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MŪSDIENU UZŅĒMĒJDARBĪBA, VADĪBA UN INOVĀCIJAS / CONTEMPORARY ENTREPRENEURSHIP, MANAGEMENT AND INNOVATION

EKONOMIKA, FINANSES UN GRĀMATVEDĪBA / ECONOMICS, FINANCE AND ACCOUNTING

TŪRISMA UN ATPŪTAS ORGANIZĀCIJA / TOURISM AND RECREATION ORGANISATION

MŪSDIENU SOCIĀLĀ PSIHOLOĢIJA: TEORIJA UN PRAKSE / MODERN SOCIAL PSYCHOLOGY: THEORY AND PRACTICE

MŪSDIENU UZŅĒMĒJDARBĪBA, VADĪBA UN INOVĀCIJAS

CONTEMPORARY ENTREPRENEURSHIP, MANAGEMENT AND INNOVATION

BUILDING SKILLS: THE CORNERSTONE OF RESILIENCE AND FUTURE-PROOFING IN CONSTRUCTION

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ABSTRACT

This article argues that investing in human capital is not just an operational necessity, but also an ultimate strategic advantage for a sustainable future. It argues for the importance of harnessing human knowledge and skills in the development of the construction industry.

Keywords: construction, human capital, development, education

АНОТАЦІЯ

У цій статті стверджується, що інвестування в людський капітал — це не просто операційна необхідність, а й кінцева стратегічна перевага для сталого майбутнього. Обгрунтовується важливість аикористання людськіх знань та вмінь у розвитку будівельної галузі

Ключові слова: будівництво, людськiй капiтал, розвиток, освiта

INTRODUCTION

The global construction industry is currently navigating a period of unprecedented transformation. Traditionally viewed as a sector defined by manual labor and rigid methodologies, it is evolving into a high-tech ecosystem driven by digitalization, environmental mandates, and demographic shifts. At the heart of this evolution lies a critical dependency: Building Skills.

The term "Building Skills" no longer refers solely to the ability to lay bricks or pour concrete. It now encompasses a multidimensional spectrum ranging from advanced BIM (Building Information Modeling) proficiency to sustainable material science and soft skills like collaborative project management. As urban populations swell and the climate crisis intensifies, the industry's resilience—its ability to absorb shocks and adapt to change—is directly proportional to the quality and adaptability of its workforce.

Without a robust strategy for skill development, the industry faces a "productivity gap" that threatens global infrastructure goals.

BASIC THEORETICAL AND PRACTICAL PROVISION

The first pillar of modern building skills is Digital Literacy. The integration of technology on the job site has turned "white-collar" tech into "boots-on-the-ground" reality.

1. Building Information Modeling (BIM): Mastery of BIM is now mandatory. It allows for a "digital twin" approach, where errors are caught in a virtual environment before a single stone is laid. Skills in 3D modeling and data management reduce waste and optimize resource allocation.
2. Automation and Robotics: The rise of robotic masonry, autonomous earth-movers, and 3D concrete printing requires a new breed of technician—one who can program, maintain, and troubleshoot complex machinery alongside traditional craftsmanship.
3. Data-Driven Decision Making: Future construction leaders must be skilled in analyzing real-time data from IoT (Internet of Things) sensors on-site to monitor safety, structural integrity, and logistical efficiency.

This digital shift does not replace the artisan; it empowers them. A worker skilled in both traditional techniques and digital interfaces becomes a "versatilist," capable of navigating the complexities of modern smart cities.

The construction sector is responsible for nearly 40% of global energy-related CO2 emissions. Consequently, Sustainability Skills have moved from a niche specialization to a core requirement.

- Circular Economy Practices: Skills in deconstruction (rather than demolition) and material upcycling are becoming vital. Knowing how to repurpose steel or timber requires a deep understanding of material lifecycles.
- Energy Efficiency & Retrofitting: As regulations tighten, the ability to implement high-performance insulation, HVAC systems, and renewable energy integrations (like building-integrated photovoltaics) is in high demand.
- Sustainable Material Science: Builders must now understand the properties of "green" alternatives, such as hempcrete, cross-laminated timber (CLT), and low-carbon cement[1].

Resilience in the face of climate change requires buildings that are not only "green" but "hardened." Skills in flood-resistant design and thermal mass management are essential for creating structures that can withstand the extreme weather patterns of the future.

RESEARCH RESULTS AND THEIR EVALUATION

While technical prowess is essential, the "human" side of construction—Soft Skills—is often the deciding factor in project success or failure. In an era of multi-stakeholder collaboration, the following are indispensable[2]:

- Collaborative Project Management: Modern projects involve architects, environmentalists, local governments, and tech providers. Skills in negotiation and cross-disciplinary communication prevent the "silo effect" that leads to delays.
- Adaptability and Lifelong Learning: The pace of change means that what is learned today may be obsolete in five years. The most valuable skill a modern builder can possess is the ability to learn how to learn.
- Health and Safety Leadership: Beyond following rules, resilience is built through a culture of safety. Mental health awareness and psychological safety are now recognized as critical components of workforce retention and productivity.

The construction industry is currently facing a massive labor shortage. By emphasizing these professional and interpersonal skills, the sector can rebrand itself as a sophisticated career path, attracting a more diverse and younger workforce.

To ensure the construction industry remains a pillar of global stability, a concerted effort from governments, educational institutions, and private firms is required.

The Roadmap to Resilience:

1. Updated Curricula: Vocational training must integrate digital and green modules as standard practice.
2. Incentivized Apprenticeships: Firms that invest in upskilling should receive tax credits or preferential status in public tenders.
3. Cross-Industry Partnerships: Tech companies and construction firms must collaborate to create "living labs" where new skills can be tested in real-world scenarios[4].

CONCLUSION

Building skills are more than just a means to an end; they are the foundation of our civilization. By fostering a workforce that is technologically fluent, environmentally conscious, and socially adept, the construction industry will not only survive the challenges of the 21st century—it will lead the way in building a more resilient, sustainable, and prosperous world for all.

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DIGITĀLO PLATFORMU IETEKME UZ PATĒRĒTĀJU LOJALITĀTES VEIDOŠANOS ES TRANSPORTA SEKTORĀ POSTPANDĒMISKĀS TIRGUS TRANSFORMĀCIJAS APSTĀKĻOS

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ANOTĀCIJA

Ziņojumā apkopoti pētījuma rezultāti par digitālo platformu ietekmi uz patērētāju lojalitātes veidošanos Eiropas Savienības transporta sektorā postpandēmiskās tirgus transformācijas apstākļos. Pētījuma galvenais empīriskais rezultāts ir 2026. gada 13. aprīļa organizētās akcijas "24 stundas bez Bolt" interpretācija kā algoritmiskās lojalitātes stresa tests. Vairāk nekā 1000 vadītāju īslaicīga atslēgšanās no platformas parādīja, ka platformas solījums par ātru un pieejamu pakalpojumu ir atkarīgs no pakalpojuma sniedzēju masveida līdzdalības. Kad šī līdzdalība samazinās, platforma sistēmas spriedzi algoritmiski pārvērš gaidīšanas laikā, pieejamībā un paaugstinātos cenu koeficientos, ko tieši izjūt patērētājs. Tādējādi pētījums konkrēta Latvijas gadījuma ietvaros pierāda, ka algoritmiskā lojalitāte nav stabila zīmola uzticība, bet trausla atkarība no algoritma taisnīguma, prognozējamības un reālu alternatīvu pieejamības.

Atslēgas vārdi: algoritmiskā lojalitāte, digitālās platformas, ride-hailing, patērētāju lojalitāte, dinamiskā cenu noteikšana, cenu taisnīgums, platformu ekonomika

ABSTRACT

The paper presents research findings on the impact of digital platforms on consumer loyalty formation in the European Union transport sector under post-pandemic market transformation. The main empirical finding is the interpretation of the organised 13 April 2026 action "24 hours without Bolt" as a stress test of algorithmic loyalty. The temporary disconnection of more than 1,000 drivers from the platform showed that the platform's promise of fast and available service depends on the mass participation of service providers. When this participation decreases, the platform algorithmically translates system tension into waiting time, availability constraints and higher price coefficients directly experienced by consumers. Thus, within a concrete Latvian case, the study demonstrates that algorithmic loyalty is not stable brand trust, but a fragile dependency on perceived algorithmic fairness, predictability and the availability of real alternatives.

Keywords: algorithmic loyalty, digital platforms, ride-hailing, consumer loyalty, dynamic pricing, price fairness, platform economy

IEVADS

Digitālo platformu attīstība pēdējos gados būtiski mainījusi pasažieru pārvadājumu tirgus darbības principus Eiropas Savienībā. Pirms platformu ekonomikas nostiprināšanās patērētāju lojalitāte transporta pakalpojumu sektorā galvenokārt tika saistīta ar uzņēmuma reputāciju, pakalpojuma kvalitāti, klientu pieredzi un zīmola atpazīstamību. Postpandēmiskās tirgus transformācijas apstākļos šo lojalitātes modeli arvien vairāk papildina algoritmiski organizēta izvēles vide, kurā patērētāja lēmumu ietekmē cena, gaidīšanas laiks, pieejamība, lietotnes ērtums, atlaides un personalizēti piedāvājumi.

Ride-hailing platformu darbības modelis būtiski atšķiras no tradicionālā taksometru pakalpojumu modeļa. Platforma kļūst ne tikai par starpnieku starp pasažieri un vadītāju, bet arī par datu, cenu, pieprasījuma un lietotāju uzvedības pārvaldības sistēmu. Šādā modelī patērētājs bieži izvēlas nevis konkrētu pārvadātāju, bet algoritma piedāvāto risinājumu, kas konkrētajā brīdī šķiet ātrāks, ērtāks vai finansiāli izdevīgāks.

Pētījuma problēma ir saistīta ar jautājumu, vai tradicionālā zīmola lojalitātes pieeja pietiekami izskaidro patērētāju uzvedību digitālo transporta platformu sektorā. Darbā tiek izvirzīta hipotēze, ka platformu ekonomikas apstākļos algoritmiskā lojalitāte pakāpeniski aizstāj tradicionālo zīmola lojalitāti ES transporta sektorā, taču tā saglabājas strukturāli trausla, jo tās stabilitāti nosaka nevis emocionāla pieķeršanās, bet uztvertais cenu taisnīgums, alternatīvu pieejamība un pārslēgšanās izmaksu apmērs.

Pētījuma mērķis ir analizēt algoritmiskās lojalitātes veidošanās mehānismus digitālo transporta platformu sektorā, īpašu uzmanību pievēršot dinamiskās cenu noteikšanas uztvertajam taisnīgumam un pārslēgšanās izmaksām. Pētījuma uzdevumi ir raksturot atšķirības starp tradicionālo zīmola lojalitāti un algoritmiski veidotu platformu lojalitāti, izvērtēt cenu taisnīguma uztveres nozīmi, analizēt pārslēgšanās izmaksu lomu un izmantot Bolt Latvia gadījumu kā empīrisku piemēru plašākai Eiropas platformu ekonomikas problēmai.

Pētījuma aktualitāti pastiprina Eiropas Savienības regulatīvā reakcija uz platformu ekonomikas attīstību. Eiropas Parlamenta un Padomes Direktīva (ES) 2024/2831 par platformu darba nosacījumu uzlabošanu atzīst algoritmisko pārvaldību par būtisku sociālekonomisku jautājumu un paredz prasības attiecībā uz platformu darba caurskatāmību, nodarbinātības statusu un automatizētu lēmumu pārvaldību [10]. Direktīva stājās spēkā 2024. gada 2. decembrī, un dalībvalstīm tā jāpārņem nacionālajos tiesību aktos līdz 2026. gada 2. decembrim [11].

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ

Patērētāju lojalitātes jēdziens tradicionāli tiek saistīts ar zīmola atpazīstamību, uzticēšanos uzņēmumam, pozitīvu iepriekšējo pieredzi un emocionālu piesaisti pakalpojuma sniedzējam. Klasiskajā pakalpojumu ekonomikā patērētājs veido attiecības ar konkrētu uzņēmumu, tā reputāciju un pakalpojuma solījuma konsekvenci. Digitālo platformu ekonomikā šis modelis kļūst nepietiekams, jo patērētāja izvēli arvien biežāk strukturē nevis zīmols kā tāds, bet platformas algoritmiski veidota izvēles vide.

Ride-hailing platformu gadījumā lietotāja pieredzi veido gaidīšanas laiks, redzamā cena, maršruta aprēķins, atlaižu piedāvājumi, maksājuma ērtums, vadītāja reitings un platformas spēja ātri nodrošināt pakalpojumu. Līdz ar to lojalitāte šādā vidē iegūst funkcionālu un algoritmisku raksturu. Pasažieris paliek platformā ne vienmēr tāpēc, ka izjūt emocionālu pieķeršanos konkrētam zīmolam, bet tāpēc, ka algoritms konkrētajā brīdī piedāvā ērtāko, ātrāko vai šķietami izdevīgāko risinājumu.

Šo pieeju apstiprina pētījumi par ride-hailing pakalpojumu lietotāju lojalitāti. Assegaff un Pranoto norāda, ka cena ir viens no dominējošajiem faktoriem, kas ietekmē klientu lojalitāti šajā pakalpojumu kategorijā [1]. Tas nozīmē, ka digitālo transporta platformu lietotāju lojalitāte lielā mērā balstās uz racionāli uztvertu izdevīgumu, nevis tikai uz zīmola tēlu vai emocionālu piesaisti.

Īpaši nozīmīgs ir dinamiskās cenu noteikšanas jautājums. Platformu ekonomikā cena nav statiska: tā var mainīties atkarībā no pieprasījuma, piedāvājuma, laika, atrašanās vietas un citiem algoritmiski apstrādātiem faktoriem. Šāda cenu noteikšana var būt ekonomiski efektīva, jo ļauj platformai līdzsvarot pieprasījumu un piedāvājumu reāllaikā. Tomēr patērētāja skatījumā tā var radīt necaurskatāmības un netaisnīguma sajūtu.

Cenu taisnīguma uztvere ir viens no būtiskākajiem mehānismiem, kas nosaka, vai patērētājs turpina uzticēties pakalpojuma sniedzējam. Xia, Monroe un Cox cenu taisnīgumu skaidro kā patērētāja subjektīvu vērtējumu par to, vai konkrēta cena vai cenu atšķirība ir pieņemama, pamatota un taisnīga [2]. Haws un Bearden pētījums par dinamisko cenu noteikšanu papildus parāda, ka cenu atšķirības var negatīvi ietekmēt cenu taisnīguma uztveri un pirkuma apmierinātību [3].

Jaunākie pētījumi par algoritmisko cenu noteikšanu papildina šo skatījumu. Vomberg, Homburg un Sarantopoulos analizē algoritmiskās cenu noteikšanas ietekmi uz patērētāju uzticēšanos un cenu meklēšanas uzvedību, norādot, ka algoritmiska cenu veidošana var mazināt uzticēšanos, īpaši tad, ja patērētājam trūkst skaidrojuma par cenu izmaiņu loģiku [5]. Tas tieši sasaistās ar algoritmiskās lojalitātes trausluma ideju: lietotājs pieņem algoritmu tik ilgi, kamēr tas šķiet racionāls, noderīgs un taisnīgs.

Otrs būtisks teorētiskais elements ir pārslēgšanās izmaksas. Tās ietver ne tikai tiešus finansiālus zaudējumus, bet arī laiku, ieradumu, ērtības zudumu, nepieciešamību apgūt citu pakalpojumu un risku nesaņemt tikpat ātru pakalpojumu. Caruana pētījums apliecina, ka pārslēgšanās izmaksas ietekmē klientu lojalitāti un var kalpot kā mehānisms, kas notur klientu pie esošā pakalpojuma sniedzēja [6].

Vadītāju pusē platformu ekonomika rada līdzīgu, bet vēl tiešāku atkarības mehānismu. Pasūtījumu sadale, reitingi, bonusi, komisijas un piekļuve platformai kā ienākumu avotam veido algoritmiskās pārvaldības vidi. Pētījumi par Uber vadītājiem rāda, ka algoritmiskā pārvaldība var ierobežot pakalpojumu sniedzēju autonomiju un radīt pretestības formas pret platformas noteikumiem [8; 9].

Tādējādi algoritmiskā lojalitāte nav tradicionāla zīmola lojalitāte jaunā tehnoloģiskā formā. Tā ir atšķirīgs lojalitātes mehānisms, kas rodas digitālās infrastruktūras, personalizētas cenas, lietošanas ērtuma un pārslēgšanās izmaksu mijiedarbībā. Tās stabilitāte ir ierobežota: ja algoritms vairs netiek uztverts kā taisnīgs, lojalitāte var sabrukt daudz ātrāk nekā klasiskā zīmola lojalitāte.

PĒTĪJUMA REZULTĀTI UN TO IZVĒRTĒJUMS

Pētījumā iegūti pieci galvenie rezultāti, un centrālais empīriskais rezultāts ir algoritmiskās lojalitātes trausluma pierādīšana konkrētā Latvijas gadījumā. Pirmkārt, klasiskā zīmola lojalitātes pieeja tikai daļēji izskaidro patērētāju uzvedību ride-hailing platformās, jo atkārtotu lietošanu bieži nosaka digitālā ērtība un algoritmiski organizēta izvēles vide. Otrkārt, algoritmiskā lojalitāte veidojas no dinamiskās cenas, gaidīšanas laika, lietotnes ērtuma, personalizētiem stimuliem, ieraduma un pārslēgšanās izmaksām. Treškārt, šīs lojalitātes stabilitāti visvairāk ietekmē cenu taisnīguma uztvere: cena var mainīties, bet lietotājam un pakalpojuma sniedzējam jāspēj saprast tās loģiku. Ceturtkārt, platformu ekonomikā ievainojamība veidojas abās tirgus pusēs: patērētājs kļūst atkarīgs no izvēles arhitektūras, bet vadītājs vai kurjers no pasūtījumu sadales, komisijām, reitingiem un piekļuves klientu plūsmai. Piektkārt, Latvijas gadījums parāda, ka formāla alternatīvu esamība vēl nenozīmē reālu konkurenci, ja alternatīvas nav pietiekami redzamas, ērtas un praktiski izmantojamas.

Organizētais protests šajā pētījumā tiek analizēts nevis tikai kā darba strīds vai reputācijas krīze, bet kā reāllaika tirgus stresa tests. Ja pietiekami liela pakalpojuma sniedzēju daļa vienlaikus atslēdzas no platformas, algoritms vairs nespēj uzturēt iepriekšējo solījumu par ātru, pieejamu un prognozējamu pakalpojumu. Zīmola atpazīstamība, lietotnes ērtums un personalizēti piedāvājumi šādā brīdī nevar kompensēt piedāvājuma šoku. Patērētājs to redz kā cenu koeficientu pieaugumu, ilgāku gaidīšanu vai pakalpojuma nepieejamību. Tieši šajā brīdī algoritma trauslums kļūst empīriski redzams.

Pētījuma rezultāti rāda, ka Bolt Latvia gadījums nav interpretējams tikai kā lokāls konflikts starp vienu digitālo platformu un Latvijas taksometru nozari. Tas atspoguļo plašāku Eiropas platformu ekonomikas transformāciju, kurā algoritmi kļūst par centrālo mehānismu gan darba organizēšanā, gan patērētāju izvēles strukturēšanā, gan konkurences apstākļu veidošanā transporta sektorā.

Eiropas Savienības līmenī platformu ekonomikas radītie izaicinājumi jau ir atzīti kā regulējuma problēma. Direktīva (ES) 2024/2831 apliecina, ka algoritmiskā pārvaldība, platformu darba attiecības un digitālo sistēmu caurskatāmība vairs nav tikai tehnoloģisks vai uzņēmējdarbības jautājums, bet būtiska sociālekonomiska problēma [10; 11]. Tomēr transporta platformu gadījumā algoritmiskā ietekme neaprobežojas tikai ar vadītājiem kā pakalpojuma sniedzējiem. Tā skar arī pasažierus, jo algoritmi strukturē cenu redzamību, gaidīšanas laiku, atlaides, pakalpojuma pieejamību un alternatīvu izvēli.

Plašāks Eiropas Savienības digitālās platformu ekonomikas regulējums šo tendenci pastiprina arī ārpus darba tiesību jomas. Digitālo pakalpojumu akts (DSA) nostiprina prasības par tiešsaistes platformu pārredzamību un lietotāju tiesībām, savukārt Digitālo tirgu akts (DMA) ir vērsts uz lielo digitālo platformu kā tirgus vārtsargu ietekmes ierobežošanu un godīgākas konkurences nodrošināšanu. Tādēļ Direktīva (ES) 2024/2831 jāskata nevis izolēti, bet kā daļa no plašākas ES tendences padarīt digitālo platformu darbību caurskatāmāku, taisnīgāku un sociāli ilgtspējīgāku [12; 13].

Platformu ekonomikā ievainojamība veidojas abās tirgus pusēs. Pakalpojuma sniedzējs kļūst atkarīgs no platformas algoritmiskās pārvaldības: pasūtījumu sadales, reitingiem, komisijām, bonusiem un piekļuves klientu plūsmai. Savukārt patērētājs kļūst atkarīgs no platformas izvēles arhitektūras: dinamiskās cenas, atlaižu sistēmas, lietotnes ērtuma, saglabātiem maksājuma datiem, ieraduma un alternatīvu redzamības. Tādējādi platforma vienlaikus strukturē gan piedāvājumu, gan pieprasījumu.

Bolt Latvia gadījums ļauj šo mehānismu analizēt konkrētā tirgus situācijā. Platforma vienlaikus apvieno vairākus algoritmiskās lojalitātes veidošanās elementus: dinamisko cenu noteikšanu, personalizētus piedāvājumus, atlaižu sistēmu, lietotnes ērtumu, ātru pakalpojuma pasūtīšanu un pārslēgšanās izmaksas. Pasažierim tas rada priekšstatu par efektīvu, ātru un personalizētu pakalpojumu. Tomēr šī lojalitāte vairāk balstās funkcionālā izdevīgumā nekā emocionālā uzticībā uzņēmumam.

Atšķirībā no tradicionāla pārvadātāja, kura reputācija, tarifi, juridiskās saistības un klientu apkalpošanas kvalitāte ir salīdzinoši tieši novērtējama, platformas gadījumā būtiska pakalpojuma daļa tiek organizēta algoritmiski. Patērētājam ne vienmēr ir skaidrs, kā tiek aprēķināta cena, kāpēc konkrētā brīdī piemērots paaugstināts koeficients un kādas alternatīvas reāli pastāv tirgū. Šī informācijas asimetrija ir būtiska, jo tā ietekmē ne tikai cenu uztveri, bet arī patērētāja autonomiju un uzticēšanos platformai.

Pētījuma rezultāti ļauj izdalīt trīs algoritmiskās lojalitātes stabilitātes nosacījumus. Pirmais ir algoritmiskās cenu noteikšanas uztvertais taisnīgums. Patērētājs var pieņemt cenu izmaiņas, ja tās šķiet pamatotas un saistītas ar reālu pieprasījuma vai piedāvājuma situāciju. Ja cena šķiet nejauša, pārmērīga vai nepārskatāma, uzticēšanās algoritmam samazinās.

Otrais nosacījums ir pārslēgšanās izmaksas. Platformu ekonomikā tās ietver lietotāja ieradumu, pazīstamu lietotnes saskarni, saglabātus maksājuma datus, pasūtījumu vēsturi, atlaižu sistēmu un pārliecību, ka konkrētā platforma nodrošinās ātru pakalpojuma pieejamību. Tādējādi lietotājs var turpināt izmantot platformu arī tad, ja viņa apmierinātība samazinās. Šādā situācijā lojalitāte kļūst nevis par emocionālu uzticēšanos, bet par algoritmiski un praktiski nostiprinātu uzvedības inerci.

Trešais nosacījums ir alternatīvu pieejamība. Ja tirgū pastāv vairākas reāli izmantojamas alternatīvas, patērētājs var vieglāk pāriet pie cita pakalpojuma sniedzēja. Savukārt, ja platforma iegūst ļoti spēcīgu tirgus pozīciju un alternatīvas kļūst mazāk redzamas vai mazāk ērtas, atkārtota platformas izmantošana ne vienmēr nozīmē patiesu lojalitāti. Tā var būt arī ierobežotas izvēles rezultāts.

Šajā kontekstā jānošķir formāla un reāla konkurence. Tas, ka tirgū ir reģistrēti vairāki pakalpojuma sniedzēji vai lietotnes, vēl nenozīmē, ka patērētājam tās ir vienlīdz redzamas, pazīstamas un praktiski izmantojamas. Ja alternatīva nav tikpat ērta, ātra vai plaši pieņemta, platformas dominance var nostiprināties arī bez juridiska monopola. Tādēļ algoritmiskā lojalitāte ir saistīta ne tikai ar patērētāja individuālo izvēli, bet arī ar vietējo alternatīvu digitālo redzamību un spēju konkurēt platformu veidotajā izvēles vidē.

Šajā kontekstā nozīmīgs ir 2026. gada 13. aprīļa taksometru vadītāju protests pret Bolt īstenoto politiku, kas norisinājās Rīgā, Daugavpilī un Jelgavā [14; 15]. Saskaņā ar LVTNDDO un autora prakses materiālu empīrisko bāzi akcijas laikā vairāk nekā 1000 vadītāju 24 stundu periodā atslēdzās no platformas. Tādēļ šo gadījumu iespējams interpretēt nevis tikai kā protesta akciju, bet kā organizētu algoritmiskās lojalitātes stresa testu: platformas funkcionālā vērtība tika pārbaudīta brīdī, kad nozīmīga pakalpojuma sniedzēju daļa īslaicīgi pārtrauca līdzdalību sistēmā.

Protesta rezultātā platformas trauslums kļuva redzams arī patērētājam. Vadītāju pusē problēma izpaužas kā atkarība no piekļuves pasūtījumiem, komisiju politikas, reitingiem un platformas lēmumiem. Patērētāja pusē tā izpaužas kā brīdis, kad platforma piedāvājuma trūkumu nepaskaidro kā sociālekonomisku konfliktu, bet pārvērš to cenā, gaidīšanas laikā un pakalpojuma pieejamībā. Citiem vārdiem, sistēmas izmaksas tiek pārliktas uz pasažieri, kurš redz augstāku tarifu, bet ne vienmēr redz tā tirgus un sociālo iemeslu kopumu.

Tāpēc pētījuma secinājums nav saistīts tikai ar vienu protesta dienu. Tā pati algoritmiskā loģika darbojas arī citos piedāvājuma un pieprasījuma šokos: lietū, sastrēgumos, svētku vakaros, lidostu pīķa stundās vai brīžos, kad tirgū samazinās aktīvo vadītāju skaits. Ja vietējie pārvadātāji ir izspiesti no tirgus vai patērētājam nav redzamas reālas alternatīvas, platformas koeficients faktiski kļūst par cenu noteikšanas varas instrumentu, nevis tikai par neitrālu pieprasījuma regulēšanas mehānismu.

Protesta gadījums ir būtisks arī plašākā platformu ekonomikas analīzē. Tas parāda, ka vadītāju saikne ar platformu nav interpretējama kā stabila lojalitāte tradicionālā nozīmē. Tā drīzāk ir ekonomiski un algoritmiski strukturēta atkarība no piekļuves pasūtījumiem. Brīdī, kad šī atkarība tiek uztverta kā netaisnīga vai nesamērīga, tā var pārvērsties kolektīvā pretestībā.

Patērētāja skatpunktā 13. aprīļa gadījums ir īpaši nozīmīgs, jo tas ļāva ieraudzīt algoritmisko cenu noteikšanu nevis kā abstraktu tehnoloģisku funkciju, bet kā tiešu ikdienas izmaksu mehānismu. Kamēr algoritms nodrošina pieņemamu cenu, īsu gaidīšanas laiku un ērtu pakalpojuma pieredzi, lietotājs to uztver kā efektīvu risinājumu. Tomēr, ja dinamiskās cenu noteikšanas rezultātā cena strauji pieaug un lietotājam nav skaidrs šīs izmaiņas pamatojums, algoritms vairs netiek uztverts kā neitrāls optimizācijas instruments. Tas tiek uztverts kā mehānisms, ar kura palīdzību platforma risku un trūkuma izmaksas vienpusēji pārnes uz patērētāju.

Bolt Latvia gadījums arī parāda strukturālu asimetriju starp tradicionālajiem pārvadātājiem un digitālajām platformām. Tradicionālie taksometru uzņēmumi darbojas regulētā vidē, kur būtiska nozīme ir licencēm, nodokļu saistībām, pakalpojuma kvalitātes kontrolei un juridiskajai atbildībai. Platformu modelis savukārt ļauj elastīgāk organizēt pakalpojuma sniegšanu, cenu noteikšanu un lietotāju uzvedības pārvaldību. Šī asimetrija nav tikai Latvijas īpatnība, bet plašāks Eiropas transporta tirgus izaicinājums.

Izvērtējot pētījuma hipotēzi, var secināt, ka Bolt Latvia gadījums sniedz spēcīgu empīrisku pamatojumu pieņēmumam, ka platformu ekonomikas apstākļos algoritmiskā lojalitāte pakāpeniski aizstāj tradicionālo zīmola lojalitāti ES transporta sektorā. Šis gadījums nepierāda visu Eiropas tirgu kvantitatīvā nozīmē, taču tas pierāda mehānismu: ja platformas cena, pieejamība un darba organizācija kļūst nepārskatāma vai netaisnīga, funkcionālā piesaiste var ātri pārvērsties neuzticībā, kolektīvā pretestībā un patērētāju sašutumā par cenu lēcieniem.

KOPSAVILKUMS

Apkopojot pētījuma rezultātus, var secināt, ka digitālo transporta platformu attīstība būtiski maina patērētāju lojalitātes veidošanās mehānismus Eiropas Savienības transporta sektorā. Pētījuma galvenais rezultāts ir ne tikai algoritmiski veidotas lojalitātes modeļa formulēšana, bet arī šī modeļa trausluma empīriska demonstrēšana 2026. gada 13. aprīļa protesta gadījumā. Platformu vidē lojalitāte arvien biežāk rodas no lietotnes ērtuma, dinamiskās cenas, pakalpojuma pieejamības, personalizētiem stimuliem, digitālās inerces un pārslēgšanās izmaksām, nevis tikai no emocionālas uzticēšanās zīmolam.

Pētījumā piedāvātais algoritmiskās lojalitātes jēdziens ļauj precīzāk izskaidrot ride-hailing platformu lietotāju uzvedību. Patērētājs turpina izmantot platformu ne vienmēr tāpēc, ka izjūt emocionālu uzticēšanos konkrētam uzņēmumam, bet tāpēc, ka algoritms konkrētajā brīdī piedāvā šķietami ērtāko, ātrāko vai ekonomiski izdevīgāko risinājumu.

Vienlaikus pētījums apliecina, ka šāda lojalitāte ir strukturāli trausla. Organizētais protests parādīja, ka platformas stabilitāte nav pašsaprotama: ja nozīmīga vadītāju daļa pārtrauc līdzdalību vai ja pieprasījuma un piedāvājuma attiecība strauji mainās, platforma trūkuma izmaksas algoritmiski pārvērš cenā un pieejamībā. Ja dinamiskā cena tiek uztverta kā nepārskatāma, pārmērīga vai vienpusēji platformas interesēm pakārtota, algoritmiskā lojalitāte var strauji vājināties.

No Eiropas Savienības transporta sektora skatpunkta šis secinājums ir būtisks, jo platformu ekonomikas izaicinājumi nav reducējami tikai uz darba tiesībām, nodarbinātības statusu vai konkurences regulējumu. Tie skar arī patērētāju uzvedību un lojalitātes veidošanos. Tādēļ algoritmiskā lojalitāte var tikt uzskatīta par patērētāju dimensiju plašākai algoritmiskās pārvaldības problēmai.

No politikas skatpunkta tas nozīmē, ka platformu regulēšanas uzdevums nav apturēt digitālo inovāciju. Uzdevums ir panākt, lai platformu ekonomika būtu caurskatāmāka, taisnīgāka un sociāli ilgtspējīgāka. Patērētājam nav jāzina pilna komercalgoritma formula, tomēr viņam jāsaņem saprotama informācija par galvenajiem faktoriem, kas ietekmē cenas pieaugumu vai samazinājumu, bet pakalpojuma sniedzējam jābūt skaidrākiem nosacījumiem par atlīdzību, komisijām un automatizētu lēmumu ietekmi.

Pētījuma hipotēze tiek apstiprināta konceptuālā un gadījuma izpētes līmenī: platformu ekonomikas apstākļos algoritmiskā lojalitāte pakāpeniski aizstāj tradicionālo zīmola lojalitāti ES transporta sektorā, taču tā saglabājas strukturāli trausla. 13. aprīļa gadījums parādīja šīs trausluma robežas praksē: lojalitāte pastāv tik ilgi, kamēr algoritms tiek uztverts kā taisnīgs, prognozējams un lietotājam izdevīgs.

Pētījuma ierobežojums ir tā kvalitatīvais raksturs. Tas nepretendē uz visu Eiropas Savienības transporta platformu tirgu reprezentatīvu kvantitatīvu novērtējumu. Turpmākajos pētījumos būtu nepieciešams veikt pasažieru un vadītāju aptaujas vairākās ES valstīs, lai empīriski pārbaudītu, kā cenu taisnīguma uztvere, pārslēgšanās izmaksas un alternatīvu pieejamība ietekmē platformu lietošanas biežumu un uzticēšanos.

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THE IMPACT OF DIGITAL CUSTOMER ENGAGEMENT ON BRAND LOYALTY TOWARD CLOTHING BRANDS: THE CASE STUDY OF UZBEKISTAN

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ANOTĀCIJA

Pētījumā analizēts, kā digitālā klientu iesaiste ietekmē zīmola lojalitāti apģērbu zīmoliem Uzbekistānā. Balstoties uz literatūras analīzi, 214 patērētāju aptauju un trīs ekspertu intervijām, secināts, ka aktīva digitālā mijiedarbība, uzticama informācija, ātras atbildes un atsauksmes stiprina klientu lojalitāti.

Atslēgas vārdi: apģērbu zīmoli, digitālā klientu iesaiste, lojalitāte, Uzbekistāna, zīmola uzticēšanās

ABSTRACT

This study analyses how digital customer engagement influences brand loyalty toward clothing brands in Uzbekistan. Based on literature review, a survey of 214 consumers and three expert interviews, the findings show that active digital interaction, clear information, fast responses, realistic content and customer reviews strengthen loyalty.

Keywords: brand loyalty, clothing brands, digital customer engagement, trust, Uzbekistan

IEVADS. INTRODUCTION

Digital technologies have changed the way clothing brands communicate with customers. In the fashion market, consumers no longer receive brand messages passively; they follow pages, view collections, compare products, read reviews, save posts, contact brands through direct messages and share content with others. Therefore, digital customer engagement has become an important practical and theoretical issue for brands that want to build long-term loyalty rather than only short-term online visibility [1].

The topicality of this research is connected with the rapid development of the digital environment in Uzbekistan. At the beginning of 2025, Uzbekistan had 32.7 million internet users and internet penetration reached 89.0 per cent [2]. Social media and digital payment tools have also expanded, creating better conditions for clothing brands to use Instagram, Telegram, TikTok, websites and marketplaces as channels of customer interaction. However, the problem is that it is not always clear whether online attention becomes loyalty. Many brands can receive likes and views, but these indicators do not automatically prove repeat purchase, trust or recommendation.

The research problem is formulated as follows: to what extent and in what ways does digital customer engagement influence brand loyalty toward clothing brands in Uzbekistan? The object of the research is the process of digital customer engagement with clothing brands in Uzbekistan. The subject is the impact of digital customer engagement on brand loyalty among consumers of clothing brands in Uzbekistan. The aim of the research is to analyse the impact of digital customer engagement on brand loyalty toward clothing brands in Uzbekistan and to develop practical recommendations for strengthening loyalty through digital engagement strategies.

The research methods include scientific literature analysis, analysis and synthesis, comparative analysis, review of statistical and analytical materials, digital observation of selected clothing brands, questionnaire survey, expert interviews and quantitative analysis of empirical findings. The hypothesis of the study is that digital customer engagement has a positive impact on brand loyalty toward clothing brands in Uzbekistan.

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ. BASIC THEORETICAL AND PRACTICAL PROVISION

Customer engagement is understood in modern marketing as a multidimensional and relational concept. It is not limited to purchase behaviour, but includes cognitive attention, emotional attachment, behavioural participation and social interaction. Brodie et al. define engagement as a psychological state that appears through interactive and co-creative customer experiences, while Hollebeek et al. emphasise cognitive, emotional and behavioural brand-related activity [3], [4]. In digital environments, these dimensions become more visible because customers leave measurable traces such as comments, saves, reviews, shares, direct messages and repeated visits.

Brand loyalty is also multidimensional. Classical research by Oliver and by Dick and Basu shows that loyalty should not be reduced only to repeat buying. True loyalty combines repeated preference, positive attitude, trust, emotional attachment and resistance to switching [5], [6]. For clothing brands, this is especially important because fashion consumption is connected with style, identity, social image and trust. Customers may like visual content, but loyalty appears only when the brand continues to provide reliable products, honest information and a positive communication experience.

In the clothing sector, digital engagement has several specific features. First, visual communication is especially important because customers evaluate clothing through photos, short videos, styling ideas and product presentation. Secondly, social proof matters because online reviews, customer photos and influencer content reduce purchase uncertainty. Thirdly, direct communication through Telegram or Instagram messages supports purchase preparation by answering questions about size, price, fabric and delivery. As a result, the practical mechanism of loyalty in clothing brands can be described as a chain: digital visibility, active interaction, trust, purchase confidence, repeated contact and loyalty.

For this article, digital customer engagement is measured not only through simple visibility, but through more meaningful indicators. These include engagement rate, active engagement share, interaction quality, post-engagement behaviour, review checking, direct-message activity and retention-related responses. This approach is necessary because average likes or comments without estimated reach can make engagement levels difficult to compare across brands. Therefore, engagement must be interpreted in relation to reached audience, quality of interaction and the customer’s movement from online attention to loyalty-related behaviour.

Table 1

Analytical link between digital engagement indicators and loyalty outcomes

Engagement indicator	Meaning	Loyalty connection	Practical measurement
Visual content reaction	Customer attention to photos, videos and collections	Creates first interest and emotional response	Likes, views, saves, watch behaviour
Active interaction	Effortful response to brand content	Shows stronger involvement than passive viewing	Comments, shares, direct messages
Trust-building content	Information that reduces uncertainty	Supports repeat purchase and recommendation	Reviews, realistic photos, size and fabric details

Post-engagement behaviour	Movement from digital contact to action	Connects engagement with purchase preparation	Catalogue visits, enquiries, online orders
Retention dynamics	Repeated relationship over time	Shows whether engagement becomes loyalty	Repeat visits, repeat questions, returning customers

Compiled by the author based on the theoretical framework of the thesis

PĒTĪJUMA REZULTĀTI UN TO IZVĒRTĒJUMS. RESEARCH RESULTS AND THEIR EVALUATION

The empirical analysis focused on five selected clothing brands in Uzbekistan: 7SABER, Mursak, BIBI HANUM, LALI and Signora by Shateni. The digital observation showed that these brands use different communication models. 7SABER and Signora by Shateni rely more on regular posting, campaign-style communication and direct customer contact, while Mursak, BIBI HANUM and LALI use a more selective and identity-based visual style. This difference confirms that digital presence alone is not sufficient. The important question is whether digital communication produces meaningful customer action.

The survey included 214 valid responses from consumers who buy from Uzbek clothing brands or interact with them online. Instagram, Telegram and TikTok were identified as the main platforms for digital interaction. Respondents use these channels not only to view new collections but also to check prices, read reviews, compare brands, contact brands through messages and visit catalogues. This shows that digital engagement in the Uzbek clothing market has both emotional and practical value.

The mean digital customer engagement score was 3.92, while the mean brand loyalty score was 3.97 on a five-point scale. The post-engagement behaviour score was slightly lower at 3.64, which means that brands still need to improve the path from attention to practical customer action. Nevertheless, all main indicators were above the neutral point, showing a positive basis for loyalty-building through digital channels.

The strongest evidence for the hypothesis appeared when respondents were divided by engagement level. Respondents with low digital engagement had a mean loyalty score of 3.01. Respondents with moderate engagement had a loyalty score of 3.67, while respondents with high engagement had a loyalty score of 4.31. This step-by-step increase shows that consumers who engage more actively with clothing brands online also demonstrate stronger loyalty.

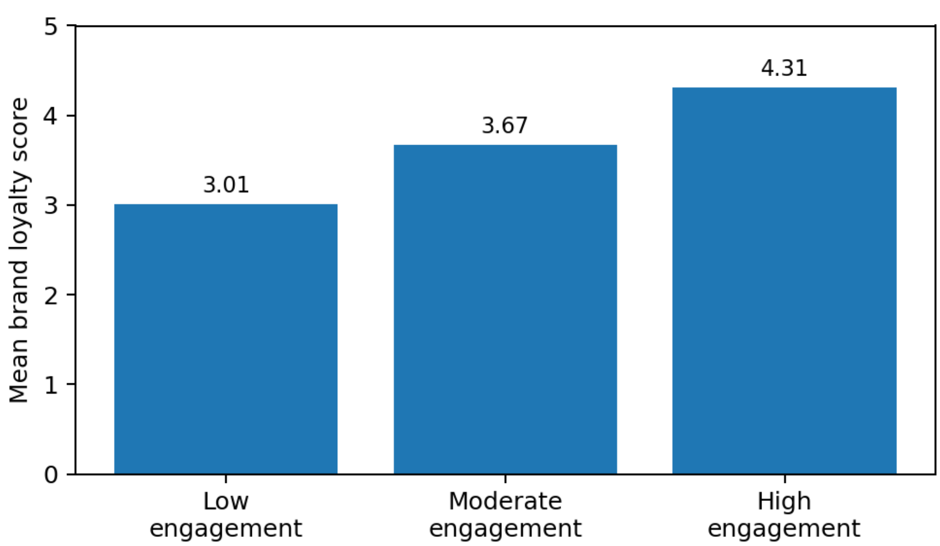

Figure 1: Brand loyalty by level of digital customer engagement
(the data was prepared by the author based on consumer survey results)

The survey also identified the main digital factors that strengthen loyalty. Attractive photos and videos were the most frequently mentioned factor, followed by quick responses to messages, clear product information, customer reviews and discounts. These findings show that loyalty is strengthened when digital communication combines emotional attraction with practical usefulness. Visual content attracts attention, but response speed, product details and customer reviews help transform attention into trust.

The barriers to loyalty confirm the same logic from the opposite direction. Respondents indicated that poor product quality, slow replies, inaccurate product photos, negative reviews, weak delivery service and lack of size information reduce loyalty. Therefore, digital engagement can create disappointment if the brand fails to meet expectations created online. This finding is important because it proves that engagement should not be understood only as frequent posting or high visibility. It must be connected with honest information, service quality and reliability.

Three semi-structured expert interviews supported the survey results. Experts confirmed that followers and likes do not prove loyalty. More meaningful indicators are saves, comments, direct-message enquiries, catalogue visits, online orders, repeated questions, customer reviews and repeat purchases. Experts also stressed that clothing brands should use platforms differently: Instagram and TikTok should create attention and emotion, while Telegram should support purchase preparation and customer service.

The practical recommendations follow directly from these findings. Clothing brands should improve realistic product presentation, publish size tables and fabric details, organise faster responses in direct messages, use customer reviews more systematically and build simple retention practices such as personalised new-collection messages and repeated-customer contact. These actions are not only promotional. They directly support the engagement-loyalty chain by reducing uncertainty and increasing trust.

Table 2

Summary of empirical findings and managerial implications

Main finding	**Evidence from the research**	**Implication for clothing brands**
Digital platforms are central to interaction	Instagram, Telegram and TikTok are the most used channels	Brands should design platform-specific engagement systems
Engagement and loyalty move together	High-engagement respondents showed the highest loyalty score	Brands should stimulate active interaction, not only visibility
Trust and information quality are decisive	Reviews, clear information and fast replies increase loyalty	Product information and communication standards should be improved
Weak service reduces loyalty	Slow replies, inaccurate photos and poor delivery were key barriers	Digital engagement must be supported by reliable fulfilment
Expert opinions confirm survey logic	Experts emphasised DM enquiries, catalogue visits and repeat contact	Loyalty metrics should include post-engagement and retention indicators

Compiled by the author based on consumer survey results and expert interviews

KOPSAVILKUMS. CONCLUSION

The research confirms that digital customer engagement has a positive impact on brand loyalty toward clothing brands in Uzbekistan. The theoretical analysis showed that engagement and loyalty are separate but connected concepts: engagement reflects customer attention, emotion, behaviour and social interaction, while loyalty reflects repeated preference, trust, recommendation and relationship continuity.

The empirical results demonstrated that consumers with higher levels of digital engagement also have stronger loyalty toward clothing brands. The most important loyalty-building elements are attractive and realistic visual content, quick responses, clear product information, customer reviews, direct communication and repeated contact. At the same time, poor product quality, slow replies, inaccurate photos and unclear size or delivery information weaken loyalty.

The study also shows that clothing brands should evaluate engagement through meaningful indicators rather than through follower numbers alone. Engagement rate, active engagement share, direct-message enquiries, catalogue visits, reviews, repeat questions and retention dynamics provide a clearer picture of whether digital interaction is becoming loyalty. Therefore, Uzbek clothing brands should build digital strategies that connect visual attraction with trust, useful information and customer service quality.

Overall, the findings support the hypothesis and provide practical direction for clothing brands in Uzbekistan. Digital customer engagement can strengthen brand loyalty when it is managed as a relationship system: attracting attention, encouraging active interaction, reducing uncertainty, supporting purchase confidence and maintaining repeated customer contact over time.

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AUTOMATED CONSTRUCTION PROJECT MANAGEMENT WITH AI: A NEW ERA OF DEVELOPMENT

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ABSTRACT

The article assesses the possibilities of automated management of construction projects at different stages and justifies the increase in management efficiency using artificial intelligence. The ways of using artificial intelligence to overcome the problems of project management in construction are considered, the functions of artificial intelligence in development are analyzed and key steps for integrating intelligent algorithms for automation of construction management are identified.

Keywords: construction projects, development, management, automation, artificial intelligence

АНОТАЦІЯ

У статті проведено оцінку можливостей автоматизованого управління будівельними проектами на різних стадіях та обґрунтовано підвищення ефективності управління при використанні штучного інтелекту. Розглянуто шляхи застосування штучного інтелекту для подолання проблем управління проектами у будівництві, проаналізовано функції штучного інтелекту у девелопменті та визначено ключові кроки щодо інтеграції розумних алгоритмів для автоматизації менеджменту будівництва

Ключові слова: будівельні проекти, девелопмент, управління, автоматизація, штучний інтелект

INTRODUCTION

The construction industry is one of the most complex industries in terms of management. After all, the organization and management of a project in development is associated with the consistent overcoming of a number of difficulties. Construction projects are very sensitive to objective factors that constantly affect the efficiency and productivity of work. Weather conditions, geological features of the soil, logistical problems, changes in project documentation, technological changes and market conditions - all this can affect the course of construction. These factors are difficult to predict, but can lead to delays, additional costs, damage to materials and equipment, and create unsafe conditions for workers.

Effective management involves predicting possible changes, developing plans to respond to them, as well as flexibility and adaptability in the construction process. Successfully overcoming these and other problems requires participants in construction projects to be highly qualified, experienced and able to work in a team. Equally important is the ability to effectively apply modern management methods and technologies, such as automation of construction project management with AI.

BASIC THEORETICAL AND PRACTICAL PROVISION

Construction management is a complex task that requires overcoming numerous challenges on a daily basis. Tracking deadlines, managing budgets, accounting for construction materials, and coordinating the efforts of numerous project participants—all these tasks require high precision, efficiency, transparency, and effectiveness. Previously, these tasks had to be performed primarily manually, but the development of AI technologies is ushering in a new era of automation on construction sites.

In simple terms, project management in development encompasses all the managerial and administrative work required to construct a building. More complexly, project management in construction is a set of processes aimed at achieving the goals of a development project within the specified time, budget, and quality requirements. It includes planning, organization, coordination, and control of all stages of construction.

Why is high-quality management so important in construction? It provides a number of key project characteristics[4].

• Efficient use of resources. A thorough approach to management helps optimize the use of material, financial, and human resources, which reduces costs and avoids cost overruns.

• Meeting deadlines. Through precise planning and work control, high-quality project management ensures the timely completion of construction.

• Quality Assurance. Responsible project management ensures quality control at all stages of construction, ensuring the facility meets established standards and requirements.

• Risk Management. Professional project management identifies potential risks and develops a strategy to minimize or eliminate them.

• Coordination. High-quality project management ensures effective interaction between all construction participants – from the client to contractors and suppliers.

Project management is necessary at any stage of construction, but it is especially crucial in the initial stages – when concept development, design, and preparation for construction are underway. The more professionally organized the management at these stages, the fewer problems will arise during project implementation.

The construction industry is one of the most complex areas from a management perspective. After all, organizing and managing a development project involves consistently overcoming a number of challenges.

Construction projects are highly sensitive to objective factors that constantly impact the efficiency and productivity of the work. Weather conditions, geological soil features, logistical challenges, changes in design documentation, technological changes, and market conditions can all impact construction progress. These factors are difficult to predict but can lead to delays, additional costs, damage to materials and equipment, and create hazardous conditions for workers.

Effective management requires anticipating potential changes, developing response plans, and maintaining flexibility and adaptability during construction. Successfully overcoming these and other challenges requires construction project participants to be highly qualified, experienced, and able to work in a team. Equally important is the ability to effectively utilize modern management methods and technologies, such as AI-powered automation of construction project management.

Any construction project is a major team effort that requires the involvement of multiple parties: contractors, suppliers, individual specialists, and other stakeholders. Effective communication between all project participants is critical to success, but often poses a real challenge for managers[3].

RESEARCH RESULTS AND THEIR EVALUATION

Differing interests, organizational structures and corporate cultures, differences in decision-making mechanisms and reporting methods, complex supply chains, large volumes of information, and the overall dynamic nature of a project can all hinder productive collaboration between parties, directly or indirectly impacting the project.

Effective coordination management in a construction project requires clearly defining the roles and responsibilities of each participant, creating an effective communication and information exchange system, developing a joint action plan and work schedule, ensuring quality control and timely problem resolution. All these aspects require a strong digital component.

Achieving maximum results with a limited budget is a true management art. Due to poor controllability and predictability, construction projects too often exceed initial budgets, posing a challenge for the entire industry to conserve resources and funds[2].

On the other hand, a limited budget can lead to the need to cut costs on materials, equipment, and labor, which can negatively impact construction quality and completion times. Moreover, resource constraints can lead to delays in material delivery, equipment breakdowns, and the loss of skilled workers.

Efficient project financial management requires managers with high qualifications, experience, and the ability to effectively plan and control costs, as well as find optimal solutions to achieve goals. It is also important to be able to quickly respond to changes and unpredictable situations that arise during construction.

Working under tight deadlines and compressed schedules is one of the most challenging issues in construction project management. This situation can arise for various reasons, such as the failure of previous stages, seasonality of work, contractual obligations, investment cycles, political and social factors, etc.

Tight deadlines create serious challenges for project management, such as increased stress, rushed work, budget overruns, deteriorating safety, and even conflicts. Employees and managers are constantly under pressure, which can lead to errors and reduced quality of work. The rush to meet deadlines at any cost can lead to disruptions in technological processes and the use of substandard materials or equipment, which will subsequently negatively impact the operation of the building.

Effective project management under tight deadlines requires careful planning, process optimization, effective communication, and control. All work stages must be planned in detail, all possible risks must be considered, and, where possible, reserve time must be built in.

Construction management is always associated with various risks and unpredictable situations that can arise at any stage of construction[6].

Typical risks include weather conditions, geological conditions, logistical issues, errors in design documentation, changes in legislation, financial risks, and man-made and natural disasters. Each of these factors can impact construction progress, leading to delays, additional costs, or even project suspension.

Errors in construction management can be very costly, as they can lead to serious consequences, such as budget overruns, missed construction deadlines, the need to rework previously completed work, construction accidents, and legal issues.

CONCLUSION

The construction industry is ripe for revolution. Artificial intelligence has the potential to radically improve construction project management: it automates routine tasks, ensures transparency, identifies process flaws, optimizes costs, and streamlines communication on the job. But realizing all these benefits in practice is no easy task: it requires the latest technologies and unconventional, creative ways to implement them.

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ECONOMIC AND DIGITAL MODELS OF CONSTRUCTION ENTERPRISE MANAGEMENT

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ABSTRACT

The article substantiates the approach to integrating technological and organizational solutions into a holistic design that transforms data into measurable results regarding cost, time, productivity, and risks throughout the life cycle of the object. Based on a critical review of the sources, the author's interpretation is formulated and the difference from fragmentary IT instrumentalization is shown.

Keywords: construction enterprises, economic and mathematical model, BIM, management

АНОТАЦІЯ

У статті обґрунтовано підхід до інтеграції технологічних і організаційних рішень у цілісну конструкцію, що перетворює дані на вимірювані результати щодо вартості, строків, продуктивності та ризиків протягом життєво циклу об’єкта. На основі критичного огляду джерел сформульовано авторське трактування та показано відмінність від фрагментарної IT-інструменталізації.

Ключові слова: будівельні підприємства, економіко-математична модель, BIM, управління

INTRODUCTION

The construction industry is under the simultaneous influence of two key challenges: accelerated digital transformation and increasing demands for economic efficiency and sustainability of results. In these conditions, the competitiveness of construction companies is determined not so much by the presence of individual digital tools, but by the ability to integrate them into the management system - to transform data, models and algorithms into a mechanism for planning, control and increasing productivity. In addition, the global context of sustainable development actualizes the need for management solutions that ensure measurable resource efficiency and support circular approaches.

The problem is that digitalization in construction companies is often implemented in a fragmented manner without a coherent economic and managerial logic and without a proper assessment of the economic effect of digital investments. Although studies demonstrate the potential of integration solutions (BIM+Lean to reduce losses and increase manageability of execution, AI to support management decisions), in practice it remains unclear what economic and digital management models exist, what their essence is, and how they are formed.

BASIC THEORETICAL AND PRACTICAL PROVISION

Recent research on the issue of economic and digital models of construction management is developing in three interrelated directions: (1) BIM as a basic digital platform for information and process management; (2) integration of BIM with approaches to improving operational efficiency (Lean, planning and control); (3) expansion of management criteria towards digital transformation, artificial intelligence and sustainability. The conceptualization of BIM as a value delivery system and maturity framework describes the levels of development and roles of stakeholders, forming the basis for modeling digital asset management in construction [2].

Further development of the problem is associated with the combination of BIM and Lean logic, where the study of the interaction of Lean and BIM proves that digital models enhance the manageability of workflows and reduce losses if the technology is integrated with management regulations [3]. A practical extension of this approach has proposed a BIM-oriented production planning and control system for Lean Construction, shifting the emphasis from digital design to digital execution management [6].

In parallel, reviews of digitalization and automation in the logic of Industry 4.0 summarize the consequences for the operating systems of enterprises (process reengineering, competency requirements, change management and productivity) [5]. Within the AEC industry, the role of AI is growing, which is confirmed by scientometric analysis of the areas of application of artificial intelligence (forecasting, quality control, safety, project management), as well as applied reviews of technologies for supporting management decisions [4].

Ukrainian studies focus on the specifics of implementing digital models in real conditions: they identify barriers and opportunities for digital transformation of construction and design enterprises [1], offer methodological approaches to assessing the level of digitalization (indicator base) [1], and also summarize the challenges and prerequisites for the spread of BIM in Ukraine. Additionally, the emphasis on the strategic necessity of digital transformation for participants in the construction process and territorial development strengthens the macro-level context of the formation of management models [5], while the concept of a digital development ecosystem captures the transition to network/platform forms of coordination [5].

RESEARCH RESULTS AND THEIR EVALUATION

The digital transformation of construction companies has evolved from the implementation of individual IT solutions to the construction of holistic management models, where digital data directly "works" on economic results (cost, terms, productivity, risks). That is why the focus of the study is not on the list of technologies, but on the logic of their integration into a management system capable of forming and measuring economic value within the life cycle of the object. In publications, BIM is presented as an innovative information and analytical base/environment for coordinating the actions of construction participants, which requires an organizational strategy, roles (in particular, a BIM manager) and integration with the management contours of the enterprise. In modern literature, the concept of "economic-digital model" is mostly not presented as an established direct definition, its content is revealed through related categories and concepts - in particular, BIM frameworks and data environments, BIM+Lean integration approaches (planning-control), digital transformation and digital business model approaches, as well as the concept of a digital development ecosystem.

In the context of modern research on the digitalization of construction (BIM, Lean Construction, AI, Industry 4.0), it is appropriate to interpret the economic and digital model of construction enterprise management as a formalized management structure that combines (1) a single data and process architecture (information model/common database and its maintenance rules), (2) an economic management contour (planning-control, budgeting/estimation, deadline management, KPI and plan-actual comparison), (3) organizational roles and regulations (responsibilities, standards, compatibility of information flows, digital competencies of personnel), and (4) a mechanism for creating and measuring value through transparency, cost/term/quality control throughout the entire life cycle of the facility. That is why BIM is revealed in the literature not only as a software or a 3D model, but as an integrated process of coordinating participants and managing the life cycle with the function of a "single information and analytical center" [1; 2; 4], and Lean+BIM practitioners specify how the digital model becomes a support for planning and controlling work execution and eliminating losses [3; 6].

The substantive difference between the economic-digital model and the "toolkit" is that the tools (for example, cloud platforms, collaborative work environments, 5D cost and time management functionality) provide separate operational capabilities, while the model sets a holistic management logic: how data is structured, how it is transformed into solutions, how the effect is measured, and how the interaction of stakeholders in the project and the enterprise as a whole is coordinated. Additionally, studies of the digital transformation of construction and design enterprises emphasize that the key constraints are not "availability of software", but transition costs, compatibility, standards, organizational structure, competencies and corporate culture - that is, factors that should be taken into account by the economic-digital model as a management system, and not as a list of technologies [2].

The economic-digital model of construction enterprise management is understood as an integrated framework in which platform solutions provide a "digital data loop", controlling and KPIs - an "economic loop of performance", and digital transformation (including AI solutions) - a "loop of strengthening management decisions and coordination", which together create measurable economic value and manageability at the enterprise level, and not just at the individual project level. In the scientific literature, digitalization of construction management is described as a multi-level process in which technological solutions acquire managerial content only if they are institutionalized in the form of data standards, interaction regulations, management planning-control circuits and efficiency metrics. In view of this, it is advisable to systematize leading approaches not according to the criterion "what technology is used", but according to what managerial and economic function it provides within the economic and digital model of the enterprise: the formation of a single information space, increasing operational efficiency, strengthening decision-making, automation and integration of operating systems, as well as scaling interaction in the stakeholder ecosystem [1–6]. In this context, each of the approaches (BIM, Lean, AI, Industry 4.0, platform) acts not as an alternative, but as a complementary layer of the model, responsible for a certain contour of management and creation of economic value.

CONCLUSION

The research has achieved its goal - conceptually substantiated an approach to revealing the essence of economic and digital models of construction enterprise management as integrated management structures that combine digital data infrastructure with mechanisms for economic control and coordination of interactions of participants in the construction process. The results obtained give grounds to assert that the economic and digital model is qualitatively different from a set of individual digital tools: its defining feature is the systemic integration of data, processes, planning and control circuits and management regulations, thanks to which digital technologies are transformed into a reproducible mechanism for creating economic value and increasing the manageability of activities.

The content of the concept of "economic and digital model of construction enterprise management" as an integrated management architecture in which digital solutions not only provide information support, but also form the basis for measurable management of efficiency, risks and effectiveness is specified. It has been established that in modern scientific discourse, the content that is formalized as an economic-digital model within the framework of this article is most often described through related concepts (information data environment, BIM and Lean integration, analytical and predictive approaches, transformation of operating systems, digital ecosystems), which confirms the relevance of systematizing and generalizing such approaches at the level of a single model.

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FEASIBILITY OF INTRODUCING CEYLON MATCHA AS AN INNOVATIVE VALUE-ADDED NICHE PRODUCT FOR SUSTAINABLE DIVERSIFICATION OF THE SRI LANKAN TEA INDUSTRY: INDUSTRY CAPABILITY & CONSUMER ACCEPTANCE OF SRI LANKA

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ABSTRACT

Ceylon Tea is a key pillar of Sri Lanka's economy, yet it faces challenges like climate change, high costs, and over-reliance on black tea. To boost revenue, diversification into value-added niche products is essential. This research assesses the feasibility of introducing Matcha into the Ceylon Tea portfolio. Using a qualitative approach, the study analyzes industry supply capabilities and consumer demand, offering insights to bridge the academic gap in Sri Lanka's specialty tea market.

Keywords: matcha, value-addition, product diversification, Sri Lankan tea industry, Ceylon tea

INTRODUCTION

Sri Lanka is a country that heavily relies on its agricultural sector when it comes to its export economy. However, over the recent few decades, the global agricultural sector has been rapidly transforming due to climate change, increased competition, novel technologies, changing consumer preferences, and increased demand for health-oriented functional/ super food. In that environment, traditional commodity-based agricultural products are often vulnerable to challenges from value-added agricultural products, given their competitive advantages and higher economic returns. As global tea consumer preferences are shifting towards health-conscious functional beverages, 'Matcha Green Tea', known for its superior health benefits gained massive popularity in the recent period. However, the Sri Lankan tea sector has not yet fully explored the potential of producing 'Matcha' as a value-added niche tea product.

Based on the above-stated opportunity, the core research problem was formulated as, "To what extent is the production and commercialization of Ceylon matcha feasible in Sri Lanka, considering the existing industry capabilities and the level of consumer acceptance?" The aim of the research is to assess the feasibility of manufacturing and promoting Ceylon matcha as a value-added product in Sri Lanka by examining consumer acceptance and industrial capability. The research adopts a qualitative approach to collect data based on tailored questionnaires. The gathered data were analyzed and interpreted using correlational analysis, thematic analysis, and SWOT analysis.

THEORETICAL FRAMEWORK FOR UNDERSTANDING MATCHA AS A VALUE-ADDED PRODUCT IN THE SRI LANKAN TEA INDUSTRY

Tea is the main export agricultural commodity of Sri Lanka, alongside rubber, coconut, and spices [2]. The tea exports account for up to 11% of the total exports, and about 62% contributes to the total agricultural exports in the country [11]. Sri Lanka is the fourth-highest valued tea exporter in the world in 2024, with 13% share of the global tea exporting sphere [7]. The total Ceylon tea production in 2025 is reported to be 264,122 MTs, with 257,440 MTs of tea (95% export ratio) being exported in various forms [12], earning 1.5 billion USD export revenue in 2025 [7]. 4% of the country's land area (203000 hectares) is covered in tea plantations [1]. The Sri Lankan tea industry provides direct employment for over 2.4 million people in Sri Lanka (with 1.5 million tea pluckers, 250,000 factory workers, and 950,000 tea small holder farmers) while the total tea sector directly and indirectly supporting 10% of Sri Lanka's population [10].

Approximately 60% of Sri Lanka's tea exports are in bulk form, resulting in significantly lower earnings compared to countries like Japan, which specialize in high-value tea products [9]. Additionally, the tea value chain in Sri Lanka is characterized by limited innovation, less market diversification, and fragmented coordination among stakeholders [8].

Tea product diversification typically refers to the expansion beyond its primary and mainstream product type, black tea. However, diversified tea does not automatically identify as a value-added tea. Value addition of tea is usually referred to as the 'increasing economic value per unit of tea'[13], by means of processing, marketing, branding, or packaging.

'Matcha' is a powdered type of Japanese green tea of the 'Tencha' variety [3], derived from the *Camellia sinensis* plant. Making of Tencha tea leaves incorporates a highly technical and labor-demanding process, including shade growing for increasing chlorophyll and L-theanine levels in tea leaves, harvesting the youngest tea leaves of every stem, de-veining tea leaves, steaming to protect chlorophyll content and preserving the vibrant green color of tea leaves, and drying of tea leaves, thus making matcha a high-value-added product. A study conducted on compiling the health benefits of matcha tea revealed a list of health properties, such as antioxidative effects, anticarcinogenic effects, and anti-inflammatory effects, cardioprotective effects, antiviral properties, potential for regulating carbohydrate metabolism, and prevention of neurodegenerative disorders [5].

Understanding consumer acceptance of a relatively novel niche product must be carefully studied before introducing it to the market. An empirical study reveals that consumer preferences for niche attributes are highly heterogeneous and depend on product category and consumers' perceived values towards attributes such as 'local production', 'organic labeling', 'sugar-free', etc [4]. Loureiro and Hine also came up with a similar argument, saying that consumer demand for niche products is highly segmented, with consumers assigning different levels of value to niche attributes such as local origin, organic production, concerns over food freshness, and nutrition [6].

ANALYSIS OF INDUSTRY CAPABILITY & CONSUMER PERCEPTION FOR MATCHA IN SRI LANKA

Consumer perception of matcha green tea in Sri Lanka was analyzed through an exploratory survey with 150 responses conducted with respondents in Sri Lanka. After carefully analyzing the responses, meaningful relationships were formed, and correlation analysis was performed to understand the patterns between variables, and the following 4 main relationships were interpreted.

Based on the summary of Table 1, the correlation indicates a moderately positive relationship, explaining that the respondents who had consumed matcha before are willing to pay a premium price for locally grown matcha, especially in the 'definitely willing' category, than those who had never consumed matcha before.

Table 1

Correlation – familiarity vs. purchase intention

Independent Variable	Dependent Variable	Correlation Coefficient (r)	Interpretation
Familiarity	Purchase intention	0.42	Moderate positive relationship

Based on the summary of Table 2, the correlation indicates a weak positive relationship between the perceived value of matcha and respondents' likelihood to buy. The respondents who agreed or strongly agreed that matcha is expensive still show a likelihood to buy regardless of the price.

Table 2

Correlation – price perception vs. purchase intention

Independent Variable	Dependent Variable	Correlation Coefficient (r)	Interpretation
Price perception	Purchase intention	0.23	Weak positive relationship

The analysis shows that regardless of the household income, they are still willing to pay a premium price for locally grown and processed matcha. However, the weak positive relationship explains that income might become a barrier to the purchase decision. The summary can be seen in Table 3.

Table 3

Correlation – household income vs. purchase intention

Independent Variable	Dependent Variable	Correlation Coefficient (r)	Interpretation
Household Income	Purchase intention	0.13	Weak positive relationship

The analysis shows strong support for the idea of having a local matcha niche. The strong positive relationship between variables explains that people who are more supportive of a local matcha niche are more likely to buy from local brands. The summary can be seen in Table 4.

Table 4

Correlation – support for local matcha niche vs. purchase intention

Independent Variable	Dependent Variable	Correlation Coefficient (r)	Interpretation
Support for the local matcha niche	Purchase intention	0.7	Strong positive relationship

The Sri Lankan industry capability was analyzed through an exploratory survey that was specifically designed to gather expert insights regarding the development potential of a Sri Lankan matcha tea industry. All the responses were studied carefully due to the limited number of responses. Thematic analysis was performed, and the following summary was created.

- The matcha production exists in Sri Lanka on small commercial production scales.
- The Sri Lankan tea industry is open for value addition and diversification through matcha.
- Sri Lanka holds suitable agro-climatic conditions for growing matcha in high- grown regions.
- The technical expertise and industry readiness are moderate, but immediate investments are needed to accelerate the growth.
- Pilot projects, partnerships with international experts, and technology providers must take place.

- Global ‘Ceylon tea’ brand presence may leverage the entry of ‘Ceylon matcha’ into the international market.
- Ceylon matcha is expected to be a niche market product, not a mainstream tea product.

Table 5

SWOT analysis combining Sri Lankan consumer perception & industry capability

<table>
<tr><th>Strengths</th><th>Weaknesses</th></tr>
<tr><td>1. Suitable agro-climatic conditions in high-grown regions for matcha cultivation.
2. Existing small-scale commercial production.
3. Industry readiness for value-addition and product diversification.
4. Higher consumer awareness about the health benefits of matcha.
5. Existing matcha consumer base. (consumer acceptance, especially in younger and urban segments)
6. Strong support of local consumers for a local matcha industry.
7. Consumer’s positive awareness about matcha’s premium positioning as a tea product.</td><td>1. Limited commercial productions.
2. Limited technical expertise and specialized skills.
3. Limited availability in the domestic market, especially in non-urban areas.
4. Absence of a clear national strategy.
5. Limited adaptability of shade-growing techniques within the current industry.</td></tr>
<tr><th>Opportunities</th><th>Threats</th></tr>
<tr><td>1. Future potential entries from existing organizations.
2. Strong export potential if international quality requirements are met.
3. Growing global demand for matcha.
4. Existing ‘Ceylon tea’ brand recognition can be leveraged to promote ‘Ceylon matcha’.
5. Strong potential for positioning matcha as a premium niche product.
6. Ability to enter export markets with a lower price advantage due to low labor costs.
7. Consumers' high willingness to accept matcha products from reputed tea brands in Sri Lanka.
8. Opportunities for partnerships with international experts.
9. Consumer’s expectations for creative product ideas such as single-serving sachets, flavored desserts, health and wellness products, etc.</td><td>1. Competition from existing and established matcha may lower the export potential.
2. Limited possibility for suitable tea cultivar plantations in mid-grown and low-grown regions in Sri Lanka.
3. Risk of failing to meet quality standards or quality inconsistency may lower the potential of exporting.
4. Higher initial investments.
5. Competition from imported matcha brands exists in the domestic market.</td></tr>
</table>

Table 6

SWOT matrix combining Sri Lankan consumer perception & industry capability

Parameter	S	W
O	7 + 9 = 16	9 + 5 = 14
T	5 + 7 = 12	5 + 5 = 10

CONCLUSIONS & RECOMMENDATIONS FOR DEVELOPING EFFECTIVE MARKETING & PRODUCTION STRATEGIES FOR A CEYLON MATCHA NICHE IN SRI LANKA

The research comes up with the conclusion that the production and commercialization of Ceylon matcha is feasible in Sri Lanka, considering the existing industry capabilities and the level of consumer acceptance. The study further provides strategic recommendations for the production and domestic marketing of matcha within Sri Lanka based on SWOT analysis findings.

- Developing a strong premium ‘Ceylon Matcha’ brand identity and a niche positioning by combining ‘Ceylon Tea’ recognition.
- Promote research for understanding favorable climatic regions, develop suitable tea cultivars, and upgrade existing resources to scale up the existing commercial production.
- Target younger and urban consumer segments to create a stable domestic market through better social media marketing campaigns and promotional activities.
- Make advantage of the consumers' awareness of the health benefits of matcha and perceived value for the local niche industry to produce and promote wellness products.
- Make advantage of the lower labor cost to offer competitive prices while maintaining the quality.
- Developing strategic partnerships with international experts to overcome the gap in technical expertise and special skill development.
- Encouraging training, development, and knowledge sharing initiatives to build specialized skills among tea stakeholders.
- Leveraging the private sector interest for matcha to address the absence of a clear national strategy.
- Developing supply chain strategies and distribution networks through e-commerce and retail, to make matcha available nationwide.

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DIGITAL MARKETING CAPABILITIES AND CUSTOMER ENGAGEMENT IN INDIAN FASHION E-COMMERCE SMES: PRELIMINARY SURVEY EVIDENCE

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ABSTRACT

This paper presents empirical evidence on the relationship between digital marketing capabilities and customer engagement in Indian fashion e-commerce SMEs. The study addresses the customer-based evidence in this context. Based on survey results, the findings show moderate positive evaluations of digital marketing capabilities and strong positive associations between capability dimensions and customer engagement.

Keywords: customer engagement, digital marketing, e-commerce, fashion SMEs, India

INTRODUCTION

The rapid growth of e-commerce has changed how firms attract, communicate with and retain customers in digital markets [1][4]. In India, the expansion of internet access, mobile shopping and digital payments has supported the growth of online retail, while the fashion segment has become one of the most active and competitive categories [3][4]. This environment has increased the importance of customer-facing digital capabilities, especially for small and medium-sized enterprises (SMEs) that must compete with larger and better-resourced platforms [1][6].

Customer engagement is increasingly shaped by the quality of interaction that firms create across websites, social media and other digital touchpoints [1][8]. For SMEs, this means that digital competitiveness depends not only on product offer and price, but also on social media activity, useful content, personal relevance, responsiveness and channel consistency [1][2]. The research problem of this paper is the limited empirical evidence on how customers of Indian fashion e-commerce SMEs evaluate these capabilities and how such evaluations relate to customer engagement [1][6].

The aim of the paper is to assess the relationship between perceived digital marketing capabilities and customer engagement in Indian fashion e-commerce SMEs using survey data. The study follows a quantitative, cross-sectional design. Data were collected through an online questionnaire, and the results were analysed by using descriptive statistics and correlation analysis.

BASIC THEORETICAL AND PRACTICAL PROVISION

Digital marketing capabilities can be understood as a firm's ability to implement, coordinate and optimise digital tools and communication processes in order to achieve customer-oriented goals [2][6]. The earlier thesis-based framework for this topic identified several relevant dimensions, but the present paper focuses on those most visible to customers in fashion e-commerce SMEs: social media capability, content capability, personalisation capability, analytics-related responsiveness and platform integration capability[6]. These dimensions are especially relevant in online fashion retail because visual presentation, communication quality and continuity of experience strongly influence customer evaluations [1][8].

Prior literature suggests that technological and marketing capabilities improve digital marketing effectiveness and support SME performance [2][6]. Research on customer engagement also shows that interaction, trust, satisfaction, revisit intention and recommendation behaviour are central outcomes of digital relationship building [1][8]. In practice, this means that SMEs need more than a basic online presence. They need coordinated digital activities that customers perceive as attractive, relevant and responsive [1][2].

The practical significance of this issue is high in the Indian fashion e-commerce context. Large platforms can invest heavily in data, automation and omnichannel systems, while smaller firms often operate with tighter budgets and simpler digital infrastructures [3][4]. As a result, analysing customer perceptions of these capabilities can help identify which capability dimensions appear most strongly connected with engagement outcomes in smaller online fashion businesses.

RESEARCH FINDINGS OR DATA, EVALUATION OF RESEARCH RESULTS

The survey file contained 54 responses in total. 48 respondents answered the screening question positively, and 45 of these provided usable Likert-scale data for the present analysis [5]. Thus, the empirical section of the paper is based on 45 valid respondents who confirmed that they had purchased fashion products from a small or medium-sized online fashion store in India during the previous 12 months. The sample is more diverse than in the earlier dataset. Most valid respondents were aged 25–34 (36 respondents), while 6 respondents were aged 35–44 and 3 respondent was aged 18–24. In terms of gender, 33 respondents were female and 12 were male. Regarding online fashion shopping frequency, 15 respondents reported buying monthly, 12 every 2–3 months, 12 rarely, and 6 weekly.

The questionnaire measured five digital marketing capability dimensions and one customer engagement construct using a five-point Likert scale. The mean values indicate moderate positive evaluations across all dimensions: social media capability 3.60, content capability 3.69, personalisation capability 3.58, analytics-related responsiveness 3.71, integration capability 3.60, and customer engagement 3.66. These averages show that respondents generally assessed the digital efforts of Indian fashion e-commerce SMEs positively, with the strongest evaluation given to analytics-related responsiveness and the lowest to personalisation capability.

The lowest mean was observed for personalisation capability, which may indicate that tailored recommendations, customised messages and preference-based offers remain relatively less developed in the surveyed SME context. By contrast, social media capability, content capability and integration capability all reached the same average score, indicating that these areas may be somewhat more visible and more consistently perceived by customers. Analytics-related responsiveness also received a moderate positive mean, suggesting that respondents notice some degree of complaint handling and relevance of suggestions, but not at an advanced level.

The standard deviations range from 0.86 to 0.92, which indicates a moderate spread of responses across the sample. The lowest variation was observed for personalisation capability (SD=0.86) and the highest for integration capability (SD=0.92). This suggests that respondents views were relatively consistent overall, although perceptions of cross-channel integration varied somewhat more strongly than the other capability dimensions.

These results indicate that when customers perceive stronger social media communication, better responsiveness, more useful content, smoother channel integration and more relevant personalised communication, they also report higher trust, satisfaction, interaction and continued interest in the brand.

Although these associations are strong, they should be interpreted cautiously because the present sample is small and homogeneous. The current results are therefore preliminary rather than definitive. However, they already provide initial empirical support for the assumption that digital marketing capabilities are positively related to customer engagement in Indian fashion e-commerce SMEs. For a research, this is important because it allows the discussion to move beyond a conceptual proposal and present actual evidence from customer responses.

CONCLUSIONS

The preliminary survey evidence shows that customers of Indian fashion e-commerce SMEs evaluate digital marketing capabilities and customer engagement at a moderate positive level. Among the analysed dimensions, personalisation received the lowest average score, while social media, content and integration received slightly stronger evaluations. This suggests that SMEs may already be visible and active across channels, but may still need improvement in tailoring messages and offers to individual customers.

The most important empirical conclusion is that all five capability dimensions were strongly and positively associated with customer engagement. This supports the view that customer engagement in fashion e-commerce SMEs is closely connected with how customers perceive digital communication quality, responsiveness and consistency. In practical terms, SMEs that improve attractive content, timely response, smoother channel integration and more relevant personalised interaction may strengthen trust, satisfaction and repurchase intention among customers [2][6].

At the same time, the study is limited by the small number of usable responses and the concentration of respondents in one age group and city-tier profile. Further data collection is needed before broader generalisations can be made, and the full thesis can later apply deeper techniques such as reliability testing, factor analysis and regression.

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INTEGRATION OF MICRO-SQUALIFICATIONS AND SHORT COURSES INTO HIGHER EDUCATIONAL INSTITUTIONS

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ABSTRACT

The article substantiates the relevance and necessity of introducing innovative approaches to learning, in particular micro courses, into the educational process of higher education institutions. The advantages and disadvantages of changes in learning in higher education institutions and the integration of new technologies into the educational process are substantiated.

Keywords: learning, micro courses, innovations, higher education

АНОТАЦІЯ

У статті обґрунтовано актуальність та необхідність впровадження інноваційних підходів до навчання, зокрема мікро курсів у навчальний процес закладів вищої освіти. Обґрунтовано переваги та недоліки змін у навчанні у закладів вищої освіти та інтеграція новітніх технологій в освітній процес.

Ключові слова: навчання, мікро курси, інновації, вища освіта

INTRODUCTION

Today's labor market demands skills that change faster than educational standards can be updated. The "Liquid Education" concept—short courses—allows for the integration of relevant industrial content into the conservative university structure. The main advantages of this concept are: curriculum adaptability—instead of rewriting the entire undergraduate program, a university can replace an outdated elective with a relevant micro-module from leading global centers; interdisciplinarity; and access to global expertise. The online format erases boundaries. Students at a regional university gain access to lectures by world-class professors, leveling the playing field. The introduction of short courses into undergraduate programs is not a threat to the traditional university, but rather its evolution. It represents a shift from the "university as a closed box" model to the "university as a hub" model, which facilitates the best educational resources available to its students. Traditional degree-based education is shifting toward a lifelong learning model. The rapid obsolescence of technical skills requires faster educational cycles.Defining Micro-credentials (MCs): These are certified learning outcomes of short-term experiences, assessed against transparent standards[3].

BASIC THEORETICAL AND PRACTICAL PROVISION

The development of a methodology for introducing microqualifications and short courses into undergraduate curricula will help overcome “geographical injustice”: a student of a regional higher education institution in any country receives knowledge from leading professors in the world. The ability to choose microcourses allows you to form an individual educational trajectory that makes a graduate stand out from the competition in the labor market[6].

The introduction of short courses allows an educational institution to be Agile — to flexibly respond to changes in technology without waiting for a 4-year cycle of updating standards. This demonstrates the institution's innovativeness to donors and applicants, attracting the best talents and additional funding. The Blended Learning model frees the teacher from reading the basic theory, which is already available online in the best quality. This allows you to focus on scientific work, project-based learning, and individual work with students. The teacher becomes a facilitator of global knowledge, which increases his professional status. The business gains specialists who possess the specific tools used in the industry today.

RESEARCH RESULTS AND THEIR EVALUATION

The average half-life of relevant skills in technology industries today is less than five years. A traditional four-year bachelor's degree risks producing specialists with a "retentive" knowledge base. Short courses enable the implementation of an Agile approach to educational program design. The developed methodological foundations will allow universities to implement elements of the model without additional financial outlay. In an era of information overload, the role of the university is shifting from knowledge transmission to its validation. A university is not obligated to produce all content itself, but it should act as a quality filter by integrating proven external modules into its ecosystem.

The academic value of a short online course is ensured by three components[7]:

• Practice: More than 40% of the time is spent actively solving problems.

• Proctoring: Digital identity verification eliminates academic dishonesty.

• Peer review: An international peer-review system develops critical thinking.

The introduction of third-party credit-bearing courses allows the university to offer students 50+ unique learning paths without hiring 50 new faculty members. This optimizes the budget and increases student satisfaction (NPS).[9]

For Ukraine, the integration of micro-credentials is not merely an educational innovation but a strategic necessity driven by the exigencies of war and the requirements of post-war reconstruction. Emergency Reskilling and Upskilling: The full-scale invasion has displaced millions of people (IDPs) and veterans. Micro-courses provide a rapid pathway for these individuals to acquire new, market-relevant skills (e.g., in logistics, IT, or psychological rehabilitation) in weeks rather than years, facilitating immediate reintegration into the labor market.

Capacity Building for EU Integration: As Ukraine moves toward EU membership, there is an urgent need to train thousands of civil servants and professionals in European law, standards, and public administration. Modular programs (such as those offered by the College of Europe or Estonian HEIs) allow for high-speed training of personnel critical to the accession process.

Educational Continuity in Conflict Zones: With physical infrastructure under threat, HEIs have pivoted to digital-first modular learning. Micro-credentials allow students to maintain academic progress through bite-sized modules that can be completed during periods of stability, ensuring that learning does not stop despite blackouts or security threats.

Reconstruction (The "Build Back Better" Initiative): Post-war recovery will require specialized skills in green construction, urban planning, and energy efficiency. Short, intensive certification programs developed in partnership with international donors and HEIs will be the primary engine for training the workforce needed for massive infrastructure projects.

In the European Union, micro-credentials are at the heart of the European Education Area (EEA) 2025 and the European Skills Agenda.The "Twin Transition" (Digital and Green): The EU is undergoing a massive shift toward a carbon-neutral and digitally-driven economy. Traditional degrees are often too slow to respond to the demand for "green skills" (renewable energy, circular economy) and "deep tech" (AI, quantum computing). Micro-credentials provide the necessary agility to close these skill gaps[5].

Standardization and Portability (The 2022 Recommendation): The Council of the European Union has established a common framework for micro-credentials. This ensures that a short course completed in Berlin is recognized and valued by an employer or a university in Madrid or Warsaw. This "portability" is essential for the mobility of the European workforce.

Demographic Challenges and Lifelong Learning: With an aging population, Europe cannot rely solely on the "front-loaded" education of young people. HEIs are being incentivized to become hubs for lifelong learning, where workers return every 3–5 years to stack micro-credentials onto their existing qualifications.

Europass and Digital Sovereignty: The EU is investing in a digital ecosystem where micro-credentials are issued as European Digital Credentials for Learning. These are verifiable, multilingual, and integrated into the Europass platform, giving learners full ownership of their data and making recruitment processes more transparent.

Ukraine as a Pilot Ground for European InnovationThe intersection of Ukrainian needs and European standards creates a unique synergy:Harmonization: Ukraine is currently aligning its National Qualifications Framework with the European approach, ensuring that micro-qualifications earned in Ukraine are compatible with the ECTS (European Credit Transfer and Accumulation System).Digital Leadership: Ukraine’s advanced digital infrastructure (e.g., the Diia ecosystem) provides a fertile ground for piloting blockchain-based digital badges, which aligns perfectly with the EU’s vision for secure, digital educational records[7].

CONCLUSION

The integration of micro-qualifications and short courses into Higher Educational Institutions (HEIs) represents a fundamental transformation of the global educational landscape. As this article has demonstrated, the shift from a rigid, degree-centered model to a flexible, modular ecosystem is no longer optional; it is a vital response to the rapid technological advancements and socio-economic shifts of the 21st century.For European institutions, micro-credentials serve as the cornerstone of the "European Education Area," fostering workforce mobility and ensuring that the labor market can adapt to the green and digital transitions.

For Ukraine, this modular approach offers a critical pathway for national resilience, providing the tools for rapid reskilling of the displaced population, veterans, and professionals involved in the country’s post-war reconstruction and European integration.However, the successful implementation of this model requires more than just curricular changes. It demands:Robust Quality Assurance: Developing rigorous standards to ensure that short-form learning maintains the prestige and academic integrity of the institution.Technological Synchronization: Adopting digital credentialing and blockchain-based verification to make learning outcomes portable and transparent.Strategic Partnerships: Strengthening the link between academia and industry to ensure that micro-qualifications directly address real-world competency gaps.In conclusion, by embracing micro-qualifications, universities can evolve from being traditional "gatekeepers of knowledge" to becoming "facilitators of lifelong learning." This transition will not replace the traditional degree but will instead complement it, creating a more inclusive, agile, and resilient educational system capable of meeting the challenges of an unpredictable future.

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DARBA MOTIVĀCIJAS UZLABOŠANAS IESPĒJAS LUDZAS NOVADĀ, PAMATOJOTIES UZ PAŠVALDĪBAS UN PRIVĀTĀ SEKTORA DARBINIEKU DARBA MOTIVĀCIJAS FAKTORU ANALĪZES SALĪDZINĀJUMU

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ANOTĀCIJA

Pētījuma mērķis ir izpētīt pašvaldības un privātā sektora darbinieku darba motivācijas faktorus Ludzas novadā, salīdzināt abu sektoru darbinieku motivācijas faktorus, apmierinātību ar darba vidi un identificētu būtiskākās atšķirības un izstrādātu priekšlikumus darba apstākļu un motivācijas sistēmu pilnveidošanai. Pētījumā izmantotas zinātniskās literatūras analīzes, anketēšanas un salīdzinošās analīzes metodes. Rezultāti liecina, ka pašvaldības sektorā būtiskākas ir sociālās garantijas un stabilitāte, savukārt privātajā sektorā – atalgojums, darba apstākļi un profesionālās izaugsmes iespējas.

Atslēgvārdi: darba motivācija, darbinieki, Ludzas novads, pašvaldības sektors, privātais sektors

ABSTRACT

The aim of the research is to investigate the work motivation factors of public and private sector employees in Ludza Municipality, to compare the motivation factors and satisfaction with the work environment in both sectors, to identify the most significant differences, and to develop proposals for improving working conditions and motivation systems. The research employs scientific literature analysis, survey, and comparative analysis methods. The results indicate that social guarantees and stability are more important in the public sector, while salary, working conditions, and professional development opportunities are more significant in the private sector.

Keywords: work motivation, employees, Ludza Municipality, public sector, private sector

IEVADS. INTRODUCTION

Darba motivācija ir viens no būtiskākajiem faktoriem, kas ietekmē darba kvalitāti, produktivitāti un organizācijas attīstību. Motivēti darbinieki efektīvāk veic darba pienākumus, ir lojālāki organizācijai un retāk apsver darba vietas maiņu [1].

Darba motivācijas jautājumi īpaši aktuāli ir Latvijas reģionos, tostarp Ludzas novadā, kur vērojamas sociālekonomiskas problēmas – darbspējīgo iedzīvotāju samazināšanās, zems atalgojuma līmenis un ierobežotas profesionālās izaugsmes iespējas. Darba tirgū novērojams arī darbinieku trūkums un jauniešu aizplūšana uz lielākām pilsētām vai ārvalstīm.

Pētījuma problēma saistīta ar atšķirībām darba motivācijas faktoros starp pašvaldības un privātā sektora darbiniekiem Ludzas novadā, kā arī nepieciešamību pilnveidot darba vidi un motivācijas sistēmas.

Pētījuma mērķis ir analizēt un salīdzināt darba motivācijas faktorus pašvaldības un privātajā sektorā Ludzas novadā un noteikt darba uzlabošanas iespējas.

Pētījuma uzdevumi:

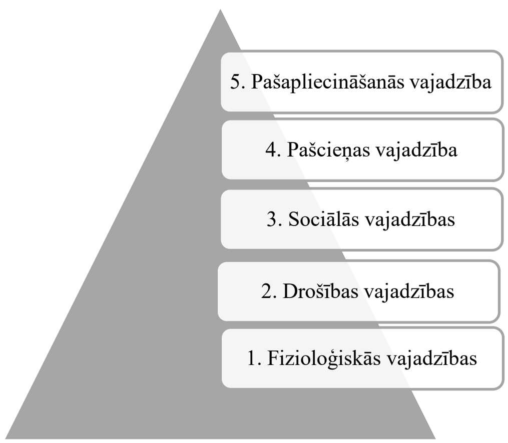
1. Izpētīt darba motivācijas teorētiskās atziņas;
2. Analizēt motivācijas faktorus pašvaldības un privātajā sektorā;

3. Salīdzināt darbinieku apmierinātību ar darba vidi;
4. Izstrādāt priekšlikumus darba motivācijas uzlabošanai.

Pētījumā izmantotas zinātniskās literatūras analīzes, anketēšanas, datu apkopošanas un salīdzinošās analīzes metodes. Pētījumā piedalījās 79 respondenti – 43 no pašvaldības sektora un 36 no privātā sektora.

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ. BASIC THEORETICAL AND PRACTICAL PROVISION

Darba motivācija ir process, kas rosina cilvēku sasniegt organizācijas un personīgos mērķus. Motivācija ietver gan iekšējos, gan ārējos faktorus, kas ietekmē darbinieku attieksmi pret darbu [2].



A. Maslova vajadzību hierarhijas teorija nosaka, ka cilvēka vajadzības veido hierarhisku sistēmu – fizioloģiskās vajadzības, drošība, piederība, pašcieņa un pašrealizācija [3]. Darba vidē tas nozīmē, ka darbiniekiem svarīgs ir ne tikai atalgojums, bet arī emocionālā vide, drošība un profesionālās attīstības iespējas.

2. att. Cilvēka pamatvajadzības.

F. Hercberga divu faktoru teorija uzsver, ka darba apmierinātību ietekmē motivējošie un higiēnas faktori [4]. Higiēnas faktori ietver atalgojumu, darba apstākļus un sociālās garantijas, savukārt motivējošie faktori saistīti ar atzinību, profesionālo izaugsmi un sasniegumiem.

F.Hercberga motivēšanas teorijas faktori.

I. Motivētāji	II. Higiēnas faktori
Faktori, kas labvēlīgi ietekmē darbinieka apmierinātību ar darbu	Faktori, kas novērš darbinieka neapmierinātību ar darbu
1.Panākumi darbā	1.Darbavietas saglabāšanas garantija
2.Panākumu atzīšana	2.Sociālais statuss
3.Darba process	3.Organizācijas darbība
4.Atbildibas pakāpe	4.Darba apstākļi
5.Izaugsmes iespējas, karjera	5.Tiešā vadītāja attieksme
6.Profesionālā izaugsme	6.Personīgā dzīve
	7.Attiecības starp darbiniekiem
	8.Darba alga
	9.Attiecības ar padotajiem

3. att. F. Hercberga divu faktoru teorija

Šīs teorijas pamatdoma ir tā, ka pietiek ar vienu no motivētājiem, lai cilvēks būtu apmierināts ar darbu, bet tajā pašā laikā, ja trūkst kaut viens no higiēnas faktoriem - cilvēks var just diskomfortu, neapmierinātību, kas ietekmēs viņa apmierinātību ar darbu kopumā. [7]

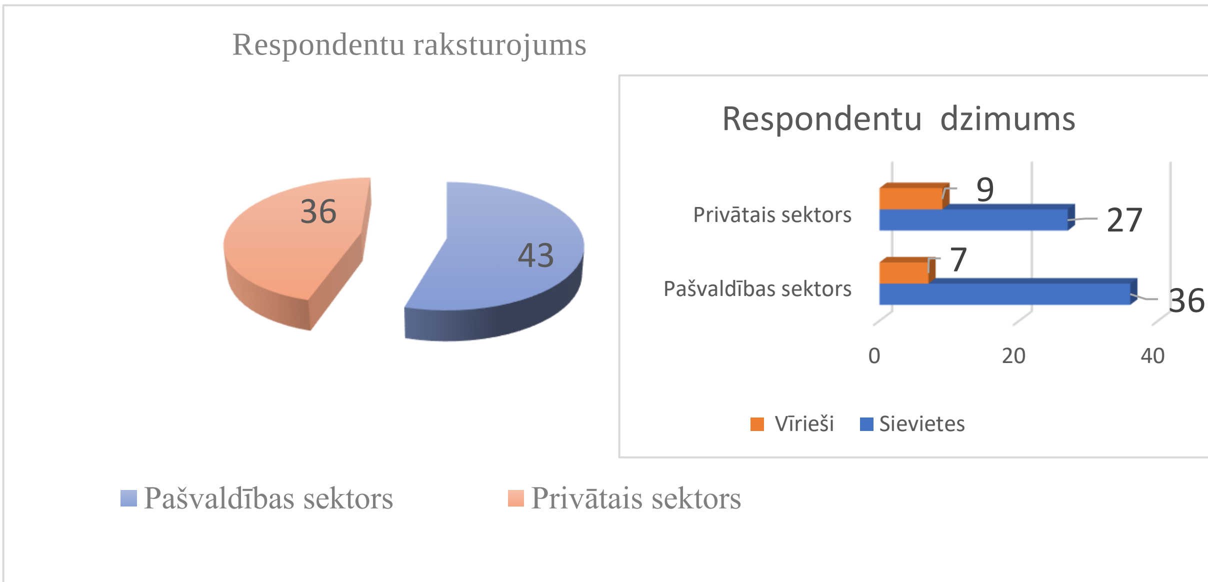
Pētījumi liecina, ka mūsdienu darba vidē arvien nozīmīgāki kļūst:

- veselības apdrošināšana;

- sociālās garantijas;
- emocionālā labsajūta;
- profesionālās pilnveides iespējas;
- pozitīva organizācijas kultūra.

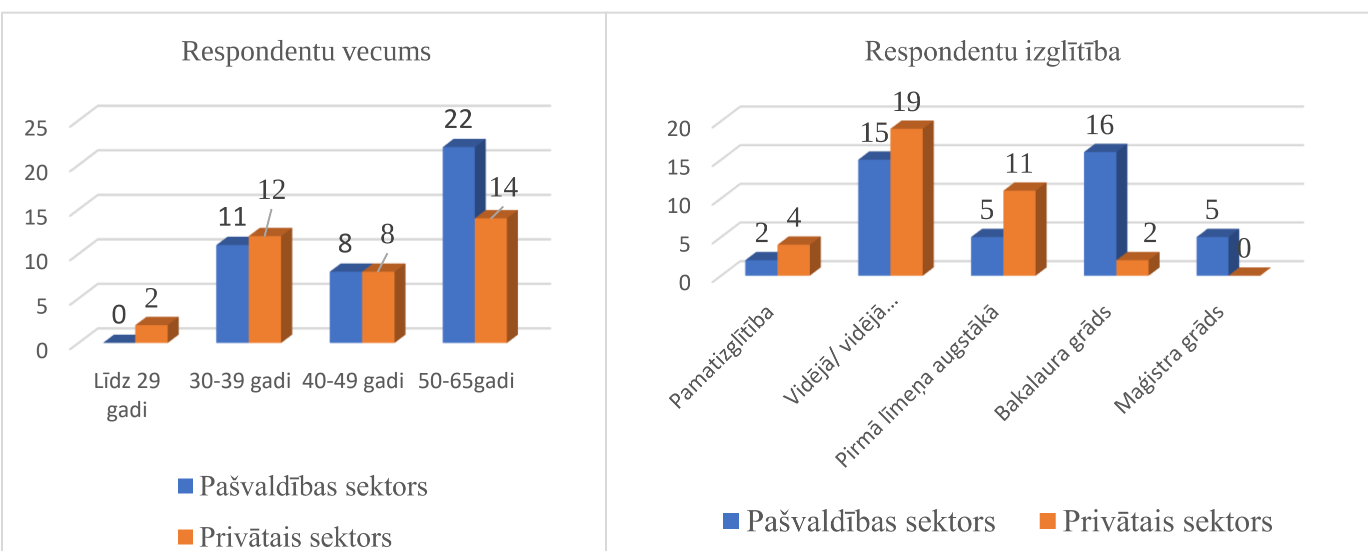
PĒTĪJUMA REZULTĀTI, NOVĒRTĒJUMS. RESEARCH FINDINGS OR DATA, EVALUATION OF RESEARCH RESULTS

Pētījuma ietvaros tika veikta Ludzas novada pašvaldības un privātā sektora darbinieku anketēšana, kurā piedalījās 79 respondenti.



4.att. Respondentu sadalījums pa sektoriem un dzimumiem.

Pētījumā piedalījās 43 respondenti no pašvaldības sektora un 36 respondenti no privātā sektora. Analizējot respondentu demogrāfiskos datus, secināts, ka abos sektoros dominē sievietes. Pašvaldības sektorā aptaujā piedalījās 36 sievietes un 7 vīrieši, savukārt privātajā sektorā – 27 sievietes un 9 vīrieši.



5. att. Respondentu vecums un izglītība.

Lielākā respondentu daļa bija vecumā no 50 līdz 65 gadiem, kas norāda uz darbaspēka novecošanās tendenci Ludzas novadā. Jauniešu īpatsvars bija neliels, kas apliecina jaunās paaudzes aizplūšanu no reģiona darba iespēju trūkuma dēļ.

Pašvaldības sektorā respondentu izglītības līmenis kopumā bija augstāks nekā privātajā sektorā. Pašvaldības sektorā dominēja bakalaura un maģistra grāds, savukārt privātajā sektorā – vidējā un profesionālā izglītība.

1.tabula. Darba raksturojuma salīdzinājums starp sektoriem

Darba raksturojums	**Pašvaldības sektors**	**Privātais sektors**
Interesants	21	13
Elastīgs	9	3
Nogurdinošs	16	8
Atbildīgs	34	32
Radošs	14	4
Garlaicīgs	2	1
Profesionālo izaugsmi veicinošs	13	6
Grūts (psihoemocionālā jomā)	25	18
Smags (fiziski)	8	21
Sarežģīts	11	6
Nenovērtēts	21	18
Stresa pilns	15	17
Sabiedrības labā	20	18
Sapņu darbs/sirds aicinājums	6	5
Riskants, apdraudošs	4	10
Viendabīgs	4	5
Labi atalgots	2	0
Viegls, paveicams bez piepūles	4	2
Zemu atalgots (LR minimālā darba alga)	26	16

Pētījuma rezultāti liecina, ka abu sektoru darbinieki savu darbu uzskata par atbildīgu:

- pašvaldības sektorā – 34 respondenti;
- privātajā sektorā – 32 respondenti.

Tomēr pastāv būtiskas atšķirības darba raksturojumā.

Pašvaldības sektorā darbinieki biežāk darbu raksturoja kā:

- psihoemocionāli grūtu – 25 respondenti;
- nenovērtētu – 21 respondents;
- nogurdinošu – 16 respondenti.

Tas īpaši raksturīgs sociālajiem darbiniekiem, aprūpētājiem un izglītības darbiniekiem.

Privātajā sektorā biežāk tika uzsvērta:

- fiziska slodze – 21 respondents;
- stresa pilns darbs – 17 respondenti;
- riskants darbs – 10 respondenti.

Tas saistīts ar fiziska darba profesijām, tirdzniecību un tehniskajām nozarēm.

Īpaši nozīmīgs secinājums ir tas, ka:

- tikai 2 respondenti pašvaldības sektorā darbu uzskata par labi atalgotu;
- privātajā sektorā neviens respondents darbu neuzskata par labi atalgotu.

Tas norāda uz nopietnām atalgojuma problēmām abos sektoros.

2. tabula. Darba motivācijas faktoru salīdzinājums.

Motivācijas faktori	**Pašvaldības sektors**			**Privātais sektors**		
	Svarīgi	*Vidēji svarīgi*	*Maz-svarīgi*	*Svarīgi*	*Vidēji svarīgi*	*Maz-svarīgi*
Draudzīgs, saliedēts kolektīvs	41	2	0	31	4	1
Iestādes prestižs	29	12	2	24	11	1
Stabils un atbilstošs atalgojums	41	2	0	35	1	0
Adekvāts darba apjoms	40	3	0	35	1	0
Darba novērtējums, atzinība	37	6	0	33	3	0
Vadības darba stils	34	9	0	34	1	1
Profesionālās apmācības iespējas	24	13	6	22	12	2
Darba vietas ģeogrāfiskais stāvoklis	31	12	0	28	6	2
Patīkams, interesēm atbilstošs darbs	31	12	0	30	5	1
Apmaksāts 6 nedēļu atvaļinājums	36	7	0	36	0	0
Sociālās garantijas	41	2	0	36	0	0
Veselības apdrošināšana	39	4	0	32	3	1
Apmaksātas papildatvaļinājuma dienas	41	1	1	25	10	1
Transporta izdevumu segšana	12	24	7	24	6	6
Motivācijas sistēma	38	5	0	32	4	0
Materiālie bonusi	39	4	0	32	4	1
Apmaksāta Obligātās veselības pārbaude	39	4	0	32	4	0
Nelaimes gadījumu apdrošināšana	30	11	2	29	4	3
Atbilstoši darba vides faktori(fiziskie, ķīmiskie, bioloģiskie, ergonomiskie, psihoemocionālie)	42	1	0	34	2	0

Gan pašvaldības, gan privātajā sektorā *svarīgākie motivācijas faktori* ir:

- stabils atalgojums;
- sociālās garantijas;
- veselības apdrošināšana;
- draudzīgs kolektīvs;
- darba novērtējums.

Pašvaldības sektorā vairāk nozīmīgi:

- sociālās garantijas – 41 respondents;
- apmaksātas papildatvaļinājuma dienas – 41 respondents;

- veselības apdrošināšana – 39 respondenti.

Tas liecina, ka pašvaldības darbiniekiem būtiska ir stabilitāte un sociālā drošība.

Privātajā sektorā vairāk nozīmīgi:

- atalgojums – 35 respondenti;
- adekvāts darba apjoms – 35 respondenti;
- vadības darba stils – 34 respondenti.

Tas norāda, ka privātajā sektorā būtiskāka ir darba efektivitāte, vadības kvalitāte un finansiālā motivācija.

3. tabula. Darbinieku apmierinātības salīdzinājums

Apmierinātības faktori	**Pašvaldības sektors**			**Privātais sektors**		
	Apmierināts	*Daļēji apmierināts*	*Neapmierināts*	*Apmierināts*	*Daļēji apmierināts*	*Neapmierināts*
Draudzīgs, saliedēts kolektīvs	29	13	1	18	14	4
Iestādes prestižs	33	9	1	18	16	1
Stabils un atbilstošs atalgojums	20	19	4	11	20	5
Adekvāts darba apjoms	21	17	5	14	16	6
Darba novērtējums, atzinība	18	22	3	9	20	6
Vadības darba stils	25	18	0	17	18	0
Profesionālās apmācības iespējas	24	15	4	8	21	4
Darba vietas ģeogrāfiskais stāvoklis	27	0	0	30	6	0
Patīkams, interesēm atbilstošs darbs	23	19	1	19	15	2
Apmaksāts 4 nedēļu atvaļinājums	36	6	1	25	5	6
Sociālās garantijas	38	5	0	32	1	3
Veselības apdrošināšana	4	6	33	14	4	15
Apmaksātas papildatvaļinājuma dienas	35	5	3	5	7	20
Transporta izdevumu segšana	8	23	12	14	9	5
Motivācijas sistēma	6	7	30	13	13	11
Materiālie bonusi	5	12	26	14	11	11
Apmaksāta Obligātās veselības pārbaude	33	7	3	18	11	6
Nelaimes gadījumu apdrošināšana	20	18	5	11	12	13
Atbilstoši darba vides faktori(fiziskie, ķīmiskie, bioloģiskie, ergonomiskie, psihoemocionālie)	22	20	1	9	21	7

Pētījuma rezultāti parāda, ka darbinieki vairāk apmierināti ar kolektīvu un darba vietas atrašanās vietu, bet mazāk – ar motivācijas sistēmu un materiālajiem bonusiem.

Ar ko vairāk apmierināti pašvaldības sektorā?
Pašvaldības sektorā vairāk apmierināti ar:

- sociālajām garantijām – 38 respondenti;
- apmaksātu atvaļinājumu – 36 respondenti;
- iestādes prestižu – 33 respondenti;
- darba vietas atrašanās vietu – 27 respondenti.

Ar ko vairāk neapmierināti pašvaldības sektorā?
Vislielākā neapmierinātība:

- veselības apdrošināšana – 33 respondenti;
- motivācijas sistēma – 30 respondenti;
- materiālie bonusi – 26 respondenti.

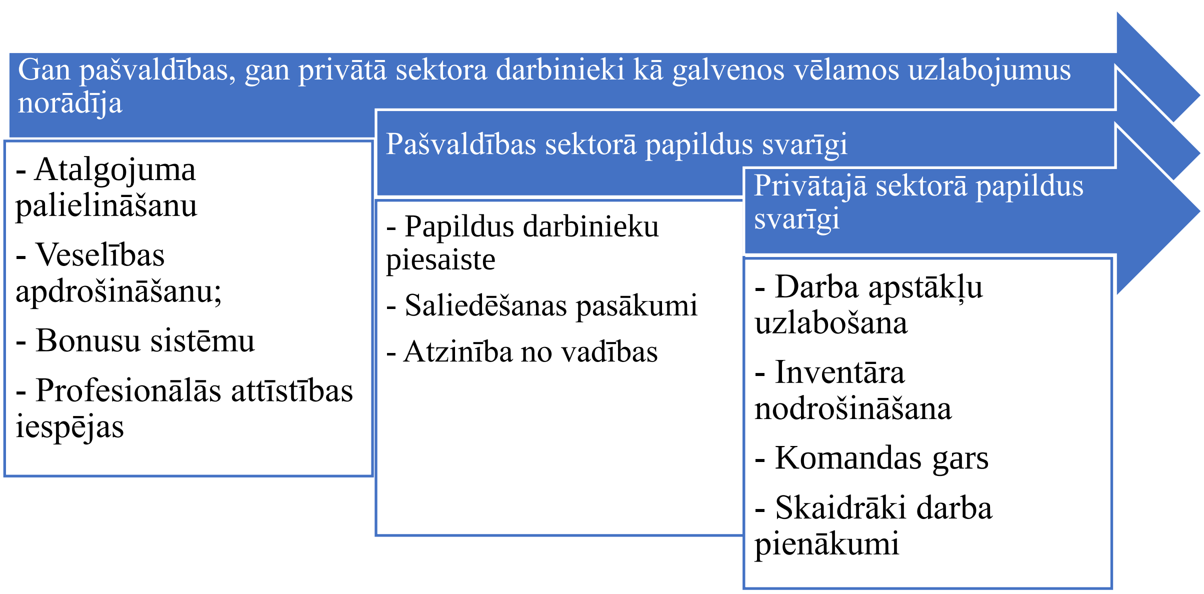
Tas norāda uz nepietiekamu darbinieku novērtēšanu un sociālā atbalsta trūkumu.
Ar ko vairāk apmierināti privātajā sektorā?
Privātajā sektorā vairāk apmierināti ar:

- darba vietas ģeogrāfisko stāvokli – 30 respondenti;
- sociālajām garantijām – 32 respondenti;
- draudzīgu kolektīvu – 18 respondenti.

Ar ko vairāk neapmierināti privātajā sektorā?
Privātajā sektorā būtiskākā neapmierinātība:

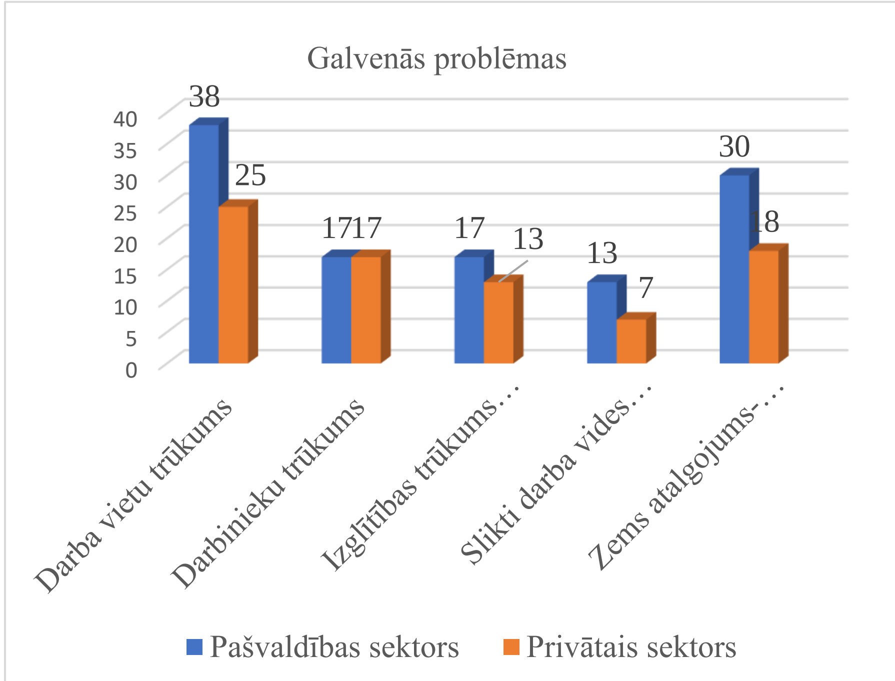
- apmaksātām papildatvaļinājuma dienām – 20 respondenti;
- veselības apdrošināšanu – 15 respondenti;
- motivācijas sistēmu – 11 respondenti;
- materiālajiem bonusiem – 11 respondenti.

Tas liecina, ka privātajā sektorā darbinieki izjūt nepietiekamu sociālo aizsardzību un pārslodzes risku.



6. att. Darba uzlabošanas iespējas

Respondenti kā galvenās problēmas norādīja:
Pašvaldības sektorā:
38 respondenti norādīja darba vietu trūkumu;
30 respondenti – zemu atalgojumu.
Kā arī respondenti uzsvēra:
"Jaunā paaudze par tādu samaksu negrib strādāt."
Tas apliecina, ka reģionā pastāv būtiskas sociālekonomiskas problēmas.



7.att. Galvenās problēmas darba vidē Ludzas novadā

SECINĀJUMI. CONCLUSIONS

1. Darba motivācija būtiski ietekmē darba kvalitāti, produktivitāti un organizācijas attīstību.
2. Pašvaldības sektorā dominē psihoemocionālā slodze, savukārt privātajā sektorā – fiziskā slodze.
3. Pašvaldības darbiniekiem būtiskākas ir sociālās garantijas un stabilitāte, savukārt privātā sektora darbiniekiem – finansiālie stimuli un darba apstākļi.
4. Gan pašvaldības, gan privātajā sektorā vērojama neapmierinātība ar atalgojumu, motivācijas sistēmu un veselības apdrošināšanas pieejamību.
5. Privātajā sektorā lielāka neapmierinātība ir ar papildatvaļinājuma iespējām, savukārt pašvaldības sektorā – ar motivācijas sistēmu un materiālajiem bonusiem.
6. Ludzas novadā būtiska problēma ir darba vietu trūkums, zems atalgojums un darbaspēka novecošanās.
7. Darba motivācijas uzlabošanai nepieciešams pilnveidot motivācijas sistēmas, nodrošināt veselības apdrošināšanu, uzlabot darba vidi un palielināt profesionālās pilnveides iespējas.

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DIGITALIZATION OF HRM IN UNIVERSITIES: THEORETICAL FOUNDATIONS AND CURRENT STATE OF SCIENTIFIC RESEARCH

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ABSTRACT

The article analyzes the theoretical foundations of the digitalization of Human Resource Management (HRM) in higher education institutions and summarizes the current state of research in this field. The study explores the essence of the digital transformation of HRM as a comprehensive process of integrating digital technologies into university personnel management practices. Based on an analysis of contemporary scholarly literature, the main groups of factors influencing HRM digitalization are identified, including technological, organizational and strategic, competency-based, and value-ethical factors. Particular attention is paid to the potential applications of artificial intelligence, HR analytics, cloud technologies, electronic document management systems, and digital platforms in recruitment, onboarding, performance evaluation, employee development, and motivation processes. It is substantiated that the effectiveness of digitalization depends not only on the implementation of technological innovations but also on the level of digital culture, the development of staff competencies, strategic management practices, and adherence to ethical principles. The study concludes that the digitalization of HRM contributes to improving the efficiency of personnel processes, fostering human capital development, and strengthening the competitiveness of universities within the contemporary academic environment.

Keywords: digitalization; Human Resource Management (HRM); higher education institutions; universities; digital transformation; artificial intelligence; HR analytics; digital competencies; digital strategy; human capital; digital leadership

INTRODUCTION

In the context of globalization, increasing competition in the educational services market, the internationalization of higher education, and the transition to a knowledge-based economy, higher education institutions are compelled to reconsider traditional approaches to Human Resource Management (HRM). If universities aim to maintain their competitiveness, ensure academic reputation, attract highly qualified academic staff, talented researchers, and the most capable students, they must undertake a comprehensive digital transformation of their HR systems. This transformation involves not only technological modernization but also the integrated development of a management model in which digital technologies serve as a strategic tool for managing human capital.

BASIC THEORETICAL AND PRACTICAL PROVISION

In contemporary scholarly discourse, the digitalization of Human Resource Management (HRM) is understood as a systemic transformation of the entire personnel management architecture, encompassing strategic workforce planning, employee recruitment and onboarding, performance evaluation, professional competency development, motivation, career path management, knowledge management, organizational communication, and employee well-being support.

In the academic literature, the digitalization of human resource management is regarded as a strategic priority for organizations seeking to expand their managerial capabilities through the integration of artificial intelligence and knowledge-oriented systems. In particular, some scholars argue that the digital transformation of HRM is directly linked to the development of digital competencies among HR professionals, while knowledge management serves as an important mediator between digital transformation, the adoption of artificial intelligence, and the improvement of HR process quality [1]. Other researchers emphasize that the essence of HRM digital transformation lies in the creation of a digital work environment, the automation of HR processes, and the provision of modern digital services to employees [2].

The reviewed scholarly sources make it possible to identify several groups of factors influencing HRM digitalization. The first group comprises technological factors associated with the development of artificial intelligence, cloud services, HR analytics, integrated information systems, electronic document management, remote communication platforms, learning management systems, and digital employee self-service portals. These tools form the infrastructural foundation for the modernization of HR processes by ensuring rapid data processing, enhancing the transparency of managerial decision-making, and creating a unified digital environment for interaction between university administration and other categories of personnel.

According to researchers, the application of technologies such as artificial intelligence, machine learning, big data analytics, and cloud computing significantly transforms approaches to recruitment, performance management, employee evaluation, and workforce engagement. Predictive analytics and data-driven approaches are becoming increasingly important, as they enable organizations to make more informed managerial decisions [3].

Researchers also emphasize that digital tools enhance the operational efficiency of HR departments and facilitate the transition of HR professionals from predominantly administrative functions to strategic roles related to workforce planning, talent management, and organizational development. This aspect is particularly important for higher education institutions, where human capital directly influences the quality of educational programs, research productivity, international cooperation, and the institutional reputation of universities.

Numerous studies address both the theoretical conceptualization of digital transformation and the analysis of key trends in HRM digitalization, including the automation of HR processes, the implementation of data analytics, the use of artificial intelligence, and the development of digital HR ecosystems. The majority of scholars emphasize that artificial intelligence has considerable potential to improve organizational processes, functions, and management practices by enhancing efficiency through advanced data analysis, workforce forecasting, and the creation of organizational value.

At the same time, the implementation of artificial intelligence systems is accompanied by a number of challenges. Fenwick et al. note that barriers may arise from both technical issues and human-related factors, including employees' insufficient readiness for change, resistance to innovation, a lack of digital competencies, and distrust of algorithmic decision-making. Such factors often slow down the process of digital transformation or result in outcomes that fall short of expectations [4].

Böhmer and Schinnenburg also highlight the ambiguous consequences of implementing artificial intelligence in HRM. The authors examine both the positive potential of AI for strengthening organizational capabilities and the risks associated with the automation of managerial decision-making, changes in job design, algorithmic transparency, productivity, and data uncertainty. Based on a systematic literature review, they identify four key ambiguities of AI-oriented HRM: job design, transparency, productivity, and data uncertainty. They argue that these areas require particular attention from HRM professionals, as their effective management determines an organization's ability to leverage artificial intelligence as a source of strategic competitive advantage [5].

Another promising yet challenging area of HRM digitalization is the application of blockchain technology. Agarwal et al. investigate the challenges associated with the effective implementation of blockchain within human resource management functions. Their findings indicate that the major barriers include a lack of expertise, data privacy concerns, technical inefficiencies, implementation complexity, and the limited availability of practical examples demonstrating blockchain applications in HRM [6].

Research on electronic Human Resource Management (e-HRM) and the concept of smart HRM has been comprehensively analyzed by Kambur and Yildirim. An important scholarly contribution of their study is the proposed classification of HRM according to thematic areas, technical functions, and managerial subfunctions, which provides a more systematic framework for understanding the digital transformation of human resource management [7].

A significant contribution to understanding HRM digitalization is provided by research on the development of the Artificial Intelligence Maturity Model (AIMM). The authors emphasize that the rapid diffusion of artificial intelligence technologies across organizations in various sectors of the economy necessitates not only the technical implementation of AI solutions but also a strategic understanding of the stages involved in their integration into management systems. This issue is particularly relevant to human resource management, where the effectiveness of AI utilization depends directly on the level of organizational readiness, digital culture, managerial maturity, and leadership capacity to adapt new technologies to existing HR processes. The researchers argue that one of the key challenges of contemporary management remains the uncertainty surrounding the development of strong AI capabilities, namely, the lack of a clear understanding of which stages, resources, and managerial mechanisms ensure the successful implementation of artificial intelligence [8].

The authors further note that there is currently no fully developed and theoretically grounded artificial intelligence maturity model, which significantly complicates the strategic planning of digital transformation initiatives. In this context, AIMM is viewed as a tool that enables organizations to assess their readiness for AI adoption, identify gaps in digital competencies, managerial approaches, and technological infrastructure, and establish priorities for future development [8].

For higher education institutions, such a model would have particular practical value, as the digitalization of HRM in universities requires a phased developmental approach—from the automation of basic HR procedures to the strategic use of data analytics, workforce forecasting, personalized professional development, and the implementation of intelligent decision-support systems. An AI maturity model would enable universities to view HRM digitalization not as a one-time technological initiative but as a long-term evolutionary process of organizational development that requires strategic management, leadership, and institutional readiness.

For example, the integration of artificial intelligence into onboarding programs can significantly enhance the effectiveness of employee adaptation by making the process more personalized, automated, and interactive. Such an approach not only reduces the time required for the full integration of new employees into the organizational environment but also increases employee engagement, professional motivation, job satisfaction, and subsequent work performance. This becomes particularly important in the context of digital HRM transformation, where the speed and quality of employee adaptation directly influence organizational effectiveness.

Brown emphasizes that the employee onboarding stage is one of the most critical phases of the employee lifecycle, as the quality of onboarding largely determines subsequent employee retention, organizational loyalty, and readiness to perform professional duties effectively. The author notes that inadequate onboarding practices may lead to increased costs associated with employee turnover, repeated recruitment efforts, and the loss of organizational time. Conversely, well-designed onboarding programs contribute to lower turnover rates, the creation of positive employee experiences, and the faster integration of employees into organizational culture [9].

In particular, artificial intelligence enables the automation of routine onboarding activities, the development of personalized onboarding pathways, rapid access to essential information through chatbots, virtual assistants, and digital learning platforms, as well as continuous feedback mechanisms for new employees. Special attention is given to the interactive nature of such programs, as digital tools not only facilitate the transfer of knowledge but also foster a sense of belonging and engagement within the organizational environment, which is a crucial factor in professional adaptation. Brown also provides practical recommendations for organizational development and learning professionals seeking to enhance their onboarding programs in line with the requirements of the digital economy and contemporary approaches to human resource management [9].

Thus, the technological factors of HRM digitalization encompass a broad range of tools, including artificial intelligence, HR analytics, cloud services, the Internet of Things (IoT), and blockchain-based solutions. However, their effectiveness in higher education institutions depends not only on technical implementation but also on organizational readiness, digital culture, ethical governance, employee competencies, and the university's ability to utilize data and knowledge as strategic resources for development.

The second group of HRM digitalization factors comprises organizational and strategic factors, including the existence of a clearly defined mission, a strategic vision for university development, an organizational digital strategy, and an HR strategy integrated into the overall strategic management system. The strategic alignment of HR functions with the broader institutional development model is a key determinant of effective personnel management under conditions of digital transformation.

Researchers emphasize that the effectiveness of HRM in higher education institutions is directly influenced by the degree of integration between HR functions and the university's overall strategy. In this regard, HR strategy should be understood as a coherent configuration of long-term goals, principles, plans, and personnel-related programs aimed at ensuring sustainable organizational development, increasing adaptability, and strengthening competitiveness in the digital economy [10]. The authors further argue that, in the context of business digitalization, contemporary organizations are becoming increasingly dependent on employees' professional skills, creativity, engagement, and innovative potential. Applying a socio-technical perspective, the researchers conceptualize digital HR strategy as a synthesis of HR processes and digital technologies that enables more effective management of human capital [11].

To ensure the successful digitalization of HRM, organizations must meet several critical conditions, including the development of a digital culture, the enhancement of employees' digital competencies, strong leadership support, the availability of appropriate technological infrastructure, and organizational readiness for change. These findings have significant practical implications for both researchers and managers implementing HR transformation initiatives in response to contemporary challenges [12].

Within the higher education sector, the development of an HR ecosystem has emerged as a particularly important strategic factor in ensuring the sustainable development of universities. This perspective is reflected in the study by Lazareva et al., which substantiates the importance of HR ecosystem development for enhancing the effectiveness of strategic management in modern universities operating within the digital economy.

The researchers identified the principal HR-related risks arising during the transformation of educational organizations and proposed an HR ecosystem development strategy for their systematic classification and prioritization. The results may serve as a foundation for the formulation of strategic, motivational, and personnel policies aimed at ensuring the sustainable development of universities, strengthening their institutional resilience, and enhancing their competitiveness in the context of digital transformation [13].

Thus, the organizational and strategic factors of HRM digitalization determine not only the directions of digital technology implementation but also the overall effectiveness of transformation processes. It is the strategic alignment of HR policies, digital infrastructure, managerial decision-making, and HR ecosystem development that establishes the foundation for the long-term effectiveness of Human Resource Management in contemporary universities.

The third group of factors influencing the digitalization of Human Resource Management in higher education institutions comprises competency-related factors. Contemporary research demonstrates that employee-oriented digitalization positively affects the development of future professional competencies, fosters digital culture, and enhances employees' readiness to operate within the digital economy. The significance of this finding lies in the fact that HRM digitalization should be viewed not merely as a tool for control, cost optimization, or the automation of administrative procedures, but primarily as a mechanism for professional development, the acquisition of new skills, and the preparation of employees for the transformational processes of the modern labor market [14].

For higher education institutions, this issue is particularly important because universities that implement digital HR systems without simultaneously developing a digital culture risk achieving only the formal automation of personnel procedures without a genuine improvement in the quality of human resource management. In such cases, digital technologies fail to fulfill their strategic role and remain merely technical tools that do not fundamentally transform managerial processes.

Contemporary universities operate within the context of the knowledge economy, globalization, technological advancement, intense competition in the higher education sector, and the transformation of university governance models. Under these conditions, the ability to manage employee competencies effectively determines the attractiveness of a university as a place for employment, professional development, and academic achievement. The success of a higher education institution depends directly on the qualifications of its personnel, their professional skills, motivation, engagement, commitment to self-development, and capacity to adapt to emerging challenges [10].

There is no doubt that digitalization is fundamentally transforming the world of work and Human Resource Management systems, while the implementation of new technologies is reshaping the relationships between employees, technological systems, and work organization as a whole. In the context of digital transformation, new professional skills are becoming increasingly important, organizational expectations regarding leadership are evolving, and new models of managerial behavior are emerging in response to technological change [15]. Researchers devote considerable attention to analyzing how the digital environment alters the nature of managerial work, influences the development of leadership competencies, and requires innovative approaches to employee development [15].

Suryadi emphasizes that effective Human Resource Management constitutes a fundamental basis for the implementation of the university's core functions, particularly the so-called three pillars of higher education: teaching, research, and community service [16]. The author argues that the outcomes of the HR system have a direct impact on the quality of digital data management and information flows within the university. The study identifies three principal components of effective communication management in HR: vision architecture, value transformation, and flowchart development. These components support the achievement of strategic university goals, facilitate the alignment of internal processes, and contribute to the implementation of managerial decisions at both national and international levels [16].

Zhang and Chen conceptualize HRM digital transformation through three key dimensions: the digital workplace, digital HR processes, and digital employee services. Furthermore, the authors identify five major drivers of HRM digital transformation: the digital needs of internal customers, industry-specific digital innovations, competitive challenges, digital innovation management, and the demands of the digital era [2].

Within higher education institutions, these factors acquire a specific meaning. The internal customers of HR systems include not only administrative personnel but also academic staff, researchers, department and faculty leaders, managers of research units, and early-career scholars. Their needs are associated with transparent recruitment and promotion procedures, clear performance evaluation criteria, access to professional development opportunities, digital services supporting academic activities, flexible communication mechanisms, and fair systems of motivation and rewards.

The digitalization of work processes, the widespread adoption of remote work arrangements, and the instability of the external environment have significantly increased the demand for transferable competencies that can be effectively applied across various professional contexts. This is particularly relevant for HR managers, whose responsibilities are directly associated with personnel management, organizational change, communication, and the maintenance of HR systems.

Based on their analysis, the authors identify the most relevant transferable competencies of contemporary HR managers, including effective professional communication, confident use of digital technologies, the ability to work in multitasking environments, people and project management skills, effective self-management, emotional resilience, and the capacity for teamwork and collaboration. Of particular scholarly value is the model of transferable competencies for HR managers proposed by the researchers, together with a methodological approach for their assessment based on behavioral indicators. This approach makes it possible not only to diagnose the level of competency development but also to identify directions for further improvement in the context of professional growth, remote work, and the expanding opportunities associated with transprofessionalism [17].

For higher education institutions, these findings are especially important because the digitalization of Human Resource Management requires the development of a new type of HR professional—one capable of operating in the digital economy, managing complex HR processes, supporting organizational resilience, and ensuring the strategic development of human capital. Consequently, the development of transferable competencies becomes a crucial component of HR managers' professional training and an indispensable prerequisite for the successful digital transformation of HRM in higher education institutions.

Thus, competency-related factors determine both the quality and the depth of HRM digitalization processes within higher education institutions. Their essence lies in the ability to combine technological innovation with the development of human capital, digital competencies, strategic thinking, and new models of professional interaction. Only under such conditions does HRM digitalization become more than a formal modernization initiative and evolve into a genuine instrument for enhancing university management effectiveness and strengthening institutional competitiveness in the contemporary academic environment.

The fourth group comprises value-based and ethical factors. Digital personnel management in contemporary universities inevitably raises issues related to transparency, fairness, personal data protection, academic freedom, non-discrimination, algorithmic accountability, and the definition of acceptable limits of digital employee monitoring. In this context, HRM digitalization should be viewed not only as a means of improving managerial efficiency but also as a domain requiring clear ethical regulation and social legitimacy.

Dielini et al. emphasize the importance of social responsibility and social cohesion as fundamental pillars of sustainable university development. The authors examine university governance through the lens of values, social responsibility, academic community cohesion, and sustainability principles, demonstrating that a strong value foundation ultimately determines the quality of managerial decision-making in the contemporary educational environment [18]. Accordingly, the digitalization of HRM in higher education institutions must be not only functionally effective but also ethically justified, socially responsible, and oriented toward the long-term sustainability of the university system.

Researchers further emphasize that organizations that devote appropriate attention to employee support initiatives not only strengthen their external reputation but also cultivate high levels of internal commitment, trust, and employee loyalty. This approach is particularly important in the context of digital transformation, where employees frequently face professional uncertainty, psychological pressure, and the need to continuously adapt to new technological requirements. Supporting employees, creating a safe digital environment, and maintaining a balance between technological efficiency and human needs have therefore become essential elements of contemporary Human Resource Management [19].

For universities, this issue is especially significant, as ethical leadership and social responsibility directly influence academic culture, trust in managerial decisions, and the overall effectiveness of personnel policies.

Manroop et al. investigate the ethical implications of using big data in Human Resource Management practices, particularly in the areas of recruitment and selection, learning and development, performance management, compensation policies, and employee retention. The researchers emphasize that, despite the evident benefits of big data analytics for improving managerial decision-making, its application may generate significant risks for employees. These risks include institutional surveillance, algorithmic profiling, digital coercion, hidden monitoring mechanisms, and the potential for manipulative influence on employee behavior. The study highlights concerns regarding the exploitation of employees' personal information for corporate purposes and demonstrates how big data-driven HRM practices may infringe upon fundamental rights related to privacy, transparency, fairness, and personal data protection. To address these issues, the authors apply a framework of moral principles that enables a more comprehensive understanding of ethical risks and provide recommendations for both future research and organizational practice [20].

Chong and Zainal examine the influence of employee vitality, digital literacy, and transformational leadership on the job performance of HR professionals, as well as the moderating role of employee agility in these relationships. Their findings confirm that the performance of HR specialists is significantly affected by levels of digital literacy, professional resilience, and the ability to adapt to continuous change. Particular attention is devoted to transformational leadership, which contributes to the creation of a motivating work environment, fosters innovative thinking, and enhances employees' professional autonomy. At the same time, employee agility serves as an important moderating factor that strengthens the positive effects of these variables on work performance. These findings provide a deeper understanding of the determinants of HR professionals' effectiveness in digital environments [21].

Among the most significant practices identified by the authors are the promotion of work–life balance, the democratization of work and workplace technologies, employee empowerment, the encouragement of entrepreneurial behavior, reskilling initiatives aimed at achieving professional mastery, and measures to improve employee well-being. These HR practices help minimize the adverse effects of digital transformation, reduce professional burnout, and ensure a more human-centered approach to digital personnel management [22].

Thus, value-based and ethical factors of HRM digitalization determine not only the acceptable boundaries for the use of digital technologies in personnel management but also the level of trust in the HR management system itself. For higher education institutions, this issue is particularly important because universities, as social institutions, must ensure not only managerial effectiveness but also adherence to the principles of fairness, responsibility, academic freedom, and respect for human dignity. Only under such conditions does HRM digitalization acquire strategic value and social legitimacy.

RESEARCH RESULTS AND THEIR EVALUATION

The instrumental dimension of HRM digitalization should be examined through the core subsystems of Human Resource Management, which include workforce planning, recruitment, the establishment and termination of employment relationships, employee performance evaluation, personnel development, and motivation and compensation [10]. These subsystems can be digitalized through the application of appropriate technological tools.

In the area of workforce planning, digital tools enable the analysis of workforce age structures, forecasting of academic staffing needs, identification of competency shortages, and assessment of workload distribution across departments and faculties. Within recruitment processes, digitalization can ensure transparency in competitive selection procedures, facilitate electronic document submission, provide clear selection criteria, automate communication with candidates, and support the creation of electronic archives of recruitment procedures [10].

In the field of performance evaluation, digital systems may be employed to monitor research, teaching, administrative, and project-related activities. However, it is particularly important to avoid reducing academic work to the mere calculation of quantitative indicators. Researchers note that the evaluation of academic staff in universities is often comprehensive but insufficiently connected to employee development, motivation, and career progression pathways [10]. This finding is of fundamental importance for digital HRM: digital performance assessment should not only record results but also activate mechanisms for support, professional development, mentoring, and continuous improvement.

In this context, the impact of performance management systems on the productivity of academic staff deserves particular attention. Researchers have established that transparent and fair evaluation approaches, learning and development opportunities, reward systems, succession planning, continuous assessment, and motivational factors are positively associated with faculty performance [23]. This strengthens the argument that digital Performance Management Systems (PMS) in higher education institutions should be developmental and motivational rather than punitive and control-oriented.

The experience of the automated “Electronic University” system demonstrates that the digitalization of higher education management should encompass not isolated processes but the entire spectrum of administrative, educational, and managerial activities. The analyzed materials emphasize that a systemic approach to the automation of all university processes represents one of the most effective instruments of digital transformation. An integrated information system enables the accumulation of historical records, the generation of statistical data for any selected period, and continuous user access to relevant information [23]. For HRM, this implies the possibility of moving from fragmented personnel databases toward a comprehensive human capital management system within the university.

These findings are particularly important for the higher education sector, as universities operate in an environment characterized by intense intellectual competition, the need for flexible talent management, personalized professional development of academic staff, and effective workforce planning. Therefore, the digitalization of HRM in higher education institutions should be based on the synergy of digital leadership, AI-driven solutions, managerial innovation, and a strategic vision of sustainable development. Such an approach ensures not only operational efficiency but also the long-term competitiveness of the university.

CONCLUSION

The conducted analysis of scholarly research has demonstrated that the digitalization of Human Resource Management (HRM) represents one of the key directions for modernizing personnel management systems in higher education institutions. Contemporary digital technologies, including artificial intelligence, data analytics, cloud services, and integrated information systems, create new opportunities for enhancing the efficiency of HR processes, optimizing managerial decision-making, and fostering the development of universities' human capital. The study established that the successful digital transformation of HRM is determined by the complex interaction of technological, organizational and strategic, competency-related, and value-based and ethical factors. In this context, digitalization should not be limited to the automation of administrative procedures; rather, it should be aimed at supporting employees' professional development, increasing their engagement, fostering a digital culture, and ensuring the university's strategic development.

The literature review also revealed that, alongside the numerous benefits offered by digital technologies, there are significant risks related to personal data protection, algorithmic bias, the transparency of managerial decision-making, and the ethical implications of artificial intelligence. Therefore, the digitalization of HRM in higher education institutions should be implemented in accordance with the principles of human-centeredness, social responsibility, and academic values.

Promising directions for future research include the development of digital HRM maturity models for universities, the creation of systems for assessing employees' digital readiness, the investigation of artificial intelligence implementation practices in HR processes, and the formulation of recommendations for establishing effective digital HR ecosystems in higher education institutions.

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THE ROLE OF INNOVATION AND TECHNOLOGY ADOPTION IN STARTUP GROWTH: EVIDENCE FROM DARAZ, SRI LANKA

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Šajā pētījumā tiek pētīta inovāciju un tehnoloģiju ieviešanas loma jaunuzņēmumu izaugsmē, īpašu uzmanību pievēršot Daraz Sri Lanka. Pētījumā tiek analizēts, kā digitālās tehnoloģijas, piemēram, mobilā tirdzniecība, datu analīze un loģistikas sistēmas, ietekmē uzņēmumu darbības rādītājus. Secinājumi liecina, ka inovācijas ievērojami uzlabo darbības efektivitāti, klientu iesaisti un tirgus paplašināšanos.

Atslēgas vārdi: Inovācijas, tehnoloģiju ieviešana, jaunuzņēmumu izaugsme, e-komercija, Šrilanka

ABSTRACT

This study examines the role of innovation and technology adoption in startup growth, focusing on Daraz Sri Lanka. The research analyzes how digital technologies such as mobile commerce, data analytics and logistics systems influence business performance. Findings show that innovation significantly enhances operational efficiency, customer engagement and market expansion.

Key words: Innovation, Technology Adoption, Startup Growth, E-commerce, Sri Lanka

IEVADS. INTRODUCTION

In today's digital economy, innovation and technology adoption are essential for startup growth and competitiveness. Startups rely on digital tools to scale operations, improve efficiency and reach wider markets. According to the OECD, firms that adopt digital innovation achieve higher productivity and competitive advantage [1]. However, limited research exists on how these factors influence startups in emerging economies such as Sri Lanka.

Daraz Sri Lanka represents a successful example of a technology driven startup. The aim of this study is to analyze how innovation and technology adoption contribute to its growth. The research applies a mixed-method approach using theoretical analysis and company-based evaluation.

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ. BASIC THEORETICAL AND PRACTICAL PROVISION

Innovation refers to the implementation of new or improved products, processes or business models that create value. According to Schumpeter, innovation is the main driver of economic development through "creative destruction" [2]. Businesses achieve competitive advantage through continuous innovation and adaptation.

Technology adoption plays a key role in this process. The Technology Acceptance Model (TAM) explains that adoption depends on perceived usefulness and ease of use [3]. Additionally, the Diffusion of Innovation theory highlights how technologies spread among organizations and industries over time [4].

In practice, startups use technologies such as mobile applications, data analytics, artificial intelligence and digital payment systems to improve performance. Daraz Sri Lanka applies these technologies to enhance customer experience and operational efficiency. For example, its mobile platform allows users to browse, purchase and track products easily, while data analytics helps personalize marketing strategies.

PĒTĪJUMA REZULTĀTI UN TO IZVĒRTĒJUMS. RESEARCH RESULTS AND THEIR EVALUATION

The findings show that innovation and technology adoption have significantly contributed to the growth of Daraz Sri Lanka. Firstly, technological innovation improved operational efficiency through automated logistics systems such as Daraz Express (DEX), reducing delivery time and operational costs. This supports previous findings that digital technologies enhance productivity and efficiency.

Secondly, data analytics and artificial intelligence improved customer engagement by providing personalized recommendations and targeted promotions. This aligns with innovation theory, which emphasizes value creation through improved services.

Thirdly, the adoption of digital payment systems increased consumer trust and expanded the customer base. The Diffusion of Innovation theory explains how such technologies gradually gain acceptance among users.

Quantitative indicators further demonstrate growth:

- Employees increased from 50 to over 1000
- Seller base expanded to over 10,000
- User activity increased significantly

Despite these advantages, challenges such as low consumer trust, infrastructure limitations and high technology costs remain.

KOPSAVILKUMS. CONCLUSION

This study confirms that innovation and technology adoption are critical drivers of startup growth. In the case of Daraz Sri Lanka, digital technologies have improved efficiency, expanded market reach and enhanced customer experience.

The findings suggest that startups in emerging economies should invest in digital innovation and develop technological capabilities to achieve sustainable growth. However, addressing challenges such as infrastructure and digital literacy is essential for long term success.

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BRAND PROMOTION STRATEGIES AND THEIR IMPACT ON BRAND PERFORMANCE: EVIDENCE FROM DILMAH TEA

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ANOTĀCIJA

Šajā pētījumā tiek pētīta zīmola veicināšanas stratēģiju loma zīmola tēla un tirgus snieguma uzlabošanā, koncentrējoties uz Dilmah Tea kā gadījuma izpēti. Pētījumā tiek analizēti galvenie reklāmas rīki, piemēram, reklāma, digitālais mārketings, korporatīvā sociālā atbildība (KSA) un pieredzes mārketings. Tiek piemērota kvalitatīva gadījuma izpētes pieeja, izmantojot sekundāros datu avotus, tostarp uzņēmumu ziņojumus, akadēmisko literatūru un nozares publikācijas. Secinājumi liecina, ka integrēta mārketinga komunikācija ievērojami uzlabo zīmola atpazīstamību, klientu iesaisti un konkurētspējīgu pozicionēšanu. Dilmah uzsvars uz autentiskumu, ētisku zīmola veidošanu un stāstu stāstīšanu veicina spēcīgu zīmola vērtību un globālu atpazīstamību. Pētījumā tiek uzsvērta stratēģiskas zīmola veicināšanas nozīme uzņēmumiem, kas darbojas konkurētspējīgos starptautiskos tirgos, jo īpaši jaunattīstības valstīs.

Atslēgas vārdi: Zīmola popularizēšana, zīmolvedība, mārketinga stratēģija, Dilmah tēja, Šrilanka

ABSTRACT

This study examines the role of brand promotion strategies in enhancing brand image and market performance, focusing on Dilmah Tea as a case study. The research analyzes key promotional tools such as advertising, digital marketing, corporate social responsibility (CSR) and experiential marketing. A qualitative case study approach is applied using secondary data sources including company reports, academic literature and industry publications. The findings indicate that integrated marketing communication significantly improves brand awareness, customer engagement and competitive positioning. Dilmah's emphasis on authenticity, ethical branding and storytelling contributes to strong brand equity and global recognition. The study highlights the importance of strategic brand promotion for firms operating in competitive international markets, particularly in developing economies.

Key words: Brand Promotion, Branding, Marketing Strategy, Dilmah Tea, Sri Lanka

IEVADS. INTRODUCTION

In today's highly competitive global market, branding and brand promotion have become critical factors influencing organizational success. Companies increasingly rely on strategic promotion tools to differentiate their products and create strong brand identities. This is particularly important in industries such as tea production, where product differentiation is limited.

Sri Lanka is globally recognized for its high quality Ceylon tea; however, many local companies struggle to establish strong international brands. Among them, Dilmah Tea has successfully positioned itself as a premium global brand through effective promotion strategies.The aim of this study is to analyze the brand promotion strategies of Dilmah Tea and evaluate their impact on brand image and market performance.

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ. BASIC THEORETICAL AND PRACTICAL PROVISION

Branding is defined as the process of creating a unique identity that distinguishes a product from competitors and builds customer loyalty.[1]It plays a key role in value creation, customer satisfaction and competitive advantage.

Brand promotion refers to the use of communication tools such as advertising, public relations, digital marketing and sales promotion to increase brand awareness and influence consumer behavior.[2]One of the most important frameworks in this context is Integrated Marketing Communication (IMC), which emphasizes the coordination of all promotional tools to deliver a consistent message.[3]

Strong brand promotion contributes to brand equity, which includes brand awareness, perceived quality and customer loyalty.[4] In modern markets, digital transformation and social media have further enhanced the importance of strategic promotion activities.

PĒTĪJUMA REZULTĀTI UN TO IZVĒRTĒJUMS. RESEARCH RESULTS AND THEIR EVALUATION

The case study of Dilmah Tea demonstrates how effective brand promotion strategies can transform a commodity product into a premium global brand.

- **Advertising and Storytelling:** Dilmah uses storytelling as a central element of its advertising strategy. Instead of focusing on price, the company highlights its heritage, founder’s vision and authenticity. This emotional branding approach strengthens consumer trust and brand identity.
- **Digital Marketing and Social Media:** Digital marketing plays a significant role in Dilmah’s global presence. The company uses websites and social media platforms to engage consumers through educational content, recipes and sustainability initiatives. This enhances customer interaction and brand loyalty.
- **Corporate Social Responsibility (CSR):** CSR is a key component of Dilmah’s promotion strategy. Through initiatives such as the MJF Foundation and environmental programs, the company builds a strong ethical image. Ethical branding positively influences consumer perception and trust.
- **Experiential Marketing:** Dilmah applies experiential marketing through tea tasting sessions, workshops and tourism activities. These experiences allow consumers to interact directly with the product, increasing brand engagement and loyalty.
- **Impact on Brand Performance:** The findings indicate that these strategies have significantly improved Dilmah’s brand performance:
    - Strong global brand recognition
    - High customer loyalty
    - Ability to charge premium prices
    - Positive corporate reputation

Integrated marketing communication ensures consistency across all platforms, which enhances brand credibility and long term competitiveness[5].

KOPSAVILKUMS. CONCLUSION

This study confirms that brand promotion strategies are essential for building strong brand equity and achieving competitive advantage. The case of Dilmah Tea illustrates how a combination of storytelling, digital marketing, CSR and experiential marketing can successfully position a brand in the global market. The findings suggest that companies in developing economies should invest in integrated promotion strategies and focus on authenticity, sustainability and customer engagement. Effective brand promotion should be considered a long-term strategic investment rather than a short-term marketing activity.

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STRESS-DRIVEN LEARNING AND AI INTEGRATION: A NEW PARADIGM FOR ACCELERATED SKILL ACQUISITION

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ABSTRACT

This paper addresses the failure of passive corporate training under pressure. It proposes an innovative "Black Belt Skill" framework for rapid skill acquisition. The novelty involves integrating AI simulations with controlled physiological stress (eustress) to create safe-to-fail environments. The conclusion is that reframing fear as a cognitive catalyst reduces training to three months, enabling professionals to prioritize empathetic client engagement and significantly improve corporate performance.

Keywords: Artificial intelligence, corporate training, deliberate practice, eustress, skill acquisition

INTRODUCTION

Intensity in global competition, rapid technological advancements, and unprecedented complexity characterize the contemporary professional landscape. In such an environment, professionals across different fields often experience chronic doubts, uncertainty, and overwhelming pressure to perform. Simultaneously, the half-life of learned skills is decreasing rapidly and, hence, requires continuous and effective adult education. However, traditional training methodologies — which typically rely on safe, passive environments and prioritize rote memorization — are proving increasingly inadequate. As a result, companies experience significant financial losses and miss strategic opportunities because even highly experienced personnel often lack a real and actionable understanding of the products or services they represent.

The fundamental disconnect lies in the gap between theoretical knowledge and practical application under pressure. When an individual is required to perform a critical task — whether it involves administering emergency first aid or executing a complex business negotiation — knowledge that has not been ingrained to an automatic, "black belt" level is virtually useless. Amateurs hesitate under stress; experts execute seamlessly because their environment, despite the pressure, feels familiar. To achieve this rapid, deep-rooted growth, individuals must make mistakes and systematically correct them [1]. Yet, human behavior naturally avoids failure because of the often severe professional, reputational, and financial repercussions of making errors in real-world business scenarios.

Therefore, the primary research problem addressed in this paper is the main disadvantages in modern corporate training: the inability to quickly and safely bridge the gap between novice comprehension and expert execution under high-stress conditions. To resolve this, this paper introduces the "Black Belt Skill" theoretical framework. The goal of this research is to conceptualize a safe, AI-augmented environment that unites methodical practice, controlled psychological stress, and immediate feedback. In this methodology, real-world consequences removal from the trial-and-error process aims to help experts master the material in three months. The subsequent sections will detail the theoretical foundations of learning driven by stress, the practical application of somatic regulation, and the projected outcomes of implementing this paradigm in modern enterprises.

BASIC THEORETICAL AND PRACTICAL PROVISION

The neurobiology of stress-enhanced learning

The core of the "Black Belt Skill" framework is rooted in the physiological phenomenon of eustress — positive stress that enhances cognitive and physical performance. Conventional pedagogical models often view stress as a purely negative variable that inhibits the prefrontal cortex. However, contemporary research suggests that controlled doses of adrenaline and cortisol can act as powerful catalysts for neuroplasticity [5]. When an individual operates at the "edge of their ability" under managed pressure, the brain's synaptic connections strengthen more rapidly than in a relaxed state.

This process, described as "flow" or "peak performance" by Kotler [3], requires a balance between high challenge and high skill. The proposed methodology applies this biological mechanism by intentionally inducing a state of heightened arousal. This guarantees that the professional is not merely "remembering" information but is "encoding" it into their somatic memory. Until a skill is ingrained to the level of automaticity, it remains non-actionable in a crisis. The objective is to reach a level where the practitioner can operate freely and effectively in a "normal" internal state, even when the external environment is chaotic.

Somatic regulation: the foundation of laser focus

An important practical part of this framework is the management of physiological responses to avoid eustress transformation into distress. The methodology introduces "Laser Focus" through specific somatic anchors, primarily breathing techniques. While "square breathing" (4-4-4-4) is a common standard, this framework argues for more complex ratios such as 4-6-8-6 or 4-4-6-4.

These structured breathing patterns serve two functions:

1. Autonomic regulation. By extending the exhalation phase, the practitioner activates the parasympathetic nervous system via the vagus nerve, effectively "muting" the brain's fight-or-flight response without sacrificing alertness.
2. Cognitive centering. Shifting focus from cognitive anxiety (the "mind") to bodily sensations (the "body") — a technique recommended by Ulmer [6] — allows the fear to dissipate. Instead of suppressing fear, the professional learns to "perform under the fear factor as a native," maintaining an internal state of absolute quietude. This physiological stability is the prerequisite for the high-level analysis required in complex client interactions.

AI-augmented safe-to-fail environments

The third pillar of the methodology is the integration of Artificial Intelligence to create a "Trial and Error" simulation matrix. The fear of consequences hinders rapid growth; therefore, we need to create an environment where people can make mistakes safely. AI provides a unique solution by generating an infinite number of highly specific industry scenarios that converge on fear and stress in a controlled setting.

Unlike traditional role-playing, AI-driven simulations can:

- Incorporate real-time stressors and non-verbal cues.
- Allow for thousands of repetitions of "high-pain" scenarios (e.g., extreme client objections or technical failures).
- Provide immediate, objective feedback on performance nuances.

This approach mimics the natural way a child learns to walk — through repeated failure without long-term repercussions [1, 4]. By the time the professional enters a real-world scenario, they have already "failed" and corrected themselves hundreds of times in the simulation. Consequently, there is nothing new for them in the actual stressful situation; they operate in what feels like a normal, familiar environment. This mastery allows the specialist to move beyond "retrieving information" and focus entirely on the client's underlying needs and emotional shifts, which even the most advanced AI cannot yet fully replicate.

RESEARCH RESULTS AND THEIR EVALUATION

The theoretical evaluation of the "Black Belt Skill" framework indicates a significant reduction in the skill acquisition lifecycle. By simulation of high-pressure environments, the model projects that employees can transition from novice comprehension to expert-level automaticity within a three-month period. In corporate environments, limited product mastery leads to a superficial understanding of client needs and, as a result, to substantial revenue loss and missed strategic opportunities.

This theoretical model shows the optimized distribution of cognitive load. When a professional has not fully incorporated their product knowledge [1], their mental bandwidth is totally consumed by information retrieval. Thus, they fail to mark important environmental shifts or client reactions. In contrast, achieving "black belt" automaticity frees the practitioner's cognitive resources. It allows them to accurately read subtle nonverbal cues and find out the client's underlying pain points.

Furthermore, the integration of AI serves strictly as a preparatory tool rather than a replacement for human interaction. The model argues that while generative AI or real-time data feeds can supply information, human clients naturally crave empathy, personal attention, and authenticity. A professional who relies on real-time prompts often comes across as artificial, which the client easily detects. True expertise allows the human professional to deliver highly nuanced, empathetic, and precise solutions that outpace both under-prepared human workers and standalone AI tools [2, 4].

The framework addresses the widespread sense of hopelessness and fatigue prevailing in highly competitive job markets on the psychological level. In this case, if a safe environment is provided for rapid trial and error, the system transforms the unknown from a source of anxiety into a structured pathway for proactive change and career resilience.

CONCLUSION

The paper shows that to achieve and maintain mastery in today's economy, a fundamental shift is needed — moving from passive learning to stress-driven, AI-augmented deliberate practice. The proposed "Black Belt Skill" framework holds that rapid professional growth depends on creating a safe-to-fail environment in which errors are identified and corrected iteratively, without severe real-world consequences.

The analysis also reveals that somatic regulation techniques integration [6] — namely, structured breathing — with advanced AI simulations [4] effectively reconfigures the perception of fear and physiological stress [3]. They are not inhibiting factors but are repurposed as powerful catalysts for heightened focus and accelerated neuroplasticity. Finally, this approach serves a dual purpose: it protects corporate financial interests by building deep, lasting expertise and empowers the individual practitioner. By refining skills to second nature, professionals can regain confidence, strengthen their competitive advantage, and turn stress from an adversary into a key asset.

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INNOVATIVE DEVELOPMENT OF THE CONSTRUCTION INDUSTRY TAKING INTO ACCOUNT MODERN TRENDS

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ABSTRACT

The article considers issues of innovative development of the construction industry, identifies the main current trends in the development of the industry. A forecast of the development of the construction industry for Ukraine and Europe is made.

Keywords: construction, innovation, development, market

АНОТАЦІЯ

У статті розглянуто питання інноваційного розвитку будівельної галузі, визначено основні сучасні тенденції розвитку галузі. Зроблено прогноз розвитку будівельної галузі для України та Європи.

Ключові слова: будівництво, інновації, розвиток, ринок

INTRODUCTION

The construction industry, historically known for its conservative approach, is currently undergoing a radical transformation. Driven by global labor shortages, rising material costs, and urgent climate goals, the sector is pivoting toward a tech-driven, sustainable ecosystem. In 2024–2026, the focus has shifted from simple digitization to the integration of deep tech and circular economy principles.

BASIC THEORETICAL AND PRACTICAL PROVISION

Artificial Intelligence (AI) is no longer a futuristic concept but a core operational tool.Predictive Analytics: Companies are using AI to analyze historical data to predict project delays and budget overruns before they happen.Generative Design: Architects use AI algorithms to generate thousands of design options that optimize for specific constraints like natural light, structural integrity, and material efficiency.Digital Twins: By creating a virtual replica of a physical asset, stakeholders can monitor building performance in real-time through IoT (Internet of Things) sensors, streamlining maintenance and energy use.

Modular and 3D PrintingTo tackle the housing crisis and labor deficits, the industry is moving from the "construction site" to the "factory floor."Modular and Prefabrication: Off-site construction allows for building components to be manufactured in controlled environments. This reduces waste by 40% and speeds up project timelines by nearly half.3D Concrete Printing (3DCP): Automated 3D printers are now capable of "printing" entire structural walls. This technology minimizes material use and enables complex architectural shapes that were previously too expensive to produce[1].

Sustainability has evolved from a "nice-to-have" to a regulatory necessity. The push for Net Zero is driving innovation in material science:Low-Carbon Materials: The rise of "Green Steel" and carbon-injected concrete is reducing the industry's massive carbon footprint.Mass Timber (CLT): Cross-laminated timber is gaining traction as a renewable, carbon-sequestering alternative to traditional steel and concrete for mid-to-high-rise buildings.Circular Construction: Modern projects are now designed for "deconstruction" rather than demolition, ensuring that materials can be recovered and reused at the end of a building's life cycle[3].

RESEARCH RESULTS AND THEIR EVALUATION

Modern trends are fundamentally changing how construction companies and government regulators manage the industry. The shift is moving from reactive "firefighting" to proactive, data-driven governance.Integrated Project Delivery (IPD): Management is moving away from fragmented contracts toward collaborative models. Using BIM and shared digital platforms, owners, designers, and contractors work as a single entity, sharing both risks and rewards[2].

This reduces litigation and ensures all parties are aligned with the project's goals. Through the use of ERP (Enterprise Resource Planning) systems integrated with IoT, managers can track the movement of labor, equipment, and materials in real-time. This "Lean Construction" approach minimizes idle time and optimizes the supply chain, which is crucial in an era of volatile material prices.

Management is now tasked with rigorous ESG (Environmental, Social, and Governance) tracking. Automated platforms collect data on carbon emissions, waste recycling, and labor safety, providing transparent reports for investors and regulatory bodies.

With the global talent war, management is utilizing VR/AR for rapid staff upskilling and AI-driven platforms to match worker skills with specific project needs, ensuring that the right expertise is deployed at the right time.

The modern construction site is becoming increasingly autonomous.Robotics: From rebar-tying robots to autonomous masonry layers, machines are taking over high-risk, repetitive tasks, significantly reducing workplace injuries.Drones and Reality Capture: UAVs (Unmanned Aerial Vehicles) provide daily 3D scans of sites, comparing real-world progress against BIM (Building Information Modeling) designs to catch errors instantly.AR/VR Integration: Augmented Reality (AR) allows workers to "see" hidden utilities behind walls or overlay blueprints onto the physical space, ensuring 100% precision in installation

By 2026, the European construction market is entering a phase of moderate recovery, with a projected growth of 1.5% to 2.2%. The development is strictly guided by the European Green Deal and new regulatory frameworks:

Decarbonization Mandates: Starting in 2026, all new buildings in the EU must be designed as Zero-Operational Emission structures. This forces developers to disclose "Whole Life Carbon" (WLC) data, making sustainability a measurable financial metric.

The Renovation Wave: With 75% of EU buildings currently energy-inefficient, the focus is shifting toward deep retrofitting. This creates a massive market for smart insulation, heat pumps, and integrated solar solutions.

Digital Product Passports: New regulations for iron, steel, and aluminum (expected in 2026) will require materials to have digital passports to track their environmental impact and recyclability.

Recovery of Residential Sector: While interest rates have weighed on new builds, a gradual rebound is expected by 2026 as monetary policies ease.

Reconstruction as a Leapfrog OpportunityUkraine’s construction sector is transitioning from "crisis management" to a large-scale, high-tech modernization. The country is estimated to require over $524 billion for reconstruction over the next decade.

Digital Governance (DREAM Ecosystem): To combat corruption and improve efficiency, Ukraine has launched the DREAM (Digital Restoration Ecosystem for Accountable Management) platform. This system tracks every reconstruction project in real-time, from design to completion.

Modular and Energy-Independent Building: Due to power grid instability, there is a 130% surge in demand for decentralized energy systems (solar, batteries, inverters). Modular construction is also becoming the standard for rapid restoration of schools and housing in de-occupied regions.

Labor Market Evolution: Facing a 30% shortage of skilled workers, the industry is seeing rapid wage growth (up to 25-30% in 2025) and a shift toward importing skilled labor and investing in automated technologies to compensate for the deficit.

A Unified FutureThe future of construction in both Europe and Ukraine is converging toward a single standard: digital, green, and transparent. While Europe focuses on fine-tuning its existing assets through renovation and carbon compliance, Ukraine is building its new future from the ground up, utilizing the most advanced technologies to "leapfrog" traditional development stages[5].

CONCLUSION

The innovative development of the construction industry is defined by the convergence of efficiency, safety, and sustainability. As digital tools like BIM 6D and AI become the industry standard, the gap between traditional builders and tech-integrated firms will continue to widen. The future belongs to those who view a building not just as a static structure, but as a dynamic, data-driven asset.

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EKONOMIKA, FINANSES UN GRĀMATVEDĪBA

ECONOMICS, FINANCE AND ACCOUNTING

CRITICAL THINKING IN MODERN BUSINESS: THE RISKS OF THE "END OF EXPERTISE," INFORMATION OVERLOAD, AND THE ROLE OF ARTIFICIAL INTELLIGENCE

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ABSTRACT

The article explores the "Death of expertise" phenomenon as a key challenge for modern business amid exponential growth of information, the proliferation of algorithmic solutions based on generative artificial intelligence, and the transformation of educational systems. It analyzes the systemic causes of the degradation of professional analytical competencies: information overload, the opacity of AI algorithms, the clipped perception of new generations, and the fragmentation of educational programs. Both risks and countermeasure strategies are considered, ranging from institutional mechanisms for developing critical thinking to the response of professional communities. The article draws on relevant academic research from 2023–2025 and data from leading international organizations.

Key words: Critical thinking, the “end of expertise”, information overload, artificial intelligence, not transparent algorithms, education, Generation Z, professional competencies

"The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn."

Alvin Toffler

INTRODUCTION

In his book, "The Death of Expertise," political scientist Tom Nichols documented a disturbing trend: growing public distrust of professional knowledge and expert opinion [1]. In subsequent years (the book was published in 2017), this phenomenon not only has not weakened, but has acquired a qualitatively new dimension in the context of the digital transformation of business and everyday life. Today, the "end of expertise" is no longer just a sociological observation but also a real operational risk for business.

The "end of expertise" refers to a set of interconnected processes: the blurring of the boundaries between competent and incompetent judgment; the devaluation of deep, specialized knowledge in favor of superficial but quickly acquired knowledge; the replacement of human analytical judgment with automated recommendations; and, finally, the loss of institutional memory and continuity within professional communities. According to a study in the “Crisis of Expertise” series, the polarization of attitudes towards expert knowledge has reached a historical maximum: even in areas of scientific consensus (climatology, medicine, economics), a significant portion of business and management decisions are made contrary to expert recommendations or without reference to them [2].

The paradox of the situation is that the "end of expertise" is unfolding against a backdrop of unprecedented accessibility to knowledge and, indeed, any analytical data. Never before have experts, students, teachers, and researchers had such powerful tools for obtaining information. It is precisely this contradiction—the availability of information coupled with the declining quality of its processing—that is the key problem analyzed in this article.

BASIC THEORETICAL AND PRACTICAL PROVISION

One of the key structural factors shaping the "end of expertise" phenomenon is the exponential growth of digital information. This trend is presented in Table 1.

Table 1.

Общий объем данных в мире (zettabytes, ZB)

Year	Volume of Data, ZB
2010	2
2015	16
2020	64
2022	101
2024	149
2025	181 – 182
2026 (forecast)	221

Source: IDC, Statista Worldwide Data Growth [3,4]

The zettabytes indicator itself, presented in Table 2, is important for human and expert understanding.

Table 2

Data scales in terms of units

Abbreviation	Unit	Value	Size (in bytes)
b	bite	0 or 1	1/8 of a Byte
B	byte	8 bits	1 byte
KB	kilobyte	1000 bytes	1000 bytes
MB	megabyte	$1{,}000^2$ bytes	1,000,000 bytes
GB	gigabyte	$1{,}000^3$ bytes	1,000,000,000 bytes
TB	terabyte	$1{,}000^4$ bytes	1,000,000,000,000 bytes
PB	petabyte	$1{,}000^5$ bytes	1,000,000,000,000,000 bytes
EB	exabyte	$1{,}000^6$ bytes	1,000,000,000,000,000,000 bytes
ZB	zettabyte	$1{,}000^7$ bytes	1,000,000,000,000,000,000,000 bytes

To put this into perspective, consider the average smartphone's memory, which averages 128-512 gigabytes. One gigabyte is the average size of a modern high-definition digital movie, 250 songs, or several thousand photos.

Taking these figures into account, we can estimate the dynamics presented in Table 1. Global data volume has grown more than 11-fold since 2015, with a compound annual growth rate (CAGR) of approximately 25-27%. This is one of the fastest-growing "resources" in the history of human civilization.

According to analysts, in 2023, the global digital community produced approximately 328.77 million terabytes of data daily [4, 5]. By 2025, it’s estimated that 463 exabytes of data will be created each day globally: that’s the equivalent of 212,765,957 DVDs per day.

This indicator consists of:

1. 500 million tweets are sent
2. 294 billion emails are sent

3. 4 petabytes of data are created on Facebook
4. 4 terabytes of data are created from each connected car
5. 65 billion messages are sent on WhatsApp
6. 5 billion searches are made

Clearly, the drivers and generators of data growth are:

1. Generative AI
2. Social media (videos uploaded to them)
3. Smartphones
4. Cloud services
5. Sensors and telemetry
6. IoT devices
7. Enterprise logs & analytics

This growth creates a systemic trap: specialists are forced to spend increasing amounts of time and cognitive resources searching, filtering, and superficially exploring the growing data array, and less and less on its in-depth analysis. In effect, the analytical function is being supplanted by the navigational function [6].

A systematic review published in the journal Frontiers in Psychology concludes that information overload is an integral part of the digitalization of work processes and is progressively increasing with the expansion of information and communication technologies [7]. According to cognitive load theory, human working memory is limited to approximately seven units of information, and exceeding this threshold leads to poorer, rather than better, decision quality [8,9].

The documented consequences of information overload for the professional environment include increased stress and cognitive exhaustion, a decline in the quality of decisions, a shift away from systems analysis toward simplified heuristics, and an increase in errors. A study of over 1,400 professionals found that 74% of professionals experience difficulties processing data, which directly reduces the quality of their management and expert judgment [10].

It's important to emphasize: the problem isn't the volume of information per se, but the disparity between its growth and the development of analytical skills. A specialist immersed in a constant stream of data begins to function in a "read without understanding" mode: absorbing ever more material but developing ever less integrated knowledge. According to the Microsoft Work Trend Index, employees experiencing information overload are 3.5 times less likely to be innovative or strategic thinkers [11].

This trend has direct organizational consequences. Coveo records that 34% of employees experience burnout due to a lack of information management tools; employees who feel overloaded have a significantly poorer understanding of the organization's strategy and are significantly more likely to consider leaving the company [12].

The development of artificial intelligence technologies creates the illusion of a solution to the problem of information overload. In reality, AI is both a tool for partially overcoming it and a source of fundamentally new risks to the quality of expert judgment.

On the one hand, generative AI and automation do make it possible to process large volumes of data, accelerate routine processes, and free up specialists' time for more complex tasks. According to a survey of over 600 IT executives conducted by CasperLabs in 2024, at least 90% of organizations planned to invest in AI solutions [13].

On the other hand, AI-mediated business acceleration does not make it easier: it merely speeds it up—compressing the time horizons of decision-making while simultaneously increasing their complexity and the cost of error. Expert researchers show that the implementation of fintech tools can paradoxically increase banks' vulnerability to the risk of stock price collapse in the absence of reliable oversight mechanisms [14]. The same logical pattern can be observed in any high-risk industry: acceleration without proportional growth in analytical competencies creates systemic fragility.

Crucially, the volume of business and the speed of its operations are growing disproportionately to the complexity of control tasks. If an algorithm processes millions of transactions per second, humans are physically unable to verify every decision: they are forced to trust the system or stop the process (which is impossible in the current situation). This is where a disconnect arises: productivity growth and risk growth move in tandem, while resources for control and verification often remain the same or even decrease.

Organizations face a dilemma: slower but more reliable (while maintaining expert judgment at every stage), or faster and more scale, but accepting a level of systemic risk previously considered unacceptable. The current situation suggests that this dilemma is being resolved in favor of speed, often with fatal consequences for the quality of decisions.

One of the most alarming aspects of digital business transformation is the emergence of so-called "black boxes": machine learning algorithms whose operating principles are gradually becoming opaque or completely incomprehensible to both end users and, often, their creators.

Elon Musk and Yuval Harrari's presentations at the World Economic Forum 2026 fully outlined the dangers of generating opaque, false information and the need to establish clear norms – generally accepted principles for the training and development of generative AI itself [15,16].

The Swiss regulator FINMA (2024) points out that the results of some AI models cannot be understood, explained, or reproduced, which fundamentally complicates their critical evaluation [17].

The real-world consequences of this lack of transparency have already been documented. Fraud detection systems mistakenly block legitimate transactions; the Apple Card algorithm in 2019 discriminated against women with similar financial profiles for credit lines; the COMPAS algorithm systematically overestimated recidivism rates for Black defendants. In 2024, the US Consumer Financial Protection Bureau (CFPB) clarified that black-box algorithms used in lending or hiring could be considered unfair if they cannot explain the decisions they make [18].

The European AI Act, which came into force in 2024, establishes transparency and explainability requirements for high-risk AI systems, with significant penalties for violations [19]. This regulatory pressure reflects a systemic understanding that delegating decisions to an algorithm without the ability to critically evaluate them is not technological progress, but an institutional abdication of responsibility.

Experts at the World Economic Forum point to a fundamental difference between explainable and inherently interpretable models: the former provide post-hoc justifications for opaque decisions, while the latter are based on logic accessible to humans at every stage. Their opinion is unambiguous: for high-risk decisions, the use of black boxes is ethically unacceptable, regardless of their accuracy [20].

The problem of the degradation of critical thinking cannot be understood separately from the transformation of educational systems. The modern model of training specialists, both in the higher education system and in corporate training, reproduces and exacerbates the very cognitive patterns that make the “end of expertise” inevitable [6].

The Chronicle of Higher Education is documenting an alarming array of new learning pathologies among students: fragmented and distracted thinking, limited ability to read for extended periods, and a poor active vocabulary. Teachers around the world are reporting a decline in their skills in handling long texts and linear argumentation. This is no coincidence; it is a direct consequence of the media environment in which Generation Z grew up [21].

Platforms like TikTok and Instagram are algorithmically optimized for virality and emotional resonance, not authenticity or depth. According to the European Commission, European teenagers consume up to 34 gigabytes of media content daily, primarily in formats up to 60 seconds long [22].

What researchers call "clip thinking" is developing: the ability to quickly sort and superficially process information with a progressive inability to engage in sustained, focused analysis [23].

The most dangerous risks of clip thinking for intellectual work include:

1. Superficial information perception. The ability to deeply analyse, compare, and synthesize information decreases.
2. Weakening of logical and critical thinking. Due to fragmented perception, the ability to build cause-and-effect relationships and reach conclusions based on them significantly deteriorates.
3. Decline in concentration. It becomes harder and harder for professionals to focus on one subject or text; a habit of constant "switching" develops.
4. Loss of linear reading and writing skills (the habit of "Z-reading"). It becomes more difficult for professionals to absorb long texts, arguments, and narratives.
5. Emotional superficiality. Reaction to perceived information is impulsive, with the effect of "instant impression," but without meaningful understanding.
6. Dependence on external stimulation. A person develops "information addiction" - a constant need for new emotional stimuli (clips, notifications).

A systematic review in Frontiers in Education, covering 121 studies from 2000 to 2024, found that Generation Z prefers interactive platforms and online tools focused on personalization and immediate feedback, over methods requiring sustained concentration and independent analytical effort [24].

However, there is also a scientific perspective that defines the new generation's habits as a reaction to the modern digital world and as the new norm. Researchers insist that critical thinking in young people is not in decline due to their lower abilities; it is being transformed by the changing cognitive environment [21]. Generation Z was formed under conditions of unprecedented information flow, a platform-based attention economy, and constant digital stimulation. Their brains are no worse off; they are adapted differently: to rapid navigation, parallel processing, and instant context switching.

The main advantages and disadvantages can be identified as:

1. Fragmentation, when a person perceives separate parts of text (headlines, highlighted words, visual images and videos).
2. Lack of sequence - a person does not strive for logical construction of thought from what they read, skipping entire sentences and paragraphs.
3. Superficiality - attention is focused on external form rather than content, analysis, or critical reflection on information.
4. Speed and impulsivity: constant change of stimuli occurs, excluding the possibility of deep immersion in material.
5. Habit of short content formed by clip thinking (information from social networks, YouTube, Internet), where short-term videos and posts predominate. This trains the brain to perceive information in the form of separate, bright "clips."
6. Low concentration, when the ability for prolonged attention focus decreases, making full reading difficult and burdensome.
7. Superficial analysis, when a person is increasingly incapable of deep analysis due to the habit of instant, superficial data processing.

Generation Z (born between 1997 and 2012) and Generation Alpha (born after 2010) are entering the professional world with a fundamentally different cognitive profile than their predecessors. Understanding this profile is essential for developing effective support strategies.

According to a Gallup and Walton Family Foundation survey, over 83% of Generation Z consider higher education important or very important—yet only about a quarter of high school students feel truly prepared for it [25]. Academic engagement is declining: only 49% of high school students report that coursework presents them with genuine intellectual challenges.

Possible recommendations for avoiding the "end of expertise" traps include:

First, changing pedagogical design. Problem-based learning, working with real-world cases, and discussion formats are methods that have proven effective in developing critical thinking specifically in Generation Z. Research confirms that active learning methods, unlike lectures, significantly increase engagement and analytical skills [24].

Second, by utilizing the media literacy of new generations, including algorithmic literacy: understanding how platforms shape information bubbles, how to distinguish a quality source from a manipulative one, and how to verify a statement. In Finland and the Netherlands, such digital literacy programs have already been integrated into school curricula [22]. Universities in Ukraine offer courses that are proving effective [26].

Third, by restoring the culture of long texts and linear thinking. The skill of sequential, multi-step reasoning is not innate; it is developed through practice. Organizations that invest in a culture of reading, written analysis, and structured debate build a defense against cognitive fragmentation.

Fourth, through mentoring and inclusion in professional networks. Young people crave advice and mentorship; they don't always realize it, but that's precisely why they join various clubs and communities, both online and offline. Transmitting professional thinking standards through direct contact with experienced professionals remains an indispensable tool.

The gap between educational outcomes and labor market demands is becoming alarming. According to national assessments (US, UK), students' critical thinking does not improve throughout their education, despite this skill being a priority for employers when hiring. Only 39% of American employers consider graduates sufficiently prepared in critical analysis [27].

The situation in corporate training is no better. Continuing education programs typically reproduce the same mosaic, modular structure as academic education: a set of disparate competencies without developing a coherent analytical architecture. Professionals master tools but fail to develop a systematic methodology for their application.

Despite systemic challenges, professional communities and organizations are developing responses to the threat of the "end of expertise." Several key strategies are emerging.

The first strategy is the institutionalization of critical thinking as an independent competency. The World Economic Forum's "Future of Work" report identifies analytical thinking, critical appraisal, and self-efficacy as the three most in-demand skills of the future [28,29]. In response, a number of universities and corporations are implementing structured programs for developing critical thinking. In particular, the Rochester Institute of Technology (RIT) is implementing the Applied Critical Thinking (ACT) initiative, which encompasses over 700 courses and attracts approximately 1,100 participants annually [30].

The second strategy is the incorporation of critical thinking into AI practices, rather than opposing them. At the Singapore Institute of Technology (SIT), students are taught to use generative AI as a tool, not a primary source of information: after receiving an answer, they must critically evaluate it, verify it, and incorporate it into their own reasoned conclusion. This redefines the role of AI from a substitute for thinking to a catalyst for its development.

The third strategy is the Structured Analytical Techniques (SAT) methodology, developed in the intelligence and military-strategic contexts but increasingly being adapted for the business environment. SAT incorporates methods for identifying cognitive biases, analyzing alternatives, and testing hypotheses—systematic techniques that neutralize natural mental traps.

The fourth strategy is the development of "metacognitive monitoring." This refers to an expert's ability to recognize their own cognitive state and consciously manage the quality of their thinking. According to the Global Council for Behavioral Science, professionals with developed metacognitive skills demonstrate significantly higher decision quality under information overload and time pressure [31].

Integration is essential for the effectiveness of all of these strategies: critical thinking does not function as an isolated skill; it must be embedded in the organizational culture, decision-making processes, and performance measurement systems.

CONCLUSION

The "end of expertise" is not simply a cultural trend or a temporary anomaly. It is a systemic phenomenon rooted in the convergence of several mutually reinforcing processes:

1. the exponential growth of information with the stagnation of analytical skills;
2. the introduction of opaque algorithmic systems that make decisions outside the realm of human understanding;
3. the transformation of education toward fragmentation and superficiality;
4. the cognitive adaptation of new generations to an environment that prioritizes speed over depth.

Critical thinking, however, remains not just a desirable professional quality, but a prerequisite for the fundamental viability of any expertise. It ensures the ability to distinguish signal from noise in the information flow; verify algorithmic recommendations; make responsible decisions in conditions of uncertainty; and (most importantly) recognize the limits of one's own competence [6].

Responding to the challenge of the "end of expertise" requires efforts at all levels:

1. Regulatory (requirements for transparency and explainability in AI)
2. Organizational (a culture of critical review, red teams, metacognitive practices)
3. Educational (active teaching methods, media literacy, mentoring)
4. Individual (consciously cultivating slow, deep thinking skills).

The ideal situation would be one where, without rejecting all the advantages of modern technologies and leveraging the truly powerful capabilities of generative AI, a qualitative transition is achieved from a process manager to a professional analyst.

Awareness of the risks of the "end of expertise" is gradually shaping an institutional response in various professional communities. This response is unfolding at several levels.

At the regulatory level, a convergence of positions is evident: regulators in the financial, healthcare, legal, and public administration sectors are increasingly demanding the maintenance of human oversight over algorithmic decisions. The EU, US, UK, Canada, and China are developing regulatory frameworks requiring the transparency and explainability of AI systems [18]. The key principle remains the same: automation is permissible, but the final decision in high-risk cases must rest with a qualified specialist.

At the professional association level, there is growing demand for standards for verifying analytical competencies. Medical, legal, financial, and engineering communities are developing requirements for continuing professional education that emphasize not just updating subject-matter knowledge but also the development of analytical methodology.

At the organizational level, there is a resurgence of interest in the practice of "red teaming": specialized groups whose task is to systematically challenge prevailing assumptions and identify vulnerabilities in strategic decisions. This technique, borrowed from military and intelligence discourse, is acquiring new meaning in the context of combating echo chambers of corporate thinking.

The reaction of the tech community is also indicative. Researchers at Anthropic have announced a breakthrough in mapping the internal architecture of large language models: the first detailed "map" of concepts embedded in a neural network [18]. This approach, called interpretable AI, aims to restore the capacity for human oversight over algorithmic systems.

At the same time, it must be acknowledged that the professional community's response is still fragmented and reactive. No sector has yet developed a systemic, proactive response to the convergent challenge of information overload, algorithmic opacity, and educational degradation.

Businesses capable of maintaining and developing expertise in the age of algorithms and information abundance will gain a competitive advantage that cannot be automated. The overall approach and philosophy must align with the principles of Industry 5.0, within which technologies develop primarily for people [35]. In this situation, technologies, robotics, and generative AI can generate and process data and shape new business models, but analysis and judgment, as embedded values, will remain imperative—a privilege reserved for humans.

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THE ROLE OF FINANCIAL LITERACY IN ENSURING FINANCIAL INCLUSION

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ANOTĀCIJA

Rakstā tiek aplūkota finanšu pratības loma finanšu iekļaušanas nodrošināšanā globālo tendenču un Ukrainas realitātes kontekstā. Tiek parādīts, ka karš, migrācija un infrastruktūras zaudējumi samazina piekļuvi finanšu pakalpojumiem un palielina krāpšanas riskus. Tiek uzsvērta digitālo pakalpojumu un izglītojošo iniciatīvu nozīme. Pētījums pierāda, ka globālās pieredzes apvienošana ar nacionālajām stratēģijām veicina stabilas un iekļaujošas finanšu sistēmas attīstību Ukrainā.

Atslēgvārdi: digitālie finanšu pakalpojumi, finanšu infrastruktūra, finanšu krāpšana, sociālekonomiskā nevienlīdzība, finanšu tehnoloģijas, finanšu regulējums

ABSTRACT

The article examines the role of financial literacy in ensuring financial inclusion in the context of global trends and Ukrainian realities. It shows that war, migration, and the loss of infrastructure reduce access to financial services and increase fraud risks. The importance of digital services and educational initiatives is highlighted. The study proves that combining global experience with national strategies supports a stable and inclusive financial system in Ukraine.

Keywords: digital financial services, financial infrastructure, financial fraud, socio-economic inequality, fintech, financial regulation

IEVADS. INTRODUCTION

The problem of financial inclusion is becoming more important in the context of global economic changes, digitalisation, and growing social challenges. Access to financial services is an important factor for economic development, as it helps people manage their money, support business activities, and improve their quality of life. Today, financial inclusion includes not only traditional banking services but also digital tools, fintech solutions, and online platforms.

In Ukraine, this issue is more difficult because of the war, migration, and the destruction of financial infrastructure, especially in front-line regions. These factors reduce access to financial services and increase risks, including financial fraud. As a result, many people have limited opportunities to use financial services, which increases social inequality and weakens economic stability.

To solve these problems, it is important to improve financial literacy, develop digital skills, and protect consumers. At the same time, the use of global experience together with national strategies can help Ukraine create a more inclusive and stable financial system. This is especially important during the war and in the period of recovery.

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ. BASIC THEORETICAL AND PRACTICAL PROVISION

For Ukraine, the problem of financial inclusion is made more difficult by the impact of war, large internal and external migration, the loss of financial infrastructure in front-line regions, and the growth of financial fraud risks. These factors create serious barriers to equal access to financial services and increase the vulnerability of the population. As a result, the ethical responsibility of financial institutions becomes more important, as they must ensure transparency, accessibility, and security of financial services for all groups of society.

A low level of knowledge about digital financial tools weakens the principles of equality and transparency and limits people's ability to use online services, open accounts, receive social and humanitarian payments, and access credit or investment products. This problem is especially serious for elderly people, internally displaced persons, and residents of regions affected by military actions. Limited access to education and digital skills increases financial exclusion and reduces economic opportunities.

At the same time, digitalisation creates new opportunities for financial inclusion. Mobile banking, digital identification systems (such as Diia), and fintech solutions allow people to access financial services remotely. However, without sufficient financial literacy, these tools may not be used effectively or safely. Therefore, financial literacy plays a key role in ensuring inclusive and sustainable economic development.

PĒTĪJUMA REZULTĀTI UN TO IZVĒRTĒJUMS. RESEARCH RESULTS AND THEIR EVALUATION

The combination of global experience and national initiatives helps Ukraine strengthen financial inclusion, reduce socio-economic inequality, and create conditions for stable and ethically responsible economic development during the war and in the period of post-war recovery (Table 1).

The comparison of global trends in financial inclusion and financial literacy with Ukrainian realities shows that Ukraine is gradually moving closer to international practices of ethical financial business. However, serious challenges remain due to the war. Military actions have limited access to financial services, destroyed infrastructure, and reduced financial literacy levels.

Table 1

Comparison of global trends in financial inclusion and financial literacy with Ukrainian realities

Area	Global experience	Ukrainian realities: war	Ukrainian realities: recovery
Financial literacy of the population	National programmes, integration into school courses,	Uneven level of knowledge; increased vulnerability of the population; lack of	Expansion of NBU programmes, integration of financial literacy into education, partnership

	массов online courses	access to education in front-line areas	projects with international organisations

Continuation of table 1

Area	Global experience	Ukrainian realities: war	Ukrainian realities: recovery
Digital financial services	Wide use of mobile banking, eID, fintech solutions	Partial loss of infrastructure, need for remote services; cyber risks	Active development of digital identification (Diia), expansion of the fintech ecosystem, growing trust in online services
Financial infrastructure	Developed networks of banks and agents in remote areas	Destruction of branches, limited access for IDPs, closure of points in front-line zones	Recovery and modernisation of infrastructure, development of mobile and digital branches
Consumer protection	Strong regulation, high level of control, effective anti-fraud systems	Increase in fraud, low awareness of financial rights	Strengthening of NBU regulation, educational campaigns on fraud prevention
Support for vulnerable groups	Microcredit, grants, accessible social financial products	Unequal access to financial services for IDPs, veterans, small entrepreneurs	Expansion of grant and credit programmes, support for SMEs, inclusive financial products with international partners
Financial inclusion	Comprehensive strategies, focus on vulnerable groups and digitalisation	Decrease in access to financial services in war-affected regions; high risks for business and population	Integration of global experience, development of open banking, strengthening financial resilience of households

Source: developed by the authors based on analytical reports [1; 2; 3; 4]

At the same time, Ukraine has strong potential for development. Digital services such as Diia and mobile banking ensure access to financial services even in difficult conditions. International financial organisations also support reforms and provide financial and technical assistance.

The largest gaps between Ukraine and global practices are observed in consumer protection and access to financial products for vulnerable groups. The increase in financial fraud requires stronger regulation and better public awareness. Educational programmes and cooperation between the government and financial institutions are necessary to improve the situation.

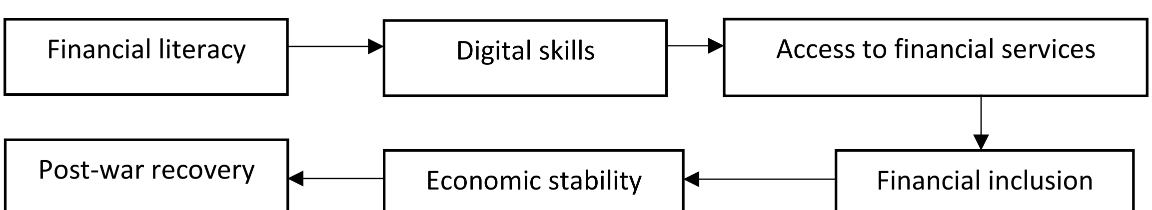

Figure 1. The role of financial literacy in strengthening financial inclusion in Ukraine
Source: developed by the authors

Thus, the combination of international experience with national strategies of business ethics and financial regulation forms the basis for an inclusive and stable financial system in Ukraine. Financial literacy is a key factor in this process, as it helps people make informed decisions, reduces financial risks, and supports economic resilience. During the war and recovery period, financial literacy becomes not only an economic but also an ethical priority for sustainable development.

The study shows that financial literacy plays a key role in ensuring financial inclusion, especially in the conditions of war and economic instability in Ukraine. The results confirm that the destruction of financial infrastructure, migration processes, and the growth of financial fraud risks significantly limit access to financial services and increase social inequality.

At the same time, the research proves that digital financial services, such as mobile banking and digital identification systems, create new opportunities for inclusion. However, their effectiveness depends on the level of financial literacy and digital skills of the population. Without proper knowledge, the use of these tools remains limited and may even increase financial risks.

KOPSAVILKUMS. CONCLUSION

The comparison of global trends with Ukrainian realities shows that Ukraine is gradually adapting international practices of ethical financial business. Nevertheless, there are still gaps in consumer protection and access to financial services for vulnerable groups, which require further improvement of regulation and educational initiatives.

It is important to emphasise that financial literacy should be considered not only as an economic factor but also as an ethical component of financial systems. Increasing the level of financial education helps to protect consumers, reduce fraud, and ensure equal access to financial services.

Therefore, the combination of global experience, national strategies, and digital innovations creates the basis for strengthening financial inclusion in Ukraine. In the context of post-war recovery, financial literacy becomes a strategic priority that supports economic stability, social inclusion, and sustainable development.

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THE ROLE OF ESG PRACTICES IN ENHANCING THE COMPETITIVENESS OF SMES IN THE AGRICULTURAL SECTOR IN GUINEA

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ANOTĀCIJA

Šī pētījuma mērķis ir analizēt vides, sociālās un pārvaldības (ESG) prakses ietekmi uz lauksaimniecības MVU konkurētspēju Gvinejā. Pētījuma problēma ir saistīta ar zemo ESG informētības un ieviešanas līmeni lauksaimniecības MVU. Tika izmantota kvantitatīvā pētījuma pieeja, koncentrējoties uz lauksaimniecības MVU Gvinejā un pārbaudot saistību starp ESG praksi un uzņēmumu konkurētspēju. Pētījuma novitāte slēpjas empīrisku pierādījumu sniegšanā no Gvinejas lauksaimniecības nozares, konteksts, kas ESG literatūrā joprojām nav pietiekami izpētīts. Pētījuma atklājumu mērķis ir uzsvērt, kā ESG prakse var stiprināt lauksaimniecības MVU konkurētspēju, vienlaikus sniedzot arī stratēģiskus ieteikumus to efektīvai īstenošanai.

Atslēgvārdi: Lauksaimniecības MVU; Produktivitāte; ESG prakses; Finanšu ilgtspēja; Konkurētspēja

ABSTRACT

The purpose of this research is to analyze the influence of Environmental, Social, and Governance (ESG) practices on the competitiveness of agricultural SMEs in Guinea. The research problem is related to the low level of ESG awareness and implementation among agricultural SMEs. A quantitative research approach was applied focusing on agricultural SMEs in Guinea and examining the relationship between ESG practices and business competitiveness. The novelty of the study lies in providing empirical evidence from the Guinean agricultural sector, a context that remains largely underexplored in ESG literature. The research findings aim to highlight how ESG practices can strengthen the competitiveness of agricultural SMEs, while also providing strategic recommendations for their effective implementation.

Keywords: Agricultural SMEs; Productivity; ESG Practices; Financial sustainability; Competitiveness

IEVADS. INTRODUCTION

Agriculture, which is the largest employer in the country, plays a critical role in poverty reduction and rural development. It provides income for approximately 57% of rural households and employs around 52% of the total labor force. In Guinea, the agricultural sector remains a central pillar of the economy. In 2024, it accounted for approximately 30.8% of the Gross Domestic Product (GDP), representing nearly €6.5 billion, and employed about 52% of the active population, the vast majority of whom (around 97%) reside in rural areas. [1]

Small and medium-sized enterprises (SMEs) are key actors in agricultural production, processing, and distribution. They contribute significantly to employment creation, food security, and value chain development. In recent years, Environmental, Social, and Governance (ESG) practices have gained increasing attention as essential tools for promoting sustainable development and enhancing business performance.

ESG integration enables firms to improve resource efficiency, strengthen governance structures, enhance social responsibility, and better manage risks. For agricultural SMEs, ESG practices are particularly relevant due to their direct dependence on natural resources and their exposure to environmental and climate-related challenges. [2; 3]

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ. BASIC THEORETICAL AND PRACTICAL PROVISION

Small and Medium Enterprises (SMEs) in Guinea operate across a wide range of economic sectors and play a critical role in supporting national development. Their activities are largely concentrated in sectors that require relatively low capital investment and are accessible to a broad segment of the population. These sectors not only generate employment but also contribute to income distribution, local production, and economic diversification.

As sustainability becomes more mainstream [4, 5], it is now embedded in manufacturing, banking, retailing, catering, education, government and civil society [6, 7]

ESG is the commonly used acronym for environmental (E), social (S), and corporate governance (G) aspects of economic activities. These three elements represent very wide.

Dimensions that allow assessing the sustainability of business and responsibility of entrepreneurial activities. In the most general approach, if a company is willing to follow ESG standards, then it should avoid any potential negative effect of today's business operations on the living conditions of future generations. [8]

It was proven, that the impact of being ESG-compliant is not limited to responsibility understood generally and more skewed towards ethics. It is also connected with the financial performance of the company. Not only the ESG-compliant operations allow for sustainable development of a company and the environment. They may also go in line with financial performance. The relationship between ESG and financial performance is rooted in various economic concepts. Certain elements are derived from the stakeholder theory and trade-off theory social, and governance. Environmental, Social, and Governance (ESG) factors play a crucial role in modern business and investment practices. ESG provides a framework that helps companies evaluate their impact on the environment, society, and their internal governance structures.

By integrating ESG principles, organizations can improve transparency, accountability, and long-term sustainability.

Strong Environmental, Social, and Governance (ESG) practices directly enhance corporate competitiveness by improving operational efficiency, fostering innovation, reducing risk, and strengthening reputation. Companies with high ESG performance differentiate themselves, attracting investors and consumers, which leads to superior financial performance and long-term sustainability.

The adoption of ESG (Environmental, Social, and Governance) practices among Small and Medium-sized Enterprises (SMEs) has gained increasing attention in recent years, particularly in developing economies such as Guinea. While large corporations and international investors initially drove ESG principles, SMEs are progressively recognizing their importance for long-term sustainability, competitiveness, and access to finance. However, the level of ESG adoption among SMEs remains uneven and generally limited due to structural and institutional constraints.

Table 1: Relationship between ESG Practices and Competitiveness

ESG Dimension	Key Practices	Mechanism	Impact on Competitiveness	Business Outcome

Environmental (E)	Energy efficiency, waste reduction, green innovation	Cost reduction, resource optimization	Increased productivity and differentiation	Lower costs, innovation advantage
Social (S)	Employee welfare, customer, satisfaction, community,engagement	Strong stakeholder relationships	Improved reputation and brand loyalty	Higher sales, customer retention
Governance (G)	Transparency, accountability, risk management	Better decision-making, reduced risks	Increased investor confidence	Lower cost of capital, stability
Integrated ESG	ESG reporting, sustainable strategy	Efficiency + trust + innovation	Strong,competitive, positioning	Long-term sustainability

Source: Adapted by the author based on Michael Porter & Kramer (2006), Edward Freeman (1984), and ESG literature review.

Challenges Faced by SMEs in Guinea

Small and Medium-sized Enterprises (SMEs) in Guinea play a crucial role in economic development, employment generation, and poverty reduction. However, despite their importance, they face challenges that limit their growth, competitiveness.

1. Limited Access to Finance: Many SMEs struggle to obtain loans from formal financial institutions due to strict lending requirements, lack of collateral and high interest rates.

2. Weak Infrastructure: Poor road networks, unreliable electricity supply, and limited access to digital infrastructure increase operational costs and reduce productivity.

3. Regulatory and Administrative Constraints: SMEs in Guinea often face complex and time-consuming administrative procedures. Business registration, taxation, and licensing processes can be bureaucratic and costly.

4. Limited Access to Technology and Skills: SMEs in Guinea often face constraints related to low levels of technological adoption and limited access to skilled labor.

6. Market Access and Competition: SMEs in Guinea also face difficulties in accessing larger markets. Limited integration into regional and international markets restricts their growth potential.

7. Governance and Institutional Challenges: Weak governance and institutional inefficiencies further complicate the business environment for SMEs. Issues such as corruption, lack of transparency, and weak enforcement of laws increase the cost of doing business.

PĒTĪJUMA REZULTĀTI UN TO IZVĒRTĒJUMS. RESEARCH RESULTS AND THEIR EVALUATION

To better understand this issue, a survey was conducted among **30 SMEs operating in the trade, agriculture and services sector in Guinea**. The objective was to assess the level of ESG awareness, the extent of ESG practices adoption, and their perceived impact on business competitiveness and sustainability.

The table below presents the distribution of ESG adoption, competitiveness, and challenges among SMEs in Guinea across three main sectors: trade, agriculture, and services. It summarizes the number and percentage of respondents in each sector, as well as their responses regarding ESG awareness and practices (environmental, social, and governance), their perceived impact on competitiveness, and the challenges faced in implementing ESG practices.

Table 2: of Comparative Analysis of ESG Practices and Competitiveness across SME Sectors
Source: Compiled by the author based on survey data, 2026

Variable	N	% total	ESG (Y/N)	Environmental (Y/N)	Social (Y/N)	Governance (Y/N)	Competition (Y/N)	Challenges (Y/N)
Trade	**11**	**36.7%**	**6 / 5**	**06 / 5**	**7 / 4**	**6 / 5**	**5 /6**	**11 / 0**
Agriculture	**10**	**33.3%**	**7 / 3**	**10 / 0**	**7 / 3**	**5 / 5**	**6 / 4**	**5 / 5**
Services	**9**	**30.0%**	**2 / 7**	**3 / 6**	**8 / 3**	**6 /3**	**4 / 5**	**6 / 3**
Total	**30**	**100%**	**15/ 15**	**19 / 11**	**09 / 03**	**17 / 13**	**15.15**	**22 / 8**

Analysis of ESG practices in the agricultural sector

The results indicate that 70% of respondents are familiar with ESG concepts, reflecting a growing awareness of sustainability in the agricultural sector. Environmental practices show full adoption (100%), while social practices are adopted by 70% of SMEs and governance practices by 50%. In terms of competitiveness, 60% of respondents consider their businesses competitive, although 60% still face challenges such as limited resources, financing, and technical capacity. Overall, the findings suggest that ESG practices, especially environmental and social ones, contribute positively to the competitiveness of agricultural SMEs in Guinea

Deep Analysis of Global ESG and Competitiveness Results

The aggregated results show that ESG awareness and practices are moderately developed among SMEs, with social practices recording the highest adoption (22 YES), followed by environmental (19 YES) and governance practices (17 YES). Competitiveness remains divided, with 15 YES and 15 NO responses, suggesting that ESG practices are not yet consistently translated into competitive advantage. Challenges represent the highest result, with 73% of respondents reporting significant barriers such as financial constraints, lack of expertise, and weak institutional support. Overall, the findings indicate that ESG integration is still at a transitional stage and requires stronger strategic implementation and institutional support to effectively enhance SME competitiveness.

Findings

The findings show that ESG integration among SMEs in Guinea is still at an emerging and transitional stage. While social and environmental practices are relatively developed, governance remains weak and ESG adoption is often informal rather than strategic. Competitiveness is not yet strongly linked to ESG practices due to fragmented implementation and major structural challenges such as limited finance, weak institutional support, and lack of technical expertise. Overall, stronger policies, managerial capacity, and strategic ESG integration are needed for SMEs to transform sustainability practices into long-term competitive advantages.

KOPSAVILKUMS. CONCLUSION

To strengthen ESG adoption in Guinea, SMEs should increase awareness and training on sustainability practices while integrating ESG into their long-term business strategies. Government institutions and financial organizations should support SMEs through favorable policies, green financing, technical assistance, and capacity-building programs. SMEs also need to improve governance, environmental sustainability, and social responsibility practices to enhance competitiveness and business credibility. Finally, stronger collaboration between the government, private sector, financial institutions, and development partners is essential to promote effective ESG implementation and sustainable growth.

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UKRAINE’ LEASING AND COUNTRY CAPITAL FORMATION

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ABSTRACT

This article investigates the strategic role of leasing in Ukraine’s capital formation, emphasizing its capacity to modernize industrial infrastructure. Amidst traditional credit constraints and the challenges of the current economic climate, leasing serves as a vital alternative for the renewal of fixed assets in agriculture, transport, and manufacturing. The research analyzes the dynamics of the Ukrainian leasing market, identifying legislative barriers and the impact of institutional stability on investment activity. Key findings highlight that leasing facilitates rapid technological upgrades and mitigates capital shortages for SMEs. The study concludes with policy recommendations aimed at harmonizing national regulations with EU standards to attract foreign investment and accelerate post-war reconstruction, ultimately strengthening the foundation of the national economy.

Key words: Core Economic Terms: Gross Fixed Capital Formation (GFCF), Financial Leasing, Investment Climate, Capital Accumulation, Fixed Assets Modernization, Economic Recovery & Growth; Ukraine Specific Context: Post War Reconstruction, Ukrainian Legislative Framework, Agricultural Sector Leasing (primary driver in Ukraine), SME Financing (Small and Medium Enterprises), Market Dynamics in Transition Economies; Financial & Regulatory Drivers: Tax Incentives & Regulations, Risk Mitigation & Management, Financial Intermediation, Liquidity Management, International Financial Institutions (IFIs)

INTRODUCTION

In 2026, Ukraine’s reconstruction has shifted from emergency repairs to prompt systemic capital formation. As the nation navigates a projected 3.5% GDP growth, the appetite for fixed asset renewal in energy, agriculture, and manufacturing is hitting a fever with. Yet, with traditional credit markets remaining understandably cautious, leasing has emerged as the savvy bridge between necessity and liquidity. Rather than a niche alternative, leasing is now a primary engine for industrial resilience. It effectively bypasses the high barriers of capital intensive purchases, allowing SMEs and state enterprises to deploy modern equipment from power turbines to advanced harvesters without draining essential reserves. This article examines the strategic synergy between the leasing sector and Ukraine’s macroeconomic stability, illustrating how flexible financing is building the country’s new backbone.

BASIC THEORETICAL AND PRACTICAL PROVISION

Purpose of the Article. To perform qualified research on mentioned subject (using equity for country economic growth) with respect to a fit object (Ukraine). Having a sense of that purpose, develop comprehensive professional as well as scholar knowledge, based on existed and personal judgements for that matter, provide gathered information, and sources of works. Methodology statement - set of allied intellectual enquiry methods for quantitative research, data gathering with use of data extraction, data analysis, case studies; qualitative & factual research - historical analogies, comparative dynamic, ethnographical, cultural absolute and relative business advances. Literature review and output conditions. Criterions for accuracy, reliability, authority, objectivity, fairness and coverage for evaluating information from given information sources part “references”. Ukraine’s leasing sector plays a crucial role in capital formation by enabling businesses to access modern equipment without large upfront investments. Leasing serves as a financial tool that bridges the gap between limited internal resources and the need for technological renewal, especially in agriculture, transport, and industry.

RESEARCH RESULTS AND THEIR EVALUATION

1. appraisal of the Ukrainian leasing market

The Ukrainian leasing market represents an important segment of the non-bank financial sector, playing a key role in financing capital investments, especially for small and medium-sized enterprises (SMEs). Despite structural challenges and the ongoing war, the market demonstrates elasticity, slow recapture, and strong long-term potential. In term of market structure leasing in Ukraine remains a relatively small but growing source of financing. According to analytical estimates, financial leasing accounts for about 8% of available financing instruments for businesses, significantly lower than bank lending dominance . The market is moderately concentrated: for example, OTP Leasing holds about 33.6% of the leasing portfolio, indicating a leading role of large institutional players. Historically, the market expanded steadily before 2022, reaching around UAH 29.6 billion in portfolio value (1), with strong pre-war growth dynamics . Although the war disrupted activity, leasing retained functionality and continued to support business investment.

Impact of the war and economic conditions the full-scale invasion significantly affected the leasing sector through macroeconomic instability, infrastructure destruction, and increased risks. Nevertheless, the sector adapted relatively quickly. In 2022–2024, leasing activity persisted, with thousands of contracts signed, mainly in agriculture, logistics, and construction equipment . In 2025, the broader non-banking financial sector showed mixed dynamics: assets declined quarterly by 11.7%, partly due to institutional restructuring, but still recorded annual growth of 1.8%, reflecting gradual stabilization (2). Leasing demand is also influenced by macroeconomic constraints such as moderate GDP growth, high interest rates, and wartime uncertainty, which limit investment capacity but simultaneously increase the need for flexible financing tools.

2. scale and scope of the Ukrainian leasing market

The Ukrainian leasing market in 2026 is in a steady war hardened resilience. While the full-scale invasion initially paralyzed many financial instruments, leasing has emerged as a critical lifeline for a country that is simultaneously fighting and rebuilding. The market has shifted from a "luxury" financial tool for corporate expansion to a strategic necessity for maintaining national infrastructure, supporting the agricultural backbone, and facilitating the relocation of businesses to safer regions. As of early 2026, the Ukrainian leasing market is showing a determined upward trajectory, though it remains below its 2021 peak in real dollar terms. Portfolio Growth: After a significant contraction in 2022, the total leasing portfolio began a steady recovery. By late 2025, new business volumes saw a year-on-year increase of approximately 20–25%, driven largely by the need to replace destroyed or seized assets. GDP Contribution: While the broader financial sector's penetration remains modest (around 3–5% of GDP), leasing’s share of capital investment is disproportionately high in key sectors like transport and agriculture. Financing Gap: There remains a massive "unmet demand" estimated at several billion dollars, particularly for heavy machinery and energy-independent equipment, as businesses struggle with traditional bank credit constraints.

The market landscape is dominated by a few major players who have managed to secure international credit lines despite the country's risk profile. OTP Leasing remains the undisputed market leader, in early 2026, it secured a €20 million loan from the EBRD specifically to support MSMEs (Micro, Small, and Medium Enterprises), with a focus on “green” and EU compliant technologies. Bank linked lessors, units of major banks like Privatbank, Oschadbank, and

Raiffeisen leverage their parent liquidity to offer competitive rates, often tied to government support programs. Specialized Captives Companies like Automoney (part of Aventus Group) focus on the retail and SME auto leasing niche, utilizing fintech-driven digital onboarding to bypass traditional bureaucratic hurdles. Key parameters of Ukraine leasing market (table 1)

Parameter	**2024/2025 Indicator**	**Note**
Growth Trend	+45% YoY (Q4 2024)	Driven by demand for transport and machinery.
Market Share (NBFIs)	8.9% - 10.2%	Total share of non-bank institutions in the financial sector.
Sector Focus	Agriculture & Transport	13,085 vehicles registered via leasing in the first 8 months of 2024.
Interest Rates	~16% (Corporate)	NBU reporting shows a downward trend in corporate borrowing costs.
Profitability	86% of companies	High historical profitability for finance companies in 2024.

Table 1 (3)

3. who are the Ukrainian marketplace lessors?

Ukrainian marketplace lessors are the companies that actually supply leasing products to businesses and, in some cases, households across the country. In practice, the market is not made up of one uniform group: it includes classic universal leasing companies, bank affiliated lessors, captive lessors tied to vehicle or equipment brands, and operating lease / fleet players. A practical way to identify the active "marketplace" is to combine the sector framework of the National Bank of Ukraine with the membership base of the Ukrainian Union of Lessors, the main industry association (4). Since 1 January 2024, legal entity lessors in Ukraine have been treated as finance companies for regulatory purposes, which means leasing is now more tightly integrated into the supervised non-bank financial sector.

Lessor / group	**Type**	**Main focus in Ukraine**	**Evidence**
OTP Leasing	Universal large-scale lessor	Cars, trucks, agri machinery, railcars, used equipment	Company site + UUL calls it market leader/largest
ULF Finance (ULF)	Universal domestic lessor	Financial, operating, reverse leasing; vehicles, спецтехніка, equipment	ULF site and UUL news
Raiffeisen Leasing	Bank-affiliated universal lessor	Corporate leasing, broad asset classes	UUL member profile
ESKA Capital	Universal lessor	Vehicles, agricultural and special machinery	UUL member profile
Personal Ukrainian Leasing	Universal / auto-focused lessor	Fast car leasing, fixed UAH payments	UUL member profile

Lessor / group	Type	Main focus in Ukraine	Evidence
Autocredit Plus	Auto-focused lessor	Financial leasing, buyback, trade-in	UUL member profile
Finvin	Business finance company	Leasing and credit finance for business	UUL listing
Caterpillar Financial Ukraine	Captive equipment lessor	Construction, mining, power and industrial equipment	UUL member profile
Scania Credit Ukraine	Captive vehicle lessor	Scania vehicles and transport assets	UUL member list
Volvo Financial Services Ukraine	Captive vehicle lessor	Volvo-related financing	UUL member profile/listing
Porsche Finance Group Ukraine	Captive auto finance/leasing	Porsche Leasing / mobility products	UUL member list
Avis Ukraine, Hertz, Europcar, Sixt, Otokoc/Budget	Operating lease / fleet / rental	Corporate fleets, rental, mobility leasing	UUL member pages/listings
Specagroleasing	State / specialized lessor	Agricultural machinery	UUL member list

Table 2

4. who are the Ukrainian marketplace lessees?

In the Ukrainian leasing market, the main lessees are not households but businesses, above all legal entities operating in asset intensive sectors. Historic market reviews show that companies accounted for over 88% of leased asset value, while individuals had only about 10%; more recent NBU charts for 2024 (5) still show the portfolio overwhelmingly concentrated in corporates rather than individuals, so the basic client profile has not changed. The sectoral profile of lessees is also quite clear. The largest users of leasing in Ukraine are agriculture and transport/logistics. A 2024 academic synthesis based on NBU data states that as of Q3 2023 active leasing contracts amounted to UAH 11.09 billion in agriculture and UAH 9.33 billion in transport, and together these two sectors made up almost half of the value of current contracts. The same source gives a 2023 portfolio split of roughly 49% agriculture, 21% transport, 12% service industries, and 18% other sectors (6). Latest position on Ukrainian leasing market lessees (2025-2026) presented in table 3.

Lessee Category	**Primary Assets Leased**	**Market Share** (estimated)	**Strategic Motivation**
Agribusiness	Tractors, harvesters, irrigation systems, grain trucks.	40–45%	Modernization of export-oriented production; seasonal cash flow management.
Transport & Logistics	Heavy trucks, delivery vans, EV fleets, fuel tankers.	25–30%	Maintenance of supply chains; transition to lower operating costs (EVs).
SMEs (Various)	IT equipment, office tech, light machinery.	Integrated	Rapid scaling without massive upfront capital expenditure.

Construction	Excavators, cranes, specialized road-building tech.	10–15%	Infrastructure recovery and residential development in growth hubs.
Energy & Green Tech	Solar panels, charging stations, high-capacity batteries.	5–10% (Growing)	Energy independence and compliance with EU "green" standards.
Individuals	Passenger cars (primarily used and mid-range).	10%	Affordable mobility; alternative to high-interest bank car loans.

Table 3

5. what's return on Ukrainian leasing market

We have to point out that return characteristics of leasing in Ukraine direct public data on leasing IRR/ROE is limited. However, returns can be derived from: interest margins on leasing contracts, cost of funding (banks, IFIs, own capital) and risk premium (country and client risk). Return profile of Ukrainian leasing market (2023–2025) (table 4)

Indicator	Ukraine Leasing	Emerging Europe Avg	Developed EU
Leasing rate	15–30%	8–15%	3–8%
Cost of funds	10–20%	5–10%	1–4%
Net interest margin	5–12%	3–6%	2–4%
ROA	3–8%	2–5%	1–3%
ROE	10–25%	8–15%	6–12%
Default risk	High	Medium	Low
Market penetration	Low	Medium	High

Table 4

The Ukrainian leasing market in 2025/2026 is characterized by a resilience driven recovery. Despite the high-risk environment, the sector has transitioned from a period of sharp contraction (down 59.4% in 2022) to a strategic growth phase. The return on investment (ROI) in this sector is currently driven by high interest rates, a shortage of capital, and an urgent need for equipment in the agricultural and energy sectors. Current market performance and returns as of early 2026, the leasing market is anchored by a high National Bank of Ukraine (NBU) policy rate of 15.0%. This high base rate, combined with a bank lending rate averaging 19.2%, translates into high yields for leasing companies, often ranging between 20% and 25% in local currency (UAH), before accounting for risk and inflation. Thus latest key drivers of return include energy autonomy (high demand for leasing "green" energy solutions (solar, backup power) due to infrastructure challenges); agricultural renewal: leasing remains the primary tool for SMEs to acquire machinery, with specialized risk-sharing facilities (like the €50 million IFC-OTP facility (7)) lowering the cost of capital for providers. Asset Liquidity: In the real estate leasing segment, gross rental yields have stabilized around 7.5% to 9.8%, depending on the region, with Dnipro and Ivano-Frankivsk showing higher yields compared to Kyiv (table 5).

Indicator	Estimated Value (Q1 2026)	Trend vs. 2024/25	Key Driver
Average Leasing Rate (UAH)	21% - 26%	Stable / Slightly Down	Tight monetary policy by NBU.
Average Leasing Rate (USD/EUR)	7% - 10%	Increasing	Shift toward hard-currency contracts for stable assets.
Gross Rental Yield (Real Estate)	7.55% (National Avg)	Stable	High demand for autonomous housing.
Market Leader Share (OTP)	33.60%	Dominant	Access to international risk-sharing funds.
Top Growth Sector	Energy & Agri-Tech	Aggressive Growth	Need for energy independence and food security.
NBU Policy Rate	15.00%	Decreasing (-0.5% Jan '26)	Gradual disinflation efforts.

Table 5

6. what's risk on Ukraine leasing market

Ukrainian leasing market has key risks and the major one is about leasing market operates under elevated wartime risk. On the positive side, activity has resumed: in Q2 2025 the volume of financial leasing transactions grew 29% quarter over quarter and 46.8% year over year, and finance companies as a segment remained profitable all that time. At the same time, the market is still structurally fragile (18), so NBU states that the continuation of the war remains the key risk to the financial sector, while IFC notes that the leasing sector had contracted by 59.4% in 2022 and has only partially recovered with public and development-finance support (8). In our point of assessment, finalized risk table can be represented as follow (table 6)

Risk	What it means for leasing companies	Evidence / current status	Risk level
1. War/physical asset risk	Leased vehicles, machinery, equipment, and logistics assets can be damaged, destroyed, or become inaccessible in combat-affected regions; repossession and remarketing are harder.	NBU says the war remains the key financial sector risk and continues to restrain recovery; CES (Centre for Economic Strategy) identifies lack of insurance/risk coverage as a major financing constraint.	Very high
2. Credit risk of lessees	SMEs and corporates face disrupted cash flows, labor shortages, power outages,	NBU links recovery constraints to labor shortages, destruction, and security risks; IFC notes	High

	and supply chain shocks, increasing delinquency risk.	productive capacity losses, power outages, and labor shortages.	
3. Concentration risk	A few players can dominate origination and portfolio performance; problems at one major lessor can affect the whole market.	IFC states OTP Leasing held about 33.6% of the market by leasing portfolio at end Q1 2025. NBU also reports market concentration changes tied to the exit of a large state-owned lessor.	High
4. Funding and liquidity risk	Leasing firms depend on bank funding, shareholder support, or IFI programs; long-tenor assets can mismatch short or expensive funding.	IFC launched a €50 million risk sharing facility precisely to expand leasing finance; this suggests external risk sharing remains important for scaling the market.	High
5. Regulatory transition risk	Compliance costs are rising as lessors are fully absorbed into the finance-company regime and prudential rules tighten.	From 1 January 2024, legal-entity lessors received finance company status. NBU says that from January 2026 finance companies must meet revised prudential requirements, and significant companies face additional requirements.	Medium-High
6. FX and cross border risk	Imported equipment leasing is exposed to FX volatility, payment restrictions, and limits on cross border settlements under martial law.	NBU Resolution No. 18 remains the wartime framework for banking and currency operations; NBU continues FX liberalization only while risks stay controlled and reserves remain strong.	Medium-High
7. Residual value/collateral risk	Secondary-market prices are volatile, asset location matters more, and collateral valuation may be less reliable.	NBU highlights the need to finish amendments on property valuation and appraisal activities; war conditions also impair disposal and remarketing.	Medium-High
8. Demand risk / weak penetration	Even when leasing grows, total demand may remain below reconstruction needs because many firms postpone capex.	IFC says corporate credit fell from 12.8% of GDP in 2021 to 9.2% in 2024; leasing is important as an alternative source of	Medium

		finance, but recovery is still partial.	
9. Macro-rate risk	A higher-rate environment raises lease pricing and can weaken affordability for borrowers.	NBU cut the key policy rate only to 15% in January 2026, which is lower than before but still a relatively expensive funding backdrop for long duration leasing.	Medium
10. Market fragility/institutional risk	The non-bank segment remains small relative to banks, so shocks can reduce confidence quickly.	NBU reports finance companies' assets fell 16.4% qoq in Q2 2025, largely because a major state-owned leasing company exited; NBFIs' share of total financial sector assets fell to 8.9%.	Medium

Table 6 (9,10,11)

7. risk/return strategies for Ukraine leasing market

Below is analysis for risk/return strategies in the Ukrainian leasing market, integrating following approaches - *macroeconomic conditions, sector dynamics, and financial structuring*. Based on pointed out tactics, we identify five straightforward strategies. The first one grounded on market context and placed forward return drivers in Ukrainian leasing market expose idea about growth oriented but high risk, shaped by war, recovery dynamics, and structural reforms. For this strategy key return drivers are strong SME demand for equipment financing (transport, agriculture, machinery), state support programs (interest compensation, sector subsidies), sectoral demand concentration (agriculture, logistics, infrastructure), and scaled digitalization determines lower transaction costs and faster turnover, also integration with international capital and suppliers resulting that leasing yields in Ukraine are typically higher than in EU markets due to risk premium, certainly driven by higher interest margins, asset backed structure, short-to-medium duration contracts. The second one places on a frontline core risk category and their structural acceptance. Tapping on a list, macroeconomic and political risks, war-related uncertainty and infrastructure damage remain dominant ones, GDP growth moderate (~2/3%), but fragile, and high dependence on external financing and fiscal pressure simply decisive. Additional, demand volatility credit risk spikes during shocks, currency and interest rate risk in addition to foreign exchange volatility is a major contributor to financial stress. Thus simplification portfolios often mismatch UAH income in local currency versus reality FX funding in "hard" currencies with inevitable impact of margin erosion and heightening default risk for FX linked leases. With strongly presented credit risk (lessee risk) SME dominated client base go to weaker credit quality. The third one is risk/return strategies in aiming high yield opportunistic strategy targets: SMEs, high-risk sectors, post-war recovery zones. Special attention is on risk premium, shortening lease contract terms or making returns more structured or diversified. Another niche under this strategy is asset secured target in agriculture, transport, essential industries with focus on liquid collateral (tractors, trucks, equipment etc.) desirably supported by strong down payments and insurance coverage. At some extend, medium-high risk position available marking FX hedges, targeting large corporates, international programs, or UAH denominated leasing co financing with IFIs such as EBRD and IFC.

The fourth one is state subsidized strategy with predefined target sector or business prioritizing as is practicable in agriculture and green energy, likely participating in interest compensation programs for lowering borrower risk, basically this strategy directs to medium or low-medium risk impact. Finally, portfolio diversification strategy with obvious target with mixed sector portfolio and diversification across regions, industries, asset classes. So, at the umbrella of this strategy can be reached stable return and controllable risk. Finalized risk/return strategies presented in the table 7

Strategy Type	Target Clients	Key Instruments	Expected Return	Risk Level	Key Risk Mitigation
Opportunistic High-Yield	SMEs, volatile sectors	High rates, short tenors	High (15–25%+)	Very High	Pricing, collateral, rapid turnover
Asset-Secured	Agriculture, logistics	Equipment-backed leasing	Medium-High (10–18%)	Medium	Liquid collateral, insurance
FX-Hedged Institutional	Corporates, IFI-backed	Hedging, co-financing	Medium (8–12%)	Low-Medium	FX hedging, strong borrowers
State-Supported	Agro, green sectors	Subsidized rates	Medium (7–12%)	Low-Medium	Government guarantees
Diversified Portfolio	Mixed	Sector/geographic diversification	Stable (10–15%)	Medium	Portfolio balancing

Table 7

8. what's future of Ukraine leasing market

The future of the Ukrainian leasing market is positive, but uneven. The market is already recovering from the wartime collapse: data show that financial leasing volumes fell in Q1 2025 quarter on quarter but after that still up gradually year on year basis - volumes grew 29% in Q2 2025 and another 7.4% in Q3 2025. At the same time, the OECD notes that leasing penetration remains extremely low - it fell from 0.2% of GDP in Q4 2021 to 0.08% in Q1 2025 (28, 29), far below peer countries. That combination, recovering activity plus very low penetration, means the sector has room to expand if security and funding conditions improve. Future outlook matrix with respective sectoral evolution (table 8)

Sector	Current State (2026)	Future Projection (2028+)	Growth Catalyst
Agriculture	Grain-focused machinery leasing	High-tech food processing & irrigation	EU Green Deal compliance
Energy	Backup power & generators	Biomass plants & wind turbine components	European grid integration
Logistics	Euro-6 Truck fleet renewal	Rail-to-Road intermodal equipment	"Solidarity Lanes" expansion
Construction	Heavy debris clearance gear	Residential & social infra 3D printing	World Bank/RDNA4 Funding
Healthcare	Mobile clinics & diagnostic tech	Private hospital network expansion	Public-Private Partnerships

Table 8

Upcoming risk weighted policies for the future beyond 2026 landscape, lessors have to adopt three distinct future proof challenges - the first one about blended finance model collaborating with international financial institutions such as EBRD, EIB etc. to offer interest rate subsidies. This allows lessors to provide UAH denominated leases at single digit rates (e.g., via the "5/7/9%" program expansion), significantly reducing default risk; the second one is about the asset as a service (AaaS) approach moving away from simple financial leases to full service operational leases. This is particularly dominant in the medical and energy sectors, where the lessor handles maintenance, insurance, and technological upgrades, justifying higher premiums; finally, geographically tiered pricing implementing dynamic risk zones - projects in the Western regions (Transcarpathia, Lviv) receive lower rates due to high security, while projects in so called “recovery zones” (Kharkiv, Mykolaiv) are backed by state-guaranteed insurance pools.

CONCLUSION

Ukrainian leasing market is in a phase of transformation and gradual recovery. While still underdeveloped compared to advanced economies, it demonstrates resilience and increasing importance as an alternative financing instrument. Its future growth will depend on macroeconomic stabilization, regulatory improvements, and the scale of post war reconstruction, positioning leasing as a key mechanism for economic renewal and capital formation in Ukraine. Ukrainian leasing market is characterized by moderate but growing scale (tens of billions UAH portfolio), high growth dynamics (20/30% annually in stable periods), sectoral concentration in agriculture and transport, increasing diversification and digitalization, significant untapped potential due to low penetration compared to developed economies Ukrainian leasing market’s typical lessee is a corporate borrower, not a consumer. The core lessees are agribusinesses and transport companies, because these sectors depend on expensive equipment that directly generates cash flow and can be financed more flexibly through leasing than through conventional loans. Around them sits a second circle of lessees - service firms, construction and industrial users, and a widening pool of SMEs seeking fleet renewal, mechanization, and operational resilience during wartime recovery. Individuals exist in the market, mainly through car leasing, but they remain a peripheral group compared with business clients. Overall, Ukraine’s leasing demand is best understood as equipment driven business demand, with agriculture and transport at the center and SMEs becoming the most important growth segment. Among another remarkable trends - the Ukrainian leasing market has successfully transitioning from a niche financial product for large corporations to a mainstream survival and growth engine for Small and Medium Enterprises. With state programs like “affordable loans 5/7/9%” increasingly integrating leasing components, the threshold for entering the market has lowered, allowing a broader range of Ukrainian entrepreneurs to modernize their technical base despite the ongoing risks of a wartime economy.

Ukrainian leasing market offers high enough nominal returns (10/25% on ROE) driven by elevated risk premiums, limited competition, and strong demand from underfinanced sectors. However, these returns are highly volatile and strongly dependent on macroeconomic conditions, so certainly leasing in Ukraine delivers above-average profitability compared to Europe. Spread driven profitability reviles core returns 5/12% margin between funding cost and lease rates. War impact is critical since the 2022 contraction highlights systemic vulnerability. Long-term normalization expected EU integration and reforms will likely reduce returns but improve stability. Strong growth potential reconstruction and SME financing needs position leasing as a key financial instrument. Ukrainian leasing market today is recovering but still high risk. For investors and lenders, it is attractive mainly in segments with strong sponsors, IFI risk sharing, resilient collateral, short to medium tenors, and geographically diversified portfolios. For purely commercial, unsupported growth, the risk profile remains highly elevated.

Careful assessment is that the Ukrainian leasing market has an upright future, but not a smooth one. The base case is continued recovery with above GDP growth, driven by reconstruction, equipment replacement, SME financing needs, and greater use of EU/IFI guarantees. The strongest opportunities are in productive asset leasing - agricultural machinery, transport and logistics fleets, construction equipment, distributed energy systems, and municipal or utility assets. The bear case is also clear, if attacks on infrastructure intensify, labor shortages deepen, or private capital stays expensive, the market may remain small and episodic rather than scaling. Because penetration is still far below peer countries, Ukraine does not need a perfect environment to grow, it needs only enough stability for equipment finance to function consistently. That is why the real determinant of the market's future is not demand alone, but the combination of security, guarantees, insurance and enforceable contracts. The future of the Ukrainian leasing market is intrinsically tied to EU Accession and the RDNA4 (Rapid Damage and Needs Assessment) frameworks. By 2026, the market has proven it can grow even under security threats, with a projected GDP contribution shift as leasing becomes the "go to" for the $524 billion reconstruction price tag. The most successful players will be those who bridge the gap between international capital and local operational expertise, utilizing the new national war risk insurance system to unlock financing for the "middle market" that is currently underserved by banks.

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THE IMPACT OF WORKING CAPITAL MANAGEMENT ON FIRMS' PROFITABILITY

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ANOTĀCIJA

Šī pētījuma mērķis ir izpētīt apgrozāmo līdzekļu pārvaldības ietekmi uz uzņēmumu rentabilitāti. Pētījuma mērķis ir pārbaudīt uzņēmumu apgrozāmo līdzekļu pārvaldības un rentabilitātes savstarpējās attiecības statistisko nozīmīgumu. Rezultāti uzrādīja statistiski nozīmīgu negatīvu saistību starp rentabilitāti un apgrozāmo līdzekļu pārvaldību. Tas nozīmē, ka uzņēmumu vadītāji var radīt peļņu vai vērtību saviem uzņēmumiem un akcionāriem, efektīvi pārvaldot naudas konvertācijas ciklu un uzturot katru apgrozāmo līdzekļu komponentu optimālā līmenī. Pētnieks atklāja būtisku negatīvu saistību starp likviditāti un rentabilitāti. Turklāt pētījumā tiek konstatēta spēcīgi nozīmīga pozitīva saistība starp uzņēmuma lielumu un rentabilitāti. Atšķirībā no pētījuma, kurā netika konstatēta statistiski nozīmīga negatīva saistība starp parāda izmantošanu un uzņēmumu rentabilitāti.

Atslēgvārdi: apgrozāmie līdzekļi, apgrozāmo līdzekļu pārvaldība, uzņēmuma lielums, naudas konvertācijas cikls un rentabilitāte

ABSTRACT

The purpose of this study is to investigate the impact of working capital management on firms' profitability. The study aims to examine the statistical significance of the relationship between firms' working capital management and profitability. The results demonstrated a statistically significant negative relationship between profitability and working capital management. It means that company managers can generate profits or value for their companies and shareholders by effectively managing the cash conversion cycle and keeping each component of working capital at an optimal level. The researcher discovered a significant negative relationship between liquidity and profitability. Moreover, the study finds a strongly significant positive relationship between firm size and profitability. Unlike the study, which found no statistically significant negative relationship between debt use and firms' profitability.

Keywords: working capital, working capital management, firm size, cash conversion cycle and profitability

INTRODUCTION

Working capital refers to the firm's investment in short-term assets, such as accounts receivable, accounts payable, inventory, cash or cash equivalents and marketable securities. Management of working capital is important to the financial health of businesses of all sizes. This importance stems from several reasons; first, the amounts invested in working capital are often high relative to total assets employed, so these funds must be used efficiently. Second, management of working capital directly affects a firm's liquidity and profitability, and consequently its net worth. Working capital management aims to maintain a balance between liquidity and profitability while conducting the day-to-day operations of a business concern.

The corporate finance literature has long focused on long-term financial decisions, such as capital structure, investments, dividends and firm valuation. However, finance theories are categorised into three main threads: capital budgeting, capital structure and working capital management. As a result, the first two are mostly related to financing and managing long-term investments. Meanwhile, financial decisions about working capital are primarily related to financing and managing short-term investments and involve both current assets and current liabilities (Mueller, 1953; Pinches, 1992; Brealey & Myers, 1996; Damodaran, 2002). Hence, working capital management refers to the management of current assets and current liabilities (Ross et al., 2003; Raheman & Nasr, 2007).

Management of working capital is an important factor of corporate financial management because it directly impacts a firm's profitability.

BASIC THEORETICAL AND PRACTICAL PROVISION

The term working capital is commonly used to refer to the capital required for day-to-day operations in a business concern, such as purchasing raw materials and meeting day-to-day expenses for salaries, wages, rent, rates, advertising and the like. However, there is still considerable disagreement among financial authorities (Financial Managers, accountants, businesspeople and economists) regarding the exact meaning of the term working capital. Working capital is defined as "the excess of current assets over current liabilities and provisions". In accounting terminology, it is the difference between inflows and outflows of funds. In Arnold (2008) working capital is defined as it includes "stocks of materials, fuels, semi-finished goods including work-in-progress and finished goods and by-products; cash in hand and bank and the algebraic sum of various creditors as represented by outstanding factory payments e.g. rent, wages, interest and dividend; purchase of goods and services; short-term loans and advances and sundry debtors comprising amounts due to the factory on account of sale of goods and services and advances towards tax payments".

Working capital may be classified into two important types: permanent and temporary working capital (Paramasivan & Subramanian, 2009), and is briefly discussed below.

Permanent Working Capital: It is also known as fixed working capital and refers to the minimum investment in working capital required at all times to sustain a minimum level of business activities (Brigham & Houston, 2003). In other words, it represents the current assets required continuously over the entire year. Further, working capital has a limited life and usually does not exceed a year; in practice, some part of that investment is always permanent.

Temporary Working Capital: It is also known as the circulating or transitory working capital. This is the amount of investment required to handle fluctuations in business activity. Fabozzi and Peterson (2003, p. 678) defined working capital as the rise of working capital from seasonal fluctuations in a firm's business. Because firms do not have to maintain this form of working capital year-round or year after year, it may be better to use short-term (bank credit) rather than long-term sources of capital to satisfy temporary needs.

RESEARCH RESULTS AND THEIR EVALUATION

The main purpose of this study is to investigate the impacts of working capital management on firms' profitability. The primary data sources for this end are the surveys of documentary studies of companies' financial statements, especially income statements and balance sheets. Using the companies' income statements and balance sheets, this discussion presents the results obtained using various statistical tools.

Table 1: Descriptive statistics of sample companies

Descriptive statistics					
Variables	N	Minimum	Maximum	Mean	Std. Dev.
Gross operating profit	65	-.220	.520	.141	.199
Average collection period in days	65	12	135	57.85	28.62
Inventory turnover in days	65	37	200	97.58	34.02
Average payment period in days	65	30	226	104.49	48.86
Cash conversion cycle	65	-25	343	129.88	86.53
Current ratio	65	.190	3.700	1.88	.812
Debt ratio	65	.040	1.100	.496	.280
Sales growth	65	-1.00	.950	.11	.284
Size of the company	65	6.64	8.89	7.66	.518

The table above presents descriptive statistics for 13 manufacturing firms over the period 2019 to 2024, comprising 65 observations. The mean value of net operating profitability is 14.18 per cent of total assets, and the standard deviation is 19.9 per cent. It means that the value of profitability can deviate from its mean by up to 19.9 per cent in either direction. The maximum net operating profitability is 52 per cent for a company in a year, while the minimum is -22 per cent. The cash conversion cycle, used as a proxy for working capital efficiency, averages 130 days, with a standard deviation of 86 days. The minimum time taken by a company to convert its overall activity is -25 days, which is unusual, and the maximum time taken by the firm for this purpose is 343 days, which is again very large. Firms receive payment for sales on average 58 days after the sale, with a standard deviation of 28 days. The minimum time a company takes to collect cash from receivables is 12 days, while the maximum is 135 days. It takes an average of 96 days to sell inventory with a standard deviation of 34 days. Here, the maximum time a company takes is 37 days, which is a very short period to convert inventory into sales. Firms wait an average of 104 days to pay their purchases, with a standard deviation of 49 days. Here, the minimum time taken by a company is 30 days, which is typical for a 30-day credit period, and the maximum time is 226 days. To assess the liquidity of the companies, a traditional liquidity measure (current ratio) is used. The average current ratio for Addis Ababa manufacturing firms is 1.88 with a standard deviation of 0.81. The highest current ratio for a company in a particular year is 3.7, and the lowest is 0.19. Similarly, to assess the relationship between debt financing and profitability, the debt ratio (total debt divided by total assets) is used as a control variable. The descriptive statistics show that the average debt ratio for the sample of Addis Ababa manufacturing companies is 49.6 per cent, with a standard deviation of 28 per cent. The maximum debt financing used by the company is 1.10 per cent, which is unusual given the company's larger assets. However, it is possible if the company's equity is negative. The minimum debt ratio is 0.040 per cent, indicating a company that uses little debt in its operations. Further, to assess sales growth and its impact on profitability, sales growth is measured as ((this year's sales – previous year's sales) ⁄ previous year's sales), which is used as a control variable. Looking at the table above, we can see that the average value of sales growth is 11.03 per cent, with a standard deviation of 28.38 per cent. The maximum and minimum values of sales growth are 0.95 and -1, respectively. Finally, to check the size of the firm and its relationship with profitability, the natural logarithm of sales is used as a control variable. From Table 2 above, one can see that the mean value of the log of sales is 7.66 and the standard deviation is 0.518. The maximum value of the log of sales for a company in a year is 8.895, while the minimum value is 6.649.

Table 2: Results of multiple regressions for pooled OLS

GOP = -1.060 - 0.002 ACP - 0.002 ITID - 0.001APP - 0.005CCC - 0.05CR – 0.0587DR +0.157SG + 0.213Size

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.060	0.296	-3.576	0.0007**
ACP	-0.002	0.001	-2.695	0.0093**
ITID	-0.002	0.001	-3.665	0.0006**
APP	-0.001	0.0003	-3.877	0.0003**
CCC	-0.005	0.0002	2.185	0.0330*
CR	-0.058	0.019	-3.037	0.0036**
DR	-0.059	0.051	-1.142	0.2581
SG	0.157	0.054	2.910	0.0052**
SIZE	0.212	0.036	5.841	0.0000**
R-squared	0.783	Durbin-Watson stat		1.47
Adjusted R^2	0.752	F-statistic		25.198
		Prob (F-statistic)		0. 0000

The overall regression equation in Table 2 shows a negative relationship between average collection period (ACP), inventory turnover in days (ITID), average payment period (APP), and cash conversion cycle (CCC) and profitability, measured by gross operating profit. It is consistent with the literature that a decrease in the working capital component, including cash conversion cycle, will generate more profits for a company. As a result, all independent variables have negative coefficients, and the results are highly significant for ACP, ITID, APP and CCC at the $\alpha = 1$ per cent significance level. Therefore, this is consistent with the view of Weston and Brigham (1977, P. 690), that minimising components of working capital will increase profitability as a measure of efficiency, CCC.

CONCLUSION

The study has found a significant negative relationship between corporate profitability, which is measured by gross operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of Addis Ababa manufacturing firms. The negative relationship between accounts receivable and firms' profitability suggests that less profitable firms will pursue 110 a decrease in their accounts receivable in an attempt to reduce their cash gap in the cash conversion cycle. The result further suggests that managers can create value for their shareholders by reducing the number of days' accounts receivable and inventory to realistic minimum levels. Likewise, the negative relationship between the number of days in inventory and corporate profitability suggests that a sudden drop in sales, accompanied by inventory mismanagement, will tie up excess capital at the expense of profitable operations. The negative relationship between accounts payable and profitability is consistent with the view that less-profitable firms take longer to pay their bills. Moreover, the cash conversion cycle, which measures the efficiency of working capital management, indicates that a longer cash conversion cycle is associated with lower profitability. Hence, the researcher claims and recommends that company managers can build a firm's value by reducing the cash conversion cycle to a reasonable range, or managers can create profits for their companies by handling the cash conversion cycle correctly and keeping each different component (accounts receivable, accounts payable, inventory) to an optimum level.

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AN EXPLAINABLE TRIPLE-AI ARCHITECTURE FOR ANOMALY DETECTION IN PUBLIC COUNTRY-BY-COUNTRY REPORTING DATA

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ABSTRACT

This paper presents an explainable triple-agent AI workflow for OECD-oriented tax risk assessment using public Country-by-Country Reporting (CbCR) data. The study addresses the lack of scalable and reproducible analytical approaches for interpreting multinational profit allocation. The novelty lies in integrating LLM-based risk evaluation, automated Requests for Explanation, and taxpayer response templates into a traceable compliance workflow tested on the AITAX13 database.

Keywords: Country-by-Country Reporting (CbCR), explainable AI, tax risk assessment, large language models, multi-agent systems, BEPS Action 13, tax transparency, anomaly detection, AI governance, RegTech

INTRODUCTION

Tax transparency has expanded rapidly, yet a core gap remains: observable multinational profit allocation is not translated into systematic, firm-level, and reproducible measurement. Under high capital mobility, multinational enterprises (MNEs) shift profits to low-tax jurisdictions, often decoupled from economic activity. This reduces tax bases where value is created and creates asymmetric competition between globally structured MNEs and domestic firms.

These distortions are observable as deviations between reported profits and economic activity, which can be operationalised as tax risk indicators. Empirical evidence shows weak alignment between profit location and real activity, indicating persistent cross-jurisdictional distortions (Tørsløv et al., 2018). However, existing evidence is largely aggregate and lacks firm-level, reproducible risk metrics. High-profile cases (e.g. LuxLeaks; Apple–Ireland ruling) confirm extreme decoupling between reported profits and economic substance and have triggered OECD-led transparency reforms.

Country-by-Country Reporting (CbCR) under BEPS Action 13 was designed to support high-level tax risk assessment by tax administrations. These reports include key indicators, such as revenues, profits, taxes paid and accrued, number of employees, and tangible assets, broken down by the jurisdictions in which MNEs have branches. This enables the analysis of the behaviour of multinationals, identifies mismatches between the place of profit, the place of economic activity, and the place of tax payment, and provides an empirical basis for analysing aggressive tax planning and supporting evidence-based policy development at both national and international levels. Despite the regulatory significance of CbCR, the analytical potential of this data remains underutilised. In practice, converting CbCR tables into a structured tax risk assessment requires significant manual interpretation by tax inspectors and is difficult to scale to large multinational groups. As a result, the OECD's risk assessment approach is often applied on a discretionary, individual basis rather than through systematic data analysis.

This paper contributes to the literature by demonstrating how OECD risk indicators embedded in CbCR disclosures can be operationalised through an explainable AI workflow that supports both tax authority screening and taxpayer response preparation (see Figure 1). We develop a prompt-based workflow that transforms CbCR data into a structured Tax Risk Evaluation Report, generates a draft Request for Explanation in line with typical tax authority practices, and creates a template for the taxpayer's response. Using a newly created database of over 800 public CbCR reports from more than 150 multinational groups, we conduct an end-to-end simulation, using BNP Paribas as an example, to demonstrate the practical feasibility and interpretability of the proposed approach.

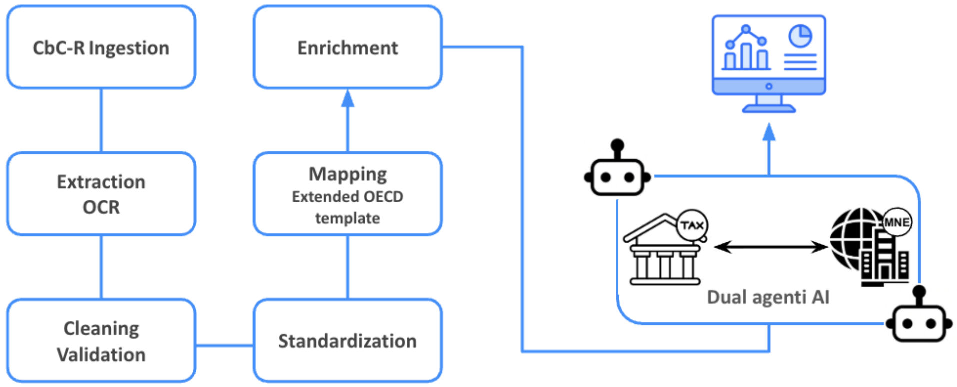

Figure 1. Risk Assessment AI workflow

Source: AITAX13 Team. (2025). AITAX13 technical report. University of Luxembourg

LITERATURE OVERVIEW

According to international tax theory, corporate profits should be taxed where economic value is created; however, empirical literature shows systematic deviations in the allocation of multinational profits (Tørsløv et al., 2018; Zucman, 2014).

Recent developments in tax administration emphasise the transition toward risk-based compliance management and AI-driven audit selection (Junquera-Varela & Lucas-Mas, 2024; OECD, 2025). The literature documents the increasing use of predictive risk scoring, anomaly detection, automated cross-checking with third-party data, and enhanced digital service delivery as key features of modern administrations. This literature, however, remains predominantly institutional, focusing on improving audit efficiency and the quality of administrative services within national tax systems, rather than developing analytical approaches capable of utilising cross-border corporate tax transparency datasets, such as Country-by-Country Reporting (CbCR).

Machine learning studies consistently demonstrate its ability to significantly improve the efficiency of taxpayer selection for auditing by analysing large administrative datasets (Battaglini et al., 2025). Using data on tax returns and audit results for individual entrepreneurs in Italy, the authors show that algorithmic audit selection can significantly increase the detection of tax evasion and the amounts collected compared with traditional approaches.

Black et al. (2022) show that machine learning methods can significantly improve tax audit selection by more effectively identifying potential underreporting than traditional approaches. Their results demonstrate that algorithmic models can enhance audit targeting and revenue performance, although model design choices may also influence the distribution of audits across income groups.

Brockmeyer et al. (2025), in their study "Algorithms and Bureaucrats: Evidence from Tax Audit Selection in Senegal" conduct a large-scale field experiment comparing inspector-selected audits with those selected by a risk-scoring algorithm. The results highlight both the potential and the limitations of algorithmic audit selection, emphasising the importance of careful model design and institutional integration.

Beyond institutional deployment, recent research in artificial intelligence highlights the emergence of agent-based architectures built on large language models (LLMs), where structured reasoning, tool use, and multi-step workflows are coordinated through modular AI agents (Park et al., 2023; Yao et al., 2022). In regulatory and financial contexts, such agentic systems are increasingly explored to enhance explainability, traceability, and decision support rather than to replace human judgment (Doshi-Velez & Kim, 2017; Ribeiro et al., 2016). These architectures enable the decomposition of complex analytical tasks into interpretable modules, thereby improving auditability and reducing opacity compared with monolithic black-box models. However, their application to structured cross-jurisdictional corporate tax data remains largely unexplored, particularly for public transparency datasets such as CbCR.

Recent advances in large language models have stimulated a growing literature on prompt engineering, optimisation, and systematic evaluation of generative outputs (Liu et al., 2023; Zamfirescu-Pereira et al., 2023). Research in AI governance and NLP increasingly emphasises structured prompt-evaluation frameworks, reproducibility protocols, and benchmark design to ensure robustness, stability, and interpretability of model outputs (Mitchell et al., 2019; Bommasani et al., 2021). In high-stakes domains such as finance and regulation, this has led to the emergence of prompt-benchmarking approaches that focus on consistency across runs, sensitivity to prompt perturbations, and alignment with predefined criteria.

Nevertheless, the application of such agent-based architectures to structured cross-border corporate tax transparency datasets, in particular CbCR, remains largely unexplored.

CONTEXT

In response to growing concerns about limited tax transparency and the strategic erosion of national tax bases by multinational corporations, the G20 Finance Ministers tasked the OECD with developing a comprehensive policy framework to address Base Erosion and Profit Shifting (BEPS). In 2013, the OECD launched the BEPS Action Plan, a major international initiative aimed at reducing aggressive tax planning and improving corporate tax transparency.

As part of this initiative, BEPS Action 13 introduced Country-by-Country Reporting (CbCR) as a key instrument for high-level tax risk assessment by tax administrations. The first CbCR reports were required for fiscal years beginning on or after 1 January 2016 in jurisdictions implementing the OECD recommendations (OECD, 2014). CbCR provides tax authorities with jurisdiction-level information on revenues, profits, taxes paid, employees, and tangible assets of multinational enterprise groups.

Initially designed exclusively for tax authority use, CbCR has gradually evolved toward partial public disclosure, creating new opportunities for independent empirical analysis of multinational profit allocation. Within the European Union, public disclosure requirements have been progressively introduced. In particular, mandatory CbCR reporting applies to banks and extractive industries under sector-specific EU legislation.

More recently, Directive (EU) 2021/2101 amended Directive 2013/34/EU and introduced public Country-by-Country Reporting requirements for large multinational groups operating in the EU. Under these rules, multinational enterprises with consolidated revenues exceeding EUR 750 million are required to disclose selected CbCR information when operating within the EU.

The OECD CbCR Handbook provides a conceptual basis for tax risk assessment (OECD, 2017). It identifies risk indicators and integrates multiple data sources, emphasising its role as a screening tool.

However, it does not provide scalable quantitative models, firm-level benchmarking frameworks, or reproducible analytical pipelines. It implicitly relies on comparing profits with economic activity but does not formalise this comparison within a structural or computational framework.

These regulatory developments significantly expand the availability of publicly accessible CbCR data, thereby creating new opportunities for empirical research and data-driven tax risk analysis.

DATA AND INFORMATION COLLECTION

The empirical analysis is based on the AITAX13 database, which comprises more than 800 publicly available Country-by-Country Reporting (CbCR) reports covering over 150 multinational enterprise groups for the period 2013–2024. The database spans more than 30 economic sectors, including banking, oil, gas and consumable fuels, metals and mining, insurance, and machinery. Company information was collected from publicly available sources, including corporate websites and national company registers (e.g. Companies House, UK).

The largest sector represented in the dataset is banking, with 74 multinational banking groups included in the AITAX13 database. A strong presence is also observed in the oil and gas sector, insurance, and metals and mining. Most companies in the sample are headquartered in Italy, Germany, and the United Kingdom, followed by France and the Netherlands. This distribution reflects jurisdictions where public CbCR reporting is either mandatory or widely adopted.

Overall, the dataset provides broad sectoral and geographic coverage, encompassing more than 30 industries across more than 20 countries, allowing for diverse cross-country observations and supporting exploratory empirical analysis.

CbCRs were identified through a combination of automated searches and manual collection procedures. Some reports were located using targeted keyword searches (e.g. “country-by-country report”, “CbCR”, “GRI 207-4”), while others were retrieved using automated scripts.

Within the AITAX13 project, we use a data processing pipeline that combines automated extraction with manual validation. CbCR tables are extracted from PDF reports using specialised scripts and subsequently verified through manual consistency checks. The data are standardised using an extended OECD CbCR template and consolidated at the jurisdiction level for each multinational enterprise.

To improve data comparability, the dataset is enriched with statutory corporate income tax rates from the OECD database (OECD, n.d.), harmonised jurisdiction identifiers (ISO country codes), and currency information (ISO 4217). A multi-step validation process based on the “four-eyes principle” ensures that each dataset is reviewed by at least two analysts (AITAX13, 2025).

At the time of analysis, some of the collected reports were still undergoing standardisation; therefore, the empirical results are based on the subset of reports that had completed the full validation and processing pipeline.

EXPERIMENTAL DESIGN

The risk-scoring logic implemented in this study builds on the OECD tax risk assessment framework and operationalises the compliance risk concepts described in the OECD Handbook on Effective Tax Risk Assessment (OECD, 2017).

Despite this clear operational intent, a persistent implementation gap remains between the OECD risk framework and day-to-day compliance processes. Tax administrations face practical constraints in scaling structured risk assessment across large numbers of multinational enterprises. In particular, the process requires: (i) translating CbCR signals into a coherent tax risk assessment narrative; (ii) converting this narrative into a structured Request for Explanation (RFE) aligned with administrative practice; and (iii) managing the interaction with taxpayers in a way that remains efficient, traceable, and defensible.

This paper presents a LLM prompt-based AI workflow developed within the University of Luxembourg project AITAX13, designed to simulate the operational interaction between tax authorities and multinational enterprises (MNEs). The workflow generates three sequential outputs: (1) an OECD-consistent Tax Risk Evaluation Report derived from CbCR data; (2) a structured Request for Explanation (RFE) generated from that report; and (3) a draft taxpayer response template designed to assist corporate tax departments in preparing structured responses.

The methodological contribution is the formalisation of an end-to-end administrative workflow in which generative outputs are anchored in a clearly defined regulatory framework (OECD, 2017). Public CbCR data serve as a controlled sandbox environment for testing reproducibility, interpretability, and procedural alignment. The project is inherently multidisciplinary: economists and tax researchers define the risk logic and validation criteria, while IT specialists implement data standardisation and the LLM-based workflow.

SANDBOX DESIGN: PUBLIC CBCR AS AN OPERATIONAL TESTBED

A key requirement for the simulation is an empirical environment that approximates the information constraints faced by tax administrations during risk screening. For this purpose, we constructed a structured database of the AITAX13 public CbCR reports database.

Importantly, the database is not intended to replicate the full set of information available to tax authorities. Instead, it serves as a sandbox environment for controlled experimentation with the operational sequence of risk screening, request drafting, and taxpayer response preparation.

Workflow architecture: from CbCR to risk report to RFE to response draft

1) Tax Risk Evaluation Report (Prompt 1)

The first prompt operationalises the OECD (2017) risk assessment framework. Its objective is to generate a structured Tax Risk Evaluation Report that mirrors how a tax officer may document risk signals during the initial screening stage.

The report relies on indicator logic derived from the OECD Handbook, including potential mismatches between profits and real economic activity, unusually low effective tax rates in high-profit jurisdictions, repeated losses in economically significant jurisdictions, and patterns consistent with centralised profit allocation structures.

The output is designed to remain interpretable and auditable by separating three analytical layers:

(i) extracted facts from CbCR tables;

(ii) calculated indicators; and

(iii) a structured narrative assessment linking the findings to OECD risk categories.

2) Structured Request for Explanation (Prompt 2)

The second prompt takes the Tax Risk Evaluation Report as its direct input and generates a draft Request for Explanation (RFE).

This step reflects the transition from analytical screening to administrative action. The RFE template was constructed based on real-world administrative practice, drawing on actual information requests issued by tax authorities and response packages prepared in professional tax advisory contexts.

The objective is not to replace the judgment of tax inspectors, but to accelerate and standardise drafting while ensuring that:

(i) questions remain directly traceable to the risk report;

(ii) relevant supporting documentation is requested; and

(iii) the request remains consistent with the OECD principle that CbCR signals trigger further inquiry rather than constitute proof of tax non-compliance (OECD, 2017).

Operationally, tax inspectors may review the draft, supplement it with additional information available within administrative systems (e.g., corporate income tax returns, transfer pricing documentation, prior filings, third-party data, or public sources), and then issue the finalised request to the taxpayer.

3) Draft taxpayer response template

The workflow then mirrors the taxpayer side of the compliance process.

Given an RFE, multinational enterprises must typically prepare structured responses combining narrative explanations, numerical reconciliations, and supporting documentation within relatively short timeframes.

The response-drafting component therefore generates a structured response skeleton, including a proposed explanatory narrative, reconciliation tables aligned with the request, and a checklist of relevant supporting documents.

The goal is not to automate legal argumentation but to reduce repetitive administrative workload and facilitate structured communication between corporate tax departments and tax authorities.

SIMULATION: BNP PARIBAS PROOF-OF-CONCEPT

To evaluate the feasibility of the workflow, we conducted an end-to-end simulation using the publicly available CbCR report of BNP Paribas (see Figure 2).

The first stage generated a Tax Risk Evaluation Report structured according to OECD risk indicators and based on the jurisdictional patterns observed in the company's CbCR disclosure. In the BNP Paribas simulation, the workflow identified several jurisdiction-level patterns consistent with OECD risk indicators, including mismatches between profits and employment and unusually low effective tax rates in specific jurisdictions.

The second stage produced a Request for Explanation, translating the identified signals into targeted administrative questions.

The third stage generated a structured response template containing reconciliation tables and a proposed documentation structure.

The simulation demonstrates the feasibility of the workflow at three levels.

First, the system consistently converts CbCR tables into an OECD-aligned risk assessment narrative rather than a simple anomaly list.

Second, it translates this narrative into an administratively plausible RFE consistent with real-world drafting practices.

Third, it produces a response structure that reflects how multinational enterprises typically compile explanations and supporting evidence.

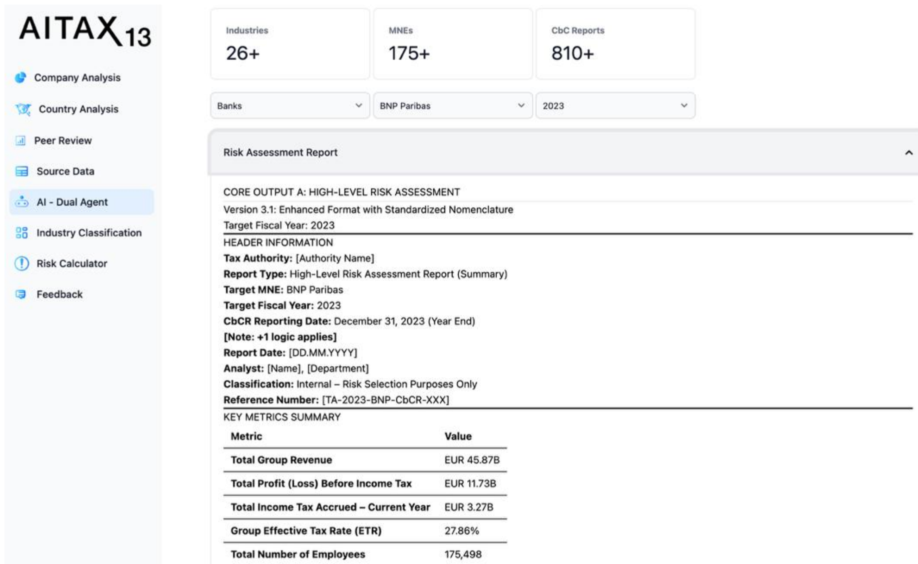

Figure 2. BNP Paribas proof-of-concept [dashboard UI]

Source: AITAX13. (n/d)

SCOPE AND LIMITATIONS

The contribution of this paper lies in demonstrating a workflow architecture, rather than in detecting illegal tax behaviour. The use of public CbCR data as a sandbox environment implies several limitations. Public disclosures are incomplete relative to confidential filings available to tax administrations and reflect accounting and reporting conventions that may differ across jurisdictions. The purpose of the simulation is, therefore, methodological: to demonstrate how an OECD-consistent workflow can be simulated, stress-tested, and evaluated for interpretability and procedural robustness prior to potential operational implementation.

CONCLUSIONS

This paper presents a multidisciplinary LLM prompt-based AI workflow that operationalises the OECD (2017) tax risk assessment framework into a structured Tax Risk Evaluation Report, converts that report into a Request for Explanation, and generates a taxpayer response template reflecting the full administrative interaction loop. Using the AITAX13 public CbCR database as a sandbox environment, we conduct an end-to-end simulation on BNP Paribas to demonstrate feasibility, procedural realism, and interpretability.

The results illustrate how transparency datasets and OECD risk guidance can be translated into a reproducible analytical workflow that supports explainable, governance-aware AI applications in tax administration.

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TŪRISMA UN ATPŪTAS ORGANIZĀCIJA

TOURISM AND RECREATION ORGANISATION

SRI LANKAN TRADITIONAL CULINARY ARTS AS A TOOL FOR SUSTAINABLE TOURISM PROMOTION: A STAKE HOLDER PERSPECTIVE

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ABSTRACT

This study examines the potential of promoting Sri Lankan traditional culinary arts as a sustainable tourism promotion tool from a stakeholder perspective. Using a qualitative research approach supported by secondary data, the study evaluates stakeholder involvement, tourism policies, and economic contributions related to gastronomy tourism. Findings indicate that food and beverage expenditure accounts for approximately 20% of tourist spending in Sri Lanka, while the tourism sector is largely driven by small and medium enterprises. Despite significant tourism potential, culinary tourism remains underdeveloped due to weak stakeholder coordination, limited international promotion, and insufficient policy integration. The study concludes that culinary tourism can strengthen destination competitiveness, increase tourist spending, support rural livelihoods, and preserve cultural heritage when supported through collaborative stakeholder engagement and strategic planning.

Keywords: culinary tourism, Sri Lanka, stakeholder theory, sustainable tourism, gastronomy

ANOTĀCIJA

Šis pētījums analizē Šrilankas tradicionālās kulinārijas attīstību kā ilgtspējīgu tūrisma stratēģiju no ieinteresēto pušu perspektīvas. Izmantojot kvalitatīvu pieeju un sekundāros datus, pētījums izvērtē tūrisma politiku, ieinteresēto pušu iesaisti un ekonomisko ietekmi. Rezultāti liecina, ka kulinārais tūrisms var uzlabot ekonomisko attīstību un kultūras saglabāšanu.

Atslēgvārdi: kulinārais tūrisms, Šrilanka, ieinteresētās puses, ilgtspējīgs tūrisms, gastronomija

IEVADS. INTRODUCTION

Global tourism has increasingly shifted toward experience-based consumption, where tourists seek authentic and culturally meaningful experiences rather than traditional sightseeing activities alone [1]. Within this transformation, culinary tourism has emerged as an important tourism segment that contributes to destination branding, visitor satisfaction, and economic diversification [5]. Food has become a significant cultural element that reflects local identity, traditions, and heritage.

Sri Lanka possesses a rich culinary culture shaped by indigenous traditions, colonial influences, and regional diversity. Nevertheless, tourism development strategies in Sri Lanka have historically emphasized beaches, wildlife, and cultural monuments while paying limited attention to gastronomy. This creates a strategic gap, particularly as global tourism trends demonstrate increasing demand for authentic culinary experiences [9].

Despite the recovery of tourist arrivals after recent economic and health crises, average tourist spending remains relatively low compared with competing destinations [4]. This suggests the need for value-added tourism products capable of increasing tourism revenue and visitor engagement. In this context, promoting traditional culinary arts presents a significant opportunity for sustainable tourism development.

The objective of this study is to analyze how Sri Lankan traditional culinary arts can be promoted as a sustainable tourism development strategy from a stakeholder perspective.

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ. BASIC THEORETICAL AND PRACTICAL PROVISIONS

Culinary tourism refers to tourism activities motivated by the desire to experience local cuisine, culinary traditions, and food-related cultural practices [1]. Previous studies indicate that gastronomy tourism contributes significantly to destination attractiveness and enhances tourists' emotional and cultural engagement with destinations [7].

Authenticity plays a central role in culinary tourism because tourists increasingly seek genuine food experiences that reflect local culture and traditions [9]. Traditional food preparation methods, locally sourced ingredients, and community participation are considered important components of authentic tourism experiences [8].

This study is theoretically grounded in stakeholder theory, developed by Freeman [6], which argues that organizational and developmental success depends on effective collaboration among stakeholders. In tourism, stakeholders include government institutions, private sector businesses, local communities, tourists, and supporting organizations. Stakeholder collaboration is particularly important in culinary tourism because food experiences involve interconnected value chains linking agriculture, hospitality, and cultural industries.

From a practical perspective, Sri Lanka demonstrates considerable potential for gastronomy tourism development. Food and beverage expenditure accounts for approximately 20% of tourist spending, indicating the economic significance of gastronomy within the tourism sector [3]. In addition, approximately 25% of Sri Lanka's workforce remains connected to agriculture, creating opportunities for linking tourism with rural economic development [4].

Methodology

This study adopts a qualitative research methodology supported by secondary data analysis. Secondary data were collected from academic journals, government publications, tourism strategic plans, and institutional reports published by Sri Lanka Tourism Development Authority and Central Bank of Sri Lanka.

The study applies thematic analysis to identify major themes associated with stakeholder participation, culinary tourism development, tourism governance, and sustainability. Thematic analysis enables the systematic interpretation of qualitative information and facilitates the integration of theoretical concepts with empirical findings.

PĒTĪJUMA REZULTĀTI UN TO NOVĒRTĒJUMS. RESEARCH RESULTS AND THEIR EVALUATION

Economic Importance of Gastronomy

Food and beverage expenditure accounts for approximately 20% of total tourist spending in Sri Lanka, demonstrating the significant economic role of gastronomy within tourism [3].

Table 1. Food-Related Tourism Indicators in Sri Lanka

Indicator	Figure
Food & beverage share of tourist expenditure	20%
Estimated tourism food revenue contribution (2024)	USD 0.63 billion
Average tourist daily spending	USD 181
Workforce connected to agriculture	25%

Source: Sri Lanka Tourism Development Authority [3]; Central Bank of Sri Lanka [4]

The findings suggest that gastronomy already contributes substantially to the tourism economy, even in the absence of targeted culinary tourism strategies. Furthermore, the strong relationship between tourism and agriculture demonstrates the potential for integrating rural communities into tourism value chains.

Stakeholder Participation and Tourism Structure

The tourism industry in Sri Lanka is largely composed of small and medium enterprises, highlighting the importance of local stakeholder participation.

Table 2. Stakeholder Structure in Sri Lanka Tourism

Indicator	Figure
SMEs in tourism-related businesses	Over 70%
Registered accommodation establishments	4,500+
Officially registered tourism rooms	55,455
Informal accommodation rooms estimated	55,000+

Source: Sri Lanka Tourism Development Authority [3]; Rapid Assessment of Tourism Revenues [16]

The dominance of SMEs and informal tourism enterprises indicates that tourism development depends heavily on local communities and small-scale stakeholders. This structure creates opportunities for community-based culinary tourism initiatives.

Government and Institutional Support

Government agencies and international organizations increasingly recognize sustainable tourism development as a national priority.

Table 3. Government and Stakeholder Support for Tourism Development

Indicator	Figure
Tourism revenue target	USD 5 billion
Tourist arrival target	3 million visitors
Sustainable tourism funding	USD 105 million
Tourism investment projects approved	126 projects
Tourism SMEs recognized for sustainability	100 SMEs

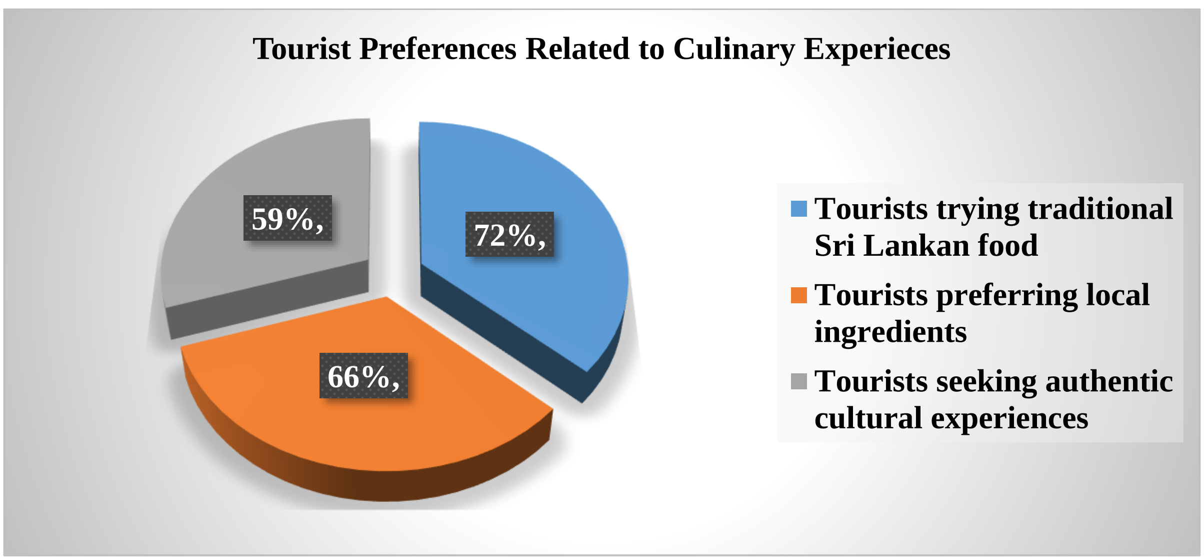
Source: SASEC Sustainable Tourism Development Programme [14]; SLTDA [17]

These figures indicate growing institutional commitment toward sustainable tourism development. However, existing policies still provide limited direct focus on culinary tourism as a specialized tourism segment.

Tourist Preferences and Culinary Demand

Tourist behavior assessments reveal strong interest in local food experiences.

Figure 1



Source: Rapid Assessment of Tourism Revenues and Value Retention in Sri Lanka [16]

These findings confirm that culinary experiences already influence tourist behavior and destination satisfaction.

Stakeholder Support and Sustainable Tourism Initiatives

Recent tourism development initiatives demonstrate increasing stakeholder involvement in Sri Lanka's tourism sector. Small and medium enterprises account for approximately 70% of tourism-related businesses, highlighting the importance of community participation and local entrepreneurship in tourism development [13]. In 2025, 100 tourism SMEs were formally recognized for implementing sustainable tourism practices, while female participation in tourism programs increased significantly from 27% to 58% through UNDP-supported tourism initiatives [13]. These findings demonstrate increasing emphasis on inclusive and community-based tourism development strategies.

Government and international stakeholder support has also expanded considerably in recent years. Sri Lanka's sustainable tourism development programme aims to achieve USD 5 billion in tourism revenue while attracting 3 million international tourists annually [14]. To support this objective, a sustainable tourism funding programme valued at USD 105 million was implemented with assistance from the Asian Development Bank, including USD 100 million in external financing and USD 5 million in government contributions [14]. These investments reflect the growing recognition of tourism as a strategic economic sector requiring long-term sustainability planning.

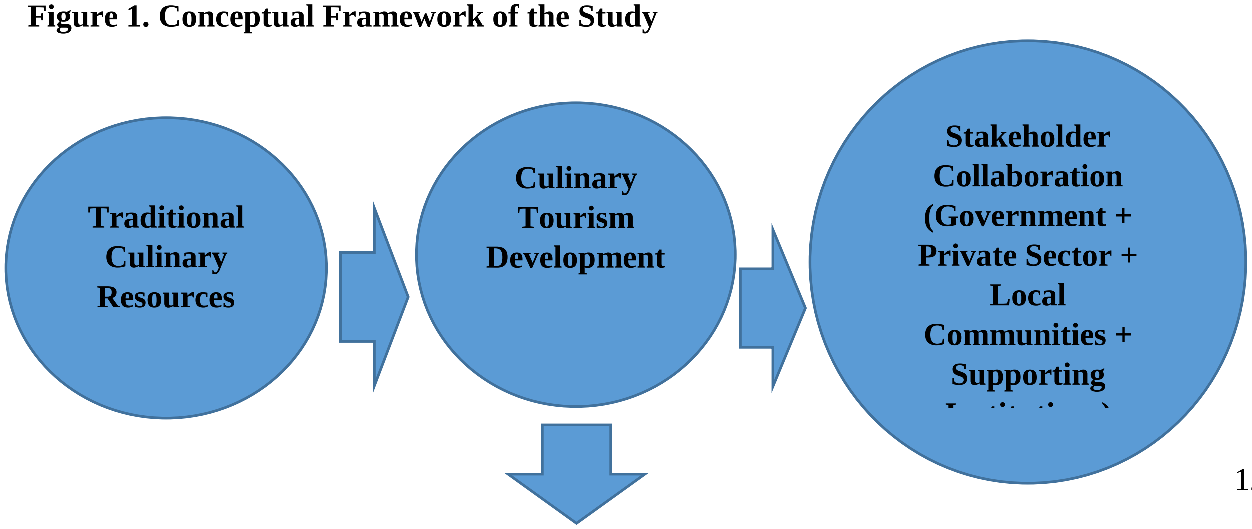
The tourism sector also demonstrates increasing institutional coordination and policy engagement. National tourism planning consultations involved 49 tourism-related industry associations and identified 17 priority tourism development activities for implementation [15]. Furthermore, Sri Lanka has officially identified 45 tourism zones for strategic tourism development and sustainability management [17]. These initiatives illustrate a transition toward more integrated tourism governance and stakeholder collaboration.

Industry structure data further reinforce the importance of local stakeholders within Sri Lanka's tourism economy. The country officially records 55,455 registered tourism accommodation rooms, while estimates suggest that more than 55,000 additional rooms operate informally outside the regulatory system [16]. Guesthouses, homestays, and bungalows represent more than 70% of licensed tourism accommodation units [16], indicating the strong presence of community-based and small-scale tourism enterprises.

The findings therefore suggest that culinary tourism development in Sri Lanka depends heavily on stakeholder participation at multiple levels, including government institutions, private businesses, local communities, and international development organizations. Strengthening collaboration among these stakeholders is essential for transforming traditional culinary resources into sustainable and competitive tourism products.

Conceptual Framework

Figure 1. Conceptual Framework of the Study



Source: Developed by the author based on stakeholder theory [6] and gastronomy tourism literature [1], [5]

Stakeholder Mapping

Figure 2. Stakeholder Influence Interest Matrix

Stakeholder	Power	Interest	Strategic Contribution
Government Institutions	High	High	Policy formulation, tourism regulation, infrastructure development
Private Sector	High	High	Investment, hospitality services, culinary product development
Local Communities	Medium	High	Preservation of culinary heritage, authentic food experiences
Tourists	Medium	High	Demand generation and tourism consumption
International Organizations	Medium	Medium	Funding, sustainability programs, technical support
SMEs and Home-Based Enterprises	Medium	High	Community entrepreneurship and local economic retention

Source: Developed by the author based on stakeholder theory [6]

The stakeholder analysis demonstrates that government institutions and private sector actors possess the highest decision-making power within tourism development. However, local communities and SMEs remain essential for preserving culinary authenticity and delivering cultural experiences. The increasing involvement of SMEs, international organizations, and community-based enterprises further demonstrates that Sri Lanka's tourism development is gradually moving toward a more stakeholder-oriented and sustainability-focused model [13], [14]. However, despite these improvements, limited coordination and insufficient integration of gastronomy within tourism policy continue to restrict the development of culinary tourism as a high-value tourism segment.

Discussion

The findings reveal a significant gap between Sri Lanka's tourism potential and the strategic utilization of gastronomy tourism. Although food already contributes substantially to tourism revenue, culinary tourism remains underdeveloped as a specialized tourism product [3]. This aligns with previous studies suggesting that destinations often fail to fully integrate gastronomy into tourism planning despite growing global demand [1].

The dominance of SMEs within the tourism industry indicates that community-level participation is already embedded within Sri Lanka's tourism structure. However, weak coordination among stakeholders limits the ability to transform culinary resources into competitive tourism products [6]. Existing tourism strategies prioritize general tourism growth but provide limited direct focus on gastronomy branding and culinary tourism marketing.

The findings also highlight the importance of authenticity in tourism experiences. Tourists increasingly seek local food experiences prepared using traditional methods and ingredients [9]. Therefore, preserving culinary heritage is not only a cultural necessity but also a strategic economic opportunity.

Moreover, the strong linkage between tourism and agriculture suggests that culinary tourism can support rural development by increasing demand for local products and generating income opportunities for farming communities [8]. This supports sustainable tourism principles emphasizing local participation and inclusive economic development.

Strategic Recommendations

A national culinary tourism strategy should be developed to integrate gastronomy into broader tourism policies and destination branding initiatives. This strategy should establish culinary tourism zones, food heritage trails, and regional gastronomy festivals that promote local identity and diversify tourism products.

- Stakeholder coordination mechanisms should also be strengthened through public–private partnerships involving government institutions, hospitality businesses, local communities, and international organizations. Establishing dedicated culinary tourism councils at regional levels would improve collaboration and implementation capacity.

- Capacity-building programs should be introduced for local food entrepreneurs, home-based food providers, and rural communities to enhance service quality, hygiene standards, innovation, and digital marketing skills. Supporting women-led and community-based culinary enterprises would further contribute to inclusive development.

Additionally, tourism marketing campaigns should emphasize authenticity by promoting traditional Sri Lankan recipes, indigenous ingredients, and regional culinary identities. Digital media and food influencers can be strategically utilized to strengthen Sri Lanka's international culinary image.

Finally, sustainable tourism policies should ensure stronger integration between tourism and agriculture by encouraging farm-to-table tourism experiences and supporting local supply chains. This would reduce economic leakage while increasing value retention within rural communities.

SECINĀJUMI. CONCLUSION

This study concludes that Sri Lanka possesses substantial potential to develop culinary tourism as a sustainable tourism development strategy. The findings demonstrate that gastronomy already contributes significantly to tourism expenditure, while tourist preferences increasingly favor authentic cultural and culinary experiences.

However, despite these advantages, culinary tourism remains underdeveloped due to fragmented stakeholder coordination, limited marketing, and insufficient policy integration. The tourism industry's heavy reliance on SMEs and local enterprises further emphasizes the importance of stakeholder-inclusive strategies.

Recent tourism investments, sustainable tourism programs, and increasing stakeholder participation indicate that Sri Lanka already possesses an institutional foundation capable of supporting culinary tourism development [13], [14]. Therefore, integrating gastronomy into national tourism strategies represents not only a cultural opportunity but also a practical economic development strategy.

The study also highlights that culinary tourism can contribute not only to tourism competitiveness but also to rural economic development, cultural preservation, and sustainable value creation. By strengthening stakeholder collaboration and integrating gastronomy into national tourism strategies, Sri Lanka can improve tourism revenue, increase visitor engagement, and enhance long-term sustainability.

LITERATŪRAS UN AVOTU SARAKSTS. REFERENCES

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ECO – TOURISM IN INDIA: CURRENT STATUS AND DEVELOPMENT OPPORTUNITIES

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ANOTĀCIJA

Šajā pētījumā tiek pētīts ekotūrisma transformācijas potenciāls kā ilgtspējīgas attīstības instruments Indijas daudzveidīgajā ģeogrāfiskajā ainavā. Pētījumā tiek pētīta pāreja no masu tūrisma uz dabas orientētu ceļošanu, uzsverot nepieciešamību pēc vides aizsardzības un sociālekonomiskajiem ieguvumiem vietējām kopienām. Izpētot reģionālos modeļus, īpaši Keralā un Utarkhandā, promocijas darbā tiek identificēti kritiski veiksmes faktori un sistēmiski šķēršļi, piemēram, infrastruktūras deficīts un politikas nepilnības. Secinājumi noved pie stratēģiskas sistēmas, kuras mērķis ir uzlabot Indijas konkurētspēju kā globālam ekotūrisma galamērķim, vienlaikus aizsargājot tās unikālo bioloģisko daudzveidību.[1]

Atslēgas vārdi: Ekotūrisms, Indija, ilgtspējība, kopiena, bioloģiskā daudzveidība

ABSTRACT

This research investigates the transformative potential of eco-tourism as a sustainable development tool within India’s diverse geographical landscape. The study explores the shift from mass tourism toward nature oriented travel, emphasizing the need for environmental conservation and socio-economic benefits for local communities. By examining regional models, specifically in Kerala and Uttarakhand, the thesis identifies critical success factors and systemic barriers such as infrastructure deficits and policy gaps. The findings culminate in a strategic framework aimed at enhancing India’s competitiveness as a global eco-tourism destination while safeguarding its unique biodiversity.[1]

Key words: Eco – Tourism, India, Sustainability, Community, Biodiversity

IEVADS. INTRODUCTION

The tourism industry is a vital pillar of the global economy, yet its conventional forms often lead to environmental degradation and cultural erosion. In India, a nation characterized by mega-biodiversity, the rise of eco-tourism offers a path to balance economic growth with ecological preservation. The problem addressed in this research is the disparity between India’s vast natural potential and its current status in the global eco-tourism market.[2] The goal of this study is to analyze the current state of eco-tourism in India and provide actionable recommendations for its sustainable expansion.[1]

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ. BASIC THEORETICAL AND PRACTICAL PROVISION

Theoretically, eco-tourism is defined by three core principles: conservation, community participation and education.[3] This research utilizes the United Nations Sustainable Development Goals (SDGs) as a benchmark for evaluating tourism practices, focusing on their ability to alleviate poverty and protect life on land.[4] Practically, the study adopts a comparative methodology, looking at "Best Practice" models like Kerala's community based initiatives[5] and contrasting them with the fragile, high altitude ecosystem management required in the Himalayan regions.[6] These provisions serve as the foundation for the SWOT analysis used to evaluate the sector's health.[1]

PĒTĪJUMA REZULTĀTI UN TO IZVĒRTĒJUMS. RESEARCH RESULTS AND THEIR EVALUATION

The research identifies that India's primary strength lies in its unique bio-geographic zones, which offer unparalleled variety for eco-travelers.[1] However, evaluation of the data shows significant weaknesses in infrastructure and the enforcement of environmental regulations, which often lead to "over-tourism" in sensitive zones.[2]

- **Kerala Evaluation:** Highly successful due to its "Responsible Tourism Mission" and active tribal participation in the Periyar Tiger Reserve.[5]
- **Uttarakhand Evaluation:** Faces high vulnerability due to climate change and natural disasters, requiring stricter "carrying capacity" assessments.[6]
- **Economic Impact:** While eco-tourism contributes to local livelihoods, the study finds that "greenwashing" remains a threat to the industry's integrity.[3]

KOPSAVILKUMS. CONCLUSION

The research concludes that while India has made significant strides in policy, the transition to a truly sustainable model requires a more integrated approach.[2] Success depends on moving toward Public-Private-Community Partnerships (PPCPs) that ensure local residents are the primary beneficiaries of tourism revenue.[1] Furthermore, the institutionalization of scientific carrying capacity limits and the adoption of digital technologies for monitoring are essential to prevent the degradation of the very natural assets that attract tourists[1].

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DEVELOPING A DIGITAL MARKETING STRATEGY FOR PROMOTING SRI LANKA AS A TOURISM DESTINATION THROUGH A TRAVEL BLOG

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ANOTĀCIJA

Šajā pētījumā tiek pētīta digitālā mārketinga stratēģiju loma Šrilankas kā tūrisma galamērķa popularizēšanā, īpaši koncentrējoties uz ceļojumu emuāra kā stratēģiska rīka izveidi. Pētījumā tiek analizēti digitālā mārketinga teorētiskie pamati tūrismā un izvērtēta pašreizējā digitālā prakse, ko izmanto Šrilankas tūrisma uzņēmumi. Secinājumi atklāj, ka, lai gan plaši tiek izmantoti tādi digitālie rīki kā sociālie mediji un tiešsaistes ceļojumu aģentūras, trūkst strukturētu un integrētu satura mārketinga stratēģiju, jo īpaši ceļojumu emuāru veidošanā. Pētījumā tiek piedāvāts profesionāls ceļojumu emuāra modelis, kas integrē meklētājprogrammu optimizāciju (SEO), stāstniecību un digitālo komunikāciju, lai uzlabotu galamērķa redzamību, iesaisti un konkurētspēju. Rezultāti uzsver, ka labi strukturēta emuāra stratēģija var ievērojami uzlabot tūrisma zīmolu un ietekmēt ceļojumu lēmumu pieņemšanu.

Atslēgas vārdi: Digitālais mārketings, tūrisms, ceļojumu emuārs, Šrilanka, SEO, galamērķu zīmola veidošana

ABSTRACT

This study examines the role of digital marketing strategies in promoting Sri Lanka as a tourism destination, with a specific focus on the development of a travel blog as a strategic tool. The research analyzes the theoretical foundations of digital marketing in tourism and evaluates current digital practices used by Sri Lankan tourism enterprises. Findings reveal that while digital tools such as social media and online travel agencies are widely used, there is a lack of structured and integrated content marketing strategies, particularly in travel blogging. The study proposes a professional travel blog model that integrates search engine optimization (SEO), storytelling, and digital communication to enhance destination visibility, engagement and competitiveness. The results highlight that a well structured blog strategy can significantly improve tourism branding and influence travel decision making.

Key words: Digital marketing, Tourism, Travel blog, Sri Lanka, SEO, Destination branding

IEVADS. INTRODUCTION

In the modern digital era, tourism marketing has been significantly transformed by the rapid development of digital technologies. Platforms such as websites, social media and blogs play a crucial role in influencing travel decisions [1]. Sri Lanka, as an emerging tourism destination, increasingly relies on digital marketing strategies to rebuild its global image and attract international tourists [2].

However, despite the growing use of digital tools, tourism marketing practices in Sri Lanka remain fragmented and lack strategic integration [2]. In particular, the potential of travel blogs as a structured marketing tool is underutilized.

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ. BASIC THEORETICAL AND PRACTICAL PROVISION

Digital marketing strategy refers to the use of digital technologies to achieve marketing objectives through customer engagement and value creation [3]. In tourism, digital marketing is particularly important due to the intangible nature of tourism products, where consumers rely heavily on online information before making decisions [4].

Key components of digital marketing include:

- Search Engine Optimization (SEO)
- Content marketing
- Social media marketing
- Online advertising [3]

Travel blogs are a form of content marketing that provide authentic experiences and storytelling, making them highly influential in shaping destination image and tourist behavior [4].

PĒTĪJUMA REZULTĀTI UN TO IZVĒRTĒJUMS. RESEARCH RESULTS AND THEIR EVALUATION

The analysis of Sri Lanka's tourism sector shows strong potential due to its diverse attractions, including beaches, cultural heritage, and wildlife. However, the industry has faced challenges due to economic and political instability [2].

Digital marketing practices in Sri Lanka reveal:

- Strong use of social media platforms
- High dependence on online travel agencies
- Limited use of structured content marketing and blogging

Large enterprises demonstrate advanced digital capabilities, while small and medium enterprises face limitations in skills and resources [5].

The findings indicate that travel blogs are underutilized despite their high potential to:

- Improve search engine visibility
- Enhance engagement through storytelling
- Strengthen destination branding [4]

KOPSAVILKUMS. CONCLUSION

The development of a professional travel blog offers a strategic solution by combining storytelling, SEO and digital communication [3]. Such an approach can improve destination visibility and support long-term tourism growth.

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AUTHENTICITY IN CULTURAL FESTIVALS AND ITS IMPACT ON TOURIST EXPERIENCE AND DESTINATION LOYALTY

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ABSTRACT

This paper looks at how the realness of cultural festivals affects tourist's experiences and whether they want to come back, using Rajasthan, India as an example. Since many travellers are looking for genuine cultural experiences, the study shows that authenticity plays a big role in how satisfied visitors feel and how they behave. In the end, it finds that more authentic experiences make tourists more likely to return and help support long-term sustainable tourism.

Keywords: authenticity, cultural festivals, tourist experience, destination loyalty, event tourism

ANOTĀCIJA

Šajā rakstā tiek aplūkota kultūras festivālu realitātes ietekme uz tūristu pieredzi un to, vai viņi vēlas atgriezties, izmantojot Radžastānu, Indiju kā piemēru. Tā kā daudzi ceļotāji meklē īstu kultūras pieredzi, pētījums liecina, ka autentiskumam ir liela nozīme apmeklētāju apmierinātības sajūtas un uzvedības nodrošināšanā. Galu galā tiek secināts, ka autentiskāka pieredze palielina tūristu atgriešanās iespējamību un palīdz atbalstīt ilgtermiņa ilgtspējīgu tūrismu.

Atslēgvārdi: autentiskums, kultūras festivāli, tūristu pieredze, galamērķa lojalitāte, pasākumu tūrisms

INTRODUCTION. IEVADS

Cultural festivals have become an important way to promote tourism and make places more attractive to visitors. In a culturally rich state like Rajasthan, events such as the Pushkar Fair, Desert festival and Jaipur literature festival attract both Indian and foreign tourists. Known as the land of deserts, Rajasthan is famous for its vibrant culture, royal history, heritage, folk music, tasty food and beautiful jewellery. These festivals are not just for entertainment but also help show the culture and identity of the region of the world.

In recent years, the concept of authenticity has gained increasing attention in tourism research. Tourists are no longer satisfied with superficial experiences; instead, they seek genuine, immersive and culturally meaningful interactions. Authenticity in cultural festivals can influence how tourists perceive the destination and whether the develop emotional connections with it.

This paper aims to explore the relationship between authenticity in cultural festivals tourists experience and destination loyalty. The following research tasks will be followed to achieve the aim of the research:

- How does perceived authenticity influence tourist experience?
- What is the relationship between tourist experience and destination loyalty?
- How can cultural festivals enhance long-term tourism outcomes?

This study contributes by focusing specifically on Rajasthan, highlighting the importance of authentic cultural representation in festival tourism.

BASIC THEORETICAL AND PRACTICAL PROVISIONS. SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ

Authenticity in tourism is a central concept in tourism studies and refers to the perceived genuineness of cultural experiences. Cohen [1] and MacCannell [2] distinguish between:

Table 1

Objective authenticity	Original constructed perceptions
Constructive authenticity	Socially constructed perceptions
Existential authenticity	Personal and emotional experiences

In cultural festivals, authenticity is reflected through traditional performances, local participation of heritage.

Tourist experience is a multidimensional construct including cognitive, emotional and behavioural aspects. According to Pine and Gilmore [3] experiences that are immersive and authentic are more memorable and valuable for tourists. Authentic festival environments improve emotional engagement and satisfaction, leading to a deeper connection with the destination.

Destination loyalty refers to tourist's intention to revisit and recommend a destination [4]. It is influenced by satisfaction, perceived value and emotional attachment. Festivals play a key role in strengthening loyalty by creating unique and memorable experiences.

The study is based on the following relationship:

Figure 1

Authenticity acts as a stimulus that shapes experience, which in turn influences behavioural intentions.

This study adopts a conceptual and qualitative approach based on desk research. It involves the analysis of existing academic literature, tourism report and case examples of cultural festivals in Rajasthan. Secondary data sources were used to identify key relationships between authenticity, tourist experience and destination loyalty.

RESEARCH RESULTS AND THEIR EVALUATION. PĒTĪJUMA REZULTĀTI UN TO IZVĒRTĒJUMS

The analysis indicates that authenticity significantly improves tourist experience. Festivals that preserve traditional elements- such as folk music, rituals and local crafts- provide more engaging and meaningful experiences.

For instance, the Pushkar fair offers authentic interaction through traditional livestock trading, religious ceremonies and cultural performances. Such elements create immersive experience that increase tourist satisfaction.

Table 2 presents the following on key elements of authenticity in cultural festivals.

Table 2

Key elements of authenticity in cultural festivals

Element	Description
Cultural traditions	Rituals, folklore, heritage practices
Atmosphere	Traditional setting and environment
Interaction	Engagement with local people
Local food	Authentic and regional cuisine
Arts and craft	Handmade and traditional creations
Storytelling & history	Connection to cultural roots
Community participation	Locals actively involved

Complied by the authors based on the sources [1-4]

The findings show that when tourists have positive and authentic festival experiences, they enjoy their visit more, feel a stronger emotional connection to the place, are more likely to return or recommend the destination to others. There are some key points:

- Higher tourist satisfaction
- Strong emotional attachment
- Increased revisit intention

Tourist who perceives festivals as authentic are more likely to recommend the destination, contributing to positive word of mouth.

The study confirms that authenticity is a key determinant of successful festival tourism. However, excessive commercialization may negatively affect authenticity and reduce tourist satisfaction. Maintaining a balance between commercialization and cultural preservation is therefore essential.

CONCLUSION. KOPSAVILKUMS

Cultural festivals play an important role in enhancing the attractiveness of tourist destinations, particularly in regions like Rajasthan. This study highlights that authenticity is a critical factor influencing tourist's experience as well as their loyalty to a destination.

Authentic festivals offer meaningful and memorable experiences, which strengthen emotional connections and encourage repeat visits. For the sustainable development of tourism, it is essential to preserve cultural integrity whereas also adapting to modern tourism demands.

Future research should focus on collecting empirical data to better support and validate these findings.

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EVALUATING THE DISCREPANCY BETWEEN TOURISM EDUCATION AND INDUSTRY DEMANDS IN SRI LANKA: A CASE STUDY OF ABC PVT. LTD.

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ANOTĀCIJA

Šis pētījums analizē atšķirību starp tūrisma izglītības rezultātiem un nozares prasībām Šrilankā, izmantojot SIA ABC Pvt. Ltd. (ar septiņām filiālēm Gālē) kā nozares sadarbības partneri. Neskatoties uz tūrisma programmu paplašināšanos, darba devēji norāda, ka absolventiem trūkst praktisko iemaņu. Šrilankai līdz 2030. gadam ir nepieciešami vairāk nekā 800 000 kvalificētu darbinieku, lai sasniegtu 4 miljonus tūristu un gūtu 8,5 miljardus ASV dolāru ieņēmumus. Pētījumā izmantota jaukta metode, kas ietver 334 respondentu (SIA ABC darbinieku un tūrisma absolventu) aptauju un intervijas ar 15 vadītājiem. Nozīmīgākie atklājumi liecina par būtiskiem trūkumiem mīkstajās prasmēs (viesu sūdzību risināšana - 2,11 punktu atšķirība, problēmu risināšana - 2,03, komunikācija - 1,94) un digitālajās kompetencēs (īpašumu pārvaldības sistēmas - 1,88, tiešsaistes rezervēšana - 1,54). Mācību programmu atbilstība (r=0,73) un prakses kvalitāte (r=0,67) ir būtiski darba gatavības prognozētāji. Pētījums iesaka strukturētas prakses, uz nozari orientētas mācību programmas un oficiālu sadarbību starp akadēmisko vidi un nozari.

Atslēgas vārdi: prasmju atšķirība, tūrisma izglītība, nozares prasības, mīkstās prasmes, digitālā pratība

ABSTRACT

This study examines the disparity between tourist education outcomes and industry demands in Sri Lanka, utilizing ABC Pvt. Ltd. (with seven outlets in Galle) as the industry collaborator. Notwithstanding the expansion of tourism programs, companies indicate that graduates are deficient in practical skills. Sri Lanka requires more than 800,000 skilled people by 2030 to attain 4 million tourists and generate $8.5 billion in revenue. A mixed-methods approach was employed, comprising surveys of 334 participants (ABC personnel and tourism graduates) and interviews with 15 managers. Significant findings reveal substantial deficiencies in soft skills (guest complaint resolution 2.11 gap, problem-solving 2.03, communication 1.94) and digital competencies (property management systems 1.88, online reservations 1.54). Curriculum relevance (r=0.73) and internship quality (r=0.67) are significant predictors of work readiness. The research advocates for organized internships, courses guided by industry standards, and official collaborations between industry and academia.

Keywords: competency disparity, tourist education, industry standards, interpersonal skills, digital proficiency

IEVADS. INTRODUCTION

Tourism is a crucial economic sector for Sri Lanka, considerably contributing to GDP and jobs. Following the recovery from the 2019 Easter attacks and the COVID-19 pandemic, the nation received a record 2.36 million tourists in 2025, reflecting a 15.1% increase, and aspires to reach 3 million in 2026. This expansion has shown a significant deficiency of qualified personnel. The formal hotel industry employs about 421,000 individuals; nevertheless, the government's 2030 objective of attracting 5 million tourists necessitates around 800,000 educated professionals.

Managers at ABC Pvt. Ltd., which has seven branches in Galle, frequently indicate that recent tourism graduates lack essential skills in managing visitor complaints, utilizing internet booking systems, and efficient communication. This feedback prompted a formal investigation into the discrepancy between tourism education and industry demands.

The primary research question: How can tourism education in Sri Lanka be restructured to bridge the talent gap and fulfil the operational requirements of enterprises such as ABC Pvt. Ltd.? Specific sub-questions: which talents are prioritized by the industry? To what extent do current courses effectively target those skills? What are the stakeholders' perceptions?

The research employed a case study methodology utilizing a mixed-methods approach. Quantitative data was obtained from surveys of 334 participants (ABC workers and tourism graduates) assessing skill significance and competency on a 1-5 scale. Qualitative data were obtained from 15 semi-structured interviews with managers and direct observations at ABC branches. All quantitative analyses were conducted utilizing Microsoft Excel (means, frequencies, correlations). The study design adheres to applied research principles to generate practical suggestions [4].

The essay is structured as follows: Introduction, Basic Theoretical and Practical Provisions, Research Findings, and Conclusions.

SVARĪGĀKĀS ATZIŅAS TEORIJĀ UN PRAKSĒ. FUNDAMENTAL THEORETICAL AND PRACTICAL PROVISIONS

Theorical Framework

Human Capital Theory (Becker, 1964) posits that education and training constitute investments. When graduates lack practical skills, the investment is rendered ineffective: students are unable to execute fundamental duties, and businesses face additional training expenses. At ABC, senior personnel allocate 20–25% of their time overseeing new grads [5].

Competency-Based Education (CBE) emphasizes the cultivation of measurable competences (the capabilities of graduates) rather than solely theoretical knowledge. Tourism schools in Sri Lanka are predominantly theoretical; graduates possess knowledge of service principles yet lack the ability to manage complaints or utilize booking systems, resulting in significant skill deficiencies [6].

Skills Mismatch Theory (McGuinness et al., 2018) - qualitative mismatch arises when graduates possess the appropriate degree however lack the requisite particular skills. Graduates from ABC possess tourism qualifications but lack essential soft and digital skills, presenting a significant challenge to address, as it necessitates alterations in both curriculum content and pedagogical methods [7].

Experiential Learning Theory (Kolb, 1984) posits that authentic learning occurs in a cyclical process: concrete experience → reflection → conceptualization → experimentation. Hospitality necessitates genuine practice; yet, inadequate internships that include just observation disrupt this cycle, rendering graduates unprepared [8].

Empirical Context

As per SLTDA, hotels and restaurants constitute 80.9% of direct employment in tourism. In 2025, tourist visitors totaled 2.36 million, reflecting a 15.1% increase, but earnings remained unchanged at 3.22 billion, representing a 1.6% rise to $1,363. The National Human Resource Development Council (NHRDC) indicates that more than 60% of hotel staff resignations from 2020 to 2023 were attributed to overseas migration. Concurrently, the demand for labor is escalating most rapidly in kitchen roles (35%), food and beverage services (22.8%), and housekeeping (16.6%). However, training efforts remain predominantly focused on cookery, resulting in a significant skills mismatch. The TISC Skills Expo 2025 emphasized that despite elevated youth unemployment, industries face challenges in locating trained labor.

PĒTĪJUMA REZULTĀTI UN TO IZVĒRTĒJUMS. RESEARCH RESULTS AND THEIR ASSESSMENT

Research results and their assessment

A total of 270 valid questionnaires were evaluated (142 employees from ABC and 128 grads in tourism). The survey's reliability was validated with a Cronbach's Alpha exceeding 0.7 for all scales.

Descriptive statistics and gap analysis - the table below illustrates the most significant skill deficiencies:

Table 1 –Skill Gaps Between Industry Importance and Graduate Proficiency

Skill	Importance (1-5)	Proficiency (1-5)	Gap
Handling guest complaints	4.89	2.78	2.11
Problem-solving under pressure	4.85	2.82	2.03
Effective communication	4.82	2.88	1.94
Using property management systems	4.72	2.84	1.88
Online booking management	4.62	3.08	1.54

Source: Primary survey data collected by the author (n=270). Calculated using Microsoft Excel.

The most significant average category disparity was observed in soft skills (1.80), succeeded by digital skills (1.39). The disparity in technical skills was minimal (1.20).

Correlation study revealed that curriculum relevance (r=0.73) and internship quality (r=0.67) had the most robust positive associations with graduate job readiness.

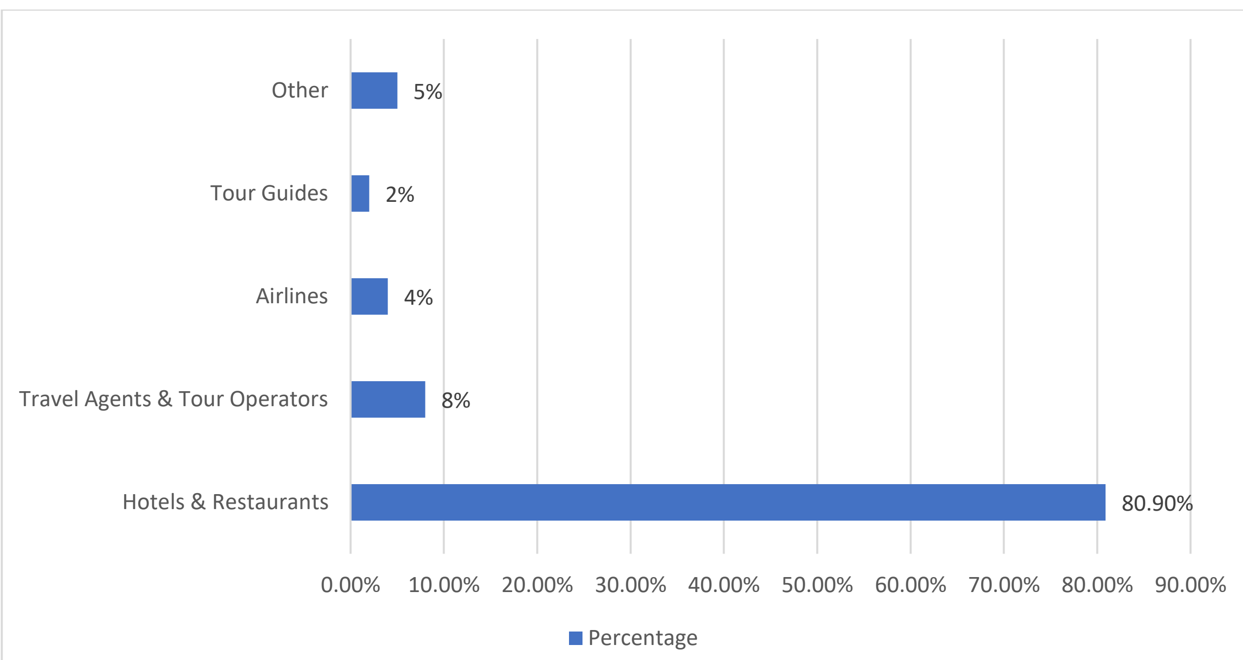

Figure 1- Direct Employment allocation in Sri Lanka's Tourism Sector (2023)
Source: SLTDA Annual Report 2023

Interview Results

An examination of 15 managerial interviews identified four key themes:
Outdated curriculum - courses fail to align with contemporary industry standards.
Subpar internship quality – interns primarily observe, lacking substantive tasks.
Deficiencies in soft skills result in graduates becoming paralyzed while addressing complaints.
Insufficient industry-academia connections–lack of coordinated collaboration between educational institutions and enterprises.

Practical Implications

The skill gap adversely impacts operational performance at ABC: check-in duration is 12 minutes (goal 5 minutes), complaint resolution takes 25 minutes (benchmark 10 minutes), and senior personnel invest 20-25% of their shifts rectifying graduate errors. Declining per capita tourist expenditure ($1,363) is partially due to variable service quality resulting from inadequately trained personnel.

KOPSAVILKUMS. CONCLUSIONS

This research validates a substantial disparity in structural competencies between tourism education and industry demands in Sri Lanka, utilizing ABC Pvt. Ltd. as a case study. The most significant deficiencies are in soft skills (complaint resolution, problem-solving, communication) and digital abilities (property management systems, internet reservations). The fundamental culprits are antiquated, theory-laden curricula, subpar internships devoid of practical experience, and inadequate collaboration between educational institutions and industry.

Theoretical frameworks such as Human Capital, Competency-Based Education (CBE), Skills Mismatch, and Experiential Learning elucidate the reasons for the ongoing disparity. Local best practices, exemplified by the 'Hotel Operations Multitasker' PPP and TUI Academy, illustrate that systematic, pragmatic training informed by industry insights may markedly enhance graduation preparedness.

In light of the facts, the subsequent recommendations are proposed:

For ABC Pvt. Ltd.: implement organized internships with tangible duties, offer on-site digital skills training, and develop a mentorship program that pairs seasoned employees with recent grads.

Tourism educators should revise curricula biennially with industry feedback, including soft skills via role-plays and simulations, and mandate a minimum of 200 hours of structured internship experience.

Policymakers (SLTDA, TISC) should mandate the establishment of industry advisory boards for all tourist programs, enhance effective public-private partnership training models, and develop a national digital skills certification for the hotel sector.

Bridging the skills gap is a pressing national imperative. If not addressed, Sri Lanka would encounter difficulties in meeting its 2030 tourism objectives of 4 million arrivals and $8 billion in income, as graduates stay unemployed and employers persist in facing service quality issues.

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SUSTAINABLE BUSINESS MODELS IN THE LEISURE AND ENTERTAINMENT INDUSTRY

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ABSTRACT

This article examines the development of sustainable business models in the leisure and entertainment industry. It identifies key environmental, economic, and managerial challenges, highlights innovative sustainability practices, and analyzes their impact on long-term competitiveness. The study presents practical recommendations for integrating sustainability into enterprise management.

Keywords: business models; innovation; leisure industry; sustainability; sustainable management

INTRODUCTION

The leisure and entertainment industry represents one of the most dynamic and rapidly evolving segments of the global economy. It includes a wide variety of activities such as hospitality, tourism, theme parks, cultural events, sports, gaming, recreation centres and urban entertainment complexes. Over the past decade, the industry has been increasingly affected by global challenges such as climate change, changing consumer expectations, rising operational costs and rapid digitalisation. As a result, traditional management approaches are no longer sufficient to ensure long-term competitiveness.

The research problem addressed in this article is the insufficient integration of sustainability principles into business models in the leisure and entertainment sector. Although sustainability is frequently discussed in strategic documents, many enterprises still lack practical tools and comprehensive frameworks to embed environmental and social responsibility into their core operations. The topicality of this research is reinforced by increasing regulatory pressure, the growth of eco-conscious tourism, and the necessity for enterprises to adopt energy-efficient, socially responsible and economically resilient practices.

The goal of this article is to analyse the essential components of sustainable business models relevant to the leisure and entertainment industry and to examine practical examples and research evidence supporting their implementation. The study is based on qualitative content analysis of academic literature, industry reports and case studies. The methods include comparative analysis, synthesis of theoretical frameworks and descriptive evaluation of sustainability practices observed in real enterprises.

BASIC THEORETICAL AND PRACTICAL PROVISION

Concept of Sustainable Business Models

A sustainable business model is a strategic framework that integrates economic success with environmental protection and social responsibility. Unlike traditional business models that focus on value creation primarily for the company, sustainable models emphasise value creation for all stakeholders: customers, employees, communities, suppliers and the natural environment. The core principles include efficient resource use, reduction of pollution and waste, long-term financial planning, ethical labor practices, and community engagement.

Scholars highlight that sustainable business models are usually built around three integrated pillars:

1. Environmental sustainability; reducing carbon emissions, conserving energy and water, adopting renewable energy, managing waste responsibly and supporting biodiversity.
2. Economic sustainability; achieving long-term profitability through efficiency, innovation, stable financial planning and strategic investments.
3. Social sustainability; ensuring employee well-being, promoting inclusive access to leisure services, supporting local culture and providing fair working conditions [1].

Sustainability Challenges in the Leisure and Entertainment Industry

This industry is resource-intensive, requiring significant energy consumption, infrastructure development, transportation and material usage. Hotels, cinemas, stadiums, theme parks and restaurants produce substantial amounts of solid waste, water usage and carbon emissions. Entertainment venues often rely on lighting, heating, air conditioning, digital technologies and food services, all of which contribute to environmental impact.

At the same time, customer behaviour has changed significantly. Tourists and leisure participants increasingly prefer authentic, responsible and eco-friendly experiences. Many travellers choose sustainable hotels, support locally sourced restaurants, and favour eco-certified tourism operators. As a result, enterprises that fail to adopt sustainable practices risk losing competitiveness.

Best Practices in Sustainability

Practical examples of sustainability in this industry include:

- Energy-efficient technologies such as LED lighting, motion sensors, smart thermostats and solar energy systems;
- Green building certification (LEED, BREEAM, Green Key);
- Waste management systems that include recycling, composting and elimination of single-use plastics;
- Local sourcing of food and materials, which reduces transportation emissions and supports local economies;
- Digital transformation, such as e-tickets, online reservations, contactless payments and AI-based resource monitoring.

These practices demonstrate that sustainability is not only an ethical obligation but also a tool for differentiating services, reducing costs and improving operational efficiency [2].

RESEARCH RESULTS AND THEIR EVALUATION

1. Impact of Sustainability on Competitiveness

Research findings consistently show that sustainable enterprises enjoy stronger customer loyalty and improved market positioning. Eco-certified hotels, responsible restaurants and entertainment venues that communicate transparent sustainability policies often attract environmentally conscious consumers. A survey by OECD indicates that travellers increasingly consider sustainability a key decision factor when choosing leisure services [3].

2. Technological Innovation as a Key Driver

Innovation plays a central role in transforming business models. Digital technologies help companies optimise resources, reduce operational costs and offer personalised experiences. Artificial intelligence can regulate energy consumption in hotels, forecast visitor flows in amusement parks and manage climate control in theatres. Augmented reality (AR) and virtual reality (VR) provide low-impact entertainment alternatives, reducing the need for physical infrastructure expansion.

3. Economic Advantages of Sustainable Practices

Although some sustainable solutions require initial investment, they lead to substantial long-term savings. For example:

- Energy-efficient buildings reduce annual electricity costs by 30–40%.
- Waste management systems lower waste disposal expenses.
- Local sourcing decreases logistics costs and improves supply reliability. In addition, many governments offer tax incentives or grants for green technologies.

4. Social Benefits and Community Impact

Sustainable business models emphasise ethical employment, diversity, fair wages, health and safety practices and community participation. Enterprises that cooperate with local artists, farmers, cultural groups and educational institutions significantly strengthen their social value. This, in turn, enhances their brand reputation and creates authentic experiences for visitors.

5. Challenges and Limitations

Despite the benefits, several challenges remain:

- High financial investment in renewable energy or eco-friendly materials;
- Lack of sustainability expertise among managers;
- Regulatory inconsistencies and unclear standards;
- Consumer misconceptions about the cost of sustainable services;
- Resistance to organisational change, particularly in traditional entertainment sectors.

Addressing these challenges requires support from governments, international organisations, investors and educational institutions.

CONCLUSION

The analysis demonstrates that sustainable business models have become a fundamental requirement for the long-term development of the leisure and entertainment industry. They ensure environmental protection, strengthen social responsibility and improve economic resilience. Enterprises that integrate sustainability into their strategic planning are better equipped to manage risks, differentiate their services and respond to changing customer expectations.

The future of the industry will be shaped by technological innovation, climate-resilient infrastructures, circular economy principles and increased transparency in sustainability reporting. To achieve sustainable transformation, enterprises must implement holistic strategies involving energy efficiency, waste reduction, digital tools, community partnerships and employee training.

Ultimately, sustainability is not only a trend but a necessity for ensuring that the leisure and entertainment industry remains competitive, responsible and future-oriented.

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MŪSDIENU SOCIĀLĀ PSIHOLOĢIJA: TEORIJA UN PRAKSE

MODERN SOCIAL PSYCHOLOGY: THEORY AND PRACTICE

SOCIAL CAPITAL AS THE FOUNDATION OF SOCIETAL RESILIENCE: ROBERT D. PUTNAM'S DIAGNOSIS IN THE CONTEXT OF THE NATO EASTERN FLANK SECURITY

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ABSTRACT

This paper examines societal resilience on the NATO Eastern Flank amidst cognitive warfare. Using Putnam's social capital theory, it reveals that a deficit in 'bridging' capital in post-communist states creates critical vulnerabilities. The novelty lies in identifying "digital solitude" as a key vector for destabilization. The main conclusion proposes "civic engineering"—utilizing territorial defense to rebuild horizontal networks as a cognitive shield.

Key words: bridging capital, cognitive warfare, NATO, Robert Putnam, societal resilience

INTRODUCTION

The primary research problem addressed in this paper is the progressive erosion of social ties and its direct, destructive impact on the national security of the NATO Eastern Flank states. In an era of rapidly evolving conflicts, where asymmetric threats, cognitive warfare, and organized transnational disinformation campaigns play a dominant role, the concept of societal resilience has become the absolute cornerstone of the North Atlantic Alliance's modern defensive doctrine. The topicality of this research stems from the geopolitical shifts observed after 2014 and 2022. These events have identified the internal cohesion of front-line states—such as Poland, Lithuania, Latvia, and Estonia—as the primary target for external destabilization and hybrid influence. This issue is of paramount importance in geostrategically sensitive areas, such as the Suwałki Gap and the broader borderlands of the Podlasie region and the Baltic states. These regions serve as a laboratory where the internal cohesion of local communities is tested daily against hybrid psychological operations and weaponized migration. The goal of this research is to apply Robert D. Putnam's classic theory of social capital to define contemporary security challenges. The methods employed include a critical literature review, an analysis of social trust data, and an evaluation of territorial defense forces as structures for civic reintegration.

BASIC THEORETICAL AND PRACTICAL PROVISION

The theoretical foundation of this analysis is Robert D. Putnam's concept of social capital, defined as features of social organization—such as trust, norms, and networks—that increase a society's efficiency by facilitating coordinated actions [1]. The most operationally significant aspect is the distinction between "bonding" and "bridging" social capital. In post-communist societies of the Eastern Flank, a structural asymmetry is visible. Bonding capital—described as "sociological superglue"—is relatively strong but limited to exclusive groups like immediate family. While essential for micro-survival, it does not translate into macro-structural resilience.

Conversely, bridging capital—the inclusive "sociological WD-40" facilitating cooperation across divides—is dramatically weakened. This deficit leads to an atrophy of "generalized trust" [1, 4]. From a security perspective, this atomization represents a critical vulnerability. Putnam's "bowling alone" metaphor has evolved into extreme cognitive vulnerability. An individual alienated in digital space, drawing knowledge from algorithmically polarized echo chambers and cut off from verifying physical local interactions, becomes an ideal target for surgically precise psychological operations. Solitude lowers the natural social "immune system" that normally buffers hostile propaganda. The erosion of bridging networks allows external actors to exploit internal divisions, turning social fragmentation into a strategic asset for the adversary.

RESEARCH FINDINGS OR DATA, EVALUATION OF RESEARCH RESULTS

Analysis of contemporary hybrid incidents proves that the main vector of attack in "gray zone" conflicts is not technical infrastructure, but the minds of citizens and social cohesion. Data on public trust (ESS and CBOS reports) consistently show lower levels of generalized trust in the region compared to Western Europe. This "civic void" facilitates sowing moral panic, triggering artificial localized crises (e.g., fuel hoarding), and amplifying ethnic antagonisms. Research confirms that atomized communities exhibit a higher tendency toward selfish and destructive behaviors in times of danger, forcing the state to divert security resources. However, an evaluation of resilience-building programs points to effective mechanisms. The most significant research finding is the unique role of voluntary territorial defense forces (e.g., Polish WOT, Latvian Zemessardze). These organizations, established for tactical tasks, fulfill an invaluable sociological function as incubators of bridging capital. By requiring service under stress from individuals of different social classes and cultural bubbles, they "stitch" a polarized society back together, creating horizontal networks of trust independent of politics. It has been proven that communities with extensive horizontal networks possess an inherent mechanism for the immediate verification of false narratives and can more effectively resist information warfare.

CONCLUSIONS

Societal resilience is a dynamic phenomenon, strictly dependent on the quality of social capital. The application of Putnam’s diagnosis to the NATO Eastern Flank leads to several conclusions. Firstly, it has been analytically proven that the atrophy of public trust and digital alienation represent an existential threat to front-line states, facilitating the paralysis of decision-making during hybrid crises. Secondly, the foundation of a true anti-hybrid shield must be the saturation of society with bridging capital. This must be proactively stimulated through institutional innovations at the local level, starting from voluntary associations and rescue circles to territorial armed formations. Thirdly, building lasting resilience requires the complete integration of social and educational policy into a modern doctrine of deterrence. Possessing a strong civil society capable of rapid self-organization represents the most cost-effective barrier to aggression realized below the threshold of war. Ending "bowling alone" is no longer just a postulate for improving the quality of life; it has become a categorical imperative and a condition for the physical survival of the state in the new era of cognitive warfare.

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PECULIARITIES OF EMOTIONAL SELF-REGULATION OF ADOLESCENT AND YOUNG ADULT STUDENTS WITH DIFFERENT TYPES OF INVOLVEMENT IN SOCIAL NETWORKS

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ABSTRACT

The paper present the results of a study of the features of emotional self-regulation in adolescents and young men with different levels of involvement in social networks. It was found that a high level of involvement is associated with more pronounced difficulties in emotional self-reflection, a tendency to avoid problems, rumination, and emotional dysregulation. The results obtained allow us to consider excessive involvement in social networks as a risk factor for emotional self-regulation disorders.

Keywords: social networks, emotional self-regulation, emotional dysregulation, mentalization, adolescence and young adulthood

INTRODUCTION

In the modern information society, social networks have become one of the most important environments for socialization and self-expression of adolescents. High school students actively use online platforms not only for communication and entertainment, but also for the formation of self-esteem, values, and emotional regulation. Constant interaction with virtual content, feedback mechanisms, and comparisons with others can influence adolescents' emotional experiences and ways of managing them.

Emotional self-regulation plays a key role in maintaining psychological well-being and social adaptation in adolescence - a period characterized by increased emotional sensitivity and instability. The features of emotional self-regulation may differ depending on the degree and nature of a person's involvement in social networks. Excessive immersion in online interaction can lead to emotional exhaustion, anxiety, or dependence on external approval, while conscious use can contribute to the development of self-awareness and emotional stability.

Such studies contribute to the development of preventive and corrective programs aimed at supporting the emotional well-being of adolescents and the formation of healthy models of behavior on the Internet. Therefore, studying the features of emotional self-regulation in high school students with different levels and types of involvement in social networks is relevant for understanding the psychological consequences of digital socialization.

The purpose of the study: to investigate the features of emotional self-regulation in schoolchildren with different levels of involvement in social networks.

Methods: Methodology for measuring the ability to mentalize (M. Hausberg – Mentalization Questionnaire). Adaptation: Kunikevich B. I., Turetskaya K. I.; Methodology “Coping Strategy Indicator” (D. Amirhan – Coping Strategy Indicator, CSI). Adaptation: Sirota

N., Yaltonsky V.; Questionnaire of emotional dysregulation (Polska N. A., Razvalyaeva G. Yu.); Social Networking Addiction Scale (M. G. Shahnawaz, U. Rehman). Adaptation: Sevostyanov P. O., Yanovska S. G., Pivovar D. E., Turenko R. L.

Methods of statistical data processing: descriptive statistics; cluster analysis (k-means method with prior application of hierarchical clustering); Kruskal-Wallis criterion.

Sample characteristics: 119 people (68 females and 51 males) aged 12 to 18 years participated in the study. The survey was conducted using Google Forms with informed consent from the subjects to participate and process the results.

BASIC THEORETICAL AND PRACTICAL PROVISION

Social networks have become an important socialization environment for modern adolescents and young men, significantly influencing their communication, self-presentation and emotional functioning. Scientific studies emphasize the ambivalent nature of the influence of the digital environment on the personality. On the one hand, online platforms expand opportunities for creative self-expression, support social interaction processes and provide access to information. Social networks can contribute to the formation of new ways of self-presentation, the development of communication skills and maintaining a sense of belonging to a certain social group. On the other hand, excessive involvement in the digital space is associated with the risk of developing Internet addiction, reduced critical thinking, increased emotional tension and difficulties in emotional self-regulation [2].

Researchers pay particular attention to the psychological consequences of intensive use of social networks in adolescence. It is noted that constant presence in the online environment can be accompanied by anxiety, depressive manifestations, emotional exhaustion and sleep disorders. One important factor is the phenomenon of fear of missing out on important information or events, which supports the constant need to check for updates and stay online. The desire for social approval through likes, comments, and the number of followers forms a dependence on external evaluation and can negatively affect adolescents' self-esteem. Constantly comparing oneself with idealized images of other users contributes to the formation of emotional instability and dissatisfaction with oneself [4].

Researchers also note that social networks are changing the nature of interpersonal interaction. Communication is increasingly carried out through short messages, memes, visual content, and statuses, which gradually replaces direct emotional communication. In adolescence and young adulthood, this can affect the development of skills for awareness, expression, and regulation of one's own emotions. Excessive immersion in online communication sometimes serves as a way to avoid real difficulties or compensate for the lack of emotional support in the offline environment [3].

In modern research, social networks are considered not only as a means of communication, but also as a significant factor in the formation of behavioral and emotional patterns of young people. They increasingly influence the value system, ways of self-presentation and models of social interaction of adolescents, partially taking over the functions of traditional institutions of socialization, in particular, the family and school [1]. In this regard, the study of the features of emotional self-regulation in schoolchildren with different types of involvement in social networks is a relevant area of psychological research, as it allows for a better understanding of the psychological consequences of digital socialization and identifying risk factors for emotional dysregulation.

RESEARCH RESULTS AND THEIR EVALUATION

According to the results of cluster analysis, three groups of subjects with different levels of involvement in social networks were identified. The results of variance analysis indicate that the clusters identified based on the indicators of involvement in social networks differ statistically significantly from each other in all indicators. In particular, on the scale "Significance of social networks" the F-criterion is 84.12 ($p<0.001$), on the scale "Well-being in the context of lack of access to social networks" - 148.62 ($p<0.001$), on the scale "Conflict through social networks" - 40.05 ($p<0.001$). The obtained values of the F-criterion indicate that the dispersion between clusters significantly exceeds the dispersion within them, which confirms the substantive differentiation and uniqueness of each of the identified clusters.

The first cluster included 14 individuals whose scores significantly exceeded the normative range on all scales of the methodology: the importance of social networks (cluster center: 24.21), well-being when unable to use social networks (23.29), and conflict through social networks (13.21). This group was defined as characterized by a conditionally high level of involvement in social networks with pronounced signs of addictive behavior.

The second cluster included 51 individuals. This cluster is characterized by an indicator of the importance of social networks that is lower than the normative range (10.39). The indicator of well-being when unable to use social networks is within the normative range (5.82), but with a tendency to be underestimated. The indicator of conflict through social networks is also within the normative range with a similar tendency to be underestimated (4.53). This group was defined as characterized by a conditionally low level of involvement in social networks.

The third cluster included 54 individuals whose scores were within the normative range on all scales: importance of social networks (17.67), well-being when unable to use social networks (12.94), and conflict through social networks (8.56). This group was defined as one characterized by a conditionally average level of involvement in social networks.

During the comparative analysis on the scales "Problem Solving" and "Social Support Seeking" no statistically significant differences between the groups were found ($p=0.282$ and 0.871 with Chi-square 2.534 and 0.275, respectively).

On the other hand, on the scale "Problem Avoidance" statistically significant differences between the clusters were found ($p<0.001$ with Chi-square 13.404). The analysis of mean ranks shows that subjects with a conditionally high level of involvement in social networks more often resort to an avoidance strategy compared to subjects with a conditionally low and conditionally medium level of involvement.

Statistically significant differences between groups were also found on the scale “Refusal of self-reflection” ($p<0.001$ at Chi-square 13.072). Subjects with a conditionally high level of involvement in social networks demonstrate the highest indicators on this scale compared to subjects with a conditionally low and conditionally medium level of involvement.

Statistically significant differences were also found on the scale “Emotional awareness” ($p<0.001$ at Chi-square 24.643). Subjects with a conditionally high level of involvement demonstrate the highest indicators compared to conditionally low and conditionally medium level of involvement.

Similarly, on the scale "Mental Equivalence Mode" statistically significant differences between groups were found ($p<0.05$ at Chi-square 8.714). Subjects with a conditionally high level of involvement in social networks demonstrate the highest indicators compared to subjects with a conditionally low and conditionally average level of involvement.

On the scale "Affect Regulation" statistically significant differences between groups were not found, however, the obtained value approaches the threshold of statistical significance, which may indicate a tendency to differences between groups ($p=0.053$ at Chi-square 5.874). Subjects with a conditionally high level of involvement in social networks demonstrate the highest indicators compared to conditionally low and conditionally average levels of involvement, which may indicate a greater tendency of such individuals to difficulties in modulating affect and feeling threatened by their own emotions.

On the "Rumination" scale, statistically significant differences between the groups were found ($p<0.001$ at Chi-square 21.306). Subjects with a conditionally high level of involvement in social networks demonstrate the highest indicators compared to subjects with a conditionally low and conditionally average level of involvement.

On the "Mentalization Problems" scale, statistically significant differences were also found ($p<0.001$ at Chi-square 21.112). Subjects with a conditionally high level of involvement demonstrate the highest indicators compared to subjects with a conditionally low and conditionally average level of involvement.

In addition, statistically significant differences were also found on the "Avoidance" scale ($p<0.001$ at Chi-square 25.659). Subjects with a conditionally high level of involvement in social networks demonstrate the highest indicators compared to subjects with a conditionally low and conditionally average level of involvement.

CONCLUSION

The results obtained allow us to conclude that the high level of involvement of adolescents and young men in social networks is associated not only with the intensity of using the online environment, but also with certain psychological features of emotional functioning. For subjects with a conditionally high level of involvement, the tendency to use social networks as a way of psychologically avoiding emotionally tense or problematic situations is characteristic. This may indicate insufficient formation of constructive mechanisms for overcoming stress and a tendency to escape from directly experiencing complex emotions through immersion in virtual interaction.

The identified difficulties in the field of self-reflection and mentalization suggest that excessive involvement in social networks may be accompanied by a decrease in the ability to deeply understand one's own experiences, emotional motives and internal states. Such subjects may demonstrate a tendency to superficial or fragmentary awareness of one's own emotional experience, which complicates effective emotional processing of experiences and increases the risk of accumulating internal tension.

Increased rumination rates in subjects with a high level of involvement in social networks may indicate a tendency to cyclically return to negative experiences, excessive emotional "scrolling" of problem situations and difficulties with switching attention from negative emotional experiences. Combined with a tendency to avoid, this can form a kind of closed circle of emotional dysregulation, in which experiences are not resolved constructively, but are only temporarily displaced or compensated by activity in social networks.

At the same time, the results may indicate that social networks for some adolescents and young men perform the function of emotional compensation and psychological regulation of the state, becoming an accessible way to reduce internal tension, receive emotional feedback and avoid experiencing loneliness or frustration. However, under conditions of excessive involvement, this form of regulation becomes predominantly maladaptive in nature, since it does not contribute to the development of mature skills of emotional processing and constructive overcoming of difficulties.

Thus, a high level of involvement in social networks in adolescence and young adulthood can be considered as a psychological phenomenon associated with increased emotional vulnerability, insufficient formation of emotional self-regulation mechanisms and a tendency to maladaptive psychological defense strategies. The results emphasize the importance of developing emotional reflection skills, conscious experience of emotions and constructive coping strategies in adolescents and young men as factors in the prevention of excessive psychological dependence on social networks.

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EMOTIONAL COMPETENCE AS A SHIELD AGAINST TECHNOSTRESS IN MODERN MEDICAL PRACTICE

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ABSTRACT

This article explores the phenomenon of technostress in the medical profession and identifies emotional competence as a primary psychological resource for maintaining professional safety. In the era of total digitalization, healthcare workers face unprecedented cognitive and emotional loads caused by constant connectivity and complex information systems. The research analyzes the structural components of technostress–overload, invasion, and uncertainty–and demonstrates how emotional intelligence functions as a regulatory mechanism. The study concludes that developing emotional resilience is essential for preventing digital burnout and ensuring the psychological stability of medical systems.

Keywords: Digital burnout, Emotional intelligence, Healthcare management, Psychological safety, Technostress

INTRODUCTION

The rapid integration of Information and Communication Technologies (ICT) into healthcare has created a paradox: while technology enhances clinical precision, it simultaneously erodes the psychological well-being of the practitioner. This phenomenon, known as technostress, is defined as the struggle to deal with new computer technologies in a healthy manner [3]. For modern physicians, digitalization is no longer an optional tool but a pervasive environment that dictates the rhythm of professional life. The "perpetual connectivity" enabled by mobile devices and specialized medical platforms has blurred the lines between professional duties and personal recovery time, leading to what researchers call "techno-invasion" [1, 4]. The topicality of this research is driven by the alarming rise in professional burnout rates linked to digital fatigue. Recent studies indicate that nearly half of the global medical workforce experiences symptoms of exhaustion specifically related to the use of electronic health records (EHR) and constant digital communication [1, 3]. In the context of a healthcare system already under strain, the psychological safety of the doctor becomes a systemic requirement. This paper aims to substantiate the role of emotional competence–the ability to recognize, understand, and manage emotions–as a fundamental shield that protects the physician from the corrosive effects of technostress.

BASIC THEORETICAL AND PRACTICAL PROVISION

Technostress in a medical setting is not a monolithic problem but a multidimensional construct. It typically manifests through five main creators: techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty [3]. In medical practice, techno-overload occurs when a physician is forced to process vast amounts of digital data while maintaining clinical focus. Techno-invasion is perhaps the most insidious, as it allows professional tasks to seep into private life through messengers and remote access systems [4].

Emotional competence (EC) serves as a vital internal resource in this landscape. Unlike technical skills, EC allows the practitioner to navigate the social and psychological demands of the digital workspace. According to the Resource Conservation Theory, individuals with high emotional intelligence are better at preserving their limited cognitive and emotional energy [2]. When faced with a malfunctioning interface or an overwhelming influx of patient messages, an emotionally competent doctor can employ self-regulation strategies to prevent a stress response from escalating into a crisis.

The "shield" metaphor is particularly apt here. Emotional competence functions by moderating the cognitive appraisal of technological demands. Instead of perceiving a new digital requirement as a threat, a physician with high EC evaluates it as a manageable challenge or sets firm boundaries to mitigate its impact [2, 5]. This internal regulation is crucial because, in medicine, the stakes are high, and the emotional exhaustion of the doctor directly correlates with a decrease in the quality of patient care.

RESEARCH RESULTS AND THEIR EVALUATION

The evaluation of how emotional competence influences technostress reveals that the most critical factor is the ability to maintain "digital boundaries." Physicians who demonstrate high levels of emotional self-awareness are more likely to implement digital hygiene practices, such as "unplugging" during non-working hours and prioritizing direct human interaction over screen-mediated communication [1]. These practices are not merely behavioral choices; they are driven by an emotional understanding of one's own limits and needs.
Research findings suggest that technostress leads to a significant decrease in job satisfaction and an increase in the intention to leave the profession [3, 4]. However, this relationship is significantly weaker in clinicians with developed emotional resilience. Emotional intelligence allows for better "reframing" of digital stressors. For instance, instead of experiencing frustration due to the complexity of a new diagnostic platform, an emotionally intelligent practitioner uses social skills to seek support and collaborative learning, thereby reducing the "techno-complexity" burden [2].

Furthermore, the data indicates that automated interventions for mental health–often proposed as a solution for burnout–can themselves become a source of technostress if not implemented correctly. As noted by Sorknaes et al. (2026), the effectiveness of such digital tools is heavily dependent on the user's emotional readiness [5]. Without a baseline of emotional competence, a doctor may perceive a "well-being app" as just another digital chore. Therefore, the primary intervention should be the development of the human capacity for emotional regulation, which then makes all other tools more effective.

CONCLUSIONS

The psychological safety of the modern physician is inextricably linked to their ability to manage the digital demands of their profession. Technostress is a systemic challenge that requires more than just technical solutions. Emotional competence acts as a robust shield, protecting the doctor's mental health from the pressures of techno-overload and invasion. It facilitates the maintenance of professional boundaries and the preservation of empathy in an increasingly dehumanized digital environment.

To ensure the resilience of healthcare systems, medical institutions must prioritize the emotional education of their staff. Integrating emotional intelligence training into medical curricula and organizational management is not a luxury but a necessity for the "Doctor of the Future." Only by strengthening the human emotional core can we successfully navigate the complexities of the digital transformation in medicine.

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