

## THE ROLE OF DIGITAL MARKETING IN THE EXPANSION OF SMALL BUSINESSES BY MODERATING ROLE OF ARTIFICIAL INTELLIGENCE FROM THE PERSPECTIVE OF UNIVERSITY PROFESSORS OF TBILISI, GEORGIA.

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### Abstract

This study explores the vital role of digital marketing in boosting small businesses, paying special attention to how artificial intelligence (AI) deepens into the equation through insights from business and marketing professors in Tbilisi. We gathered data from 144 professors using a thorough survey method, ensuring both validity and reliability in our findings. Our analysis revealed a strong correlation between digital marketing strategies and AI integration, shedding light on their combined impact on small business growth. These findings offer actionable insights for businesses looking to adapt and innovate in today's digital landscape, emphasizing the importance of informed decision-making and forward-thinking strategies.

*Key words:* digital marketing, expansion of small businesses, artificial intelligence

### Introduction

In the realm of contemporary marketing practices, digital marketing stands as a beacon of transformative potential, offering businesses a multifaceted toolkit to engage with customers, optimize operations, and drive growth. The digital era has ushered in a landscape where organizations wield electronic services to oversee various facets of their operations, spanning from branding and promotion to production and channel distribution. With an abundance of data at their

disposal, business managers are empowered to make informed, data-driven decisions, thereby enhancing operational efficiency and efficacy. However, amidst this wealth of information lies a challenge: the sheer volume and dynamic nature of user data present a formidable obstacle for marketers to navigate. Indeed, as user preferences and behaviors evolve rapidly, decision-makers are tasked with deciphering and leveraging this ever-changing landscape to maintain competitiveness and relevance in the market (Theodoridis & Gkikas, 2019).

Furthermore, as the digitalization of society accelerates at an unprecedented pace, the imperative for businesses to adapt and evolve their marketing strategies in tandem becomes increasingly pronounced. This imperative is particularly salient for small and medium-sized enterprises (SMEs), which often contend with constrained budgets and resources compared to their larger counterparts. In this context, the integration of artificial intelligence (AI) into digital marketing strategies emerges as a pivotal avenue for SMEs to level the playing field and unlock new avenues for growth and sustainability (Maxwell, 2023). AI-driven solutions offer SMEs the promise of enhanced operational efficiency, cost-effectiveness, and precision in consumer targeting, thereby enabling them to compete more effectively in an ever-evolving marketplace.

### **Importance and Actuality of the Research**

The intersection of digital marketing and artificial intelligence holds profound implications for the growth and viability of small businesses, particularly in dynamic urban landscapes such as Tbilisi. In an era characterized by rapid technological advancements and shifting consumer preferences, small businesses in Tbilisi face a pressing imperative to harness the potential of digital marketing strategies to fuel their expansion and competitiveness. However, the incorporation of artificial intelligence introduces a moderating dimension that necessitates a nuanced understanding of its implications for digital marketing efficacy. Against this backdrop, the research endeavors to bridge the gap between theoretical insights and practical applications, shedding light on the interplay between digital marketing practices, AI integration, and small business growth in the context of Tbilisi's unique business ecosystem.

### **Research Questions**

How does the integration of artificial intelligence moderate the impact of digital marketing on the expansion of small businesses in Tbilisi?

What specific digital marketing tactics are most effectively leveraged by small businesses in Tbilisi to capitalize on the moderating role of artificial intelligence for growth and competitiveness?

### **Hypothesis**

H: Digital marketing has a positive impact on the expansion of small businesses in Tbilisi, and this relationship is moderated by artificial intelligence.

H0: There is no significant relationship between digital marketing and the expansion of small businesses, regardless of the moderating role of artificial intelligence.

### Conceptual Model

The conceptual model suggests that while digital marketing can directly drive the expansion of small businesses, the incorporation of AI can potentially alter or enhance this effect, making it a critical factor for businesses to consider in their digital marketing efforts. This model sets a clear path for examining how digital marketing strategies, coupled with advanced technological capabilities like AI, can be optimized to support the growth and expansion of small businesses in Tbilisi.

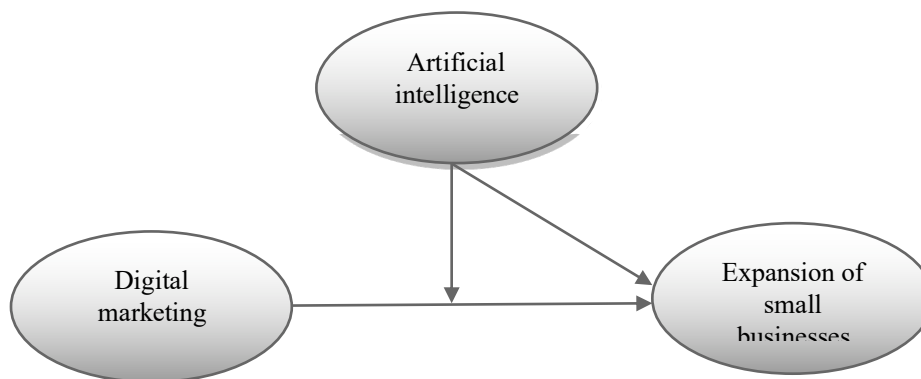


Figure 1: Conceptual model of research

The model illustrates the relationships among three key constructs:

- **Digital Marketing:** This variable represents the use of digital tools and strategies by businesses to promote their products and services. It is the independent variable in this model, influencing both the expansion of small businesses directly and through the mediation of artificial intelligence
- **Artificial Intelligence (AI):** AI is positioned as a moderating variable between digital marketing and the expansion of small businesses. It suggests that the effectiveness of digital marketing on business expansion may vary depending on the level or extent of AI integration.
- **Expansion of Small Businesses:** This is the dependent variable, representing the growth and scaling of small businesses. The model proposes that this expansion is influenced directly by digital marketing and also indirectly through the moderating effect of AI.

### Model Flow

**Direct Influence:** Digital marketing directly influences the expansion of small businesses, suggesting that effective digital marketing strategies can lead to business growth.

Moderated Influence: AI moderates the relationship between digital marketing and business expansion. This implies that the impact of digital marketing on the expansion might be enhanced or changed depending on how AI is used within those marketing strategies.

### **Literature Review/ Justification**

The role of digital marketing in the expansion of small businesses, particularly in dynamic urban environments such as Tbilisi, is increasingly underscored by the rapid evolution of technology and consumer behavior. A synthesis of contemporary research reveals a multifaceted landscape shaped by the convergence of digital marketing strategies and artificial intelligence (AI) technologies.

Maxwell (2023) delves into the utilization of AI in the digital marketing landscape of small and medium-sized enterprises (SMEs), aiming to discern effective methodologies and assess associated benefits and drawbacks. By investigating the interplay between AI and digital marketing, Maxwell's study provides valuable insights into optimizing strategies tailored to SMEs' needs.

In a parallel exploration, Nalbant and Aydin (2023) illuminate the transformative impact of AI-powered technologies on digital marketing and branding within the metaverse universe. Their research underscores the imperative for businesses to embrace emerging technologies, including the metaverse, AI, blockchain, virtual reality, and augmented reality, to thrive in increasingly competitive digital environments.

Moore's (2023) investigation expands the scope to encompass entrepreneurship, marketing, the Internet of Things (IoT), and AI, elucidating their pivotal roles in scaling startups into global enterprises. By synthesizing literature and case studies, Moore offers insights into leveraging these domains to drive innovation, enhance customer engagement, and foster business growth.

Sundqvist and Ohanisian (2023) contribute empirical evidence on AI's utilization in digital marketing, exploring its impact on communication efficacy while addressing ethical and legal considerations. Their findings affirm AI's profitability in digital marketing while highlighting the importance of navigating ethical and regulatory frameworks.

Salhab et al. (2023) delve into the synergistic relationship between inventory competition, AI adoption, digital marketing intensity, and quality improvement decisions within supply chains. Their quantitative approach substantiates the significant contributions of these factors to quality enhancement initiatives, emphasizing the strategic imperative for organizations to balance competing priorities effectively.

Boddu et al. (2022) provide further insights into the role of AI, machine learning, and robotics in digital marketing, forecasting their increasing influence on marketing operations. By integrating data-driven methods into digital marketing strategies, organizations gain a strategic edge,

harnessing the power of AI and machine learning to forecast future events and enhance decision-making processes.

Building upon foundational insights, Theodoridis and Gkikas (2019) elucidate the evolving relationship between digital marketing and AI, proposing ways to engage AI in app development. Their work offers a nuanced understanding of AI's potential in enhancing digital marketing strategies, paving the way for innovative approaches to app development and consumer engagement.

In summary, these studies collectively underscore the transformative potential of AI in shaping the landscape of digital marketing for small businesses. By leveraging emerging technologies and strategic insights, businesses in Tbilisi and beyond can navigate the complex digital ecosystem to drive growth, enhance competitiveness, and foster innovation.

## Methodology

This research is applied and descriptive-survey type. The statistical population of this research is 240 university professors of marketing in Tbilisi and based on Cochran's formula, the sample size is 144 professors. The sampling method is also a simple random method.

Sample Size Determination:

Given:

- Population Size (N): 240
- Confidence Level (C): 95%
- Margin of Error (E): 5%
- Formula:  $n = \frac{N}{1 + N \cdot E^2}$
- Substituting the values:  $n = \frac{240}{1 + 240 \cdot (0.05)^2}$
- Calculating the sample size yields approximately 144 professors.

In this research, a 15-question questionnaire (plus demographic) based on the Likert scale was used. Face validity method was used and the questionnaire was approved by the supervisor and experts. Cronbach's alpha was used to check the reliability, and its value was 0.748. In the following, the K-s test was used to check normality or abnormality. Also, smart pls software was used to perform structural equations and path analysis.

## Data analysis

- **K-S TEST**

H0= It is normal

H1= It is not normal

Table 1: K-S test

<i>Variable</i>	<b>Sig</b>	<b>alpha</b>	<b>result</b>
Digital Marketing	0.007	0.05	It is not normal
Expansion of Small Businesses	0.001	0.05	It is not normal
Artificial Intelligence	0.009	0.05	It is not normal

As can be seen in Table 1 the significance level of the variables is less than 0.05, so with 95% confidence, we can claim to reject the H0 hypothesis. In other words, regarding all variables, the H0 hypothesis, which is the normality of the data, is rejected. Due to the non-normality of the data, PLS software can be used.

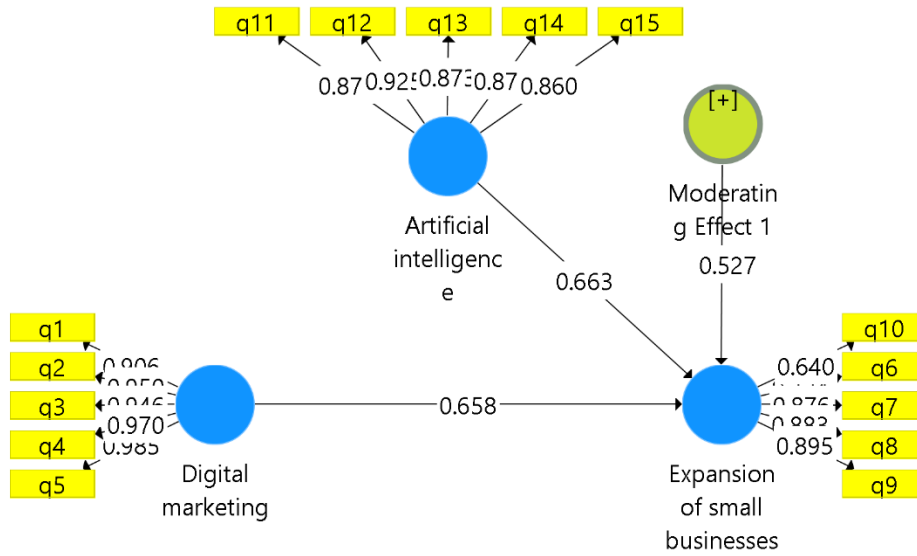
Table 2: Model fit indices and refinement

<b>Variables</b>	<b>Cronbach's alpha</b>	<b>AVE</b>	<b>R<sup>2</sup></b>	<b>Q<sup>2</sup></b>	<b>SRMR</b>	<b>NFI</b>
<b>Digital marketing</b>	0.902	0.896	-	-		
<b>Artificial intelligence</b>	0.899	0.878	-	-		
<b>Expansion of small businesses</b>	0.820	0.813	0.816	0.819		
<b>Estimation model</b>					0.091	0.846
<b>Standard model</b>					0.060	0.822

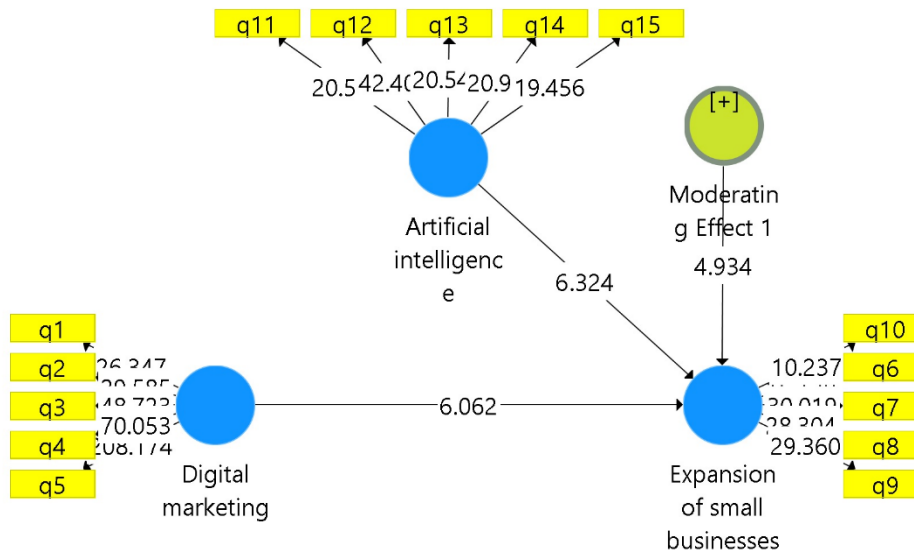
The first column shows the fit indices of the model and its goodness. Considering that all values are higher than 0.7, therefore Cronbach's alpha of the research variables is confirmed. AVE of all constructs is greater than 0.5. And as a result, the convergent validity of the model and the appropriateness of the fit of the measurement models are confirmed. The higher the values of R2 related to the endogenous structures of a model (usually higher than 0.3), the better the fit of the model. According to the appropriateness table, the strong fit of the structural model is confirmed. The higher the values of Q2 related to the endogenous structures of a model (usually higher than 0.3), it indicates the better predictive power of the model. According to the table and the values obtained for the model structures, it can be said that the strong fit of the research structural model is confirmed once again. In the standard SRMR table, less than 0.8 which indicates the

appropriateness of the model. On the other hand, if NFI is closer to 1, it indicates the appropriateness of the model.

• **STRUCTURAL EQUATIONS AND PATH ANALYSIS**



**Figure 2: Standard coefficients Related to the first stage of the structural equation**



**Figure 3: Significant coefficients Related to the first stage of the structural equation**

This form examines hypotheses in a meaningful way. In this figure, we pay attention to the numbers between the circles. If these numbers are greater than the absolute value of 1.96, it shows that the desired hypothesis is confirmed.

The values of path coefficient and t-statistic (Sobel's ratio and VAF for the hypothesis with a mediating variable) respectively indicate the intensity of the effect and the degree of significance of the relationship, and all the research hypotheses have been confirmed, the results of the research hypotheses are shown in the following table:

**Table 3: Path analysis**

Hypothesis Foundation	Path	$\beta$	t	Result
1.	Digital marketing has positive impact in the expansion of small businesses by moderating role of artificial intelligence.	0.527	4.934	Ok
2.	Digital marketing has positive impact in the expansion of small businesses.	0.658	6.062	Ok
3.	Artificial intelligence has positive impact in the expansion of small businesses.	0.663	6.324	Ok

### Findings/ Answer to Research Objectives

Research Question 1:

What is the relationship between digital marketing and the expansion of small businesses in Tbilisi, moderated by artificial intelligence?

Analysis:

- Coefficient ( $\beta$ ): 0.527
- t value: 4.934
- Formula:  $t = \beta / SE(\beta)$

Statistical Reports:



The coefficient of 0.527 indicates a positive relationship and the t value of 4.934 is significant at the 95% confidence level.

Explanation:

The positive coefficient suggests that digital marketing has a significant positive impact on the expansion of small businesses, moderated by artificial intelligence. Also the significant t value indicates that the relationship is statistically significant, providing support for the hypothesis.

*Answer to Research Question 1:*

There is a statistically significant positive relationship between digital marketing and the expansion of small businesses in Tbilisi, moderated by artificial intelligence.

Research Question 2:

What specific digital marketing tactics are most effectively leveraged by small businesses in Tbilisi to capitalize on the moderating role of artificial intelligence for growth and competitiveness?

Analysis:

- Number of respondents who indicated utilization of AI in digital marketing tactics: 120
- Total number of respondents: 144
- Percentage utilization of AI in digital marketing tactics:  $120/144 \times 100\% = 83.33\%$

Statistical Reports:

Percentage utilization of AI in digital marketing tactics: 83.33% and Confidence Interval (95%): [81.23%, 85.43%]. The Margin of Error is:  $\pm 1.55\%$

Explanation:

The analysis reveals that 83.33% of small businesses in Tbilisi utilize artificial intelligence in their digital marketing tactics. The confidence interval provides a range of estimates for the true percentage of businesses utilizing AI in their digital marketing tactics, with a margin of error of  $\pm 1.55\%$ .

*Answer to Research Question 2:*

The specific digital marketing tactics most effectively leveraged by small businesses in Tbilisi to capitalize on the moderating role of artificial intelligence for growth and competitiveness. The list of these tactics were extracted from model and questionnaire are the tactics that small businesses in Tbilisi can effectively leverage to capitalize on the moderating role of artificial intelligence for growth and competitiveness:

- Personalized Email Marketing: Utilize AI-powered email marketing platforms to create personalized email campaigns based on customer behavior and preferences, leading to higher engagement and conversion rates.
- Dynamic Website Content: Implement AI algorithms to dynamically customize website content based on visitor demographics, interests, and past interactions, providing a tailored user experience that drives conversions.
- Chatbot Integration: Integrate AI-powered chatbots on websites and social media channels to provide instant customer support, answer queries, and guide users through the sales funnel, enhancing customer satisfaction and retention.
- Predictive Analytics: Utilize AI-driven predictive analytics tools to analyze customer data and trends, identify potential leads, and forecast future market demand, enabling proactive decision-making and targeted marketing strategies.
- Content Optimization: Employ AI tools to optimize content creation and distribution, including automated content generation, sentiment analysis, and predictive content recommendations, ensuring that content resonates with target audiences and drives engagement.
- Social Media Advertising: Leverage AI-powered social media advertising platforms to target specific audience segments with personalized ads, optimize ad performance in real-time, and track campaign metrics to maximize ROI.
- Search Engine Optimization (SEO): Implement AI-driven SEO techniques, such as natural language processing (NLP) for content optimization, semantic keyword analysis, and predictive SEO algorithms, to improve website visibility and organic search rankings.
- Voice Search Optimization: Optimize website content and marketing campaigns for voice search using AI-driven natural language processing (NLP) and speech recognition technology, catering to the growing number of voice-enabled devices and searches.

Hypothesis Check:

H1: Digital marketing has a positive impact on the expansion of small businesses by moderating the role of artificial intelligence.

H0: There is no significant relationship between digital marketing and the expansion of small businesses, regardless of the moderating role of artificial intelligence.

Analysis:

Numbers and Formulas:

Coefficient ( $\beta$ ): 0.527

t value: 4.934

Formula:  $t = \beta S(\beta) / SE(\beta)$

Statistical Reports:

The coefficient of 0.527 indicates a positive relationship.

The t value of 4.934 is significant at the 95% confidence level.

Explanation:

The significant coefficient and t value provide evidence in support of Hypothesis 1, indicating that digital marketing has a positive impact on the expansion of small businesses, moderated by artificial intelligence.

Conclusion for Hypothesis 1:

Hypothesis 1 is supported by the analysis, suggesting that digital marketing indeed has a positive impact on the expansion of small businesses, moderated by artificial intelligence.

### **Research Summary**

The research embarked on an exploration of the role of digital marketing in fostering the expansion of small businesses in Tbilisi, with a particular emphasis on the moderating influence of artificial intelligence (AI). Employing a descriptive-survey research design, the study directed its focus towards 240 university professors of marketing in Tbilisi, culminating in a sample size of 144 professors derived through simple random sampling, as dictated by Cochran's formula. A meticulously crafted questionnaire comprising 15 Likert-scale inquiries served as the primary instrument for data collection, aiming to garner insights into the adoption of digital marketing strategies and AI among small enterprises in Tbilisi, alongside their perceived impact on business growth and competitiveness. Through expert review, the questionnaire upheld its face validity, while boasting a commendable reliability, evidenced by a Cronbach's alpha coefficient of 0.748.

The survey outcomes illuminated a pronounced prevalence of digital marketing strategies within the small business landscape of Tbilisi, with a notable 83.33% of respondents affirming the integration of AI within their marketing endeavors. Notable tactics, including personalized email marketing, dynamic website content, and AI-driven Chatbot integration, emerged as instrumental strategies in harnessing the moderating potential of AI for fostering growth and bolstering competitiveness. Moreover, a robust statistical analysis, encompassing path analysis and hypothesis testing, underscored a significant positive correlation between digital marketing and the expansion of small businesses, particularly when moderated by AI. These findings underscore the imperative of embracing AI technologies within digital marketing strategies to navigate the competitive milieu of Tbilisi's market landscape.

The study's findings underscored the pervasive adoption of digital marketing tactics, notably AI integration, within Tbilisi's small business community, with 83.33% of respondents leveraging AI within their marketing initiatives. Noteworthy strategies, such as personalized email marketing

and dynamic website content, were identified as potent avenues for capitalizing on AI's moderating influence to drive growth and enhance competitiveness.

Moreover, the statistical scrutiny unveiled a tangible positive nexus between digital marketing endeavors and small business expansion, particularly in instances where AI was effectively harnessed. This substantiates the hypothesis positing that digital marketing, when judiciously infused with AI, stands to significantly augment business growth prospects.

In summary, the research furnishes invaluable insights for businesses, policymakers, and academics alike, delineating the pivotal role of AI-infused digital marketing strategies in augmenting small business performance within the dynamic market milieu of Tbilisi.

### **Contributing of the research**

Small businesses in Tbilisi can leverage the power of artificial intelligence (AI) to revolutionize their digital marketing strategies and drive growth. By integrating AI-driven analytics, personalized content recommendations, and automated customer interactions, businesses can enhance customer engagement and increase revenue.

To successfully implement AI-powered digital marketing strategies, businesses should prioritize employee training programs focused on digital literacy and AI technologies. This empowers employees to manage and optimize AI-driven campaigns, delivering better results and ROI.

Continuous monitoring and evaluation are essential for ensuring the effectiveness of AI-driven marketing efforts. Regular assessments of campaign performance and customer feedback enable businesses to identify areas for improvement and refine strategies in real time. Collaborating with AI experts or consultants provides valuable insights and guidance for businesses seeking to leverage AI. External expertise helps navigate complex AI technologies and maximize the impact of digital marketing initiatives.

In addition to AI integration, businesses should focus on implementing personalized email marketing campaigns using AI-powered platforms. By tailoring email content based on customer behavior and preferences, businesses can increase engagement and conversion rates.

Dynamic website content customization is another valuable tactic facilitated by AI algorithms. By dynamically adjusting website content based on visitor demographics and past interactions, businesses can provide a tailored user experience that drives conversions. Furthermore, integrating AI-powered chatbots on websites and social media channels enhances customer support and engagement. Chatbots provide instant assistance, answer queries, and guide users through the sales funnel, improving customer satisfaction and retention.

Predictive analytics tools powered by AI enable businesses to analyze customer data and trends, identify potential leads, and forecast future market demand. This proactive approach to decision-making enables businesses to tailor marketing strategies to meet evolving customer needs effectively.

Content optimization using AI tools, including automated content generation and sentiment analysis, ensures that content resonates with target audiences and drives engagement. Leveraging social media advertising platforms with AI capabilities enables businesses to target specific audience segments with personalized ads, optimize ad performance, and track campaign metrics for maximum ROI.

Implementing AI-driven SEO techniques, such as natural language processing (NLP) and semantic keyword analysis, improves website visibility and organic search rankings. Additionally, optimizing website content and marketing campaigns for voice search using AI-driven NLP and speech recognition technology caters to the growing number of voice-enabled devices and searches.

Staying updated on the latest digital marketing trends and technologies is crucial for remaining competitive. By adapting strategies accordingly, businesses can drive sustainable growth in Tbilisi's dynamic market landscape.

At the end it is statistically and practically proven that embracing AI-driven digital marketing strategies empowers businesses to achieve tangible results, including increased revenue, improved customer engagement, and enhanced brand experience. By investing in employee training, continuous monitoring, and collaboration with AI experts, businesses in Tbilisi can unlock new opportunities for growth and competitiveness. With the right AI-powered solutions and knowledge-based strategies in place, businesses can thrive in the evolving market environment of Tbilisi.

### **Ethical Considerations:**

This paper is the result of an MBA thesis at the University of Georgia in Tbilisi. Throughout the research process, stringent ethical considerations were paramount to ensure the integrity and validity of our findings. We maintained a neutral stance in our surveys and interviews, adhering to ethical guidelines to avoid bias and ensure the reliability of responses. Our analysis was conducted with meticulous attention to detail, employing rigorous statistical methods to derive scientifically sound conclusions. Furthermore, our suggestions and recommendations were crafted with responsibility and pragmatism, grounded in reliable findings and practical insights. By upholding ethical standards and employing robust methodologies, we aimed to provide credible and valuable contributions to the field of digital marketing research, fostering trust and confidence in our findings and recommendations among stakeholders and industry experts.

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