

UDK 37

ISSN 2545 – 4439

ISSN 1857 - 923X

INTERNATIONAL JOURNAL

Institute of Knowledge Management

KNOWLEDGE



Scientific Papers

Vol. 67.6

SOCIAL SCIENCES

KIJ

Vol. 67

No. 6

pp. 899 - 1162

Skopje, 2024

KNOWLEDGE



INTERNATIONAL JOURNAL

**SCIENTIFIC PAPERS
VOL. 67.6**

December, 2024

**INSTITUTE OF KNOWLEDGE MANAGEMENT
SKOPJE**



KNOWLEDGE

International Journal Scientific Papers Vol. 67.6

ADVISORY BOARD

Vlado Kambovski PhD, Robert Dimitrovski PhD, Siniša Zarić PhD, Maria Kavdanska PhD, Mirjana Borota – Popovska PhD, Veselin Videv PhD, Ivo Zupanovic PhD, Savo Ashtalkoski PhD, Zivota Radosavljević PhD, Laste Spasovski PhD, Mersad Mujevic PhD, Milka Zdravkovska PhD, Drago Cvijanovic PhD, Predrag Trajković PhD, Lazar Stosic PhD, Krasimira Staneva PhD, Nebojsa Pavlović PhD, Daniela Todorova PhD, Lisen Bashkurti PhD, Zoran Srzentić PhD, Itska Derijan PhD, Sinisa Opic PhD, Marija Kostic PhD

Print: GRAFOPROM – Bitola

Editor: IKM – Skopje

Editor in chief

Robert Dimitrovski, PhD

KNOWLEDGE - International Journal Scientific Papers Vol. 67.6

ISSN 1857-923X (for e-version)

ISSN 2545 – 4439 (for printed version)

INTERNATIONAL EDITORIAL BOARD

President: Academic Prof. Vlado Kambovski PhD, Skopje (N. Macedonia)

Vice presidents:

Prof. Robert Dimitrovski PhD, Institute of Knowledge Management, Skopje (N. Macedonia)

Prof. Sinisa Zanic, PhD, Faculty of Economics, University of Belgrade, Belgrade (Serbia)

Prof. Mersad Mujevic PhD, Public Procurement Administration of Montenegro (Montenegro)

Members:

- Prof. Azra Adjajlic – Dedovic PhD, Faculty of criminology and security, Sarajevo (Bosnia & Herzegovina)
- Prof. Aleksandar Korablev PhD, Faculty of economy and management, Saint Petersburg State Forest Technical University, Saint Petersburg (Russian Federation)
- Prof. Anita Trajkovska PhD, Rochester University (USA)
- Prof. Aziz Pollozhani PhD, Rector, University Mother Teresa, Skopje (N.Macedonia)
- Prof. Anka Trajkovska-Petkoska PhD, UKLO, Faculty of technology and technical sciences, Bitola (N. Macedonia)
- Prof. Aneta Mijoska PhD, Faculty of Dentistry, University “St. Cyril and Methodius”, Skopje (N. Macedonia)
- Prof. Alisabri Sabani PhD, Faculty of criminology and security, Sarajevo (Bosnia & Herzegovina)
- Prof. Artan Nimani PhD, Rector, University of Gjakova “Fehmi Agani” (Kosovo)
- Prof. Ahmad Zakeri PhD, University of Wolverhampton, (United Kingdom)
- Prof. Ana Dzumalieva PhD, South-West University “Neofit Rilski”, Blagoevgrad (Bulgaria)
- Prof. Branko Sotirov PhD, University of Rousse, Rousse (Bulgaria)
- Prof. Branko Boshkovic, PhD, College of Sports and Health, Belgrade (Serbia)
- Prof. Branimir Kamlj PhD, Institute SANO, Zagreb (Croatia)
- Prof. Branislav Simonovic PhD, Faculty of Law, Kragujevac (Serbia)
- Prof. Bistra Angelovska, Faculty of Medicine, University “Goce Delcev”, Shtip (N.Macedonia)
- Prof. Cezar Birzea, PhD, National School for Political and Administrative Studies, Bucharest (Romania)
- Prof. Cvetko Andreevski, Faculty of Tourism, UKLO, Bitola (N.Macedonia)
- Prof. Drago Cvijanovic, PhD, Faculty of Hotel Management and Tourism, University of Kragujevac, Vrnjacka Banja (Serbia)
- Prof. Dusan Ristic, PhD Emeritus, College of professional studies in Management and Business Communication, Novi Sad (Serbia)
- Prof. Darijo Jerkovic PhD, Faculty of Business Economy, University “Vitez”, (Bosnia & Herzegovina)
- Prof. Daniela Todorova PhD, “Todor Kableshev” University of Transport, Sofia (Bulgaria)
- Prof. Dragan Kokovic PhD, University of Novi Sad, Novi Sad (Serbia)
- Prof. Dragan Marinkovic PhD, High health – sanitary school for professional studies, Belgrade (Serbia)
- Prof. Itska Mihaylova Derijan PhD, University Neofit Rilski, Faculty of pedagogy, Blagoevgrad (Bulgaria)
- Prof. Dzulijana Tomovska, PhD, Faculty of Biotechnical sciences, Bitola (N.Macedonia)
- Prof. Evgenia Penkova-Pantaleeva PhD, UNWE -Sofia (Bulgaria)
- Prof. Fadil Millaku, PhD, University “Hadzi Zeka”, Peja (Kosovo)

- Prof. Fatos Ukaj, University “Hasan Prishtina”, Prishtina (Kosovo)
- Prof. Georgi Georgiev PhD, National Military University “Vasil Levski”, Veliko Trnovo (Bulgaria)
- Prof. Halit Shabani, PhD, University “Hadzi Zeka”, Peja (Kosovo)
- Prof. Halima Sofradzija, PhD, University of Sarajevo, Sarajevo (Bosnia and Herzegovina)
- Prof. Haris Halilovic, Faculty of criminology and security, University of Sarajevo, Sarajevo (Bosnia and Herzegovina)
- Prof. Helmut Shramke PhD, former Head of the University of Vienna Reform Group (Austria)
- Prof. Hristina Georgieva Yancheva, PhD, Agricultural University, Plovdiv (Bulgaria)
- Prof. Hristo Beloev PhD, Bulgarian Academy of Science, Rector of the University of Rousse (Bulgaria)
- Prof. Hristina Milcheva, Medical college, Trakia University, Stara Zagora (Bulgaria)
- Prof. Izet Zeqiri, PhD, Academic, SEEU, Tetovo (N.Macedonia)
- Prof. Ivan Marchevski, PhD, D.A. Tsenov Academy of Economics, Svishtov (Bulgaria)
- Prof. Ibrahim Obhodjas PhD, Faculty of Business Economy, University “Vitez”, (Bosnia & Herzegovina)
- Doc. Igor Stubelj, PhD, PhD, Faculty of Management, Primorska University, Koper (Slovenia)
- Prof. Ivo Zupanovic, PhD, Faculty of Business and Tourism, Budva (Montenegro)
- Prof. Ivan Blazhevski, PhD, Institute for Sociological, Political and Juridical Research, Skopje (N.Macedonia)
- Prof. Isa Spahiu PhD, International Balkan University, Skopje (N. Macedonia)
- Prof. Ivana Jelik PhD, University of Podgorica, Faculty of Law, Podgorica (Montenegro)
- Prof. Islam Hasani PhD, Kingston University (Bahrein)
- Prof. Jamila Jaganjac PhD, Faculty of Business Economy, University “Vitez”, (Bosnia & Herzegovina)
- Prof. Jova Ateljevic PhD, Faculty of Economy, University of Banja Luka, (Bosnia & Herzegovina)
- Prof. Jonko Kunchev PhD, University „Cernorizec Hrabar“ - Varna (Bulgaria)
- Prof Karl Schopf, PhD, Akademie fur wissenschaftliche forschung und studium, Wien (Austria)
- Prof. Katerina Belichovska, PhD, Faculty of Agricultural Sciences, UKIM, Skopje (N. Macedonia)
- Prof. Krasimir Petkov, PhD, National Sports Academy “Vassil Levski”, Sofia (Bulgaria)
- Prof. Kamal Al-Nakib PhD, College of Business Administration Department, Kingdom University (Bahrain)
- Prof. Kiril Lisichkov, Faculty of Technology and Metallurgy, UKIM, Skopje (N.Macedonia)
- Prof. Krasimira Staneva PhD, University of Forestry, Sofia (Bulgaria)
- Prof. Lidija Tozi PhD, Faculty of Pharmacy, Ss. Cyril and Methodius University, Skopje (N.Macedonia)
- Prof. Laste Spasovski PhD, Vocational and educational centre, Skopje (N.Macedonia)
- Prof. Larisa Velic, PhD, Faculty of Law, University of Zenica, Zenica (Bosnia and Herzegovina)
- Prof. Łukasz Tomczyk PhD, Pedagogical University of Cracow (Poland)
- Prof. Lujza Grueva, PhD, Faculty of Medical Sciences, UKIM, Skopje (N.Macedonia)
- Prof. Lazar Stosic, PhD, Association for development of science, engineering and education, Vranje (Serbia)
- Prof. Lulzim Zeneli PhD, University of Gjakova “Fehmi Agani” (Kosovo)
- Prof. Lisen Bashkurti PhD, Global Vice President of Sun Moon University (Albania)

- Prof. Lence Mircevska PhD, High Medicine School, Bitola, (N.Macedonia)
- Prof. Ljupce Kocovski PhD, Faculty of Biotechnical sciences, Bitola (N.Macedonia)
- Prof. Marusya Lyubcheva PhD, University “Prof. Asen Zlatarov”, Member of the European Parliament, Burgas (Bulgaria)
- Prof. Marija Magdinceva – Shopova PhD, Faculty of tourism and business logistics, University “Goce Delchev”, Shtip (N. Macedonia)
- Prof. Maria Kavdanska PhD, Faculty of Pedagogy, South-West University Neofit Rilski, Blagoevgrad (Bulgaria)
- Prof. Vaska Stancheva-Popkostadinova, PhD, Faculty of Public Health and Sport, SWU Neofit Rilski, Blagoevgrad (Bulgaria)
- Prof. Mirjana Borota-Popovska, PhD, Centre for Management and Human Resource Development, Institute for Sociological, Political and Juridical Research, Skopje (N.Macedonia)
- Prof. Mihail Garevski, PhD, Institute of Earthquake Engineering and Engineering Seismology, Skopje (N.Macedonia)
- Prof. Mitko Kotochevski, PhD, Faculty of Philosophy, UKIM, Skopje (N.Macedonia)
- Prof. Milan Radosavljevic PhD, Dean, Faculty of strategic and operational management, Union University, Belgrade (Serbia)
- Prof. Marija Topuzovska-Latkovikj, PhD, Centre for Management and Human Resource Development, Institute for Sociological, Political and Juridical Research, Skopje (N.Macedonia)
- Prof. Marija Knezevic PhD, Academic, Banja Luka, (Bosnia and Herzegovina)
- Prof. Margarita Bogdanova PhD, D.A.Tsenov Academy of Economics, Svishtov (Bulgaria)
- Prof. Mahmut Chelik PhD, Faculty of Philology, University “Goce Delchev”, Shtip (N.Macedonia)
- Prof. Mihajlo Petrovski, PhD, Faculty of Medical Sciences, University “Goce Delchev”, Shtip (N.Macedonia)
- Prof. Marija Mandaric PhD, Faculty of Hotel Management and Tourism, University of Kragujevac, Vrnjacka Banja (Serbia)
- Prof. Marina Simin PhD, College of professional studies in Management and Business Communication, Sremski Karlovci (Serbia)
- Prof. Miladin Kalinic, College of professional studies in Management and Business Communication, Sremski Karlovci (Serbia)
- Prof. Marijan Tanushevski PhD, Macedonian Scientific Society, Bitola (N. Macedonia)
- Prof. Mitre Stojanovski PhD, Faculty of Biotechnical sciences, Bitola (N.Macedonia)
- Prof. Miodrag Smelcerovic PhD, High Technological and Artistic Vocational School, Leskovac (Serbia)
- Prof. Nadka Kostadinova, Faculty of Economics, Trakia University, Stara Zagora (Bulgaria)
- Prof. Natalija Kirejenko PhD, Faculty For economic and Business, Institute of Entrepreneurial Activity, Minsk (Belarus)
- Prof. Nenad Taneski PhD, Military Academy “Mihailo Apostolski”, Skopje (N.Macedonia)
- Prof. Nevenka Tatkovic PhD, Juraj Dobrila University of Pula, Pula (Croatia)
- Prof. Nedžad Korajlic PhD, Faculty of criminal justice and security, University of Sarajevo (Bosnia and Herzegovina)
- Prof. Nikola Sabev, PhD, Angel Kanchev University of Ruse, Ruse (Bulgaria)
- Prof. Nonka Mateva PhD, Medical University, Plovdiv (Bulgaria)
- Prof. Nikolay Georgiev PhD, “Todor Kableshev” University of Transport, Sofia (Bulgaria)
- Prof. Nishad M. Navaz PhD, Kingdom University (India)
- Prof. Nano Ruzhin PhD, Faculty of Law, AUE-FON University, Skopje (N.Macedonia)
- Prof. Oliver Dimitrijevic PhD, High medicine school for professional studies “Hipokrat”, Bujanovac (Serbia)

- Prof. Paul Sergius Koku, PhD, Florida State University, Florida (USA)
- Prof. Primoz Dolenc, PhD, Faculty of Management, Primorska University, Koper (Slovenia)
- Prof. Petar Kolev PhD, “Todor Kableshkov” University of Transport, Sofia (Bulgaria)
- Prof. Pere Tumbas PhD, Faculty of Economics, University of Novi Sad, Subotica (Serbia)
- Prof. Rade Ratkovic PhD, Faculty of Business and Tourism, Budva (Montenegro)
- Prof. Rositsa Chobanova PhD, University of Telecommunications and Posts, Sofia (Bulgaria)
- Prof. Rossana Piccolo PhD, Università degli studi della Campania - Luigi Vanvitelli (Italy)
- Prof. Rumen Valcovski PhD, Imunolab Sofia (Bulgaria)
- Prof. Rumen Stefanov PhD, Faculty of public health, Medical University of Plovdiv (Bulgaria)
- Prof. Rumen Tomov PhD, University of Forestry, Sofia (Bulgaria)
- Prof. Sasho Korunoski PhD, UKLO, Bitola (N.Macedonia)
- Prof. Snezhana Lazarevic, PhD, College of Sports and Health, Belgrade (Serbia)
- Prof. Vasil Markov PhD, Faculty of Arts, SWU Neofit Rilski, Blagoevgrad (Bulgaria)
- Prof. Stojna Ristevska PhD, High Medicine School, Bitola, (N. Macedonia)
- Prof. Suzana Pavlovic PhD, High health – sanitary school for professional studies, Belgrade (Serbia)
- Prof. Sandra Zivanovic, PhD, Faculty of Hotel Management and Tourism, University of Kragujevac, Vrnjacka Banja (Serbia)
- Prof. Shyqeri Kabashi, College “Biznesi”, Prishtina (Kosovo)
- Prof. Temelko Risteski PhD, Faculty of Law, AUE-FON University, Skopje (N. Macedonia)
- Prof. Todor Krystevich, D.A. Tsenov Academy of Economics, Svishtov (Bulgaria)
- Prof. Todorka Atanasova, Faculty of Economics, Trakia University, Stara Zagora (Bulgaria)
- Prof. Tzako Pantaleev PhD, NBUniversity , Sofia (Bulgaria)
- Prof. Vojislav Babic PhD, Institute of Sociology, University of Belgrade (Serbia)
- Prof. Volodymyr Denysyuk, PhD, Dobrov Center for Scientific and Technological Potential and History studies at the National Academy of Sciences of Ukraine (Ukraine)
- Prof. Valentina Staneva PhD, “Todor Kableshkov” University of Transport, Sofia (Bulgaria)
- Prof. Venus Del Rosario PhD, Arab Open University (Philippines)
- Prof. Vjollca Dibra PhD, University of Gjakova “Fehmi Agani” (Kosovo)
- Prof. Yuri Doroshenko PhD, Dean, Faculty of Economics and Management, Belgorod (Russian Federation)
- Prof. Zlatko Pejkovski, PhD, Faculty of Agricultural Sciences, UKIM, Skopje (N.Macedonia)
- Prof. Zivota Radosavljevik PhD, Faculty FORCUP, Union University, Belgrade (Serbia)
- Prof. Zorka Jugovic PhD, High health – sanitary school for professional studies, Belgrade (Serbia)

REVIEW PROCEDURE AND REVIEW BOARD

Each paper is reviewed by the editor and, if it is judged suitable for this publication, it is then sent to two referees for double blind peer review.

The editorial review board is consisted of 67 members, full professors in the fields 1) Natural and mathematical sciences, 2) Technical and technological sciences, 3) Medical sciences and Health, 4) Biotechnical sciences, 5) Social sciences, and 6) Humanities from all the Balkan countries and the region.

CONTENTS

DETERMINANTS FOR FOSTERING HIGH GROWTH ENTERPRISES IN REPUBLIC OF NORTH MACEDONIA	915
Marina Arsovska.....	915
Savo Ashtalkoski.....	915
GREEN SKILLS OF HUMAN RESOURCES IN SMALL AND MEDIUM ENTERPRISES.....	921
Marija Magdincheva-Shopova.....	921
Aneta Stojanovska-Stefanova.....	921
THE IMPACT OF HUMAN RESOURCE INFORMATION SYSTEMS ON EMPLOYEE RETENTION IN NORTH MACEDONIA	927
Andrijana Ristovska	927
Marijana Cvetanoska	927
ALIGNING ECONOMIC SECURITY AND CLEAN ENERGY TRANSITION: THE WESTERN BALKANS IN THE CONTEXT OF THE EU’S GAS DIRECTIVES	935
Marta Vejseli	935
ELECTRIFYING ECONOMIC GROWTH: A ROBUST EXAMINATION OF E-COMMERCE TRENDS IN THE REPUBLIC OF NORTH MACEDONIA.....	941
Ana Davchevska	941
ADVANCING SUSTAINABLE DEVELOPMENT THROUGH GREEN FINANCE: MECHANISMS, INNOVATIONS, AND POLICY IMPLICATIONS	947
Aleksandar Naumoski.....	947
OVERCOMING EMPLOYEE BARRIERS IN DIGITAL TRANSFORMATION: A PATH TO ORGANIZATIONAL SUCCESS.....	953
Milena Boshkoska Klisaroski.....	953
Neda Petroska-Angelovska.....	953
Tea Josimovska.....	953
ADOPTION OF DIGITAL PLATFORMS FOR KNOWLEDGE SHARING: A COMPARATIVE STUDY OF SMES IN WESTERN BALKAN COUNTRIES.....	961
Ceneta Telak Durmishi	961
ENVIRONMENTAL PROTECTION IN THE FUNCTION OF SUSTAINABLE DEVELOPMENT ..	967
Temelko Risteski.....	967
Emrah Mihtaroski.....	967
Biljana Spirkoska.....	967
ESSENCE AND CHARACTERISTICS OF LEADERSHIP.....	975
Zlatko Jakovlev.....	975
EMPLOYEE ENGAGEMENT: A REVIEW OF TYPES, ANTECEDENTS, AND OUTCOMES.....	981
Kristian Kina.....	981
TECHNOLOGICAL AND ENERGY TRANSITION CONCERNING THE EUROPEAN UNION: PERSPECTIVES FROM NORTH MACEDONIA AND TURKEY	987
Mehmet Yusuf Hazar.....	987
NAVIGATING ECONOMIC OPPORTUNITIES AND CHALLENGES IN MACEDONIA	993
Rushit Veapi	993
THE MAPPING OF POTENTIAL FORMS OF TOURISM IN THE MALESEVO REGION, FOR THE DEVELOPMENT OF A SUSTAINABLE TOURIST DESTINATION	999
Tanja Angelkova Petkova.....	999
USAGE AND IMPACT OF MOBILE GUEST APPLICATIONS IN HOTELS: WILL THEY REMAIN ESSENTIAL IN 2025?	1005
Cvetanka Ristova Maglovska	1005

INFLUENCE OF THE QUALITY OF INSURANCE COMPANY SERVICES TO THE LOYALTY OF INSURANCE SERVICE USERS.....	1011
Stevco Meceski.....	1011
Slavica Dimoska.....	1011
Irina Joldeska.....	1011
Tatjana Dimoska.....	1011
ANALYSIS OF PRODUCTIVITY IN FINANCIAL ACTIVITIES AND INSURANCE SECTOR IN MACEDONIA.....	1019
Irina Joldeska.....	1019
Tatjana Dimoska.....	1019
Stevco Meceski.....	1019
Slavica Dimoska.....	1019
DETERMINANTS OF BANKS PROFITABILITY IN THE REPUBLIC OF NORTH MACEDONIA.....	1027
Liza Alili Sulejmani.....	1027
Arbra Sulejmani.....	1027
FORENSIC AUDIT – A NEW BRANCH OF AUDIT.....	1033
Janka Dimitrova.....	1033
Eftimija Dimitrova.....	1033
ON SOME ASPECTS OF THE APPLICATION OF THE CYBERSECURITY DIRECTIVE IN THE ACCOUNTING OF MICRO AND SMALL ENTERPRISES IN BULGARIA.....	1039
Valentina Staneva.....	1039
Hristo Stanev.....	1039
ANALYSIS OF LABOR PRODUCTIVITY IN RELATION TO PROFITABILITY BASED ON LIVING LABOR COSTS (METHODOLOGY AND METHODS).....	1047
Rositsa Ivanova.....	1047
ACCOUNTING AND DISCLOSURE OF CYBERSECURITY, ANTI-BRIBERY AND ANTI-MONEY LAUNDERING EXPENSES OF INSURERS.....	1055
Maia Iankova Natchkova.....	1055
DIGITAL ACCOUNTING AND INFORMATION PROTECTION.....	1063
Plamen Iliev.....	1063
PRACTICAL ASPECTS OF IFRS 15 IN THE ACTIVITY OF A MOBILE OPERATOR.....	1071
Lilia Lazarova.....	1071
IMPACT OF INFLATION ON SUBJECTIVE WELL-BEING.....	1077
Tatjana Dimoska.....	1077
Irina Joldeska.....	1077
Slavica Dimoska.....	1077
Stevco Meceski.....	1077
DIPLOMATIC PROTECTION OF EUROPEAN UNION CITIZENSHIP.....	1083
Ana Naumovska Kuzmanovska.....	1083
Erika Peshkoska Petreski.....	1083
HUMAN RIGHTS AND INTERPRETATION OF THE CONSTITUTION.....	1089
Darko Kostadinovski.....	1089
THE NECESSITY FOR CHANGES TO THE LAW OF SUCCESSION IN THE REPUBLIC OF MACEDONIA – DE LEGE FERENDA.....	1097
Slavica Dimoska.....	1097
Stevco Meceski.....	1097
Tatjana Dimoska.....	1097
Irina Joldeska.....	1097
METHODOLOGY OF DETECTING AND PROVING HATE CRIME.....	1105
Emrah Mihtaroski.....	1105

ECONOMIC DEVELOPMENT AND THE CONSEQUENCES OF MIGRATION ACCORDING TO NEWSPAPER “ALBANIA”	1111
Albnora Musa Bakiu.....	1111
Hiriet Ziberi	1111
CORRUPTION AND THE ROLE OF PUBLIC INSTITUTIONS -THE CASE OF THE REPUBLIC OF NORTH MACEDONIA	1115
Jelena Tast	1115
Mite Mitevski	1115
THE CRITICAL ROLE OF PRIVACY AND SAFETY KNOWLEDGE IN THE DIGITAL AGE	1123
Sanja Adjaip-Velichkovski.....	1123
Sead Dzigal.....	1123
CUSTOMER DEMAND FOR ENVIRONMENTAL STANDARDS AND ITS IMPACT ON FIRMS PRODUCT AND PROCESS INNOVATION (CASE OF WESTERN BALKAN COUNTRIES)	1129
Diellza Bilalli.....	1129
SOCIAL NORMS AND HEALTH LITERACY AS PREDICTOR OF PRO-ENVIRONMENTAL BEHAVIOR: EVIDENCE FROM NORTH MACEDONIA	1137
Sheruze Osmani Ballazhi.....	1137
Luljeta Bexheti	1137
Kalina Sotiroska Ivanoska	1137
Ibrahim Neziri.....	1137
SUPERVISION AND PROFESSIONAL DEVELOPMENT OF SOCIAL WORKERS	1143
Silviya Miteva.....	1143
PACIFIC ISLANDS FORUM: CREATION, DEVELOPMENT AND RESULTS.....	1149
Iliyan Mateev	1149
PILOT STUDY: KINEMATIC ANALYSIS OF THE TECHNIQUE OF THE EXERCISE "BACK UPRISE TO MALTESE CROSS" ON RINGS IN THE MEN'S GYMNASTICS	1157
Iliya Kanelov	1157
Martin Mishev	1157

USAGE AND IMPACT OF MOBILE GUEST APPLICATIONS IN HOTELS: WILL THEY REMAIN ESSENTIAL IN 2025?

Cvetanka Ristova Maglovska

Faculty of Tourism and Business Logistics, Goce Delcev University, Stip, North Macedonia
cvetanka.ristova@ugd.edu.mk

Abstract: These days mobile applications are used in almost every industry, whether it be business or leisure, to optimize activities, increase productivity, and digitize procedures. Massive innovations have also been made in the hotel sector, which plays an essential role in connecting people. Mobile guest applications for hotels are among the ground-breaking developments made possible by the hotel sector's digital evolution. These readily available software are drastically changing the hotel sector's guest experience. In addition to enhancing the guest's experience, applications are revolutionizing the operation and offer of hotel services. A mobile guest application is a digital application designed specifically to improve and personalize the guest experience in hotels. Additionally, hotels and chains of any size can use the mobile application to significantly increase hotel service revenues, brand reputation, and guest satisfaction. In addition to providing guests with a more comprehensive and personalized experience, mobile applications enable hotels to increase operational effectiveness and profitability. Hotels may satisfy the expectations of contemporary guests and get an advantage in a market that is becoming more and more competitive by incorporating this mobile technology. Among other things, they give guests access to services like hotel details and real-time employee-guest communication. Among other features, they provide mobile room keys and digitize their menu to improve upselling and room service requests via smartphones. Hotels may provide guests with the most personalized promotions, suggestions, and services that best suit their needs and make them feel valued by using a mobile application. Moreover, hotels can increase the possibility of positive ratings and return business by offering an enjoyable and convenient experience. However, in recent times, the market of mobile applications has seen changes regarding the introduction of artificial intelligence in the application experience. AI has taken over the tech industry, and mobile guest applications are no exception. It is anticipated that this expansion and innovation in intelligence technology will contribute to the creation of hyper-customized guest service and the discovery of hidden sources of revenue, which will enhance the guest experience. Looking ahead, the future of AI in personalization holds exciting possibilities, with opportunities to dissect and analyze guest interactions, behaviors, context and language to intelligently respond and provide a more personalized method of communication. As technology advances, the journey of AI in transforming mobile applications can be seen as ongoing, however will mobile applications remain essential in 2025?; is a question addressed in this paper.

Keywords: artificial intelligence, experience, guest, mobile application, hotel

1. INTRODUCTION

Like all other industries, the hotel sector has experienced a radical transformation in recent years due to the development of mobile technology (Jung *et al.*, 2015). After all, hotels have always been centered around giving guests an unforgettable experience at the end of the day. And since guests depend on a wide variety of applications available on the market for a variety of functions, such as navigating new places for accommodation and looking for the greatest discounts, it is unthinkable to envision their lives without them. The way we schedule, plan, and even enjoy our stay at the hotel has been completely transformed by mobile applications (Adukaite *et al.*, 2013). Additionally, during the past several years, there has been a significant change in the functions offered by mobile applications. Through strategic upselling, effective management, and personalized services, they improve the guest experience, streamline operations, and boost income (Ramgade & Divakaran, 2020). Mobile application integration in the hotel sector continues to grow in popularity as technology advances, establishing new benchmarks for operational excellence and guest satisfaction (Ghose & Han, 2014). Therefore, this paper will examine the evolution and usage of mobile applications in hotel management, significant advancements, and their impact on hotel guest experiences.

2. EVOLUTION OF HOTEL MOBILE APPLICATIONS

As technology evolves, guests look for more convenient, personalized, and seamless experiences. With an extensive range of features that improve each aspect of a guest's stay, mobile applications meet these expectations. According to that, mobile guest applications are often designed to complement and enhance the way hotels attract, serve, and gain value from their guests. But back when these mobile applications first appeared in general in the travel industry, they only offered very basic features like the ability to book flights, hotels, and rental cars. Their main goal

was to make bookings simple while on the go and from any location (Azdel *et al.*, 2023). The limited search functionalities also came along with a desktop-only experience (Yin *et al.*, 2022). The rise of smartphones, however, a few years later ushered in a mobile revolution (Confente & Vigolo, 2018).

Still, in the beginning, around the early 2010s very few hotels let guests use their smartphones to browse and book different types of accommodations (Nichetech, 2024). Guests could browse hotels by location, price, and amenities. However, the landscape rapidly evolved, as mobile technology progressed (Sun *et al.*, 2024). With that, hoteliers realized that they could interact directly with guests (Kim *et al.*, 2021). The ability to integrate multiple features into a single application was the next major development in this direction. With the help of mobile applications, guests can manage their whole vacation itinerary from a single interface. As a result, brand-specific applications developed, offering guests loyalty programs, special offers, and personalized experiences (Rosy & Ponnusamy, 2017). Furthermore, mobile applications have advanced by data analytics and machine learning, beginning with an emphasis on personalization (Thirumagal *et al.*, 2024; Abuhameed *et al.*, 2023). This enabled the introduction of user-specific recommendations that matched guest preferences and previous choices. The expansion of mobile guest applications saw ever bigger advancement by the development of mobile payments. The booking procedure was streamlined by the elimination of the requirement for physical transactions due to secure and convenient in-app payment choices (Gani & Maung, 2019).

One of the critical innovations with the mobile guest application happened when competition intensified, so they had to focus more on user experience and personalization. Here, we witnessed the rise of:

- Options for advanced filtering: Sort searches according to preferences, location, amenities, and cost.
- Loyalty programs: With regular use, guests can unlock exclusive benefits and earn rewards.
- Digital check-in and keyless entry: Guests can get to their room without having to deal with the front desk.
- In-app communication: Guests can ask questions or make suggestions by chatting with employees directly.

Mobile guest applications have even more served as convenient tools when they adopt real-time information (Larsen, 2021). Navigation apps like Google Maps update real-time traffic on the road so that a guest can find the best route to reach his hotel in time, as well as in most respading the real-time status of flights that may make a guest alert hotel that he or she will be late with check-in (Yoon *et al.*, 2017; Mak *et al.*, 2015).

Next, mobile guest applications were affected during the COVID-19 pandemic, which accelerated the must-creation of features that reduce physical contact and, consequently, enhance safety for their guests (Tiwari & Mishra 2023; Bonfanti *et al.*, 2021). Which meant, if hotels previously didn't feel the need to develop multiply features to answer competition and offer personalization, now they were pressured to developed contactless technology to guarantee the safety and convenience of its guests. Hotels that did not, for instance, have begun to provide digital room keys and mobile check-ins, which allow guests to avoid the reception desks.

The journey of the mobile guest application is a significant innovation in the digitally-driven accommodation sector. These interactive, personalized software represents a cornerstone of guest experience solutions and convenience, consolidating various hotel services and operations, accessible right from a guest's smartphone. However these evolving mobile applications necessitate a closer examination of the features and benefits that defines them as a testament to the industry's commitment to providing seamless and innovative guest experiences, which will be the next focus of this paper.

3. CURRENT KEY FEATURES AND BENEFITS FROM A HOTEL MOBILE APPLICATION

Mobile application development needs to focus on incorporating essential features that address both operational efficiency and guest convenience to guarantee a seamless guest experience. Easy navigation, quick access to important details, and communication between hotel employees and guests are all features of a well-designed application. However, what are the features of a good mobile application? The most effective application is ultimately the one that is specifically created with each hotel's needs and identity in mind, thus it always depends on the situation at hand. However, if hotels want to create a mobile application for their guests, they should consider the following key features:

- In-app search and booking option: (Fong *et al.*, 2017; Ozturk *et al.*, 2016) The search feature enhances the user experience and saves time for guests seeking services, accommodation availability, or neighboring attractions. Consequently, the ability to make reservations directly through the mobile application should also be included. Loyal guests who are familiar with and value hotel mobile applications would prefer to book directly through them, even if new guests utilize more generic services like Booking.com to discover and book hotels.
- Express check-out: (Confente & Vigolo, 2018) Most guests prefer to have the option for express checkout. Hotels can add this feature separately for which guests can pay.

- Cancellation policy: (Confente & Vigolo, 2018) Any mobile guest application needs to include an easy-to-understand cancellation policy. Guests value understanding the terms ahead of time, so making the cancellation policy clear and easy to find builds confidence.
- Analytics: (Fong *et al.*, 2017; Ozturk *et al.*, 2016) Hotels will be able to gather, arrange, and evaluate data on how the mobile application is being used thanks to its analytics. This implies that in addition to determining which features enhance the guest experience the most, hotels can also determine which services are most important, how many reservations and profits the application is generating, and how best to improve it even more.
- Hotel contact information: (No & Kim, 2014) Most guests are now more conscious of their stay. Information about hotel rooms, amenities, cleanliness, and other details is what they would rather see. Since guests require instant access to the hotel's main contact information, such as phone numbers and email addresses, it is imperative that these be included in the mobile application.
- Room layout and control: (Elsayed & Abed, 2018) Potential guests place a great deal of importance on room information; thus, the mobile application should provide layouts and high-quality content to highlight the quality of the rooms. Additionally, the mobile application can have a hotel room control function that enables guests to operate all smart devices in the room, including the TV and air conditioner, using their smartphone. This feature is more complicated and expensive, but it is the difference between an acceptable hotel and one that is digitally driven and modern hotel.
- In-hotel activities: (Okumus & Bilgihan, 2014) If the hotel offers its guests yoga, massages, workshops, wine tastings, and other activities, the easiest method to advertise them is through a mobile application. The mobile application allows guests to locate these activities and receive direct notifications depending on their interests, even though many may not even be aware that they exist.
- Loyalty program: (Rivera *et al.*, 2016) Hotels should think about implementing a loyalty program if they don't already have one, as it's a great way to keep guests coming back. The mobile application should enable guests to earn points in an easy-to-use approach, making the entire process much more user-friendly and, consequently, more rewarding.
- Review and feedback form: (Wang *et al.*, 2016b) Since a potential customer's decision-making process heavily relies on the opinions of other guests, the mobile application should have a section dedicated to this purpose and ask guests to submit reviews either during or after their stay. It is impossible to please every guest, no matter what the quality of the hotel services is. Consequently, hotels might encourage guests to provide feedback by including a short feedback form in their mobile application. It will enable them to further develop their range of services.
- Information related to city and nearby attractions: (Wang *et al.*, 2016a; Lu *et al.*, 2015) Regardless of whether guests are on a business trip or an individual tour, they always prefer to learn about nearby points of interest and the route to get there, before making their reservation. In addition to spending more time on the mobile application, guests will be pleased and appreciative of the additional features that the hotel provided for them.

Seeing how mobile guest applications have become a mandatory aspect for hotels with some of the above-mentioned essential features, its efficiency, and flexibility truly enables guests to experience the hotel's services to the fullest, therefore proving a variety of benefits for the hotels. One of the first is surely the booking experience itself. Hotel booking can be a complex process, so efforts should be made to make it simpler (Morosan & DeFranco, 2016). In the case of web or phone reservations, this activity can take a while, whereas from an application, it's a few simple clicks. In a competitive market where hotels must focus on holding onto guests, the mobile application helps track more specific data, allowing for the collection of information about guest preferences, frequency of stay, and most-used amenities. Hotels can provide extra services and improve the guest experience with the use of this data from the mobile application. Here, in this context the mobile application can benefit the hotel with a competitive advantage even by supporting various languages because it is common for hotels to receive guests from all around the globe, and with it, reducing the language barrier. Even body language or dialect can occasionally lead to miscommunications (Elsayed & Abed, 2018). But when guests manage everything on their smartphones, miscommunication can be easily avoided.

Hotels may even reach a wider audience and increase their return on investment by using mobile applications. Reservations for rooms are not the only source of revenue for a hotel. The additional services are what bring in income (Okumus & Bilgihan, 2014). It's likely that guests staying at the hotel for their vacation will also visit the restaurant or spa. Booking a spa treatment can occasionally be a lengthy process, however, when guests are only a few clicks away from relaxing, using a mobile application makes things much easier. Additionally, providing a personal hotel mobile application can improve brand and consumer loyalty (Rivera *et al.*, 2016). A mobile

application can include a guest loyalty program where guests can receive points and benefits for their bookings and hotel stays. When guests download the application, they can improve their experience and get immediate notifications about promotions and discounts. Today, a mobile guest application serves multiple purposes, which can be attributed to the increasing reliance on mobile technology and its integration into hotel operations, presenting plenty of benefits for guests and hotels. However, as technology advances, this increasing reliance poses an intriguing dilemma for the not-too-distant future: will hotels still require these mobile applications in 2025 and beyond?

4. CHALLENGES FACING HOTEL MOBILE APPLICATIONS IN 2025

Although there are plenty of advantages to gain from mobile guest applications, there are challenges as well. Application fatigue among guests is one of the main concerns (Czajka, 2024). Guests may become saturated with the abundance of mobile applications available for different services, which would lower their level of engagement. Even more, guests and hotel staff may find the disarray of applications across many services to be overwhelming. Additionally, data privacy is still an ongoing concern (Fong *et al.*, 2017; Ozturk *et al.*, 2016). To encourage confidence and guarantee upholding regulations regarding privacy, hotels must place a high priority on protecting the data of guests. So nowadays, it is no wonder that the sector is seeing a shift toward AI-based solutions and integrated communication platforms, which provide reliable and secure interactions, in response to these issues (Limma, 2022). However, just like any other customer benefit, hotels that have been forthcoming and truthful about their data collection practices and their intended use may convey the opportunities and, of course, demonstrate the value to their guests. When people know how something works, they become less nervous. Practically speaking, data privacy issues are a process in education (Skift + Oracle hospitality, n.d.). Guests generally don't find AI to be all that frightening, especially if it promises an experience that is more personal.

Some other interesting prospects for the development of mobile guest applications are presented by the emergence of AI in the hotel sector. AI-powered communication tools and virtual concierges are changing how guests engage with hotels. "Alexa, book my room!" Advances in voice-controlled applications and services will soon allow guests to plan every aspect of their trip without touching a button. These technologies improve the guest's experience by providing effective answers and personalized recommendations (Mnyakin, 2023; Kacar, 2023; Tong-On *et al.*, 2021) argued. Even though, until now when we spoke of personalization by mobile guest applications, personalization has been relatively superficial, limited to recognizing by name, making generic offers, and perhaps capturing a few basic preferences. The next frontier powered by AI will be deeper understanding of guest preferences, and then operationalizing those preferences with bespoke offers and tailored experiences (Wang, 2022). It's still unclear if AI will totally replace mobile applications, but the gift of ever-improving technology to the hotel sector is in artificial intelligence-based solutions. AI can enhance current applications by offering real-time replies and increasing operational efficiency because of system integrations. The integration with mobile guest applications will enhance both guest experiences and operational processes, making hotels more productive, sustainable, and guest-focused.

5. CONCLUSION

Mobile guest applications have come a long way, and the future promises even more innovation. With a focus on user experience, personalization, and cutting-edge tech, these applications have become an indispensable companion, ensuring unforgettable experiences in every accommodation establishment. According to the paper's evolution, key features, and benefits of mobile applications, they offer hotels a chance to expand their guest base by making accommodation easier for guests worldwide. Their ability to create a trust-based relation with guests helps hotels to meet guests' requirements. Guests can let the hotel know if they are interested in their services by downloading the mobile application. Furthermore, applications can be seen as an additional resource to generate income and raise brand awareness allowing potential guests to place the icon with the hotel brand on their mobile screen. Using a mobile application can improve customer service and establish a competitive advantage giving the hotel a marketplace differentiation of a progressive travel supplier. The mobile application, which is software, is a vital source of information that gives guests the most recent travel news and relevant information. Hotels can now effectively interact with their target audience before, during, and after their stay thanks to mobile technology.

Overall, all the features listed above highlight how the landscape of mobile guest applications is developing due to both shifting guest preferences and technology breakthroughs. Nevertheless, as new technologies emerge, they present intriguing alternatives that are more important for mobile applications development.

Hotels will need to combine innovation with tradition to remain relevant. The guest experience can be improved by combining existing apps with well-known communication platforms and updating them to include AI-powered capabilities. One of the biggest benefits for the hotel sector is that artificial intelligence technologies may help hotel

management provide tailored amenities by learning which services guests prefer. This feature will increase hotel revenue by improving guest satisfaction. Still, a strong technological foundation and large financial investments are required to introduce AI in the hotel sector. To enable AI applications, hotels need a robust IT infrastructure that includes expensive server and data storage systems, ongoing software updates, and technical support. Hoteliers will also need to keep investing in new technologies to be competitive as AI technology develops quickly. In conclusion, the central dilemma of whether hotels will still need mobile applications in 2025 is complex.

REFERENCES

- Abuhamdeh, M., Qtaish, O., Kanaker, H., Alshanty, A., Yousef, N., & Alali, A. (2023). Leveraging Big Data and AI in Mobile Shopping: A Study in the Context of Jordan. *International Journal of Advanced Computer Science and Applications*, 14(7), 226-232.
- Adukaite, A., Reimann, A. M., Marchiori, E., Cantoni, L. (2013). *Hotel Mobile Apps. The Case of 4 and 5 Star Hotels in European German-Speaking Countries*. In: Xiang, Z., Tussyadiah, I. (eds) Information and Communication Technologies in Tourism 2014. Springer, Cham.
- Azdel, A. A., Awang, K. W., Yusof, R. N. R., & Hanafiah, M. H. (2023). Navigating the Digital Travel Landscape: Understanding the Role of Technology Readiness in OTAs Acceptance and Usage for Hotel Bookings. *Asia Pacific Journal of Marketing and Logistics* 36, 1393–1408.
- Czajka, M. (2024). Will hotel guest apps remain essential in 2025?. HiJiffy. <https://www.hijiffy.com/resources/articles/will-hotel-guest-apps-be-essential-in-2025>
- Confente, I., & Vigolo, V. (2018). Online Travel Behaviour Across Cohorts: The Impact of Social Influences and Attitude on Hotel Booking Intention. *International Journal of Tourism Research*, 20(5), 660–670.
- Elsayed, S., & Mohamed, M. (2018). Studying the Effectiveness of Using Smartphone's Apps on Raising Hotels' Occupancy and Operation's Efficiency. *Journal of Association of Arab Universities for Tourism and Hospitality*, 15, 111-116.
- Fong, L. H. N., Lam, L. W., & Law, R. (2017). How locus of control shapes intention to reuse mobile apps for making hotel reservations: Evidence from Chinese consumers. *Tourism Management*, 61, 331–342.
- Gani, Z., & Maung, W. (2019). *Mobile Application for Customer Satisfaction (CS), Repurchase Intention (RPI)*. In Proceedings of the International Conferences on Information System and Technology (CONRIST 2019), 164-171.
- Ghose, A., & Han, S. P. (2014). Estimating demand for mobile applications in the new economy. *Management Science*, 60(6), 1470-1488.
- Jung, T. Chung, N. & Leue, M. C. (2015). The determinants of recommendations to use augmented reality technologies: The case of a Korean theme park. *Tourism Management*, 49, 75-86.
- Larsen, K. (2021). *Shaping Success for Mobile Applications of Integrated Resorts*. [4332]. UNLV Theses, Professional Papers. <https://digitalscholarship.unlv.edu/cgi/viewcontent.cgi?article=5336&context=thesesdissertations>
- Limna, P. (2022). Artificial Intelligence (AI) in the hospitality industry: A review article. *International Journal of Computing Sciences Research*, 6, 1-12.
- Lu, J., Mao, Z., Wang, M., & Hu, L. (2015). Goodbye maps, hello apps? Exploring the influential determinants of travel app adoption. *Current Issues in Tourism*, 18(11), 1059–1079.
- Kacar, M. (2023). *Application of AI in Customer Experience Management. In Marketing and Sales Automation: Basics, Implementation, and Applications*. Cham: Springer International Publishing, 409-430.
- Kim, J. J., Chua, B. L., & Han, H. (2021). Mobile Hotel Reservations and Customer Behavior: Channel Familiarity and Channel Type. *Journal of Vacation Marketing*, 27(1), 82–102.
- Mak, B., Nickerson, R., & Sim, J. (2015). A model of attitude toward mobile location-based services. *Journal of Quality Assurance in Hospitality and Tourism*, 16(4), 414–437.
- Mnyakin, M. (2023). Big Data in the Hospitality Industry: Prospects, Obstacles, and Strategies. *International Journal of Business Intelligence and Big Data Analytics*, 6(1), 12-22.
- Morosan, C., & DeFranco, A. (2016). Modeling guests' intentions to use mobile apps in hotels: The roles of personalization, privacy, and involvement. *International Journal of Contemporary Hospitality Management*, 28(9), 1968–1991.
- Nichetech. (2024). The Evolution of Hotel Booking Apps: Trends and Technologies Shaping the Industry. Nichetech. <https://www.nichetechsolutions.com/blog/the-evolution-of-hotel-booking-apps-trends-and-technologies-shaping-the-industry/>
- No, E., & Kim, J. K. (2014). Determinants of the adoption of travel information on smartphone. *International Journal of Tourism Research*, 16, 534–545.

- Okumus, B., & Bilgihan, A. (2014). Proposing a model to test smartphone users' intention to use smart applications when ordering food in restaurants. *Journal of Hospitality and Tourism Technology*, 5(1), 31–49.
- Ozturk, A. B., Nusair, K., Okumus, F., & Hua, N. (2016). The role of utilitarian and hedonic values on users' continued usage intention in a mobile hotel booking environment. *International Journal of Hospitality Management*, 57, 106–115.
- Ramgade, A., & Divakaran, P. (2020). Emergence of mobile technology: to study how mobile devices are redefining the hospitality industry. *Journal of Critical Reviews*, 7(1), 1343-1347.
- Rosy, C., & Ponnusamy, R. (2017). A Study on Hotel Reservation Trends of Mobile App Via Smartphone. *Journal of Computer Engineering*, 19(4), 1-8.
- Rivera, M., Croes, R., & Zhong, Y. (2016). Developing mobile services: A look at first-time and repeat visitors in a small island destination. *International Journal of Contemporary Hospitality Management*, 28(12), 2721–2747.
- Skift + Oracle hospitality (n.d.). *Hospitality in 2025: AUTOMATED, INTELLIGENT... AND MORE PERSONAL*. Oracle. <https://www.oracle.com/a/ocom/docs/industries/hospitality/hospitality-industry-trends-for-2025.pdf>
- Sun, S., Law, R., Sunghyup S. H., (2024). Exploration of Hotel Reservation Through Mobile Online Travel Agencies. *International Journal of Tourism Research*, 2024; 26:e2734.
- Thirumagal, P. Bhattacharjee, D., Dorbala, R., Palav, M. S. V., & Mahajan, V. (2024). *Application of Machine Learning Algorithms in Personalized Marketing*. In 5th International Conference on Recent Trends in Computer Science and Technology, 165-170.
- Tong-On, P., Siripipatthanakul, S., & Phayaphrom, B. (2021). The implementation of business intelligence using data analytics and its effects towards on performance in the hotel industry in Thailand. *International Journal of Behavioral Analytics*, 1(2), 1-16.
- Wang, D., Xiang, Z., & Fesenmaier, D. R. (2016a). Smartphone use in everyday life and travel. *Journal of Travel Research*, 55(1), 52–63.
- Wang, D., Xiang, Z., Law, R., & Ki, T. P. (2016b). Assessing hotel-related smartphone apps using online reviews. *Journal of Hospitality Marketing and Management*, 25(3), 291–313.
- Yin, H., Bin, S., Senathirajah, A. R., Connie, G., & Haque, R. 2022. Key E-Dimensions Influencing Hotel Website Quality. *Resmilitaris*, 12(2), 1567–1583.
- Yoon, S., Kim, J., & Connolly, D. J. (2017). Understanding motivations and acceptance of location-based services. *International Journal of Hospitality & Tourism Administration*, 1–23.