. д-р Христо Сирашки..... 375

ИНТЕРЕСИ И МОТИВАЦИОННИ НАГЛАСИ ПРЕЗ ПОГЛЕДА НА МЕНИДЖЪРА
Гл. ас. д-р Десислава Алексиева..... 382

РОЛЯТА НА СОЦИАЛНИТЕ МЕДИИ В СЪВРЕМЕННАТА ИКОНОМИКА: ПЕРСПЕКТИВИ И ПРЕДИЗВИКАТЕЛСТВА ЗА БИЗНЕСА
Гл. ас. д-р Кремена Маринова-Костова 388

ОСОБЕНОСТИ НА МЕЖДУЛИЧНОСТНИТЕ КОНФЛИКТИ В ОРГАНИЗАЦИИТЕ И ТЯХНОТО РАЗРЕШАВАНЕ
Гл. ас. д-р Милен Динков..... 396

СЪЩНОСТ И ОСНОВНИ ХАРАКТЕРИСТИКИ НА ОТВОРЕНИТЕ ИНОВАЦИИ
Гл. ас. д-р Юлиян Господинов..... 404

ИЗКУСТВЕНИЯТ ИНТЕЛЕКТ В УПРАВЛЕНИЕТО НА ПЪТЯ НА КЛИЕНТА
Ас. д-р Стелиана Василева 412

PROTECTION OF DOCUMENT-CENTRIC SYSTEMS FROM DIGITAL THREATS
Assistant Ghenadie Belinschi 420

ИМПЛЕМЕНТИРАНЕ НА ИЗКУСТВЕН ИНТЕЛЕКТ В ГЪВКАВА МЕТОДОЛОГИЯ (SCRUM) НА УПРАВЛЕНИЕ НА ПРОЕКТИ ЗА УСТОЙЧИВО РАЗВИТИЕ
Д-р Андрей Йорданов 426

ИКОНОМИКА НА ОТРАСЛИТЕ

УСТРОЙСТВО НА ЗЕМЕДЕЛСКИТЕ ТЕРИТОРИИ – ОСОБЕНОСТИ, РЕГЛАМЕНТИ, ПРОБЛЕМИ
Проф. д-р Гена Велковска 437

КОНЦЕПТУАЛЕН МОДЕЛ ЗА УСТОЙЧИВО РАЗВИТИЕ НА СЕЛСКИТЕ ТЕРИТОРИИ В БЪЛГАРИЯ
Проф. д-р Марина Николова..... 446

AN ANALYSIS OF THE CURRENT STATE AND DEVELOPMENT CHALLENGES OF RETAIL AND WHOLESALE BUSINESSES IN UKRAINE
Prof., Doctor of Economics, Olena Khadzhynova, Assoc. Prof., Candidate of Economic Sciences, Larysa Kapranova, Ph. D., Roman Sharanov 456

НЯКОИ ПРАВНИ И ПРАКТИЧЕСКИ АСПЕКТИ ПРИ МЕНИДЖМЪНТА НА СТОПАНСКИТЕ ДВОРОВЕ
Доц. д-р Валери Велковски..... 462

ПРОБЛЕМИ И ПРЕДИЗВИКАТЕЛСТВА ПРЕД ЕВРОПЕЙСКИЯ АГРАРЕН СЕКТОР
Доц. д-р Виолета Блажева **473**

ЕКО-ЕФЕКТИВНИ СТРАТЕГИИ
Доц. д-р Елена Йорданова **478**

INNOVATION AND INDUSTRY 5.0 – SOME CONNECTIONS AND OPPORTUNITIES
Assoc. Prof., Iskra Panteleeva, PhD **483**

OPPORTUNITIES FOR INDUSTRIAL BUSINESS DEVELOPMENT THROUGH TECHNOLOGICAL INNOVATIONS
Assoc. Prof. Iskra Panteleeva, PhD, PhD Student Kalin Borisov **491**

ПРОМОТИРАНЕ НА ТУРИСТИЧЕСКАТА ДЕСТИНАЦИЯ ЧРЕЗ ДИГИТАЛНИ ИНОВАЦИИ
Доц. д-р Любка Илиева **499**

ЛОГИСТИЧНОТО ПОВЕДЕНИЕ НА ФИРМАТА, ОРГАНИЗА-ЦИОННАТА ИДЕНТИФИКАЦИЯ И ПРЕДПРИЕМАЧЕСКАТА АКТИВНОСТ НА БЪЛГАРСКИТЕ ПИВОВАРНИ ПРЕДПРИЯТИЯ
Доц. д-р Сергей Найденов **506**

ПРОУЧВАНЕ НА РЕЛАЦИЯТА МЕЖДУ ДИГИТАЛНИТЕ УМЕНИЯ ЗА ПАЗАРУВАНЕ И РАЗПОЛАГАЕМИТЕ ДОХОДИ НА ПОТРЕБИТЕЛИТЕ В БЪЛГАРИЯ
Доц. д-р Симеонка Петрова **516**

ИКОНОМИЧЕСКАТА СОЦИОЛОГИЯ В КОНТЕКСТА НА ПРЕДИЗВИКАТЕЛСТВАТА ПРЕД ИКОНОМИЧЕСКОТО ОБРАЗОВАНИЕ ПРЕЗ 21 ВЕК
Гл. ас. д-р Ваня Ганева **522**

TRANSFORMATION OF CONSUMER ONLINE PURCHASING BEHAVIOUR IN THE EUROPEAN UNION
Head Assist. Prof. Zoya Ivanova, PhD **529**

METHODS FOR GENERATING INNOVATIONS IN BULGARIAN ENTERPRISES
Head Assist. Prof. Ivaylo Kostov, Ph.D. **537**

РОЛЯ НА ПРЕДПРИЕМАЧЕСТВОТО ЗА УСТОЙЧИВО РАЗВИТИЕ НА СЕЛСКИЯ ТУРИЗЪМ
Гл. ас. д-р Павлин Павлов 545

БАРИЕРИ ПРЕД ОТВОРЕНИТЕ ИНОВАЦИИ В МАЛКИТЕ И СРЕДНИТЕ ПРЕДПРИЯТИЯ
Докт. Виктор Маринов 551

HUMAN RESOURCES IN THE AGE OF DIGITALIZATION
PhD Student Denitsa Gharkova-Zaharieva 557

COMPARATIVE ANALYSIS OF FINANCIAL INCLUSION IN ROMANIA, BULGARIA, AND THE REPUBLIC OF MOLDOVA THROUGH THE FINANCIAL INCLUSION INDEX OF TRADITIONAL AND FINTECH SERVICES

Assoc. Prof. Eduard Hîrbu, PhD[1]
Hîrbu Ana[2]

Abstract

As member states of the European Union, Romania and Bulgaria are required to comply with EU-wide legislation, including laws on digital identification and data protection, as well as regulations of the European electronic identification system, which contribute to the development of regulatory standards for the FinTech industry and the sector as a whole. Thus, Romania and Bulgaria have more advanced infrastructure and legislative frameworks for the FinTech sector, while in Moldova, the FinTech industry is still in a developmental stage.

This article calculates the ranking of the three countries in terms of financial inclusion (traditional and FinTech) using the Inclusiveness Index (penetration index) for traditional and FinTech services, which reflects the level of adoption of financial technologies in different countries and serves as a key indicator of the financial maturity of traditional and FinTech markets.

Keywords: *Fintech - financial technologies (FT), traditional financial inclusion (TFI), Fintech-based financial inclusion, Country ranking by the Financial Inclusion Index.*

JEL: G1, G2, G3, O16, C58

DOI: https://doi.org/10.58861/tae.pcesetfc.2024.27

Introduction

In recent years, the rapid emergence and widespread adoption of financial technology, known as FinTech, have brought significant transformations to the financial landscape. Policymakers, economists, and governments worldwide recognize the crucial role of financial inclusion in reducing poverty and stimulating economic growth. The United Nations' 2030 Agenda for Sustainable Development acknowledges the essential role of financial inclusion in successfully implementing the Sustainable Development Goals (SDGs) and reducing inequalities.

Financial inclusion refers to ensuring access to financial services for individuals and businesses, regardless of their income level or geographic location. It aims to provide all individuals with access to basic financial services such as savings accounts, checking accounts, credit, insurance, and payment services, enabling them to fully participate in the broader economy. Although significant progress

[1] Department of Econometrics and Economic Statistics, Academy of Economic Studies of Moldova, harbued@ase.md

[2] ESG and Sustainability Consultant at Deloitte Audit, Prague, harbuana22@gmail.com

has been made in financial inclusion in recent years, a substantial part of the global population still lacks access to formal financial institutions or mobile financial service providers.
According to the Global Findex database (2017), approximately 1.7 billion adults remain unbanked, most of whom reside in developing economies. Despite global progress, many countries, including some within the European community, still require substantial advancements in financial development and inclusion.
The progress of FinTech presents a unique opportunity to address the challenges of financial inclusion and stimulate economic development. The countries included in the study have played a significant role in adopting innovative mobile technology-based financial services, allowing a substantial unbanked population to integrate into the formal financial system. However, comprehensive research is necessary to explore the impact of FinTech on financial inclusion and its implications for economic development.
This article aims to address the disparity among the three neighboring countries (via Romania) by analyzing the evolution of the FinTech sector over the past decade and evaluating the correlation between FinTech indicators and financial inclusion.

Concept and Definition of the FinTech

The concept of FinTech has attracted academic attention for many years. As an emerging subject at the intersection of finance and information technology, it appears in a wide range of works under various forms. The Oxford Dictionary defines FinTech as an acronym representing financial technology, described as "computer programs and other technologies used to support or facilitate banking and financial services" [Oxford University Press, 2023]. The concept of FinTech stems from the fusion of two terms - "finance" (financial services) and "technology" (informational technology) [Gimpel et al., 2018
According to multiple studies, the term FinTech emerged in the 1990s within the Financial Services Technology Consortium project, managed by Citicorp (Hochstein, 2015). Beyond discussions within research communities and specialized groups, the "FinTech" concept remains underdeveloped and lacks a clear definition. The emerging nature of debates on FinTech still calls for efforts to define it comprehensively in scientific literature.
As FinTech is used to denote the digitalization of the financial industry, PwC representatives (2016) defined it as "a dynamic segment at the intersection of the financial services sector and technology, where technology-focused startups and new market entrants innovate products and services currently provided by the traditional financial services industry." It serves as a tool in the financial sector for technological advancements, which rely heavily on the internet [Fong et al., 2021].
In international specialized literature, FinTech is perceived as a financial domain that uses technology to facilitate financial activity [Schueffel, 2016], as it enables

or provides financial services, such as internet-based technology for e-commerce, mobile banking, or crowdfunding [Dapp et al., 2014].

Dimensions of FinTech

FinTech covers a broad spectrum of transactions, including insurance technology, financial records, banking mechanisms, payment systems, and online banking services. Among these, electronic payments represent the most expansive subcategory offered by FinTech [Ehrentraud et al., 2020]. Digital payment services have transformed the way individuals manage their financial activities. FinTech tools allow customers to remotely record, manage, and facilitate their finances. According to Das (2019), FinTech adoption in finance has contributed to changes in three areas: capital collection, capital allocation, and capital transfer. Consequently, nearly all contemporary financial transactions rely on FinTech applications.

Considering the broad frameworks of FinTech classification, Chishti et al. (2020) proposed the following FinTech dimensions: the financial industry, business models, and technology.

- The financial sector component emphasizes the key areas of financial services that stand to benefit from FinTech adoption. These include banking services, trading platforms, wealth management, transaction payments, insurance, foreign exchange transactions, and other services.
- Business models highlight the various significant approaches used by enterprises, such as business-to-consumer (B2C), business-to-business (B2B), business-to-business-to-consumer (B2B2C), business-to-government (B2G), operating system business models, crowdsourcing, and peer-to-peer (P2P) lending.
- Technological dimensions reflect the diverse types of technologies used by businesses. These include cloud technology, big data analytics, artificial intelligence and machine learning, blockchain, the Internet of Things (IoT), quantum computing, augmented reality, and virtual reality.

Financial Inclusion

Issues related to financial inclusion are an emerging concern and represent one of the critical social and economic challenges on the agenda of international organizations, legislators, central banks, financial firms, and governments worldwide [Cámara & Tuesta, 2014].

According to the World Bank, approximately 55% of the adult population in emerging and developing countries remains unbanked due to high financial costs, lack of necessary documentation, and significant distances from banks and other financial institutions.

Conversely, several advanced economies, such as the United Kingdom, the United States, and China, have developed online lending platforms, which have consequently contributed to increased lending rates for small and medium-sized enterprises (SMEs). In contrast, some countries in Sub-Saharan Africa and South Asia have successfully encouraged savings and payments through mobile banking

services, leading to substantial growth in financial inclusion [Berkmen et al., 2019]. According to the Global Findex Database (2017), approximately 1.7 billion adults still lack banking access, either through formal institutions or mobile financial service providers. While the majority of adults in high-income economies own bank accounts, nearly all unbanked adults come from developing economies.

Financial inclusion involves providing financial services to individuals and businesses regardless of income level or location. Its goal is to ensure access to basic financial services, such as savings accounts, checking accounts, credit, insurance, and payment services, to help people participate in the broader economy. The underlying idea is that financial inclusion can contribute to poverty reduction, income inequality reduction, and economic growth.

Informational Support for the Study

The determination of the Financial Inclusion Index and the development of regression models correlating it with various socio-economic factors expressing economic growth were conducted as part of the thesis and are based on multiple data sources.

The data on financial inclusion come from three primary sources:

- The Financial Access Survey (FAS) conducted by the International Monetary Fund (IMF)[3], along with its associated datasets.
- The World Bank's Global Financial Inclusion Study (Global Findex)[4] and its database.
- The World Development Indicators (WDI)[5] database maintained by the World Bank, which annually monitors the economic situation of 266 countries and groups of countries classified by various criteria (geographic, economic blocs, etc.).

To validate the data from these diverse sources, repeated entries related to global development, World Bank financial inclusion indicators, and datasets for the analyzed group of states were cross-verified. This process ensures comparability of data over time and across geographic areas, including the examination of methodologies for data recording.

A well-known principle in theoretical data analysis disciplines is the direct relationship between the quality of quantitative approaches' results and the volume and quality of the data studied. Hence, efforts to dimension the level of financial inclusion must be grounded in calculations that encompass as many determinants of inclusion as possible. Consequently, to capture the various characteristics of

[3] Financial Access Survey (FAS): https://data.imf.org/?sk=e5dcab7e-a5ca-4892-a6ea-598b5463a34c&sId=1412015057755

[4] Global Financial Inclusion (Global Findex): https://microdata.worldbank.org/index.php/catalog/4607

[5] DataBank of World Development Indicators: https://databank.worldbank.org/source/world-development-indicators

financial inclusion, data were gathered for 50 indicators of traditional financial inclusion and 24 indicators of FinTech-based financial inclusion.

Indicators of Traditional Financial Inclusion (IFT):

1. Account ownership (% age 15+);
2. Account ownership within the labor force (% age 15+);
3. Borrowed any money (% age 15+);
4. Borrowed from a formal financial institution (% age 15+);
5. Borrowed from a store on credit (% age 15+);
6. Ability to use a bank account without assistance (% of those without an account, age 15+);
7. Financial institution account ownership (% age 15+), etc.

Indicators of FinTech-Based Financial Inclusion (IFF)

1. Borrowed money via formal institutions or mobile money accounts (% age 15+);
2. Borrowed money using mobile accounts (% age 15+);
3. Ability to use mobile money accounts without assistance (% age 15+);
4. Internet access (% age 15+);
5. Digital payments for in-store purchases (% age 15+);
6. Utility payments made via mobile phones (% age 15+);
7. Ownership of mobile money accounts (% age 15+), etc.

Financial Inclusion Index Development

The financial inclusion indices are developed using a combination of data normalization techniques, such as the MIN-MAX method, and corrections of normalized data using weighting systems based on the variability of each data series.

Step 1: Determining Normalized Values

The normalized value for each indicator is calculated using the formula:

$$d_{ij} = g_{ij} \frac{x_{ij} - x_{\min}}{x_{\max} - x_{\min}} \quad (1)$$

Where:

- d_{ij} - is the normalized value of indicator x for year i in country j.
- x_{ij} - is the actual value of the indicator x.
- $x_{\min}$ and $x_{\max}$ - are the minimum and maximum values of the indicator x across the dataset.
- g_{ij} - the specific weight of the data at the level of a variable x, within the dimension j

Step 2: Coefficient of variation (CV)

The specific weight of the data in a series (variable x), within the respective dimension (access, availability and use), will be determined according to the character of the variation at the level of the series and the dimension, expressed by the coefficient of variation (cv), determined as the ratio of the standard deviation to the mean value of the series:

$$cv_{ij} = \frac{\sigma}{\bar{x}} * 100 \quad (2)$$

Where:

g_{ij} - the specific weight of the data at the level of a variable x, within the dimension j

$\bar{x}_j$ - the average value of indicator x for year i on state j

σ_{ij} - standard deviation of indicator x for year i on state j

Step 2: Weighting Data

In this way, the specific weight of each indicator is defined as part of its cv in the sum of all cv at the level of a dimension, being calculated according to the formula:

$$g_{ij} = \frac{cv_{ij}}{\sum_j cv_{ij}} \quad (3)$$

The financial inclusion indices for each dimension *j* will be determined using the normalized inverse of the Euclidean distance of each value d_{ij} from the ideal point, which is equal to 1, based on the relationship:

$$IIF_i = 1 - \frac{\sqrt{g_{i1}^2(1-d_{i1})^2 + g_{i2}^2(1-d_{i2})^2 + ... + g_{ij}^2(1-d_{ij})^2 + ... + g_{in}^2(1-d_{in})^2}}{\sqrt{g_{i1}^2 + g_{i2}^2 + ... + g_{ij}^2 + ... + g_{in}^2}} \quad (4)$$

Where:

IIF_i - Financial Inclusion Index for dimension *i*

d_{i1} - The normalized value of indicator 1 for dimension *j*

g_{i1} - The specific weight of indicator 1 for dimension *j*

Finally, based on the procedures described above, the aggregated financial inclusion indices will be determined for both traditional financial activities and those based on FinTech tools:

$$IIF_T = 1 - \frac{\sqrt{g_1^2(1-IFI_1)^2 + g_2^2(1-IFI_2)^2 + .g_3^2(1-IFI_3)^2}}{\sqrt{g_1^2 + g_2^2 + g_3^2}} \quad (5)$$

Where:

IIF_T Financial Inclusion Index for traditional financial activitie

g_1 - Specific weight for dimension 1, 2 and 3

In a similar manner, the aggregated financial inclusion index for FinTech-based financial activities will be determined.

The proposed indices range between 0 and 1, where 0 represents the lowest level of financial inclusion, and 1 corresponds to complete financial inclusion, based on the available data for the 3 states. Therefore, the higher the index value, the more significant the achievements of the countries in the respective dimension.

Results

The syntheses made as a result of the processes for determining the financial inclusion indices indicate different situations in the three countries over the four reference years (2011, 2014, 2017, 2021). Thus, traditional financial instruments

are much more prominent in the first two years, after which they become less important (Fig. 1).

Table 1. Financial Inclusion Index by Country (BGR, MDA, ROU) and Average, 2011–2022

Year	BGR	MDA	ROU	Average
2011	0.0363	0.0204	0.1359	0.0642
2014	0.1148	0.0853	0.0755	0.0919
2017	0.0491	0.1247	0.0232	0.0657
2021	0.0996	0.0671	0.1173	0.0947
2022	0.1522	0.0161	0.1652	0.1112
Average	0.0904	0.0627	0.1034	0.0855

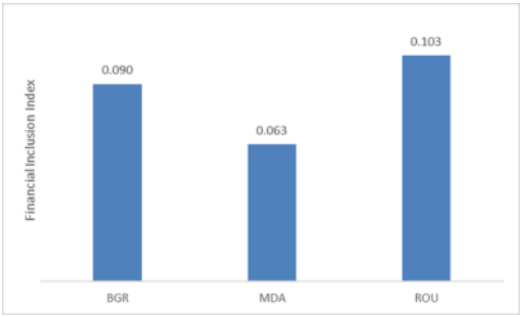


Figure 1. Average Financial Inclusion Index by Country (BGR, MDA, ROU), 2011–2022

From the data, we can observe the following trends in the Financial Inclusion Index (FII) for the three countries (Bulgaria, Moldova, and Romania) across the years:

- Romania had a steady increase in its FII, peaking in 2022 at 0.1652, showing a relatively strong and consistent improvement in financial inclusion.
- In 2011, for Bulgaria the FII was very low at 0.0204, with some growth observed in 2014 (0.0853), but it remained relatively low in the following years (0.0161 in 2022). This suggests slow or inconsistent progress in financial inclusion over the period.
- Moldova showed a significant increase from 2011 to 2014, though it declined to 0.0161 in 2022, indicating a large fluctuation and difficulties in financial inclusion.
- The average across all countries saw a general increase, with a noticeable spike in 2022 (0.1112). This overall trend suggests that, while some countries experienced fluctuations, there was an upward movement in financial inclusion overall (figure 2).
-

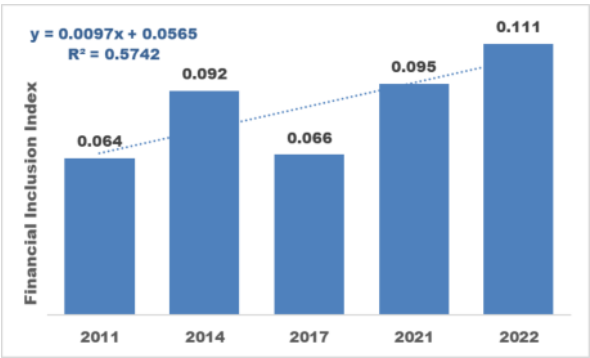


Figure 2. Financial Inclusion Index (BGR, MDA, ROU) in 2011–2022

The evolution of the financial inclusion index determined by fintech instruments indicates the same trend regarding the ranking of the three countries based on the analyzed indicator, with a deeper distortion of the index values both between the 3 countries and over the years.

Table 1. Financial Inclusion Index based on FinTeh by Country (BGR, MDA, ROU) and Average, 2011–2022

Year	BGR	MDA	ROU	Average FII
2011	0.2711		0.4356	0.3534
2014	0.3129	0.5524	0.3196	0.3949
2017	0.3006	0.2709		0.2857
2021	0.7463	0.3178	0.5478	0.5373
2022	0.2864		0.2976	0.2920
Average FII	**0.3834**	**0.3803**	**0.4001**	**0.3882**

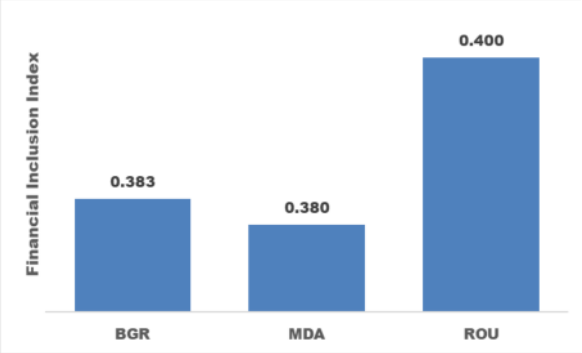


Figure 3. Average Financial Inclusion Index based on FinTeh by Country (BGR, MDA, ROU) and Average, 2011–2022

These data are relevant for analyzing access to financial services and their ability to meet citizens' needs.

Romania, which recorded the highest average level of the fintech-based financial inclusion index, had a decrease in the FII after 2011, followed by an increase in 2021, reaching 0.5478, suggesting improvements in access to financial products.

Bulgaria saw a significant increase in the FII, from 0.2711 in 2011 to 0.7463 in 2021, indicating a substantial improvement in access to and use of financial services, under conditions of using fintech technologies.

Republic of Moldova, on the other hand, experienced fluctuations, with a high value in 2014 (0.5524), but major declines in the following years, reaching 0.2976 in 2022.

In these circumstances the average FII for the three countries shows a global mean value of approximately 0.3882, indicating relatively modest long-term progress in financial inclusion, but also significant disparities between countries.

These data highlight significant differences in the development of fintech financial instruments between the 3 states and the need to adopt public policies that will support sustainable financial inclusion.

References

Oxford University Press. (2023). Definition of FinTech. Oxford Advanced Learner's Dictionary. Retrieved December 2, 2022, from https://www.oxfordlearnersdictionaries.com/definition/english/FinTech?q=FinTech

Gimpel, H., Rau, D., & Röglinger, M. (2018). Understanding FinTech start-ups–a taxonomy of consumer-oriented service offerings. Electronic Markets, 28, 245-264. https://doi.org/10.1007/s12525-017-0275-0.

Hochstein, M. (2015). FinTech (the word, that is) evolves. americanbanker.com. Retrieved December 4, 2022, from https://www.americanbanker.com/opinion/FinTech-the-word-that-is-evolves

Fong, D., Han, F., Liu, L., Qu, J., & Shek, A. (2021). Seven technologies shaping the future of FinTech. McKinsey & Company. Retrieved January 2, 2023, from https://www.mckinsey.com/cn/our-insights/our-insights/seven-technologies-shaping-the-future-of-FinTech.

Schueffel, P. (2016). Taming the beast: A scientific definition of FinTech. Journal of Innovation Management, 4(4), 32-54. https://doi.org/10.24840/2183-0606_004.004_0004.

Dapp, T., Slomka, L., AG, D. B., & Hoffmann, R. (2014). FinTech–The digital (r) evolution in the financial sector. Deutsche Bank Research, 11, 1-39. https://www.finextra.com/finextra-downloads/featuredocs/prod0000000000345837.pdf

Ehrentraud, B. J., Ocampo, D. G., Garzoni, L., & Piccolo, M. (2020). FSI Insights on policy implementation No 23 Policy responses to FinTech: a cross-country overview. Bank of International Settlement, Financial Stability Institute. Retrieved December 20, 2022, from https://www.bis.org/fsi/publ/insights23.pdf.

Chishti, S., O'Hanlon, S., Bradley, B., Jockle, J., & Patrick, D. (2020). FinTech. John Wiley & Sons, Incorporated. ISBN 9781119427254

Cámara, N., & Tuesta, D. (2014). Measuring financial inclusion: A muldimensional index. BBVA Research Paper, (14/26). http://dx.doi.org/10.2139/ssrn.2634616

Berkmen, P., Beaton, M. K., Gershenson, M. D., del Granado, M. J. A., Ishi, K., Kim, M., & Rousset, M. M. V. (2019). FinTech in Latin America and the Caribbean: Stocktaking. International Monetary Fund Working Papers, 19 (71). https://www.imf.org/en/Publications/WP/Issues/2019/03/26/FinTech-in-Latin-America-and-the-Caribbean-Stocktaking-46677.