RESEARCH and TECHNOLOGY –
STEP into the FUTURE

Volume 19. No. 2 - 2024

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The 46th Research and Academic Conference

RESEARCH AND TECHNOLOGY – STEP INTO THE FUTURE

6 December 2024 Riga, Latvia

46. zinātniski praktiskā un mācību metodiskā konference

ZINĀTNE UN TEHNOLOĢIJA – SOLIS NĀKOTNĒ

2024. gadā 6. decembrī, Rīga

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AUTOMATION OF INFRASTRUCTURE AS CODE MANAGEMENT

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Keywords: Chef, configuration management, SME, automation, IaC, terraform

Automation in cloud infrastructure management is crucial for ensuring that modern organizations can efficiently and effectively manage their IT resources. Automation has many different definitions, and it is because of the complex phase of automation systems historical implementation process. The evolution of the IT-automation-systems comes at the high peak of new generation wireless Internet speed, big-data throughput, big costs, and analytical DevOps automated infrastructure as code monitoring system implementations. As expected, the latest trends and relevance of problems related to optimization and automation are only increasing due to the obsolescence of old methods of automating cloud infrastructure, and the growth of new ones. Gartner's analytical report (Gartner, 2024) states a rapidly evolving landscape of cloud computing requires solutions for provisioning, configuration, deployment, issue debugging mechanisms, and scaling of infrastructure with minimal manual intervention, in automated manner. This report also mentions that there is a growing number of commercial business organizations that are focused on or already using automation and AI implementations to optimize online operations. Thus, more than 30% of enterprises already want to automate half of all online interactions and move infrastructure in cloud. It indicates that automation will take a first place in next few years, and all business organizations might be ready for migrating infrastructure to new cloud services management technology stacks, such as Chef, Ansible, Salt, Terraform, and CI/CD pipelines.

This research's aim was to propose an approach for automating deployment of infrastructure resource provisioning in cloud infrastructure, including scaling, networking, monitoring, and configuration management. The primary research hypothesis is that the proposed automated approach is beneficial for organizations in several aspects: time to provision an infrastructure, level of standardization, unified processes, cost of deployment, and operational costs.

The result of this work - the developed standardized approach for deploying cloud automation using Infrastructure as Code (IaC) tools, coupled with a metric-driven formula for assessing the cloud infrastructure's integrity and effectiveness in relation to deployment performance. The proposed solution integrated Chef into a cohesive framework for managing cloud infrastructure, thereby enhancing scalability, reducing costs, and improving organizational efficiency. Moreover, critical bugs within Chef were resolved through the development of predictive troubleshooting functions, thus contributing to a more reliable automated infrastructure.

The provided Terraform module introduces innovative solutions, including a script to overcome AWS user data length restrictions, an automated chef-client onboarding module, and a Chef Automate configuration settings module. These modules address gaps following the end-of-life of AWS Chef OpsWorks, where no updated instructions or guides from Chef currently exist for cloud onboarding. This standardized IaC Terraform module offers a reusable, automated chef-onboarding stack, streamlining deployment and ensuring consistent configuration across cloud environments.

The research is supervised by Dr.sc.ing., Professor Dmitry Pavlyuk.

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LOW CODE/NO CODE PLATFORM CHOOSING METHODOLOGY FOR BUSINESS PURPOSES

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Keywords: Low code/No code platform, low code methodology, low code platform choice, LCP

The increasing demand for the integration of complex processes within enterprises, coupled with the substantial volume of data collected for organizational planning and achievement of business objectives, has created a challenge for the rapid development of applications and establishment of IT systems that facilitate automation of business processes. The answer to this challenge was the rapid popularization of Low code and Low code platforms (Elshal *et al.*, 2023). The LCP industry continued to experience fast growth and innovation, driven by several key trends and developments such as increased demand for rapid development, empowerment of citizen developers, integration with emerging technologies**,** market expansion and investment**,** enterprise adoption (Bock & Ulrich, 2021). Current research indicates that there are over 200 Low-Code/No-Code Platforms (LCPs) offering solutions to businesses, leading to a transformation in the participants involved in the development of enterprise systems and websites. This shift has given rise to the phenomenon of citizen developers and increased engagement of end-users in the development process (Radixweb, n.d.). Consequently, selecting a low-code platform that aligns with the specific needs of an enterprise has become a critical consideration for businesses aiming to gain a competitive advantage through the adoption of technological solutions.

The selection of a Low-Code Platform presents unique challenges that stem from the need to carefully balance ease of use and speed of development and adoption with customization, integration, scalability, and security. These factors require careful consideration to ensure that the chosen platform aligns with both current and future business needs.

In examining the criteria for selecting the appropriate low-code platform, including the specific steps and factors that organizations should take into account, the author identified a notable gap in comprehensive research on this subject among scholars.

The primary objectives of this research are as follows:
- To analyze the evolution and current landscape of low-code/no-code platforms by identifying existing solutions and research gaps regarding the methodologies for selecting LCPs to meet business needs.
- To identify the specific roles for which LCPs are best suited and to ascertain customer expectations for these platforms.
- To establish criteria and guidelines that businesses should consider when selecting an LCP.
- To validate the findings and methodologies developed during the study through empirical testing.

Drawing on the literature review and analysis of existing criteria and methodological gaps, a comprehensive evaluation framework has been developed to establish a robust and structured assessment system. This framework takes into account essential criteria, including functionality, scalability, integration capabilities, user experience, security, and cost, along with specific steps that management should consider when selecting a low-code platform (LCP) for their

organization. It comprises a detailed list of criteria for identifying the most suitable LCP for a particular enterprise. A rubric-based assessment approach has been employed to define criteria for evaluating specific features or performance metrics, thereby ensuring consistency in evaluations. Each criterion is assigned a weight reflecting its importance, with points allocated for various performance levels, facilitating a quantitative assessment.

Expert interview will be used to gather input from industry experts on LCPs selection methodology, as an effective way to bridge the gap between theory and practice, in order to conduct approbation of the suggested methodology and evaluate its suitability for the declared goal.

This framework can be tailored to the organization's specific requirements and used to objectively assess and compare different platform options.

The research is supervised by Dr.sc.ing., Professor Irina Pticina.

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A COMPREHENSIVE DIGITAL TRANSFORMATION FRAMEWORK FOR IT ORGANIZATIONS

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Keywords: Digital transformation, framework, digitalization, technology, strategy, performance measurement, automation

Digital transformation has become a monumental factor in the progress of businesses, ensuring they are able to adapt and keep up with technological advancements, while being able to optimize processes and develop digital strategies (Bouwmans *et al.*, 2024).

This paper analyses the limitations of state-of-the-art digital transformation frameworks and proposes a comprehensive digital transformation framework that includes specific KPIs, in order to help measure its success rate.

This study aims to contribute to the existing knowledge and help close the gap in the literature by offering a clear example of how a digital transformation framework can be applied and customized, while highlighting challenges and areas for potential refinement.

Three different digital transformation frameworks proposed by Trenerry *et al*. (2021), Aras & Büyüközkan (2023) and Kraus *et al*. (2022) have been reviewed. While all these frameworks are centered around technology, human resources and aligning the automation processes with the business goals, they all fail to include specific metrics and KPIs to assess the success rate. Another common factor is the lack of clear, structured steps on how to apply the framework, what are the prerequisites, or the resources needed. In the proposed framework, these elements have been included in an attempt to contribute and help close these gaps in the literature.

The proposed framework contains five main elements: Strategy, Process, Technology, Organization and Performance Measurement. While strategy and technology are common elements found in other frameworks, performance measurement and processes are not addressed in the literature, even though they are highly relevant. Each of these elements contains specific goals, tasks and subtasks, such as creating a strategic roadmap, selecting the automation tool and designing the new process among others.

When it comes to performance measurement, a list of KPIs will be used to assess the success rate of the proposed framework, such as Request Processing Time, User Satisfaction, Cost Savings and Error Rate in Processing. These indicators will be calculated using detailed formulas and the results will be compared against specific targets proposed. For example, the Error Rate will be calculated as the Reworked Requests number divided by the Total Requests number, and the User Satisfaction is the average satisfaction score from the surveys sent out to the users.

The proposed framework has been divided into six phases, from assessment to monitoring. Each phase includes a step-by-step list of tasks and objectives to be completed before moving to the next phase.

The timeframe for applying the framework hasn't been established, as it can vary based on the process, the resources allocated, and the technology used. These factors have to be decided based on the complexity, duration and priority of the process. The framework is intended to be used in corporations that activate in the IT area and have an IT support team that is able to design and update processes.

The proposed digital transformation framework will be used on AtlasEdge, a mid-size company specialized in data centres. The process which will be automated consists of creating a

SharePoint site. Once the automation has been completed, the success rate will be assessed by calculating each KPI and comparing the values to the targets. If over 50% of the target values are met, then the digital transformation framework has been successful. Otherwise, the proposed framework has failed, which will lead to further investigation and proposal of potential solutions.

It is worth noting that one of the limitations of the proposed framework is the impact of the organization's size and activity area, as it was tailored to be applied in a mid-size organization activating in IT. Furthermore, another factor is the resource constraint. This framework is comprehensive and requires time and sustained effort to be utilized, as it integrates multiple perspectives, such as: performance measurement, implementation process, resource and prerequisites analysis to ensure a holistic approach.

The research is supervised by Dr.sc.ing., Professor Irina Pticina.

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EXPLORING MODEL SELECTION APPROACHES FOR CUSTOMER CHURN PREDICTION IN WEB APPLICATIONS

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Customer retention is critical to sustainable growth and profitability, as customer churn directly impacts revenue and brand loyalty. One of the main goals of any online business is to reduce customer churn, so companies have realized that customer data is one of the most important resources to achieve this goal (Caigny *et al*., 2018). However, churn not only results in a direct loss of customer numbers, but also impacts the overall customer lifetime value (LTV) that they bring to a business (Sun *et al*., 2023). Recognizing that customer value varies widely, it becomes important to assess not only which customers are most likely to churn, but also their lifetime value to the business. By understanding both churn risk and customer value, a more nuanced approach to retention can be developed - prioritizing efforts toward high-value customers with higher churn risk.

This study was conducted to assess not only the likelihood of churn, but also the predicted value each customer brings, providing a richer segmentation framework for targeted retention strategies. Drawing on different machine learning models, the study compared the performance of the models to determine the most suitable approach to predicting churn. Using a dataset that included behavioral, demographic and satisfaction-related features, various machine learning models were applied, including logistic regression, support vector machine, decision tree and random forest. Preprocessing steps were undertaken to prepare the dataset as well as feature analysis to identify the most influential factors affecting both churn and LTV. Additionally, a regression-based approach was implemented to create an LTV estimate for each customer.

Integrating churn prediction with the LTV estimate allowed for a two-dimensional segmentation approach, categorizing customers based on both the risk of churn and their overall value. The analysis selected the most effective models and identified key characteristics that influence customer churn and LTV, which allowed to propose a comprehensive approach.

The results showed that this combined approach provides a deeper understanding of customer segments, allowing to prioritize retention efforts for valuable customers most at risk of churn, as well as select the models that best suit specific requests.

The research is supervised by Dr.sc.ing., Professor Dmitry Pavlyuk.

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FEAUTURES OF MODERN EVERYDAY TECHNOLOGIES AND TENDENCIES OF RECRUTIEMENT REQUIREMENS IN IT FIELD

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Keywords: Digital transformation, IT sector, technical and interpersonal skills, CV optimization

In today's fast-changing IT landscape, automation and artificial intelligence (AI) are fundamentally altering recruitment practices. This research explores how technological advancements are reshaping skill requirements in the IT sector. The goal of this study is to design a program that helps individuals identify key technical and interpersonal competencies—termed "golden points"—to align their profiles with modern employer expectations. The object is recruitment requirements in the IT field, while the subject is the influence of technological progress on these requirements.

The deliverables of this research include:
1. A systematic analysis of recruitment trends influenced by digital transformation.
2. Identification of essential skills and competencies prioritized by IT employers.
3. Development of a CV optimization tool using Python and SQL for tailored job applications.
4. Practical insights for job seekers and employers to navigate the evolving recruitment landscape.

Recent studies emphasize the growing importance of adaptability and hybrid skills in response to rapid technological advancements (SHRM, 2023; Pew Research Center, 2023). By analyzing data from academic sources, industry reports, and recruitment databases, this research highlights the increasing value of interdisciplinary skills. It also addresses the challenges posed by AI in recruitment, such as algorithmic bias, while promoting strategies to ensure fair and inclusive hiring practices.

This study creates a CV optimization tool aimed at enhancing job seekers' profiles to meet IT industry standards, bridging the gap between candidate capabilities and employer needs. By focusing on adaptability, teamwork, and technical proficiency, this research provides actionable tools and insights to improve alignment with the IT sector's evolving recruitment demands.

The research is supervised by Dr.sc.ing., Associate Professor Monta Aleksandra Lacane.

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Session 2

Transport and Logistics

Transports un loġistika

DEVELOPING AND TESTING STRATEGIES TO REDUCE INVENTORY IN THE FINISHED GOODS WAREHOUSE

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Keywords: Finished goods warehouse, inventory management, dynamic approach

A finished goods warehouse in a material goods manufacturing company, like any other warehouse, fulfils the function of a compensating link between the flows of offered and sold products. The peculiarity of such a warehouse, which makes it different from the warehouses used in retail chains, is the fact that the products entering the warehouse are not the result of their purchase from external suppliers but are produced at the enterprise itself. This means that actions to manage the input flow of finished products of the warehouse lead to the need to take appropriate actions in the field of operational planning and management of the production process at the enterprise.

The positive and negative effects that arise when the number of items in the finished goods warehouse greatly exceeds some optimal levels are well known (Arnold *et al.*, 2008). Positive is the high ability of the warehouse to fulfil customer orders. Also, positive effects can be observed in manufacturing, which can produce products in large batches under such conditions and save time required for equipment changeover. Negative effects are associated with an increase in all types of warehouse maintenance costs, but very important for the company may be the amount of frozen capital, which is proportional to the volume of products produced but not sold.

The work considers the characteristics of the functioning of a finished goods warehouse in a company with two types of production: production to order and production to stock (Gudehus, 2005). After a short review of traditional inventory management methods, a relatively new approach called 'dynamic warehouse inventory management' is emphasised (Gudehus, 2006). This approach is based on a short- or medium-term forecast of demand for products stored in a company's warehouse. The main advantage of dynamic inventory management is that there are no limitations on the flexibility of algorithms that determine the two main parameters of the replenishment process: at what point in time and how much product needs to be delivered to the warehouse.

As a specific object of the study, we consider an enterprise that manufactures plastic profiles for window constructions. The work presents the dynamics of both the real stock during 2023 and the calculated reduced stock, which is the result of the application of the developed dynamic stock management strategies.

The research is supervised by Dr. habil. sc. ing., Professor Jurijs Tolujevs.

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CILVĒKRESURSU VADĪBA PASAŽIERU PĀRVADĀJUMOS: PROBLĒMU ANALĪZE UN STRATĒĢIJAS MŪSDIENU TRANSPORTA NOZARES IZAICINĀJUMU PĀRVARĒŠANAI

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Atslēgvārdi: pasažieru transports, izaicinājumi transporta nozarē, darbinieku noturēšana un apmācība, cilvēkresursu vadība, tehnoloģiskās pārmaiņas un pielāgošanās, ekonomiskā ilgtspēja

"*Transports ir tā tautsaimniecības nozare, bez kuras nevar pastāvēt ne viena cita ražotne, pat ne parastākais pārtikas veikals*", tā saka Sprancmanis (Sprancmanis, 2001)

Efektīva cilvēkresursu pārvaldība ir viens no svarīgākajiem attīstības faktoriem nākotnē, jo efektīva cilvēkresursu pārvaldība ir būtiska transporta nozares konkurētspējai un ilgtermiņa attiecībai. Personāla problēmu pārvaldība tieši sekmē darba produktivitātes, pakalpojumu kvalitātes un ekonomiskās ilgtspējas uzlabošanu pasažieru pārvadājumos.

Transporta nozarē ir vairāki ar cilvēkresursiem saistīti izaicinājumi, tostarp novecojošs darbaspēks, nepietiekami kvalificēts personāls un nepieciešamība pastāvīgi pielāgoties tehnoloģiskajām pārmaiņām. Šīs problēmas ietekmē transporta uzņēmumu spēju sniegt augstas kvalitātes pakalpojumus un apmierināt tirgus pieprasījumu.

Stratēģiskās pieejas cilvēkresursu vadības problēmu pārvarēšanai ir personāla apmācība un to prasmju attīstīšana. Ieguldījumi darbinieku apmācībā var mazināt kvalificēta personāla trūkumu. Iniciatīvas ietver sadarbību ar izglītības iestādēm un mācību programmu ieviešanu, lai uzlabotu darbinieku tehnoloģiskās prasmes. Tehnoloģiskā pielāgošanās ar automatizētu un digitālu sistēmu ieviešanai ir nepieciešamas efektīvas stratēģijas darbinieku apmācībai un netraucētas pārejas veicināšanai, kas ir būtiski, lai saglabātu augstu sniegto pakalpojumu līmeni.

Pētījuma zinātniskais vadītājs Dr.sc.ing, asociētā profesore Vaira Gromule.

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MOBILITĀTES PUNKTU PIELĀGOŠANA LIETOTĀJU KULTŪRAS UN PSIHOLOĢISKAJĀM ĪPATNĪBĀM: PIEEJAS LIETOTĀJU PIEREDZES UZLABOŠANAI

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Atslēgvārdi: Mobilitātes punkti, transporta mezgli, lietotāju pieredzes uzlabošana, psiholoģiskie faktori

Mūsdienu pilsētvides attīstība lielā mērā ir atkarīga no sabiedriskā transporta, kas nodrošina cilvēku pārvietošanas brīvību. Mobilitātes punktu izveide un transporta sistēmu uzlabošana ir ļoti svarīgs un nopietns kvalitatīvas pilsētvides aspekts, taču lietotāju kultūras un psiholoģisko faktoru neievērošana ļoti bieži samazina to efektivitāti. Šī darba ietvaros tiek pētīta lietotāju apmierinātība ar mobilitātes punktiem, uzsverot psiholoģiskos un kultūras faktorus, kas ietekmē mobilitātes punktu un sabiedriskā transporta izmantošanas pieredzi.

"Mobilitātes punkts" un "transporta mezgls" termiņiem nav vienotas klasifikācijas, un tas mulsina lietotājus. Turklāt, izstrādājot mobilitātes punktus, bieži vien netiek ņemtas vērā lietotāju prasības, psiholoģiskie un kultūras atšķirības par labu ekonomiskiem un tehnoloģiskiem apsvērumiem. Rezultātā var rasties infrastruktūra, kas ir neērta lietotājiem un nav saprotams kas tas ir.

Šī pētījuma mērķis ir definēt "mobilitātes punktu" klasifikāciju, noteikt lietotāju apmierinātības līmeni un problēmas, ar kurām lietotāji saskarās. Kā piemērs tiks izmantots mobilitātes punkts "Bērnu slimnīca". Izmantojot lietotāju aptaujas anketu un iegūtos datus, tiks izstrādāti priekšlikumi mobilitātes punktu uzlabošanai, ņemot vērā psiholoģiskos un kultūras faktorus, lai paaugstinātu lietotāju apmierinātības līmeni izmantojot mobilitātes punktu un sabiedrisko transportu Rīgā un tās apkārtnē.

Pētījuma zinātniskais vadītājs Dr.sc.ing, asociētā profesore Evelīna Budiloviča.

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IMPLEMENTATION OF MULTIMODAL TRANSPORTATION TO INCREASE SUSTAINABILITY OF LOCAL SUPPLY CHAINS IN INDIA

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Keywords: Multimodal transportation, sustainable supply chains, India logistics

As the local supply chain is reaching greater heights due to rapid economic growth in India, it could be mandatorily essential that their sustainability way needs to be assessed (Ardra and Barua, 2023). This research investigates the adoption of multimodal transportation systems to alleviate the environmental, economic, and societal issues arising from conventional logistics networks. Multimodal transportation, which covers various modes of transport like road, rail, air and water, is considered an important approach for decreased carbon emissions at a lower cost and increased efficiency in the supply chain functioning, making it relevant to sustainable supply chain practices in India (Elbert *et al*., 2020). As a signatory to various international agreements like the Paris Accord and COP26 summit that outline aggressive carbon reduction targets, India is supporting national and global sustainability goals with more widespread uptake of multimodal logistics.

This research seeks to study the extent to which multimodal logistics stand to prove transformative for local supply chains by examining its environmental benefits in terms of reduced fuel consumption and greenhouse gas emissions, juxtaposed with predicted economic benefits such as cost savings and improved logistics efficiency. The research presents a broad view connecting three theories: the Triple Bottom Line (TBL), which stresses the need to harmonize the economic, environmental and social pillars of business objectives; and institutional theory, addressing policy and infrastructure support for various logistics practices.

It utilises a range of methodologies; adopts case studies to demonstrate successful multimodal implementations and employs quantitative measures associated with cost and emissions. The qualitative data were drawn from interviews with stakeholders in the logistics sector, including transportation providers, supply chain managers and policy experts, to understand both the challenges and enablers of multimodal systems in India (Kumar and Anbanandam, 2020). The bowtie maps are meant to analyze the current state of regulations and propose actions on when and where to enable a transition towards multimodal solutions, especially where infrastructure development is key.

Key findings are to reflect outcomes of many sorts. Multimodal transportation can help lower logistics costs substantially by utilizing each mode according to its comparative debt — rail for the bulk of long-distance transport and road for last-mile delivery. Multimodal solutions could bring down carbon emissions and other pollutants to a great extent, which can help achieve national goals for sustainable development too. From a social perspective, an efficient multimodal network could facilitate access to goods and services in remote and underserved areas, facilitating equitable regional development and economic inclusion (Xu *et al*., 2022).

This study will assist the field with a multimodal transportation model suited to the specific supply chain environment in India, along with identifying the crucial policy frameworks, infrastructure requirements and technological advancements to enable multimodal systems (Liu *et al*., 2021). The results will provide policy recommendations that governments can act upon to

inform investments in sustainable infrastructure and improve regulatory frameworks for multimodal logistics. This leads to the conclusion of this study, where multimodal transportation can provide an effective solution to alleviate issues within the supply chain system in India and pave the way for sustainability, resilience, and inclusiveness. By offering in-depth analysis and pragmatic recommendations, this report aims to positively influence growth towards greener, efficient logistics systems required for sustainable economic growth in India.

The research is supervised by Dr.sc.ing. Associate Professor Genadijs Gromovs.

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Session 3

Market: Research, Projects, Technologies and Problems of the Modern Economy and Business

Tirgus: pētījumi, projekti, tehnoloģijas un mūsdienu ekonomikas un biznesa problēmas

DIGITALIZATION OF INTEGRATED REPORTING: SOFTWARE SOLUTIONS AND THEIR IMPACT ON CORPORATE TRANSPARANCY AND SUSTAINABLE DEVELOPMENT

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The digitalization of integrated reporting (IR) represents an important stage in the development of corporate governance, aimed at increasing the transparency, accessibility and analytical value of reporting in the digital era. Integrated reporting 4.0, which leverages digital technologies, not only improves transparency and accessibility of reporting, but also enables deeper analysis and forecasting through the use of tools such as artificial intelligence and big data (ACCA, 2020). The study's main objective is to provide an overview of the capabilities of modern software solutions for the digitalization of information technology in accordance with the IIRC framework, including their impact on corporate transparency, data management and the sustainable development of companies.

The study provides the overview of the existing software platforms such as Workiva (Workiva, 2023), SAP (SAP, 2023), Microsoft Power BI (Microsoft, 2023), Thomson Reuters Eikon ESG (Thomson Reuters, 2023) and Envizi (IBM, 2023). Their functionality, integration with corporate systems and compliance with IIRC and ESG standards have been studied. The methodology included a comparative analysis of the characteristics of the platforms and their practical application in creating integrated reports. The results showed that each software solution provides unique opportunities for digitalization of IR. Workiva and SAP focus on data integration and risk management, Microsoft Power BI provides visualization and analytical capabilities, Thomson Reuters Eikon provides broad access to ESG data, and Envizi focuses on sustainability and environmental aspects.

There are several conclusions can be made that digitalization of integrated reporting through modern software solutions allows companies not only to adapt to the growing demands for transparency and sustainable development, but also to increase the confidence of stakeholders, including investors and regulators. However, successful implementation of digitalization requires overcoming challenges such as ensuring data connectivity and reliability, which underscores the need for further improvements in technology and regulatory frameworks.

The research is supervised by Dr.oec., Professor Irina Kuzmina-Merlino.

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DEVELOPMENT OF DIGITAL BUSINESS IN EUROPEAN BANKS DURING CRISIS

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Keywords: Digital banking, crisis, digital transformation, digital business, European banks

The digitalization journey plays a crucial role in a bank's competitive positioning in the market. Institutions that have effectively adopted technological updates maintain a strong position in the banking business. Despite notable advancements in digital banking, numerous European banks encounter substantial challenges in adapting their digital business models during financial crises. This struggle to navigate the complexities of the digital economy amid economic instability raises critical questions regarding the resilience, operational efficiency, and customer engagement of these institutions. This research aims to investigate historical case studies and develop a novel, efficient business model for banks that facilitates the adoption of innovative practices. The object of the research is the European Union banking system, and the subject of the research is the adoption and the use of digital banking services during crisis.

A successful model for banks must meet the evolving demands of stakeholders. The development of new technology should incorporate customer behavior, an aspect initially studied in the Theory of Reasoned Action (TRA) Model (Fishbein & Ajzen, 1975). Subsequently, this theory was expanded into the Technology Acceptance Model (TAM and TAM2), respectively developed by Davis (1993) and Venkatesh (2000). However, existing literature has not adequately considered the economic and financial indicators involved in the process of adopting new technologies, nor the behavioral aspects of stakeholders in different socio-economic contexts. COVID-19 has rapidly increased the need for digitalization (McKinsey & Company, 2020), bringing both opportunities and challenges for banks. Consequently, traditional service models, such as physical branches and extended wait times, have lost favor, prompting many banks to either limit these services or transition entirely to digital platforms and improve digital offerings, including mobile applications.

In the study, qualitative and quantitative methods are used. The research will focus on compiling statistical data related to the digitalization of services in European banks and will conduct a comparative analysis with banks in Asia and the US to identify potential challenges. What challenges do European banks face in adopting new technologies and digital services compared to their counterparts in the US and Asia? Which regulations are hindering the digital transformation process? What model should be implemented to enhance agility in meeting customer demands? How do economic and financial crises impact the digital transformation of banking services?

A developed efficient model will be easily adoptable by European banks to improve digital offerings and adopt innovations even in crisis periods, instead of deprioritizing internal digitalization projects. The economic and financial indicators, especially amid crises, must be added to the components of the business models.

The research is supervised by Dr.oec., Professor Inna Stecenko.

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CHALLENGES AND OPPORTUNITIES FOR LLM-POWERED AGENTS IN SUPPLY CHAIN MANAGEMENT

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Keywords: Supply chain management, large language models, literature review, explainable AI, autonomous agents

The integration of Artificial Intelligence (AI), particularly Large Language Models (LLMs) and LLM-based agent networks, has the potential to revolutionize Supply Chain Management (SCM) by enhancing decision support systems and operational efficiencies. This raises the critical research question: What are the key challenges and opportunities in deploying LLM-powered agent-based information systems within SCM? However, the deployment of LLM-powered agents in SCM presents a complex array of challenges that have yet to be systematically explored in existing literature. This paper presents a broad literature review on the application of Large Language Models (LLMs) in Supply Chain Management (SCM), aiming to synthesize current research and identify critical challenges and opportunities.

This study employs a comprehensive literature review methodology focused on AI in Supply Chain Management (SCM), particularly generative AI and decision support systems. Q1 and Q2 open-access journals have been selected from the Scimago Journal Rank, targeting areas such as decision making, supply chains, AI, and autonomous agents. Initially, six research areas with focus on SCM were defined: The Data-Science Specialist Shortage and its Impact; AI/LLM Applications in Decision Support; Human-AI Collaboration in Corporate Management; Challenges and Limitations of LLMs in SCM; Decision-Making Processes (General, Corporate, and SCM); and Autonomous Agents and Agentic Systems. For each area, ten research questions were formulated, each accompanied by three search queries. Publications were retrieved using online search services like Semantic Scholar, Google Scholar, and Scite.ai. The collected literature was systematically analyzed to synthesize findings and identify research gaps.

By systematically analyzing existing studies, this review elucidates the multifaceted role of LLMs in enhancing decision support systems and operational efficiencies within SCM. However, following key challenges were identified during the review (ordered by the risks for SCM domain author's estimation, from high to moderate):

- Data Integration and Heterogeneity: Integrating LLMs with legacy systems and diverse data sources remains a significant obstacle, complicating the effective utilization of LLMs in SCM contexts (Jha *et al*., 2020).

- Security Concerns: Protecting sensitive supply chain data during LLM integration is paramount to prevent breaches and ensure the integrity of SCM systems (Deshmukh & Srinivasa, 2022).

- Scalability and Computational Resources: The deployment of LLMs demands substantial processing power, presenting scalability challenges, especially for smaller organizations (Gokmen, 2021; Schroeder & Lodemann, 2021) or edge devices.

- Explainability: A lack of transparency in LLM-driven decision-making hinders trust and adoption among SCM professionals, underscoring the necessity for explainable AI techniques (Agostinho, 2023).

- Ethical Considerations: Issues such as data privacy and responsible AI use must be meticulously addressed to ensure that the deployment of LLMs does not exacerbate existing disparities within supply chains (Cheng *et al*., 2021).

- Bias in LLM Outputs: The propensity of LLMs to perpetuate biases present in training data poses ethical and practical challenges, potentially leading to discriminatory outcomes in decision-making processes (Cerezo-Martínez, 2024).

Despite these challenges, LLMs offer promising opportunities for enhancing decision-making in SCM. The ability of LLMs to process and analyze vast amounts of data can empower organizations to identify potential risks and vulnerabilities in their supply chain networks, leading to improved resilience and efficiency (Lee & Mangalaraj, 2022). However, the scarcity of research on LLM-powered agent networks in SCM presents a significant research gap. This paper identifies this gap and highlights the need for future research to explore the development and implementation of fully integrated LLM-powered agent networks within SCM contexts.

In conclusion, this literature review underscores the transformative potential of LLMs in SCM while highlighting the critical challenges that must be addressed to fully harness their capabilities. Future research should explore the applicability of LLM-based agent networks for decision support in SCM, with a particular focus on urban supply chains and specific challenges such as the bullwhip effect and fresh food logistics. Addressing these areas will be pivotal in advancing the integration of LLMs into supply chain practices, ultimately contributing to more resilient and efficient supply networks.

The research is supervised by Dr.sc.ing., Professor Dmitry Pavlyuk.

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ANOMALY DETECTION IN FINANCIAL TRANSACTIONS DATA

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Keywords: Fraud analytics, anomaly detection, explainable AI, adversarial machine learning

Fraudulent activities can significantly disrupt the operational efficiency of both consumers and businesses, leading to financial losses and diminished trust between two parties. Within the payments industry, fraud is a critical concern, with projections estimating a total loss of $32 billion by 2024, equivalent to approximately 6.5 cents for every $100 spent using payment cards (Merchant Savvy, 2024).

One of the most effective solutions for combatting against fraud activities is fraud analytics. Fraud analytics involves utilizing data-driven techniques to identify, recognize, and mitigate fraudulent activities within data sets or real-time streams (Bockel-Rickermann, 2023). In fact, in contrast to 44% in 2021, 53% of businesses in 2023 recognized fraud analytics as their primary tool for combating fraudulent activity.

The research problem lies in the adversarial nature of fraudulent transactions, particularly the phenomenon of concept drift and the need for model explainability, which together significantly compromise the performance of fraud detection models. As the nature of fraud evolves over time, models become less sensitive to new fraud cases and fail to detect them, resulting in high false-negative rates and substantial financial damages when applied in real- life scenarios (Bockel-Rickermann, 2023). This research aims to address this problem by developing fraud analytics methods to enhance model robustness and interpretability, enabling them to adapt to evolving fraud and mitigate the challenges posed by concept drift in fraud detection systems.

The gap in the current literature can be recognized in the lack of effective methods that address-both the evolving nature of fraud and the challenges related to model explainability which are interconnected. Existing fraud detection framework is vulnerable to concept drift, which leads to decreased performance over time. Additionally, many high-performing models used in fraud analytics remain "black-box" (Bockel-Rickermann, 2023) in nature, limiting their transparency and the ability to explain their decision-making processes (Morley, 2020)

This paper is the initial stage of PhD research and aims to conduct a systematic review and evaluation of existing Machine Learning (ML) and Artificial Intelligence (AI) methods used in fraud detection. This stage will focus on the reviewing of these methods, analyzing their strengths and weaknesses, and identifying their applicability to different fraud scenarios. The objective is to highlight the gaps in current ML and AI approaches for development of robust anomaly detection models for fraud activities in transactional data and design a novel solution which will improve robustness and interpretability of the existing fraud detection systems.

The research is supervised by Dr.sc.ing., Professor Irina Yatskiv.

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DEVELOPMENT OF DIGITAL SKILLS FOR HUMAN RESOURCES IN THE BANKING SECTOR IN SRI LANKA

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Keywords: Digital skills, human resources, banking sector, digital transformation, Sri Lanka

Human resources (HR) personnel in Sri Lanka's banking industry are now expected to possess sophisticated digital skills to boost organisational competitiveness, as the sector undergoes fast digital transformation (Galhena, 2022). However, there is a lack of knowledge to identify what unique digital competencies are needed by HR professionals in the Sri Lankan banking industry and how these competencies can be enhanced (Chandradasa & Priyashantha, 2021). This research aim is to assess the state of digital competencies among HR managers, defines challenges to further development of such competencies, and investigates effective methods of training them. The research has research objectives: evaluation level of digital skills among HR professionals in banks.

This research study uses a mixed-methods approach using surveys and semi-structured interviews with HR professionals and managers to collect both qualitative and quantitative data. Quantitative data are analyzed using statistical methods to determine the overall level of digital skills. Qualitative data from interviews are analyzed using thematic analysis to identify key themes and patterns regarding the challenges and opportunities for skill development Key objective is to assess human resources professionals' digital skill sets, find obstacles to their professional growth, and investigate effective strategies for skill improvement

The findings suggest that there is increased chance of the digital skills development in HR professionals when backed with good organizational support in terms of funding, time and administrative support. The better trained and the closer to their working context, the higher digital skills' proficiency levels that it appears HR professionals can attain. Advanced, functional, and intuitive technological resources can largely facilitate the acquisition of and implementation of the digital competencies in the practical activities. Findings also suggest that strongly motivated and flexible workforce would be even more active in acquiring and incorporating digital innovations.

According to the context of this research, it supports Sustainable Development Goals (SDGs) 4: Quality Education and 8: Decent Work to demonstrate the importance of digital skills to generate innovation and organizational growth (UNDP, 2024). The study provides real-world recommendations for HR managers, banks, and government authorities on how to integrate digital competencies into the banks' workforce for continuous development and to produce personnel to address future demands of the continually developing banking sector.

The research is supervised by Dr.oec., Professor Inna Stecenko.

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USING DATA ANALYTICS TO UNDERSTAND AND INFLUENCE CUSTOMER BEHAVIOR IN DIGITAL CUSTOMER COMMUNICATION

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Keywords: Customer behavior, data analytics, digital communication, customer segmentation, customer engagement, e-commerce growth

Customer behavior analysis has been highly important in the digital era to provide a competitive advantage through personalized experience and targeted communication (BuzzBoard, 2024). The aim of the research is to explore the application of data analytics to understand and influence customer behavior in digital customer communication. Utilizing big data and machine learning techniques, companies gain insights into consumer preferences, engagement patterns, and the decision-making process (Chen *et al.*, 2022). Furthermore, the research examines how real-time data collection and feedback loops can optimize content delivery and interaction quality, fostering loyalty and enhancing customer satisfaction.

The research question is: "How can data analytics be used to understand and influence customer behavior in digital communication, and what strategies can optimize customer engagement and satisfaction in e-commerce settings? The subject of the study is the application of data analytics tools (e.g., predictive modeling, sentiment analysis, machine learning) to digital communication strategies; the object of the study is e-commerce. This research addresses the use of data analytics to understand and predict customer behavior in the context of digital customer communication channels. It investigates whether data-focused strategies can improve customer engagement, personalization, and satisfaction, thereby aiding in business advancement within the e-commerce sector. This research adopts a mixed-methods approach that combines quantitative techniques such as predictive analytics and sentiment analysis with qualitative methods including interviews and case studies. This would enable an in-depth analysis of customer behavior trends and the influence of real-time data, as well as actionable insights for businesses seeking to refine their communication strategies.

This research would contribute to investigating customer behavior patterns, the effects due to real-time data and pragmatic implications of such study towards businesses aiming at fine-tuning their messages. It is supposed to provide a practical framework for businesses to personalize communication, anticipate customer needs, and improve overall satisfaction. The obtained results would offer meaningful recommendations on how to use data analysis for building better customer relationships, increasing user experience, and brand loyalty.

The results show a way to integrating a data-driven strategies into digital communications that highlights customer perception and contributes to growing e-commerce demand. So, this paper assists more general comprehension of digital customer communication, providing some useful approach to corporation at using its Online formulate for involving customers and extending their loyalty (Smolic, 2024).

The research is supervised by Dr.sc.administr., Professor Yulia Stukalina.

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SUSTAINABLE GOAL MANAGEMENT AND ENHANCED PASSENGER ENGAGEMENT IN AVIATION: LITERATURE REVIEW

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Climate change is one of the biggest challenges facing humanity today, and to address it, we need to develop solutions that include changing our personal habits towards more sustainable practices. And especially transport as an area where we need to stimulate interest in the topic and promote key actions to ensure aviation sustainability. As the aviation industry faces the urgent need to address climate change, sustainability has become a central focus for airlines and related sectors. As challenges mount and regulations become more stringent, the industry is under enormous pressure to innovate. And artificial intelligence (AI) is becoming a powerful tool to implement sustainable practices and transform the future of aviation (Kabashkin *et al*., 2023).

The aviation industry is undergoing a significant transformation driven by the dual imperatives of operational efficiency and sustainability. With international policies such as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and increasing consumer demand for environmentally responsible travel, airlines face growing challenges to innovate operational and resource management strategies. The COVID-19 pandemic has further accelerated the urgency for digital transformation, as airlines strive to rebuild in a manner that prioritizes sustainability and resilience. These factors make the integration of AI with behavioural science a timely and necessary exploration to meet modern challenges while improving passenger engagement and satisfaction.

This research devotes to literature review the integration of digital tools and behavioural science to optimize inflight resource management, reduce waste, and promote sustainable passenger behaviour and is a step in formulating the research problem in a PhD study. The main research question of this step is "What are the current literature trends in this topic and what is the manner in which they can be classified?"

Current literature classifies AI applications within aviation into categories of operational control, customer service, and environmental management. Operational control research examines predictive models to optimize scheduling, crew management, and resource allocation (Geske *et al*., 2024). Customer service research focuses on AI applications that enhance the passenger journey through tailored interactions, including virtual assistants and chatbots, to provide personalized guidance and real-time updates (Eshaghi *et al.,* 2024). In environmental management, AI applications seek to reduce fuel use, improve route efficiency, and minimize waste in inflight services, thus advancing the sustainability agenda of the airline sector. The AI-Airline-Efficiency-Model provides a structured framework for categorizing these applications, delineating AI functions across operational, marketing, and efficiency domains to achieve a balance between operational objectives and environmental imperatives (Geske *et al.,* 2024).

Technologies such as Machine Learning and Natural Language Processing have transitioned from theoretical constructions to practical applications, significantly enhancing real-time decision-making within airline operations. This evolution toward data-driven methodologies enhances operational efficiency and supports sustainability objectives by minimizing emissions and conserving resources (Zhang and Wan, 2024). Recent studies underscore that integrating AI

into core airline functions offers considerable potential for fuel optimization, schedule management, and passenger flow, collectively contributing to the industry's environmental targets (Geske *et al*., 2024). A trend toward holistic, cross-departmental AI framework is also emerging, moving beyond isolated implementations to adaptable, organization-wide models that dynamically respond to fluctuating operational demands in air travel (Eshaghi *et al*., 2024).

AI is emerging as a transformative tool for tackling inflight waste and enhancing sustainability. For instance, KLM's implementation of predictive AI models has reduced inflight food waste by up to 63%, highlighting the potential of data-driven systems to optimize meal provisioning based on passenger trends (IATA 2024). Similarly, Airbus's Food Scanner technology tracks onboard food consumption and waste, enabling precise catering adjustments and yielding potential double-digit reductions in CO2 emissions through weight and fuel savings (Airbus, 2023).

Based on current literature and industry practices, this study suggests that the integrated use of AI and behavioral insights can be used to develop personalized onboard services, reduce waste, and optimize resource use. By combining AI's predictive capabilities with behavioral modeling, airlines can simultaneously improve passenger satisfaction and achieve their environmental goals.

Future research may benefit from exploring AI-driven behavioural interventions designed to promote sustainable choices among passengers, such as voluntary carbon offsetting, waste reduction, and environmentally conscious consumption behaviours (Mello and Macario, 2024). Additionally, research could focus on adaptive AI models that refine inflight service offerings in response to passenger preferences and behaviours, thus optimizing waste management and improving service efficacy (Soklaridis *et al.,* 2024). Establishing an adaptive, cross-functional AI framework that integrates behavioural insights into passenger engagement strategies may yield a powerful tool for optimizing resources and reducing environmental impact, while simultaneously enhancing passenger satisfaction.

The research is supervised by Dr.sc.ing., Professor Irina Yatskiv and Dr.sc.ing., Professor Iyad Alomar.

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ANALYSIS OF GROUND HANDLING RISKS THAT IMPACT AIRPLANE HEALTH MANAGEMENT

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Keywords: Aviation safety, airplane health management, reason's model

Air transport is one of the most critical strategic components of a nation's transportation industry. Its speed and vast range of destinations make aviation an indispensable part of transportation logistics, where even minor errors can lead to large-scale catastrophes. Modern aviation requires robust aircraft health management (AHM) systems that monitor and address risks arising from internal and external factors. Ground handling, which includes refuelling, baggage handling, inspections and systems checks, remains a critical period when aircraft are vulnerable to operational and latent risks. Unaddressed ground handling risks can lead to cascading failures, operational delays, and even catastrophic accidents.

Ground handling risks are among the most significant contributors to aviation safety incidents, yet they are often underexplored. While organizations like NASA and EASA emphasize internal system safety, the interaction between ground operations and AHM remains insufficiently addressed. This research is timely, as the aviation industry seeks to leverage data-driven insights and advanced modelling techniques to improve safety and operational efficiency.

Reason's Model: Applied to classify latent failures and active errors in ground handling processes. Catastrophe Theory (René Thom): Used to model nonlinear transitions in system states, such as sudden breakdowns in operational safety. Domino Effect: Employed to study the sequential nature of failures within the ground handling system.

This study addresses the critical issue of improving ground handling processes and identifying associated risks and hazards to enhance operational safety across the entire aircraft lifecycle. Ground handling operations, carried out during an aircraft's downtime, often involve numerous hidden factors, which pose significant threats to aviation safety. Classifying these factors and establishing an ontology of potential risks are essential steps toward identifying and mitigating dynamic hazards:

   a) Hidden factors and hazards that elude standard detection mechanisms.
   b) Lack of a unified framework to classify and prioritize ground handling risks.
   c) Limited integration of theoretical hazard models into AHM systems.

The research synthesizes findings from secondary data sources and theoretical models to provide a structured methodology for assessing ground handling risks. A comparative analysis of existing approaches highlights the need for integrating dynamic hazard models with AHM systems to ensure operational safety across the aircraft lifecycle.

This study lays the groundwork for proactive safety management in aviation by addressing gaps in ground handling safety. It proposes a structured risk classification framework and technological innovations to enhance hazard detection and mitigation. The findings contribute to the development of safer and more efficient aviation operations, aligning with the industry's goals of leveraging data-driven insights and advanced modelling techniques.

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STRUCTURAL REFORMS AND BUSINESS PARTICIPATION IN GLOBAL VALUE CHAINS IN SUB-SAHARAN AFRICA

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Keywords: Participation in GVCs, global value chains, structural reforms

Studies have shown that companies participating in global value chains tend to enhance their competitiveness and productivity. Indeed, innovations in the transport and telecommunications sectors have led to a new organization of the productive system on a global scale. Firms that once produced solely in one country now increasingly import various inputs for their products, resulting in a vertical fragmentation of their production processes.

The World Bank (2010), in its post-crisis report from 2008, qualified global value chains (GVCs) as the backbone and central nerve of the world economy. This observation by the Bretton Woods institution is justified by the rapid development of GVCs since the 1990s. In 2014, the United Nations Commission on Trade and Development (UNCTAD) estimated that 60% of world trade—exceeding 20 trillion dollars—consisted of trade in intermediate goods and services integrated into the production of other goods and services intended for final consumption. Thus, GVCs provide companies and countries with greater benefits than traditional trade.

However, it should be noted that participation by companies in Sub-Saharan Africa has predominantly been downstream, meaning that the majority are confined to the export of raw materials. This limitation prevents them from fully capitalizing on the advantages associated with greater participation in GVCs (known as backward participation).

The primary goal of this research is to investigate the structural reforms necessary to enhance the participation of Sub-Saharan African businesses in Global Value Chains (GVCs), while integrating Corporate Social Responsibility (CSR) and sustainable business practices. The study will examine how these elements can be addressed through frameworks that emphasize stakeholder engagement, ethical sourcing, and sustainable supply chain practices. The study will focus on the object of inquiry concerning business participation in GVCs within Sub-Saharan Africa, and the subject will center on the interplay between structural reforms, CSR, and sustainability. To achieve this, the research will employ a mixed-methods approach, including thematic analysis of qualitative data collected from interviews and focus groups, as well as descriptive and inferential statistics from surveys and case studies of successful firms to identify barriers and best practices.

The specific objectives of this research are threefold, firstly to identify the existing structural reforms in Sub-Saharan Africa (regulatory frameworks, infrastructure development, and trade policies) and assess their effectiveness in promoting GVC participation. Secondly, exploring how Corporate Social Responsibility (CSR) and sustainable business practices can be integrated into the participation strategies of firms in GVCs by developing frameworks for ethical sourcing, stakeholder engagement, and sustainable production practices. Lastly, offering practical, actionable policy recommendations for governments and businesses aimed at overcoming barriers to GVC participation and enhancing the overall sustainability of global trade practices.

The structural reforms implemented in these countries aim to reduce the rigidities that prevent or hinder participation in GVCs; however, they do not seem to fully achieve this goal. Therefore, it is imperative to examine these reforms closely to understand their role in facilitating company participation in GVCs. The expected contributions of this research include providing actionable policy recommendations for enhancing GVC participation, contributing to the academic discourse

on CSR and sustainability in the context of Sub-Saharan Africa, and offering practical strategies for businesses to navigate the complexities of global trade while promoting responsible practices.

Significant limitations of this research include challenges in data collection due to the difficulty in obtaining a representative sample of businesses across Sub-Saharan Africa, as well as the potential for response bias and subjectivity in qualitative interviews and surveys. The research may also face challenges related to the dynamic nature of GVCs and CSR practices, which may introduce subjectivity into the analysis. Lastly, while the study will propose actionable recommendations based on its findings, it is essential to recognize that implementing structural reforms and advancing CSR practices often involves complex political, economic, and social considerations. This underscores the importance of further research in this area to develop a more comprehensive understanding of the factors influencing GVC participation and sustainable business practices in Sub-Saharan Africa.

The research is supervised by Dr.sc.administr., Professor Yulia Stukalina.

LEVERAGING BLOCKCHAIN TECHNOLOGY IN SUSTAINABLE MARKETING: A KPI-DRIVEN APPROACH

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Keywords: Blockchain, marketing, key performance indicators (kpis), sustainability, sustainable marketing

Blockchain technology is transforming industries by introducing enhanced data transparency, security, and trustworthiness" (De Filippi *et al.,* 2020). However, sustainable marketing often struggles with tracking environmental and social impacts due to limited transparency (Park *et al*., 2022). This thesis investigates blockchain's potential to bridge these gaps, developing a framework that uses KPIs to measure its impact on transparency, trust, and accountability in sustainable marketing.

While blockchain's application in various fields is well-studied, its role in sustainable marketing is less explored. Studies indicate that blockchain's immutable ledgers enhance trust by reliably tracking product origins and environmental impacts (Centobelli *et al*., 2022; Prakash,2024; Böhmecke-Schwafer, 2024). Despite this potential, identifying suitable KPIs for evaluating sustainable initiatives remains a challenge, which this thesis addresses by proposing relevant KPI metrics linked to blockchain (Hristov and Chirico, 2019; Garg *et al*.,2024).

The study integrates blockchain theories of transparency and trust with sustainability frameworks like the Triple Bottom Line, focusing on social, environmental, and economic outcomes. Using case studies and quantitative KPI analysis, the research explores how blockchain improves consumer trust, customer engagement, and carbon emission reductions in marketing, presenting a clear view of blockchain's sustainability role.

The results suggest that blockchain transforms sustainable marketing by offering secure, transparent data that fosters consumer trust. Nonetheless, high costs and regulatory barriers pose challenges. In conclusion, blockchain helps companies verify and share sustainability efforts, meeting consumer demands for transparency and addressing credibility gaps in traditional marketing. KPIs like carbon footprint and traceability offer measurable insights, validating blockchain's role in achieving sustainable marketing goals and reinforcing brands' commitment to responsible practices.

The research is supervised by Dr.soc.sc. Olegs Cernisevs.

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CONNECTEDNESS IN EUROPEAN FINANCIAL INSTITUTIONS: A DIGITAL PERSPECTIVE

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Keywords: Spillover index, systemic risk, portfolio compression, digital assets

In highly assimilated markets, where homogenous firms dominate, disturbances in one firm spread at a fast pace and often undermine the risk management efforts. The Global Financial Crisis of 2008 highlighted such spillover effects, the critical need to quantify systemic risk and explore ways to monitor and mitigate it. The rise of digital and asset-specific innovations exacerbates the assessment of systemic risk levels. Existing EU regulations fail to grasp the impact of digitalization on the banking sector and thus, are technologically neutral (Buch, 2024). Moreover, Europe is in a time of weak growth and increasing debts of EU countries raises alarm over a probable crisis (European Central Bank, 2024).

This study's goal is to investigate how European financial institutions' interconnectedness can be used to assess and mitigate systemic risk. The research addresses probable vulnerabilities exacerbated by digital innovations and portfolio compression.

The object of the study is the systemic risk and financial stability in Europe.

The subject of the research is the impact of digital innovations and portfolio compression on European financial institutions' systemic risk.

The study employs the Spillover Index (Diebold and Yilmaz, 2009, 2012) and the Dynamic-Conditional-Correlation model (Engle, 2002) to analyze financial institution interconnectedness and systemic risk. It critiques previous methods like Cholesky orthogonalization and Generalized Forecast Error Variance Decomposition (GFEVD), advocating the square root matrix orthogonalization (SQRTM) as a superior approach. The superiority of SQRTM is proved by the results of the study being order-invariant and keeping the Spillover Index formulation intact – as in the original paper of Diebold and Yilmaz.

At its core, the research data consists of the stock price return and price volatility history of the European financial institutions under study. The stock and digital assets data are collected via web scraping Google and Yahoo Finance, as well as, from comprehensive financial analysis and trading software such as EIKON. The compression-related data is aimed at being collected via European Clearinghouses or third-party service providers.

The tasks of the study include:
- Exploring the differences between Cholesky-based and SQRTM-based Spillover Indices amongst European financial institutions by showing their mathematical and practical differences
- Analyzing the effects of digital assets on the systemic risk
- Mathematical examination of the portfolio compression and its simulated application onto the available financial institutions
- Incorporating the results into the Spillover Index and investigating the impact of portfolio compression on the systemic risk
- Consolidating the results to develop a strategy for the regulators to help in the fight against the systemic risk

The output of the study will be an accurate, reliable, and a comprehensive systemic risk quantification framework capable of addressing long-term dynamics and considering the

evolution of the financial landscape. The findings will have important implications for policymakers and regulators seeking to mitigate systemic risk and promote a more resilient financial system in the era of digitalization.

The research is supervised by Dr.oec., Professor Jelena Popova.

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DEVELOPING A CORPORATE-CENTRIC MODEL FOR INFLUENCER MARKETING: STRATEGIES FOR ENHANCING BRAND IMAGE

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Keywords: Corporate-centric model, influencer marketing, brand image enhancement, brand-influencer alignment, consumer perception

The structural model of influencer marketing is a planned approach where brands should use influencers to share the brand's values and culture making consumers develop a proper emotional connection (Wu, 2024). However, this approach is also not without its challenges – principally that there is a risk of developing a negative brand connection when partnering with influencers. The fact is that the efficiency of influencer marketing depends on choosing the right influencers for the brand that share the same values, target audience, engagement rate, are non-fake and have the same content approach as brand's one (Kailash, 2024). This corporate-centric model must therefore handle these complexities through strategic planning, constant monitoring and selection of the correct influencers to correspond to brand value so as to enhance a pleasant corporate image and edge in the market (Kryl *et al.*, 2023). The risks of influencer promotions and advertisements includes brand suitability, consumers' disconnection, and branding that may negatively relate to the product or service, quality degradation as a result of oversaturation of the item and commercialization. Furthermore, concerning the effective functioning of influencer marketing: content selection, community participation, and other factors, knowledge about them can greatly help in achieving the desired brand performance (Bansal and Bhati, 2022). Also, brands should focus on relevancy as it helps create better engagement with clients and thus building the trust essential for influencer marketing (Zhou, 2023). Finally, therefore, there is the need to understand well the target market and the requisite marketing goals, which will help in identifying the right influencer for an improvement of the brand image and engagement (Wang and Chan-Olmsted, 2024). The research question focuses on developing a new corporate model for influencer marketing to optimize brand equity and capture perceived truthfulness and nearness, potentially changing consumer behaviour.

This research aims to create a corporate-centric model for influencer marketing that uses innovative methods to boost brand influence and consumer engagement. It focuses on classic challenges by data and digital instruments and presents the conceptual approach to working with influencers. This is to ensure that the ultimate customers are retained for an extended period, and the revenues are optimised while the branding is done effectively.

For that purpose, an exploratory sequential mixed-methods design is employed where the first phase of data collection is qualitative with the help of structured interviews. The quantitative phase includes using surveys and factor analysis to reconfirm the generated qualitative themes and make them quantitative. To analyze survey data in the study, the author performs factor analysis in SPSS 29 to determine clusters and understand the underlying constructs of influencer marketing. Analyzing the results, the corporate-centric influencer model is created, and employing the Analytic Hierarchy Process (AHP) to prioritize factors by the expert interview data. The research employs questionnaires and structured interviews to study influencers' marketing factors. The outcomes from factor analysis and AHP enable a model to be established to assist in enhancing brand influencer relations and to gain better understanding

of the influencing factors. Structured interviews and surveys bring limitations like response bias and selection bias where respondent's remarks may not be very diversified and may be in favor of the specific type of answers.

This research develops a corporative-centric influencer marketing model, with the aim of developing an approach to identify individuals to tag for company achievement based on factors that boost brand image. In terms of external validation, it is going to be verified by subject matter experts as part of the practical application of the proposed corporate-centric model. This evaluation will involve getting information and suggestions from marketing practitioners, brand managers and social media specialists such that the model could be improved to suit real-life demand and constraints.

The practical implication of the final corporate-centric model is that it prescribes what brand and influencer relation strategies should look like depending on how they build measurable goals, contracts, analytics and long-term strategies. All these steps will help increase the performance and usability of influencer marketing for brands.

The research is supervised by Dr.sc.ing., Assistant Professor Olga Zervina.

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MANAGING OF OPERATIONAL EFFICIENCY AND REDUCING OF AIRCRAFT DOWNTIME BY OPTIMIZATION OF AIRCRAFT ON GROUND PROCESSES FOR AIROPERATOR

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Keywords: Airlines, spare parts, competitiveness, forecasting models, data analysis, aircraft on ground

This research aims to establish a strategic framework designed to improve operational efficiency and minimize aircraft downtime for an Air Operator by optimizing Aircraft on Ground (AOG) processes. By leveraging advanced forecasting models to accurately predict spare parts requirements and implementing predictive maintenance techniques. This study focuses on enhancing AOG processes across supply chain, logistics and engineering departments. This framework is to enable an airline to reduce its AOG incidents and maintain seamless, cost-effective operations while bolstering fleet reliability and minimizing unplanned disruptions.

The main research question is:

Will the introduction of a reliable forecasting model influence the procedures and management of operational efficiencies, as well as the overall performance of airline?

The research tasks are:

- To analyze the current distribution of AOG/Critical shipments versus Routine/Road shipments in the aviation logistic department.
- To identify factors contributing to the prevalence of AOG events, including supply chain inefficiencies, inventory management challenges, and logistical constraints.
- To investigate the impact of AOG shipments on operational costs, fleet availability, and customer's satisfaction within the aviation industry.
- To examine the role of troubleshooting procedures and manuals used in SmartLynx compared to other airline companies.
- To develop predictive algorithms using historical data to forecast AOG occurrences and optimize shipment allocation and scheduling, an example of the Bootstrap and Econometric analysis approach.
- To implement, evaluate and compare reliable forecasting models for an airline to ensure timely parts distribution and mitigate Aircraft on Ground (AOG) events.

The research subject is the assessment of forecasting model in the management of Supply Chain and Logistic processes. The research object is Supply Chain, Logistic department and engineering department of airline. The research base is SmartLynx airlines.

The research has begun with a comprehensive overview literature study of the traditional framework of AOG models and types in aviation. The research evaluates three primary forecasting models such as Linear Regression, Econometric Analysis, and the Bootstrap Method assessing their effectiveness in predicting spare parts demand and managing unexpected maintenance requirements. Each model's predictive accuracy is analyzed to determine the best fit for minimizing Mean Time Between Failures (MTBF), thereby reducing AOG-related downtime. Quantitative analysis of 2020-2024 data focuses on MTBF, spare part usage, and supply chain metrics, while qualitative insights are gained through interviews with industry experts.

The author's research reveals how varied aircraft models complicate inventory management and the operational disruptions and costs that AOG incidents can impose due to

unforeseen technical issues grounding aircraft. The research's findings indicate that Linear Regression is suitable for stable demand patterns, Econometric Analysis is effective for demand influenced by economic conditions, and the Bootstrap Method accommodates irregular demand. Therefore, with the hybrid model recommended, the focus is here to combining these forecasting techniques with real-time data integration to streamline inventory processes and reduce AOG incidents.

The research is supervised by Dr.sc.ing., Professor Iyad Alomar.

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ASSESSMENT OF INVESTMENT ATTRACTIVENESS OF EASYJET COMPANY

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Keywords: Airline industry, investment attractiveness, financial performance analysis, EasyJet

Before investing in any project, it is very necessary to analyze its risk, return, and value. Investors invest in only those projects that show high returns at lower risk. Investment attractiveness analysis helped the investors to analyze the investment before investing in a project (Gutkevych, 2019). Aim of the research is to assess the investment attractiveness of EasyJet Company which is one of the low cost British Airline group. For the analysis of the investment attractiveness of the airline industry, financial ratios will be used. Technological advancement, regulatory environments, changing consumer preferences, and fluctuating fuel prices are factors that significantly affect the airline industry (Samunderu *et al.,* 2023). Valuable insights about industry-specific challenges and macroeconomic trends that impact investment decisions will be provided by analyzing EasyJet's position within this volatile environment. There is a unique set of challenges faced by EasyJet. That's why, it is interesting to assess the investment attractiveness of EasyJet. EasyJet has strong brand loyalty in the European airline market.

Investment attractiveness is significantly affected by investment programs. Toward specific projects, capital and resources are allocated by an organization and the government through a strategic plan called an investment program (Kachalov *et al.,* 2023). At a competitive price, goods are manufactured by a company when an organization has high production potential. Investors are attracted to that organizations produce maximum output with available resources (Sala *et al.,* 2023). In providing a legal framework, tax policies, and clear regulations government plays an important role in investment attractiveness. International Investors invest in those county's projects where there is no corruption and political instability (Gao *et al*., 2024). This study will provide insight into the different factors which affect the investment attractiveness of the airline industry.

Profitability ratios are used for the assessment of investment attractiveness. Return on equity, return on asset, net profit margin and gross profit margin are the different profitability ratios used for assessment of investment attractiveness. Company growth prospects and sustainability are evaluated through profitability ratios. Investors prefer to invest in those projects which provide long-term value. A company's strategic potential, operational efficiency, and financial success are determined through profitability ratios (Makhazhanova *et al*., 2023).

They are the low financial risks faced by the companies which have a strong liquidation ratio. During a period of reduced cash flow and high liquidity ratios companies can continue their operations without any interruption. Company borrowing capacity is also enhanced with stable liquidity. The cost of capital decreased with the strong liquidity position of the company. The low cost of borrowing increased the profitability of a company and investment attracted that company's investment. Those investors who are looking toward financial stability and risk management used liquidity ratios for analysis of investment attractiveness (Klymenko *et al*., 2023).

The scientific novelty of the current study lies in its comprehensive approach to assessing the investment attractiveness of EasyJet by analyzing factors that influence this metric both internally and externally. Investment attractiveness is a multifaceted concept shaped by various

elements, and while most existing studies focus primarily on profitability ratios, this research incorporates a broader range of financial indicators. Specifically, it evaluates profitability, liquidity, and efficiency ratios to provide a holistic view of EasyJet's investment appeal. This methodological approach ensures a detailed analysis and offers new insights compared to prior studies that predominantly emphasize profitability as the sole determinant.

The research is supervised by Dr. oec., Professor Irina Kuzmina-Merlino.

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SAFETY MANAGEMENT SYSTEM (SMS) IMPLEMENTATION IN SMALL-SIZED AVIATION COMPANY

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Keywords: Safety management system, aviation safety, hazard analysis, operational challenges, regulatory compliance

The integration of Safety Management Systems (SMS) is a cornerstone of aviation safety, aiming to enhance risk mitigation and ensure regulatory compliance, particularly in small-sized aviation companies facing operational and resource constraints. Despite their critical role, small-scale aviation organizations are often overlooked in academic research, which predominantly focuses on larger enterprises. This study investigates SMS implementation challenges, hazard identification processes, and operational enhancements in smaller companies, offering actionable insights that bridge this gap (ICAO, 2018; EASA, 2021).

The research employs a mixed-method approach, combining qualitative and quantitative techniques to ensure a comprehensive analysis. Qualitative interviews with management provide in-depth insights into the organizational perception of SMS, identifying challenges and opportunities for improvement. Quantitative surveys among operational staff allow for the collection of measurable data, revealing trends and patterns in safety practices and compliance levels. Together, these methods collect primary data directly from stakeholders, ensuring a robust analysis tailored to the unique characteristics of small aviation companies. Secondary data, including regulatory frameworks and industry reports, supplement this analysis by providing context and benchmarks for comparison (Stolzer *et. al*., 2008; Reason, 1997).

The findings are analyzed through the lens of global aviation safety frameworks, including ICAO and EASA standards. Preliminary results indicate that while small aviation companies demonstrate a commitment to safety, they face significant barriers, such as limited resources, inconsistent training, and stakeholder engagement. This research proposes targeted strategies for overcoming these challenges, focusing on cultivating a proactive safety culture, continuous improvement, and regulatory adherence. By emphasizing practical solutions, the study offers a framework for enhancing SMS practices in resource-constrained environments, contributing to both academic discourse and industry practice (Mitchell and Braithwaite, 2013).

This research advances the understanding of SMS implementation in small aviation companies, providing evidence-based recommendations for fostering robust safety protocols. Its outcomes aim to benefit both academic and professional audiences, offering scalable strategies applicable across similar organizations globally.

The research is supervised by Dr.sc. administr., Professor Yulia Stukalina.

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INTEGRATION OF ROBOTIC TECHNOLOGIES INTO PHARMACEUTICAL SERVICES IN LATVIA: CHALLENGES AND OPPORTUNITIES BASED ON EUROPEAN EXPERIENCE

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Keywords: Pharmaceutical services, labor market, technology development, investments in robotization, quality of service

The relevance of the study lies in the fact that accelerated development of technologies in the medical and pharmaceutical industries has already proved its effectiveness in improving the quality of service, optimizing processes and reducing risks. Leading countries of the world, including the European Union states, are actively using robotic systems in pharmacies and hospitals. This makes it possible to significantly reduce human errors, increase the speed and accuracy of dispensing medicines, and relieve staff from routine tasks. Latvia, being on the path of digital transformation, has all the prerequisites for the application of these technologies, which is relevant in the context of growing requirements to the quality of medical services and the need to improve their accessibility.

The aim of the study is to identify opportunities and challenges in the integration of robotic technologies into pharmaceutical services in Latvia, taking into account the experience of the European Union countries. Based on the obtained data, recommendations will be developed for decision makers aimed at optimal implementation of robotic technologies, which will improve the quality, accessibility and economic feasibility of pharmaceutical services in the country.

To achieve the objective, multiple linear regression will be constructed to show the dependence of the quality of services provided on multiple factors, including investments in robotization.

The introduction of robotic technologies into pharmaceutical services in Latvia will open new opportunities for the development of the industry and improvement of the quality of medical services. Modern technologies can not only increase efficiency, but also help increase patients' trust in pharmaceutical institutions, especially if they are assured of the accuracy and safety of the services provided.

In Switzerland, for example, SwissLog Healthcare has developed robotic systems used for inventory management in pharmacies and other healthcare facilities, as well as for automated prescription dispensing. One example is the TransCar, which is an automated guided vehicle that delivers medicines between hospital departments and pharmacies. (Otsaw, 2024)

Likewise, in Germany, BD Rowa has developed robotic systems that can store, recognize and dispense various medications upon incoming request. This technology is widely used not only in Germany, but also in medical institutions in Spain and Belgium. As well as in other European countries. (BD Rowa, 2024)

The most promising areas of development include the use of robotic systems for inventory management, automated medication distribution and prescription dispensing, and the introduction of automated self-service terminals in pharmacies. All this can significantly improve access to medicines and reduce the workload of staff.

The experience of European Union countries shows that the integration of robotic technologies can be successful if a number of conditions are met: availability of targeted funding;

development of training and retraining programs; support from the state and adaptation of legislative norms.

The research is supervised by Mg.oec. Oksana Skorobogatova.

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ADAPTIVE COMMUNICATION MODELS - SOLUTIONS FRAMING THE FUTURE OF MARKETING

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Keywords: Marketing, adaptive communication models, consumer, collaboration, future trends

The relevance of the research is dictated by the fact that marketing, in a rapidly transforming digital world, requires new approaches to consumer communication. Adaptive communication models represent innovative solutions that can not only increase the effectiveness of companies' interaction with their audience but also anticipate changes in consumer behavior.

Adaptive communication models are strategies of consumer interaction based on flexible changes in approaches to content and communication channels according to audience behavior, preferences, and needs data. Such models are enabled by technological developments, including artificial intelligence, machine learning, and big data analytics (Dib, 2024).

The research aims to develop recommendations for implementing adaptive communication models in companies' marketing strategies to enhance their competitiveness. The study will also seek to determine how adaptive approaches can improve audience engagement and strengthen brand loyalty. Special attention will be paid to identifying the advantages and limitations of such models, as well as assessing their role in shaping future marketing trends.

Through personalization and a deeper understanding of customer needs, adaptive communication models contribute to building long-term relationships between brand and consumer (Phillips & Barry, 2024).

With advancements in artificial intelligence, adaptive models will become even more accurate and flexible. In the future, marketers will be able to predict consumer needs with greater precision and create truly "smart" campaigns tailored to the individual consumer.

In the context of the growing importance of personalization and changes in consumer behavior, companies that effectively adapt their communication strategies to audience needs will gain significant competitive advantages.

The research is supervised by Mg.oec. Oksana Skorobogatova.

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INNOVATION HUBS AS CATALYSTS FOR CONSUMER BEHAVIOR TRANSFORMATION: A MARKETING PERSPECTIVE

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Keywords: Apparel industry, consumer buying behaviour, factor analysis, innovation hubs, marketing strategy

The apparel industry is transforming, making stylish clothes more accessible to all, thereby increasing profitability and accessibility (Chauhan *et.al*., 2023). Textile companies use marketing strategies to influence customer perceptions, while the apparel industry uses online strategies to highlight unique features that set them apart from competitors. The other psychological and demographic factors also influence the customers while purchasing the clothes (Nanda *et. al.*, 2024). The traditional marketing methodologies sometimes fail to increase the consumer spending on the clothes. The innovative marketing strategies developed through innovation hubs attract the customers, thrive the competition and increment the revenues (Gazzola *et. al.,* 2020). This also influence the decision-making of the customers as well as combine both the traditional and modern approaches in apparel industry. Many of the written literatures lack the updated knowledge regarding the factors affecting the consumer purchasing intention through innovation hubs. This is the identified research gap by the authors.

Innovation hubs collaborate technological advancements in the apparel industry. Innovation hub is a powerful tool to influence the consumer behaviour through the implementation of innovative marketing initiatives (Chenoy *et. al*., 2019). As India is one of the largest apparel industries in world (Ganbold, 2024), the novelty of this paper is that, by collaborating the data deduced through data analytic marketing, psychology of the consumer as well as innovation, the paper presents a detailed understanding of how innovation hubs improve the customer purchasing rates which is very important in this present apparel market scenario.

The aim of this research is to explore and analyse how innovation hubs can serve as powerful catalysts for transforming consumer behaviour in the apparel industry of India, with a focus on developing effective marketing strategies. The authors developed mainly two research questions which is given below.

RQ1: What is the role of innovation hubs in Indian apparel industry?

RQ2: What are the factors influencing consumer buying behaviour in apparel industry through innovation hubs?

The tasks of the research are as follows:

1. To perform a review existing literature on innovation hubs, consumer behaviour, and marketing strategies in the apparel industry identify gaps in current literature on the role of innovation hubs in fostering industry transformations.
2. To investigate the function and structure of existing innovation hubs in the apparel sector and examine how these hubs contribute to ideation, technology development, and marketing innovation.
3. To conduct an online survey with consumers to gather insights on their behavior, preferences, and perceptions of brands associated with innovation hubs.

4. To perform a factor analysis in the data gathered and to Propose a framework outlines best practices for leveraging innovation hubs to influence consumer behavior in the apparel industry.
5. To provide strategic recommendations for apparel brands to leverage innovation hubs effectively.

Through a structured framework and data collection via online questionnaires, the study analyses the relationship between these innovation hubs and consumer behaviour. This study uses a quantitative method, conducting a digital survey with 153 participants, mainly employees of small-scale textile companies and B2B consumers. The data is analysed using SPSS 29 software and identified major factors for enhancing customer buying behaviour through innovation hubs. The most significant factors are engagement (32.902%), green factors (15.388%), retail factors (9.573%), and interaction factors (8.275%). The survey is conducted in southern India due to geographical limitations and the challenge of finding experts with relevant insights. The findings offer actionable recommendations for apparel brands to enhance engagement and sustainability, ultimately providing valuable insights into the role of innovation hubs in transforming consumer behaviour within the sector. The research can be rigorously validated to ensure relevance to current industry trends.

The research is supervised by Dr.oec., Professor Jelena Davidova.

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Session 4

Modern Technologies of
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ARTIFICIAL INTELLIGENCE AND NEW THINKING COMPETENCES FOR UNIVERSITY STUDENTS

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Keywords: Critical thinking, computational thinking, calculational thinking, mediation thinking, digital competences, education curriculum

The holistic goal of university education today is to develop well-rounded individuals equipped with critical thinking skills, ethical values, interdisciplinary knowledge, and the ability to adapt to an evolving global society. This broad aim addresses both personal growth and societal needs, emphasizing the importance of preparing students for the complexities of modern life and work (Kabashkin, 2023).

This process should be considered natural and timely, however, due to several reasons, the development of thinking of students in high-tech specialties requires the expansion and deepening of cognitive knowledge of these students. In this study, the author highlighted other types of thinking that complement Critical Thinking and require special attention from teachers. Let us consider three of them Computational Thinking (popularized by computer scientist Jeanette Wing (2006)), Calculative Thinking, and Meditative Thinking as described by Martin Heidegger (1986).

For a better understanding of the educational task, we will define these types of thinking:

- **Computational Thinking** is primarily a practical, problem-solving framework used in computer science and applicable across various fields.

- **Calculative Thinking**, according to Heidegger, is a broader philosophical concept focused on planning, organizing, and calculating actions to achieve learning goals or outcomes.

- **Meditative Thinking**, a concept developed by Martin Heidegger in his book "Discourse on Thinking", refers to a contemplative, reflective mode of thought that is open-ended, patient, and oriented toward understanding rather than controlling or calculating.

Computational thinking, as a concept, popularized by computer scientist Jeanette Wing (2006), isn't about programming per se, but rather about applying techniques and principles from computer science to solve problems across disciplines. Computational thinking is a problem-solving approach that involves breaking down complex problems, analyzing and organizing data, and designing solutions that a computer (or a human) can carry out effectively.

Calculative thinking is a pragmatic, goal-oriented way of processing information. It involves planning, organizing, and calculating ways to achieve certain ends, like problem-solving in science, technology, and business. Heidegger argues that calculative thinking has become the primary mode of thought in modern society, especially under the influence of technology, and that it leads us to treat everything — including nature and human beings — as resources to be optimized or exploited.

In contrast, Meditative thinking is a more contemplative, open-ended form of thought. It does not seek to control or manipulate, but rather to engage with and understand the essence of things in a receptive and non-intrusive way. Heidegger believes meditative thinking allows individuals to connect more deeply with their own existence, the world, and the fundamental mysteries of life.

The authors provide practical examples of the use of all three types of thinking in the educational process with the aim of including them in the corresponding lesson plans.

Particular attention is paid to Meditative Thinking, which is not very common in the educational process of technical universities. It is proposed to make wider use of the following types of student learning activities supported by the university academic staff:

1. Reflective Pause.
2. Questioning the "Why" Behind Knowledge.
3. Listening with Openness.
4. Contemplative Journaling.
5. Observation of Thought Patterns.
6. Embracing Uncertainty.
7. Mindful Walking or Silent Sitting.
8. Exploring Connections Beyond the Subject Matter etc.

To solve all the listed problems, the authors propose intensive use of AI services, particularly LLMs models (ChaptGPT, Claude, etc.). AI models can provide unique forms of guidance, exploration, and stimulation that go beyond traditional learning methods (Marvin, 2024). It can be done by the following:

1. Supporting Computational Thinking
   • Breaking Down Problems.
   • Pattern Recognition.
   • Building Algorithmic Thinking.
2. Enhancing Calculative Thinking
   • Providing Efficiency and Precision.
   • Simulating Scenarios.
   • Quantitative Data Analysis
3. Fostering Meditative Thinking.
   • Promoting Reflective Dialogue.
   • Encouraging Open-Ended Exploration.
   • Creating Space for Non-Linear Thought.
   • Journaling and Reflection Prompts.

In conclusion, it is necessary to emphasize the dual role of AI in the university. On the one hand, AI services relieve students from the need to remember many technical or technological details of various processes (the question of "how"), on the other hand, AI services require a new level of abstract thinking to implement innovative solutions using new digital technologies (the questions of "what" and "why"). This fact requires a revision of specific learning objectives in higher education programs (learning outcomes) to create new opportunities for developing special types of thinking required in the modern information society (Misnevs, 2023).

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SUCCESSFUL POSITIONING OF A DRIVER EDUCATION CENTER: WAYS TO CREATE A COMPETITIVE ADVANTAGE

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Keywords: Positioning, driver education center, consumer, competitive advantage, adaptation

Company Positioning - is the process of creating a unique identity and brand perception in the minds of the target audience in order to differentiate the company from its competitors. It is a strategic approach that involves identifying key features of a product or service that emphasise its benefits and effectively communicating these features to consumers. (Whitler, 2021) The goal of modern positioning is not only to create brand recognition, but also to create a lasting preference among consumers for the company, which ultimately helps to build loyalty and increase market share. The modern market for educational services, including driver training, is becoming increasingly competitive. It is particularly important for driving schools to be able to stand out among similar organizations and offer value that will attract potential students. Successful positioning of a driving school helps to create and maintain a competitive advantage, which allows the educational institution not only to increase the number of students, but also to strengthen its reputation in the market.

The relevance of the study lies in the understanding that today's consumers of driver education centre services expect a convenient and personalised approach, accessible online solutions and the ability to tailor learning to their schedules.

The purpose of this study is to develop recommendations to establish a sustainable competitive advantage for companies operating in the Latvian market of driver education centre services. The study aims to analyse the key factors influencing the choice of driving schools by students and to identify optimal approaches to manage reputation, improve service quality and implement innovative technologies. In addition, the research will identify the best positioning strategies and practices that will help Latvian driving schools to effectively adapt to changing market conditions and increase their student attractiveness.

Creating a competitive advantage can be achieved by introducing innovative training methods such as virtual simulators, the use of online platforms for theoretical training and personalised courses. It is also important to focus on enhancing the reputation of the driving school through testimonials, recommendations and online presence, which plays a significant role in attracting new customers.

The research is supervised by Mg.oec. Oksana Skorobogatova.

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