

INNOVATIVE APPROACHES TO SMART TOURISM DURING WAR AND POST-WAR RECOVERY: THE CASE OF UKRAINE

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The evolution of smart tourism has become increasingly relevant in regions affected by crises, where innovation and adaptability are essential for survival and recovery. This article examines innovative

approaches to smart tourism in Ukraine during the war and post-war recovery, focusing on how technology and strategic business adaptations reshape the tourism sector in times of disruption.

The study explores the economic and operational challenges that emerged during the COVID-19 pandemic and ongoing war, including financial instability, mass business closures, workforce migration, and inadequate state support. Drawing on qualitative research through in-depth expert interviews, the findings reveal key adaptive strategies such as digital transformation, remote service models, the rise of personalized over-package tourism, and co-working business practices. These innovations have allowed tourism businesses to navigate unprecedented circumstances while maintaining resilience.

As part of Ukraine's post-war recovery, the research highlights the emergence of military and solidarity tourism, providing historical, cultural, and educational experiences that contribute to both remembrance and economic renewal. Additionally, virtual and digitalized tourism solutions – including online tours, virtual museums, and interactive heritage platforms – are positioned as critical tools for engaging global audiences and ensuring accessibility despite physical limitations.

The study concludes that reducing tax burdens, improving regulatory frameworks, and enhancing professional expertise in tourism management are fundamental to sustainable recovery. By leveraging technological innovations, strategic policy changes, and collaborative industry efforts, smart tourism in Ukraine can not only overcome wartime disruptions but also establish a resilient and future-ready tourism model.

Key words: smart tourism, innovative strategies, war and post-war recovery, digital transformation, military tourism, solidarity tourism, virtual tourism, ukrainian tourism, business resilience.

Introduction. The development of smart tourism has emerged as a key response to contemporary global crises, where technological innovation and adaptive strategies play a crucial role in ensuring the resilience of the tourism industry. The impact of armed conflicts and the COVID-19 pandemic has drastically altered the tourism landscape, particularly in Ukraine, where war-related disruptions have led to economic instability, destruction of infrastructure, business closures, and shifts in consumer behavior. As the country navigates both wartime challenges and post-war recovery, it becomes essential to explore how smart tourism can serve as a catalyst for the industry's survival and transformation.

Statement of the Problem and Practical Significance. The ongoing war in Ukraine, combined with the aftermath of the COVID-19 pandemic, has caused unprecedented disruptions in the country's tourism sector. Many travel agencies, tour operators, and service providers have either ceased operations or significantly reduced their activities due to financial constraints, safety concerns, and logistical challenges. In this context, smart tourism – a concept integrating digital transformation, sustainability, and technological advancements – has the potential to redefine Ukraine's tourism sector, offering innovative solutions for both crisis adaptation and long-term recovery.

Despite growing academic and industry interest in smart tourism, limited research has addressed its application in crisis-affected regions, particularly in war-torn countries. This study seeks to fill this gap by examining how Ukrainian tourism businesses are leveraging technological innovations, digital solutions, and adaptive business models to sustain operations during the war and prepare for post-war revitalization.

The study in Ukraine was carried out by the team of authors of this publication within the framework of the international project «Innovative Business Strategies in Response to COVID-19's Impact on Tourism: A post COVID tourism resilience and regenerative framework», which was conducted in 2023 by partner universities in Guangzhou (GISU ALLIANCE). The main coordinator of the project is Western Sydney University (coordinator), Australia. Igor Sikorsky Kyiv Polytechnic Institute was one of the co-organizers of this global project.

Review of the Latest Research and Unsolved Issues. The rapid advancement of information and communication technologies (ICTs) has revolutionized tourism development, transforming both consumer experiences and business operations. Research by Jovicic (2017) underscores how smart tourism integrates digitalization, data analytics, and automation, enabling greater efficiency and personalized services. More recent studies by Pasquinelli and Trunfio (2021) expand this perspective by emphasizing the fusion of technology, commerce, and society, positioning smart tourism as an intersectional field that leverages digital tools for economic and social impact.

One of the foundational elements of smart tourism is the concept of smart destinations, often seen as an extension of smart cities. Scholars such as Shafiee, Ghatari, Hasanzadeh, and Jahanyan (2019) describe smart destinations as technology-driven ecosystems that enhance visitor experiences through real-time data collection, digital engagement, and AI-powered services. Similarly, Buhalis and Amaranggana (2013) define smart tourism destinations as intelligent networks that integrate all stakeholders – including businesses, tourists, and local governments – to optimize experiences and sustainability. These destinations utilize IoT (Internet of Things), AI, big data, and cloud computing to create seamless and highly interactive tourism environments.

The latest technological innovations, particularly artificial intelligence (AI), augmented reality (AR), and machine learning, are reshaping the hospitality and tourism landscape. These advancements disrupt conventional tourism models, offering tourists real-time access to personalized travel recommendations, automated booking systems, and immersive digital experiences (OECD, 2018; Buhalis, 2020). The transition toward tech-enabled, hyper-personalized tourism services has eliminated intermediary roles, allowing tourists to directly engage with hotels, airlines, and experience providers through AI-driven platforms and automated systems.

While smart tourism research has gained significant traction, several critical gaps remain in academic discourse. One major limitation is the lack of studies examining smart tourism in crisis-affected regions, particularly in war-torn and post-conflict societies. Most research focuses on developed economies and stable environments, where smart technologies are implemented under ideal conditions (Buhalis, 2020; Pasquinelli & Trunfio, 2023). However, there is a clear research void in understanding how smart tourism can be leveraged as a resilience mechanism in countries experiencing war, political instability, and economic disruptions.

Another underexplored aspect is the role of smart technologies in accessible tourism. While scholars like Cassia, Castellani, Rossato, and Baccarani (2021) have examined inclusive tourism design, the broader application of AI and digital platforms for accessibility remains an emerging field. Studies by Lam, Chan, and Peters (2020) and Ribeiro, Silva, Barbosa, Silva, and Metrôlho (2018) highlight the importance of mobile technology in bridging accessibility gaps, particularly in urban tourism. Lin, Ye, and Law (2022) further introduce the smart accessible destination model, which emphasizes universal tourism experiences enabled by digital inclusion and assistive technologies.

Beyond accessibility, another critical research gap lies in the economic sustainability and policy frameworks necessary to support smart tourism ecosystems in post-crisis recovery. Shafiee et al. (2022) argue that financial resources, government involvement, and regulatory policies are fundamental in advancing smart tourism innovations. However, research has not adequately addressed how these factors apply in post-conflict environments, where governments are rebuilding infrastructure, industries are struggling to regain stability, and consumer confidence is fragile.

Moreover, while Polese, Botti, Grimaldi, Monda, and Vesci (2018) discuss value co-creation and sustainability in smart tourism ecosystems, the transition from technological innovation to social innovation in war-affected regions remains largely unexplored. The role of digital tools in fostering economic recovery, cultural preservation, and community resilience in such contexts is underdeveloped in existing literature.

Unresolved Aspects and Focus of This Study. This article addresses the previously unsolved dimensions of smart tourism by focusing on Ukraine as a case study of war-affected tourism recovery. It examines:

- How smart tourism technologies and digital innovations are being adopted in crises, particularly during wartime disruptions.
- The role of AI, digital platforms, and remote service models in maintaining tourism operations and engaging international audiences.
- The emergence of military and solidarity tourism, leveraging historical memory and digital tools to attract visitors while supporting economic recovery.
- The policy frameworks and regulatory challenges associated with implementing smart tourism initiatives in post-conflict economies.
- By bridging the existing research gaps, this study provides new theoretical insights and practical recommendations on how smart tourism can serve as a resilience strategy for war-affected regions, fostering economic revival and sustainable development in the face of crisis.

Purpose of the article. The primary purpose of this article is to explore innovative approaches to smart tourism in Ukraine during the war and post-war recovery, focusing on how technology, digitalization, and adaptive business models contribute to resilience and economic renewal. Given the severe disruptions caused by the COVID-19 pandemic and ongoing war, this study examines how smart tourism technologies, strategic policies, and alternative tourism models have been leveraged to sustain operations and support long-term recovery.

The key objectives of the article are to:

- Analyze the economic and operational challenges faced by Ukraine's tourism sector, including financial instability, mass closures, workforce migration, and policy gaps.
- Investigate the role of digital transformation in tourism resilience, particularly through AI-driven platforms, virtual tourism, and remote service models.
- Assess the emergence of new tourism models, such as military and solidarity tourism, as drivers of cultural preservation and economic sustainability.
- Explore business adaptation strategies, including the shift toward personalized tourism, co-working models, and restructuring tour offerings to meet evolving consumer demands.

– Evaluate the role of government and industry collaboration in developing supportive policies, reducing tax burdens, and enhancing regulatory frameworks to facilitate tourism recovery.

Research methodology. Data collection and selection. To explore the prospects of post-pandemic and post-war recovery of tourism in Ukraine, it is essential to understand the primary challenges and transformative processes affecting the industry during both the pandemic and wartime stages. This study employs a qualitative research methodology, focusing on micro-level analysis of tourism industry stakeholders who have been directly involved in service provision and adaptation efforts. A semi-structured in-depth interview approach was chosen to obtain firsthand insights from tourism professionals, allowing them to share their experiences in adapting business strategies, responding to crises, and navigating the influence of governmental policies in shaping industry resilience. This method provided flexibility while ensuring depth and relevance in the responses.

The study engaged three expert informants selected based on their extensive practical experience in the tourism industry and their direct involvement in business operations, digitalization, and crisis management. The participants included Ludmila, the founder and director of a Kyiv-based travel agency operating since 2013; Olena, a curator of a digitalization project in tourism, culture, and sports in Kyiv, who has been working in the tourism industry since 2009; and Valentyna, the owner of a tourism campaign and an experienced travel agent active in the industry since 1995. The sample size was determined using the principle of saturation, meaning that interviews were conducted until no new significant insights emerged. Each interview lasted approximately one hour and covered key aspects of crisis adaptation, business transformation, and future recovery strategies. To maintain confidentiality, only the first names of the respondents are used, and direct quotations from the interviews are included throughout the analysis to illustrate key findings.

For data analysis, an inductive coding approach inspired by grounded theory was applied to process the interview transcripts, allowing thematic patterns to emerge organically without pre-imposed categories. The analysis was conducted in multiple stages. The initial phase involved identifying key segments in the transcripts and assigning descriptive codes based on factual information, contextual factors, and the subjective perspectives of the respondents. As the analysis progressed, related sequences were grouped into broader thematic categories, refining the understanding of major challenges, business strategies, and recovery pathways.

A key finding of the study was the identification of major challenges facing the Ukrainian tourism industry during the pandemic and war. Experts highlighted significant financial losses, widespread bankruptcy among tour operators and travel agencies, and the migration of skilled personnel abroad. The absence of state support, coupled with ineffective legislation and regulatory frameworks, was also noted as a crucial factor impeding the industry's resilience. Additionally, the experts pointed out that the existing legislative environment tends to favor large monopolistic corporations, making it difficult for small and medium-sized enterprises to survive. Industry associations were also criticized for their lack of efficiency in representing the needs of tourism businesses.

This research methodology ensures a comprehensive understanding of the real-world implications of crises on Ukraine's tourism sector. The study provides empirical evidence of how businesses are navigating challenges, implementing innovative solutions, and shaping the future of smart tourism in a post-crisis environment.

Main research results. The socio-economic crisis in Ukraine, triggered by the COVID-19 pandemic and further exacerbated by the ongoing war, has had a devastating impact on the country's tourism industry. Tourism businesses have suffered significant financial losses, with many tour operators and travel agencies forced into bankruptcy due to prolonged inactivity and economic uncertainty. The instability has also resulted in a mass migration of skilled professionals, as many in the sector sought employment opportunities abroad to escape the industry's collapse. One of the interviewed experts described the crisis as an existential threat, explaining that for several months, there was no activity at all, forcing businesses to either transition quickly to online operations or shut down due to an inability to cover basic expenses such as rent and utilities.

Compounding the crisis, respondents emphasized the complete absence of state support mechanisms to assist the tourism sector in overcoming the consequences of COVID-19. The government not only failed to provide financial relief but also imposed restrictive measures that made it even more difficult for businesses to operate. Fines for non-compliance with pandemic-related regulations, such as mask mandates, were strictly enforced, while fundamental issues such as tourist protection and insurance mechanisms remained unaddressed. As one expert pointed out, the lack of effective regulation meant that tourists lost their money when operators went out of business, with no legal recourse available to reclaim their funds.

The Ukrainian government did attempt some limited financial relief measures, such as waiving fines for late tax payments and suspending certain social contributions for businesses. However, these measures were largely ineffective in addressing the underlying crisis. The closure of state institutions, including

the tax office, further complicated compliance for businesses, particularly those that still relied on paper documentation. Respondents expressed frustration over the impracticality of financial reporting obligations under such conditions, highlighting the lack of adequate crisis management policies for the tourism sector.

Beyond financial struggles, structural weaknesses in the tourism sector have been exposed, particularly the absence of effective industry associations and the failure of state policies to provide meaningful support. Respondents noted that Ukraine's legislative framework favors monopolistic tourism companies, leaving small and medium-sized enterprises without the necessary protections to remain competitive. The lack of knowledgeable professionals within government agencies responsible for tourism policy further exacerbates the problem, as many officials lack the expertise to address industry-specific challenges. One respondent described how existing regulations are designed to benefit large tourism associations while failing to accommodate the needs of smaller operators, particularly in cases where tour operators declare bankruptcy and leave tourists stranded without compensation.

The war has further deepened the crisis, introducing logistical complexities and skyrocketing tour costs, making travel inaccessible for many. Beyond economic factors, the psychological impact of uncertainty and destruction has diminished demand for travel services. The perception of tourism as a «luxury» industry in times of crisis has further contributed to its decline. Experts also pointed to the failure of industry associations to advocate for businesses' interests, with many tourism professionals expressing skepticism about joining such organizations due to their perceived ineffectiveness.

Despite these immense challenges, the tourism industry in Ukraine has demonstrated remarkable adaptability. Businesses have employed various strategies to survive, including shifting to online operations, developing new travel routes, and adopting co-working models. One of the key survival mechanisms has been the reallocation of customer funds, where prepaid deposits for canceled tours were redirected toward the creation of new travel packages. Respondents highlighted how these strategies, inspired by European models, prevented mass bankruptcies and allowed some companies to remain operational.

A significant transformation in consumer preferences has also emerged, with a shift from traditional package tourism to more personalized, experience-driven travel. Experts noted a growing demand for niche tours, such as photography, fitness, yoga, and cultural immersion experiences, tailored to individual interests. This shift presents new opportunities for Ukrainian tourism to develop unique offerings that cater to international and domestic travelers seeking meaningful and customized experiences.

Looking toward the future, industry experts identified several critical measures for the post-pandemic and post-war recovery of Ukrainian tourism. Reducing tax burdens on businesses and improving the legal and policy expertise of those responsible for tourism governance were seen as essential steps toward recovery. Respondents suggested that an insurance fund, similar to banking-sector deposit guarantees, should be established to protect tourists in the event of operator bankruptcies. Such a system would help restore consumer confidence in the tourism industry and provide financial security for both businesses and travelers.

One of the most promising areas for revitalization is the development of military and solidarity tourism. Experts emphasized the potential for creating attractions centered around military history, artifacts, and key battle sites, which could serve both commemorative and educational purposes. However, concerns were raised about the proper positioning and messaging of such tourism initiatives, as inappropriate marketing could lead to ethical and reputational challenges.

Digitalization and virtual tourism are also expected to play a key role in the sector's future. Respondents highlighted the increasing importance of online tours, virtual museums, and other digital experiences that allow international audiences to engage with Ukrainian heritage without physical travel. This shift toward digital tourism, combined with the development of tourism products that emphasize national traditions, culture, and arts, could create new revenue streams for the industry.

Ultimately, the future of Ukrainian tourism will depend on its ability to balance innovation with resilience. While the industry continues to face significant structural and economic challenges, the adoption of smart tourism strategies, digital solutions, and targeted policy reforms could enable a sustainable and adaptive recovery. Experts agree that Ukraine's tourism sector has the potential to thrive if supported by a strategic framework that integrates technological advancements, improved governance, and a focus on cultural and historical heritage.

The Role of Digital Transformation in Tourism Resilience. Digital transformation has become a cornerstone of resilience in the tourism industry, enabling businesses to adapt to crises through artificial intelligence (AI), virtual tourism, and remote service models. The integration of AI into tourism platforms enhances personalized travel experiences, customer service efficiency, and demand forecasting (United Nations World Tourism Organization [UNWTO], 2023). AI-powered chatbots provide real-time assistance to travelers, ensuring seamless customer interactions and operational continuity. Additionally, predictive analytics and big data applications help businesses optimize pricing strategies and identify emerging trends to mitigate risks (GurutechnoLabs, 2023).

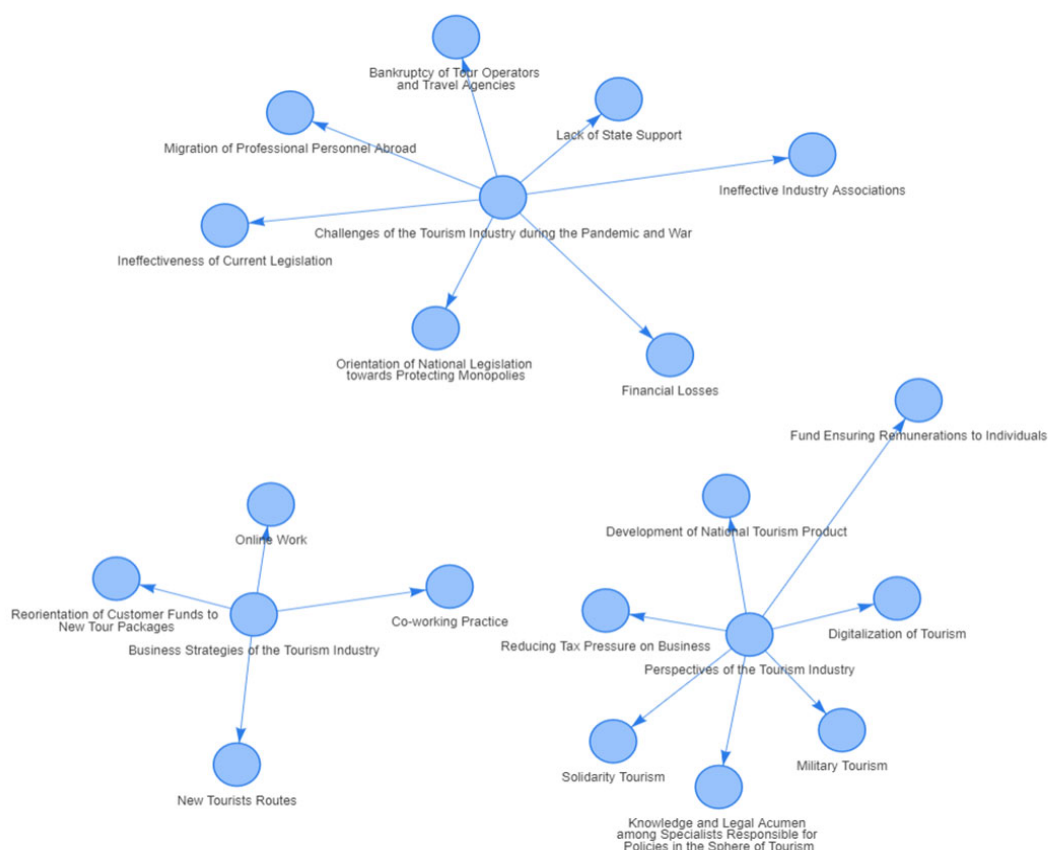


Fig. 1. Scheme of the identified categories and subcategories according to analysis of the interview texts

Table 1

Challenges and Smart Tourism Solutions in the Tourism Industry in Ukraine

Challenge	Description	Impact on the Tourism Industry	Smart Tourism Solutions
1	2	3	4
Financial Losses	Economic instability, sharp revenue declines, increased operational costs, and financial strain due to reduced consumer spending on travel.	Reduced investment, loss of market competitiveness, downsizing of businesses, and delayed post-crisis recovery.	Implementation of AI-driven financial management tools, digital payment platforms, and blockchain-based transactions to optimize cost control and revenue management.
Bankruptcy of Tour Operators and Travel Agencies	Mass closures of travel businesses caused by prolonged inactivity, loss of consumer confidence, inability to refund customers, and mounting debts.	Job losses, disruption of tourism services, decrease in travel offerings, and long-term decline in industry trust.	Adoption of online booking and virtual tourism services to maintain consumer engagement, AI-powered risk analysis for business continuity planning, and use of predictive analytics to forecast market trends.
Migration of Skilled Personnel Abroad	Significant outflow of skilled professionals seeking more stable employment opportunities abroad, leading to a shortage of experienced tourism workforce in Ukraine.	Brain drain in the tourism sector, slower recovery due to lack of skilled personnel, and reduced service quality.	Development of remote tourism jobs, virtual training programs for reskilling displaced professionals, and digital networking platforms to connect tourism experts globally.
Lack of State Support	Minimal financial aid, lack of targeted subsidies, absence of emergency funds for tourism businesses, and ineffective governmental policies to mitigate economic losses.	Businesses forced to rely on personal funds or external loans, increased financial burden, and prolonged recovery time.	Creation of digital government portals for financial aid applications, use of AI to streamline subsidy distribution, and smart contracts to ensure transparent allocation of funds.

1	2	3	4
Ineffectiveness of Current Legislation	Tourism laws that fail to address crisis scenarios, inadequate consumer protection measures, lack of effective insurance mechanisms for businesses and travelers.	Legal loopholes exploited by businesses at the expense of consumers, lack of enforcement mechanisms, and increased risk of fraud in the tourism sector.	Integration of blockchain-based smart contracts for consumer protection, digital tourism laws that enforce transparency, and AI-driven compliance monitoring for businesses.
Legislative Bias Favoring Monopolies	Favoritism toward large corporations in policy frameworks, exclusion of small and medium-sized enterprises (SMEs) from government incentives, and regulatory barriers restricting competition.	Reduced opportunities for small businesses to innovate and compete, monopolization of the industry, and widening economic disparity among tourism enterprises.	Encouraging digital entrepreneurship in tourism, implementing smart tourism incubators for SMEs, and leveraging big data analytics to identify growth opportunities for small businesses.
Ineffective Industry Associations	Weak advocacy for industry needs, lack of coordinated efforts to support struggling businesses, failure to influence policy reforms, and low engagement from tourism professionals in sectoral organizations.	Fragmented industry representation, lack of effective crisis management initiatives, and absence of collective bargaining power for tourism professionals.	Formation of AI-powered industry collaboration platforms, development of digital governance models for transparent decision-making, and smart advocacy tools for lobbying policy changes.

Virtual tourism, incorporating virtual reality (VR) and augmented reality (AR), has become an essential tool in maintaining engagement despite travel restrictions. VR-enhanced experiences allow potential tourists to explore destinations remotely, offering immersive storytelling and heritage preservation (UNWTO, 2023). In Ukraine, digital reconstructions of historical sites and cultural landmarks have played a role in keeping national heritage accessible, even during wartime. Remote service models, including online booking platforms, virtual guided tours, and digital payment systems, have streamlined operations and increased accessibility (GurutechnoLabs, 2023). These technological innovations serve as critical enablers of resilience and post-war recovery.

Emergence of New Tourism Models: Military and Solidarity Tourism. The evolution of military and solidarity tourism in Ukraine reflects a growing interest in cultural preservation and economic sustainability. Military tourism, which includes visits to battlefields, military museums, and war memorials, serves both educational and commemorative purposes (Mateus, L., Marques, C. G., Pedro, J. P., & Simões, J. T., 2023).

Similarly, solidarity tourism has gained prominence as a means of supporting war-affected communities. This model involves visitors engaging in volunteer work, contributing to community rebuilding efforts, and fostering international solidarity (National Institutes of Health [NIH], 2023). Tourists participating in humanitarian and cultural exchange initiatives not only provide financial relief to struggling communities but also help preserve cultural heritage and local traditions. As a result, solidarity tourism strengthens Ukraine's global engagement and economic recovery efforts.

Business Adaptation Strategies: Personalization, Co-Working, and Restructured Tour Offerings. Amidst ongoing crises, Ukrainian tourism businesses have embraced new adaptation strategies, focusing on personalized tourism, co-working models, and restructured tour offerings. Personalized tourism has gained popularity, with travelers seeking niche experiences such as photography tours, fitness retreats, and cultural immersion programs tailored to individual preferences (GurutechnoLabs, 2023). This shift reflects a growing trend away from traditional package tours toward customizable travel experiences that align with contemporary consumer demands.

Additionally, the emergence of co-working models in tourism has enabled businesses to optimize costs and maintain operational flexibility. Remote work solutions, particularly in the context of migration and displacement of skilled personnel, have allowed Ukrainian tourism agencies to remain functional. Shared workspaces and hybrid business models cater to digital nomads and international professionals, fostering collaboration and sustaining industry engagement (UNWTO, 2023).

Tour operators have also focused on restructuring tour packages to adapt to economic constraints. Many have redesigned travel offerings to emphasize domestic tourism, cost-effective regional trips, and virtual experiences. To prevent mass bankruptcies, several companies have adopted a financial model

where prepaid tour deposits are transferred to new travel opportunities, ensuring that both businesses and customers benefit from continued operations (NIH, 2023).

The Role of Government and Industry Collaboration in Facilitating Tourism Recovery. For Ukraine's tourism sector to effectively recover and rebuild, government intervention and industry collaboration are essential. Effective policy measures should reduce tax burdens, enhance regulatory frameworks, and provide financial assistance to struggling businesses. Governments can support recovery through tax relief, grants, and low-interest loans, alleviating the economic pressures on small and medium-sized tourism enterprises (UNWTO, 2023). Additionally, streamlining bureaucratic processes and legal requirements can create an environment conducive to rapid business reactivation.

Collaboration between government bodies, tourism associations, and private sector stakeholders is also critical. Public-private partnerships (PPPs) can foster investment in tourism infrastructure, digital transformation, and international marketing initiatives (GurutechnoLabs, 2023). Policies supporting heritage preservation projects, military tourism memorials, and smart tourism platforms will contribute to Ukraine's long-term tourism recovery. Strengthening industry associations to advocate for fair competition and business interests will further enhance resilience and economic sustainability (NIH, 2023).

Discussion and conclusion. Based on the semantic categories identified through deep interview analysis, experts in Ukraine's tourism industry have highlighted several critical challenges that emerged during the pandemic and wartime stages. These include substantial financial losses, mass bankruptcies of tour operators and travel agencies, the emigration of skilled personnel, inadequate state policies, ineffective legislation favoring monopolies, and the absence of strong industry associations to protect businesses' rights and interests. The lack of government support, combined with an unstable economic environment, has left tourism businesses struggling to sustain operations.

In response to these challenges, travel agencies and tour operators adopted key marketing and business adaptation strategies, including the transition to remote work models, allowing businesses to operate online while minimizing expenses. The development of new tour programs and alternative itineraries, as well as the shift from package tourism to personalized, flexible travel options, emerged as crucial strategies for business survival and continued engagement with travelers. Additionally, tourism companies reoriented customers' previously deposited funds toward new tour offerings to minimize cancellations and financial losses. The implementation of co-working practices, where workplaces were rented for short-term use to facilitate customer service, also proved to be a cost-effective and sustainable business solution.

The integration of digital technologies into Ukraine's tourism sector has been a defining factor in ensuring business resilience and operational continuity. AI-driven platforms have facilitated automated customer service, predictive analytics, and digital marketing solutions, allowing businesses to remain competitive despite economic instability. Virtual tourism, including virtual reality (VR) and augmented reality (AR) experiences, has provided alternative ways for travelers to explore Ukraine's historical sites and cultural heritage remotely, ensuring that international interest in Ukrainian tourism remains strong despite physical travel limitations.

The virtualization and digitization of tourism, particularly in the cultural sector, have enhanced accessibility and engagement for both domestic and international audiences. This shift is particularly relevant in post-war recovery, as digital tourism solutions can preserve and promote Ukrainian heritage, attract funding, and support tourism businesses rebuilding after conflict-related destruction. Remote service models, including online booking systems, virtual customer assistance, and digital payment platforms, have further streamlined operations and enabled businesses to maintain revenue streams in times of crisis.

In light of Ukraine's ongoing war and its broader cultural and historical significance, experts highlight military and solidarity tourism as key prospects for post-war recovery. Military tourism, which includes visits to war memorials, battlefields, and military museums, presents an opportunity to commemorate the resilience of Ukrainian forces while educating international visitors about the country's struggles and triumphs. Battlefields become prominent sites of historical and military memory, attracting the attention of foreign dignitaries, researchers, and journalists.

Solidarity tourism, on the other hand, emphasizes direct engagement with affected communities, where tourists participate in rebuilding efforts, humanitarian initiatives, and cultural exchange programs. According to experts, the development of military and solidarity tourism can provide support to the most impacted cities and villages in Ukraine while simultaneously offering meaningful and educational travel experiences. This model fosters both economic revitalization and international solidarity, positioning Ukraine as a unique destination for historical and humanitarian tourism.

As part of the tourism industry's adaptive response, travel businesses have transitioned from package tourism to highly individualized travel experiences. The demand for customized trips, thematic tourism (e.g., fitness retreats, photography tours, and cultural heritage tours), and personalized itineraries has increased, reflecting a shift toward experience-based tourism.

Additionally, co-working models have proven to be a successful approach in the industry's adaptation process. With many tourism professionals relocating abroad due to the war, co-working spaces have allowed agencies to continue operations in a cost-effective manner while also fostering networking and innovation. Furthermore, restructured tour offerings, such as domestic tourism and digital experiences, have helped businesses mitigate financial risks and adjust to changing traveler preferences.

A key financial adaptation strategy has been reallocating prepaid customer funds toward alternative travel experiences. This approach reduced the burden of mass refunds, allowed businesses to retain revenue streams, and provided customers with flexible travel alternatives.

Experts emphasize that reducing the tax burden on businesses in the tourism sector is crucial to fostering growth and stability. Ukraine's tourism industry has faced high operational costs and financial instability, making tax reductions a necessary measure to incentivize investment and support business survival. Additionally, enhancing the knowledge and legal expertise of policymakers in the tourism sector is vital to ensure effective decision-making and long-term strategic development.

To facilitate recovery, policymakers must also focus on developing regulatory frameworks that support industry diversification, including smart tourism initiatives and digital transformation strategies. Strengthening public-private partnerships (PPPs) is essential for ensuring that government bodies, industry stakeholders, and international organizations collaborate on rebuilding and modernizing Ukraine's tourism sector.

This study underscores the transformative role of digital technologies, emerging tourism models, business adaptation strategies, and government-industry collaboration in Ukraine's tourism sector during wartime and post-war recovery. AI-driven platforms, virtual tourism, and remote service models have provided businesses with innovative solutions to navigate crisis conditions and maintain operational stability.

The emergence of military and solidarity tourism presents new opportunities for cultural preservation, economic revitalization, and international engagement. These tourism models align with global trends toward historical tourism and humanitarian travel, reinforcing Ukraine's identity as a resilient and historically significant destination.

Business adaptation strategies, including personalized tourism, co-working models, and flexible tour restructuring, have enabled tourism businesses to remain competitive despite challenges. Furthermore, strategic financial measures, such as the reallocation of customer deposits and the development of alternative tour offerings, have contributed to industry survival.

From a policy perspective, reducing tax burdens, improving tourism governance, and fostering legal expertise within the industry are crucial for sustainable recovery. Additionally, government support for digital tourism initiatives, infrastructure development, and international partnerships will shape Ukraine's tourism landscape in the years to come.

Moving forward, Ukraine has the potential to become a leader in smart tourism development, leveraging its rich historical heritage, technological advancements, and evolving tourism models. The continued integration of AI, VR, and digital tourism strategies will not only enhance accessibility and engagement but also contribute to Ukraine's long-term economic and cultural recovery.

Future research should explore:

- The long-term sustainability of digital tourism solutions in the post-war period.
- The economic impact of military and solidarity tourism on local communities.
- The role of international partnerships in supporting tourism recovery efforts.
- The challenges and ethical considerations in war-related tourism development.

To explore these critical aspects, future research will generate actionable insights for policymakers, industry stakeholders, and tourism professionals, guiding the development of a resilient, innovative, and sustainable tourism sector in Ukraine. Through data-driven strategies and informed decision-making, research can enhance policy frameworks, foster industry collaboration, and promote smart tourism solutions, ultimately positioning Ukraine as a global leader in adaptive and sustainable tourism in the post-war era.

Чукот С., Єнін М., Акімова О., Іщенко А., Перга Ю., Загвойська О. Інноваційні підходи до розумного туризму під час війни та післявоєнного відновлення: на прикладі України

Еволюція розумного туризму стає все більш актуальною в регіонах, які постраждали від криз, де інновації та адаптивність мають важливе значення для виживання та відновлення. У цій статті розглядаються інноваційні підходи до розумного туризму в Україні під час війни та післявоєнного відновлення, зосереджуючись на тому, як технології та стратегічна адаптація бізнесу змінюють туристичний сектор у часи збоїв.

У статті досліджуються економічні та операційні виклики, які виникли під час пандемії COVID-19 та війни, що триває, включаючи фінансову нестабільність, масове закриття підприємств, міграцію робочої сили та недостатню державну підтримку. Спираючись на якісні дослідження за допомогою глибинних інтерв'ю з експертами, результати виявили ключові адаптивні стратегії, такі як цифрова трансформація, моделі дистанційного обслуговування, зростання персоналізованого туризму з надмірним пакетом послуг та бізнес-практики коворкінгу. Ці нововведення дозволили туристичному бізнесу орієнтуватися в безпрецедентних обставинах, зберігаючи при цьому стійкість.

У рамках післявоєнного відновлення України дослідження висвітлює появу військового туризму та солідарного туризму, надаючи історичний, культурний та освітній досвід, який сприяє як пам'яті, так і економічному оновленню. Крім того, віртуальні та цифрові туристичні рішення, включаючи онлайн-тури, віртуальні музеї та інтерактивні платформи спадщини, позиціонуються як критично важливі інструменти для залучення глобальної аудиторії та забезпечення доступності, незважаючи на фізичні обмеження.

У дослідженні зроблено висновок, що зниження податкового навантаження, вдосконалення нормативно-правової бази та підвищення професійної експертизи в управлінні туризмом є фундаментальними для сталого відновлення. Використовуючи технологічні інновації, зміни стратегічної політики та спільні зусилля галузі, розумний туризм в Україні може не лише подолати збої воєнного часу, але й створити стійку та готову до майбутнього модель туризму.

Ключові слова: розумний туризм, інноваційні стратегії, війна та післявоєнне відновлення, цифрова трансформація, військовий туризм, солідарний туризм, віртуальний туризм, український туризм, стійкість бізнесу.

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