Journal of EMERGING TRENDS IN MARKETING AND MANAGEMENT

www.etimm.ase.ro

Open access policy

The **Journal of Emerging Trends in Marketing and Management** publishes articles under an open access model. This means all articles will be freely available online immediately upon publication, enhancing their visibility, readership, and impact. Open access grants unrestricted access to the full text, allowing users to read, download, distribute, and utilize the content for any lawful purpose, including indexing and data mining.

Aims and scope

Journal of Emerging Trends in Marketing and Management encourages in-depth discussion and critique of key questions within the subject. It offers a readable format for peer reviewed papers designed to spark off further debate. It contains both applied and theoretical work that addresses emerging trends in marketing and management inquiry, method and practice. Lively and rigorous, it welcomes contributions from the broad gamut of subjects of media & marketing communication, marketing research & consumer behavior, marketing strategy, relationship marketing and CRM, innovation and product development, knowledge management, entrepreneurship and strategic management, leadership and business ethics, organizational culture and human resources management, operations and project management.

Journal of Emerging Trends in Marketing and Management is designed to be accessible to both new and experienced researchers and practitioners on a global basis. The principal aims of the journal are to: encourage the full range of approaches which are available to the study of emerging trends in marketing and management; bring together senior worldwide scholars, faculty members, PhD students, researchers, and business practitioners from different subject backgrounds for interdisciplinary and post-disciplinary debate; develop the theoretical base on which the study of emerging trends in marketing and management is built; provide a basis for the development of critical approaches to the study of emerging trends in marketing and management; disseminate new approaches, concepts, frameworks, methods, models and practices which may be developed in the study of emerging trends in marketing and management; and promote new research.

Peer review and ethics

Papers were selected through a rigorous double-blind peer review process. To protect intellectual property, editorial board members and reviewers must maintain confidentiality. Sharing manuscript content or ideas without explicit author permission, obtained through the journal editor, is strictly prohibited. While seeking expert advice is permitted, author identity and intellectual property must be safeguarded.

Reviewers and editors are expected to provide confidential, constructive, and timely feedback. All interactions should be conducted with professionalism, respect, and a commitment to improving the manuscript. The review process should be characterized by collegiality and a shared goal of enhancing research quality.

Copyright options

The editor has the final authority for the acceptance or rejection of any article. Authors that publish in **Journal of Emerging Trends in Marketing and Management** agree to the following terms:

1. Authors retain copyright and grant the journal right of first publication of the work simultaneously licensed under a **Creative Commons Attribution License** that allows others to share the work with an acknowledgement of the work's authorship and initial publication in **Journal of Emerging Trends in Marketing and Management**.

2. Authors are able to enter separate, additional contractual arrangements for the non-exclusive distribution of the journal's published version of the work (e.g., post it to an institutional repository or publish it in a book), with an acknowledgement of its initial publication in **Journal of Emerging Trends in Marketing and Management**.

3. Authors are permitted and encouraged to post their work online (e.g., in institutional repositories or on their own websites) prior to and during the submission process, as it can lead to productive exchanges, as well as earlier and greater citation of published work.

Plagiarism screening

Plagiarism, data fabrication and image manipulation are not tolerated. Plagiarism includes copying text, ideas, images, or data from another source, even from previous own works, without giving any credit to the original source. Reuse of text that is copied from another source must be between quotes and the original source must be cited. If a study's design or the manuscript's structure or language has been inspired by previous works, these works must be explicitly cited.

If plagiarism is detected during the peer review process, the manuscript may be rejected. If plagiarism is detected after publication, we may publish a correction or retract the paper.

Please note that **Journal of Emerging Trends in Marketing and Management** uses Plagiarism Detector Pro™ to screen papers for unoriginal content. By submitting your manuscript to **Journal of Emerging Trends in Marketing and Management** you are agreeing to originality checks during both the peer-review and production processes. The acceptable limit of plagiarism indicators is under 20%.

Indexing services

Journal of Emerging Trends in Marketing and Management, *ISSN: 2537 - 5865* is currently indexed in the following international databases **DOAJ, Google Scholar, Index Copernicus, RePEc (EconPapers & IDEAS)** and the full text is freely accessible in electronic format, on the journal's website **www.etimm.ase.ro**.

Publication charges

There are no submission fees, publication fees or page charges for articles published in **Journal of Emerging Trends in Marketing and Management (ISSN 2537-5865)**.

TABLE OF CONTENTS

The Influence of Integrated Communication in Digital Marketing

Ariana-Mihaela STĂNESCU
The Bucharest University of Economic Studies
stanescuariana17@stud.ase.ro

Nicolae Razvan CIOBANU
The Bucharest University of Economic Studies
ciobanunicolae13@stud.ase.ro

Anca Francisca CRUCERU
The Bucharest University of Economic Studies
anca.cruceru@mk.ase.ro

Abstract
This article explores the impact of Integrated Marketing Communication (IMC) on purchasing decisions in the real estate sector, with a particular focus on how the communication message delivered through digital communication channels can influence the choice of buyers in Romania, especially in Bucharest. In a market where information is abundant, the IMC strategy stands out for its ability to create coherent and aligned messaging across various digital channels, providing a unique experience and contributing to increased consumer loyalty. The main goal of the study is to identify the most effective digital communication channels used in real estate to attract customers and increase customer loyalty. For this purpose, qualitative research was conducted, based on an in-depth interview with 15 respondents interested in real estate offers in Bucharest. The objectives of the research were aimed at identifying the digital communication channels preferred by consumers, knowing the main communication barriers at the level of perception of the message conveyed, analyzing the key factors in promoting customer loyalty in real estate The content analysis revealed that factors such as the transparency of the communication message, the clarity of the presentation of real estate offers and the use of integrated communication channels play a central role in determining the choice of different types of housing. Consumers' preferences are directed towards offers that emphasize concrete benefits communicated through a single communication message delivered through different digital channels. At the same time, the conclusion of the research emphasizes the need to adapt the CIM to overcome communication barriers such as ambiguity of offer information, lack of trust in the information conveyed, ambiguity of offer information, and low level of legal and tax knowledge of customers. The study provides valuable insights into the managerial implications of developing integrated marketing communication strategies, especially in the online environment, which will significantly contribute to improving the ways in which real estate offers are communicated and, at the same time, to strengthening customer trust and increasing loyalty in the Romanian real estate market.

Keywords: IMC, digital communication channel, qualitative research, real estate market.

JEL classification: M31.

Introduction

The aim of this paper is to discuss the impact of Integrated Marketing Communication (IMC) on consumer purchasing decisions in the Romanian real estate sector, with focus on the Bucharest market. Alongside the development of digital communication channels, customers have become flooded with information, which differs both in quality and usefulness. Bearing in mind the market saturation, real estate companies need to cope with the challenge of formulating coherent, compelling messages, for differentiating themselves, thus sustaining success. In this environment, IMC stands as the strategic framework, which integrates several

marketing channels that are aimed at delivering a cohesive message, while demonstrating notable efficiency in tackling the soared difficulties.

IMC plays a key role in improving brand recognition, which cultivates not only trust but loyalty as well, through unified messaging efforts – both being key factors for the real estate sector, a market characterized by substantial financial commitments. Furthermore, it ensures unity for the messages across the various channels, as part of the IMC streamlines consumer journeys, with the latter rendering it seamless and engaging. In intricate sectors this is particularly relevant, especially for high-value sectors such as the one being analyzed, knowing that proficient communication can influence consumer decision-making.

Internet platforms became, and not only for the Romanian market – or in particular for the capital domain – a key part of consumer behavior for property research, especially when we talk about urban residents. Thus, the scope of this paper is to emphasize the relevance of digital environment, whereas the "world wide web" being the touchstone for the real estate companies, and subsequently to examine the impact of digital tools and digital channels on purchasing behaviors and consumer relationships. The results of the study presented through this paper highlight the capacity of IMC to generate an integrated customer experience. At the same time, it speaks about the need of brand distinction, with practical insights into channel-specific techniques, thus confirming the need for marketing enhancements on the real estate sector. Unified messaging across digital platforms – with a focus on social media, alongside with targeted communication for meeting individual requirements allows for amplifying a company's visibility, while also cultivating trust and loyalty – key factors of success on the real estate market.

1. Literature review

Integrated Marketing Communication (IMC) is now recognized as a comprehensive marketing strategy, by unifying various communication methods, thus establishing a cohesive brand experience. That is why IMC is of utmost importance in maintaining message consistency across the constant diversifying channels of communication, particularly when in comes to saturated markets (Belch & Belch, 2018).

Through IMC, one can maintain alignment in all activities while conveying a cohesive and compelling narrative, which resonates with the targeted audience, thus allowing to overcome the so called "communication clutter", while promoting clear and consistent messaging. We should bear in mind that to gain consumer trust, constancy is of great importance, especially when it comes to business sectors where considerable financial expenditure is needed. Nowadays, in the context of the Internet of Things (IoT) that brought a profound digitalization of our society, IMC plays a key role in controlling and harmonizing brand narratives, as a method of enhancing consumer perceptions (Kliatchko, 2008). For the real estate sector, such connections are crucial, as long as trust, openness and clarity are influencing consumer confidence. Historically dependent on print media, billboards, personal encounters or referrals, the real estate marketing has passed through a true evolution, as a direct result of the introduction of the digital platforms. Such innovations have changed profoundly the behavior of consumers, have changed the way in which they conduct their research, or engage and take decisions. In a world where time is constantly challenged, the use of digital channels – regardless of their form, i.e. real estate websites, social media platforms, as well as email marketing – became essential for potential buyers, by offering immediate access to property listings, virtual tours, as well as interactive participation.

In the IMC framework, efficiency and personalization emphasize the significance of various digital tools, as presented by Duncan and Moriarty (1998). For the real estate sector in particular, personalization is not only limited to meeting unique customer requirements, but to

also for fostering deeper emotional responses from the potential buyers. The efficacy of incorporating digital methods within an IMC framework is showcased by the effects of customized email campaigns with personalized property recommendations and social media advertisements that are tailored based upon the behavior that the customer have on their so-called consumer journeys. Thus, as presented by Schultz et al. (1993), trust within the whole customer experience can be elevated through effective personalization, with IMC being most successful in sectors which rely on substantial consumer trust. Maintaining clear communication and reducing ambiguity of the offerings allows for integrated messaging to mitigate the risk of misinterpretation, crucial for the transaction in the real estate market. Openness represents a key element of IMC, more so in high-value industries – with transparency in pricing being pivotal in fostering brand loyalty (Belch & Belch, 2018). As presented by Bruhn and Schnebelen (2017), maintaining consistency and message clarity not only reassures customers, but also bolsters their confidence in making purchasing decisions. That is why consistent unified messaging, throughout various mediums, is considered to foster memorable, well-rounded experiences (Keller, 2013), with such interactions generating enduring loyalty in the real estate sector. Furthermore, success in the real estate sector can be achieved by cultivating predictable business models and creating referrals, and that is why unified messaging becomes particularly pertinent for the sector in question.

Also, for content marketing, the given research highlights the need for high-quality, consistent and relevant content, as a way of meeting miscellaneous customer needs. It is safe to conclude that the real estate sector is truly an information-based business sector, genuinely influenced by the information technology transformation processes. Thus, real estate companies need to rapidly adapt, as a way of cultivating long-lasting customer relationships and attracting new business (Kumar, 2014).

To summarize, IMC encompasses the strategic framework needed to manage the intricacies of the digital age, while tackling the specific issues of each business sector – in this case, the real estate one. Through message consistency, openness and digital personalization, IMC can bolster customer trust, while also amplifying brand equity. Alongside traditional channels, digital communication technologies enable real estate firms to successfully interact with their potential and existing customers, fostering significant and enduring ties.

2. Research Methodology

The key purpose of this research is to identify the most effective digital channels in recruiting new real estate customers while retaining the existing ones, in Bucharest, Romania. With the analyzed market being influenced by swift urbanization and digital integration, understanding consumer behavior and their key preferences is very important in developing effective strategies, which correspond with the audience's expectations. As a first observation, a significant gap has been identified while examining the digital landscape characterizing the local real estate market.

The research itself consists of qualitative research, conducted through in-depth interviews. Participants were selected using a non-probability sampling method, namely convenience sampling, which is based on the accessibility and availability of participants. Thus, the sample consisted of 15 respondents who accessed websites specialized in real estate sales. In order to ensure the accuracy of the research results, data confidentiality was respected in the data collection process. A more profound investigation of customer experiences and perceptions regarding digital communication was facilitated by the selection of qualitative approaches, with the interviews having been designed to reveal critical insights regarding consumer preferences for digital communication channels, their assessment of clarity in marketing messaging, as well as the degree of trust when being presented by the real estate

business.

Key themes were identified through content analysis of the collected data, revealing the core aspects of efficient digital communication in the real estate business. The critical importance of transparency in communication stood out in terms of importance, with the participants emphasizing that comprehensive, precise and clear information in terms of listings, pricing, as well as terms not only foster trust, but also diminishes the risks perceived. Furthermore, openness was also found to be of great importance amongst participants, with it playing a key role in their engagement with real estate companies, particularly due to the substantial financial ties which characterize the industry. The transparency of real estate proposals was also a prominent subject, with participants expressing a particular preference for succinct, advantage-focused and comprehensible messages. That is why it came as no surprise that intricate or ambiguous wordings are rather unappealing to the potential customer, generating confusion and discouraging additional involvement. In exchange, clear messages highlighting the key selling points of a property – location advantages, distinctive attributes, as well as money incentives – thus focusing on simplicity and clarity, which corresponds with the core principles of IMC, were preferable to potential customers. That is why the authors believe in the necessity of conveying consistent, pertinent consumer-centric messaging across all marketing platforms in achieving desirable results.

The importance of IMC through digital channels emerged as a crucial discovery throughout this study, with respondents valuing cohesive and consistent communication across various platforms, including (but not limited to) websites, social networks or email marketing. Not only does this unity bolster brand trust, but also improves customer experience, thus establishing a unified approach. A perception of reliability and professionalism was recorded for some respondents, that is where social media marketing aligned with the content on the brand's website were provided. Withal, an increasing demand for interactive digital tools, such as virtual property tours, advanced search filters or real time chat sessions was noticed, as participants deemed these attributes as beneficial in streamlining the decision-making process, while enhancing participation. By offering such tools, companies can be regarded as being more innovative, customer-focused or reliable, all of which affect the propensity of investigating and finalizing purchasing selections.

The need to synchronize digital communication tactics with consumer preferences was highlighted by the research results, as conveying clear and consistent messaging through integrated channels. Such channels can help strengthen connections between real estate companies and their audiences, while augmenting their trust and stimulating conversations. Along with the study results, practical insight for firms in the Bucharest real estate sector was obtained, highlighting the importance of IMC principles in the establishment of a cohesive and influential digital presence. Not only do these findings validate the value of digital integration, but also highlight its potential to transform customer experiences, while fostering long-term loyalty.

As mentioned above, the study was conducted through in-depth interviews, executed utilizing a semi-structured 10 question survey, between October and November 2024. To ascertain relevance, a four-question screening questionnaire was employed, while demographic details such as age, gender and background were gathered to contextualize the sample population. Out of the 15 respondents, 60% were women, with men representing the remaining 40%, while their ages varied from 25 to 40. The vast majority consisted of urban residents with the educational levels varying – 40% possessed graduate degrees, 47% postgraduate qualifications, and 13% having only finished secondary education.

Table 1. Respondents' structure

Gender		Age			Residency		Education		
Male	Female	20-30	31-40	41-50	Urban	Rural	Highschool	Undergraduate	Postgraduate
6	9	5	6	4	10	5	1	6	8
15		15			15		15		

Source: Authors' own research results

Inquiries about the participants' experiences in the Bucharest real estate market were conducted, all of them having expressed active interest, either as residents or investors. The main driving force was of personal nature (i.e. acquiring a new residence), property investment being of interest for only a minority of the respondents. In spite of each of the respondent's particularities, one common denominator was their recent engagement with digital platforms, particularly during the previous six months, with specialized sites such as www.imobiliare.ro (Realmedia, 2024) and www.storia.ro (Storia, 2024) being their primary research sources. Thanks to their extensive property listings and intuitive features, as well as their extensive filters and interactive tools, these systems received positive feedback from the respondents, thus underlining the increasing importance of digital platforms in the consumer journeys of real estate transactions.

3. Results and Discussion

The main hypothesis of the study was that the target audience reacts positively to communication messages transmitted through digital channels attentively selected, the construction of the message being based on elements based on truthfulness, clarity and transparency of the transmitted content. If one of the main marketing objectives of real estate companies is to build a solid relationship based on trust with their consumers, it is obvious that they will have to give a major importance to communication efforts aimed at building the unique value of the offer.

The obtained results led to the creation of a clear picture of the preferences and needs of customers when choosing a real estate offer. The data were coded with a view to highlighting categories of information on the same issue. Subsequently, through thematic analysis, the categories were grouped into 4 themes relevant to the research. The analysis revealed four main themes addressed by the respondents regarding preferred communication channels, perception of the communication message, loyalty and trust factors and conclusions and personal preferences.

The themes addressed were supported by relevant questions that generated the key drivers found in the analysis of the answers of all respondents participating in the research.

Table 2. The main themes, key drivers and relevant quotes

Themes	Key Drivers	Relevant Quotes
Theme 1: Preferred communication channels	Consistent, responsive and authentic digital communication is crucial for building trust in the consumer relationship.	"I used the agency's website to browse offers and received quick, clear responses through chat." "Without the internet and social media, I wouldn't have found most offers; they're essential." "I considered an Instagram offer because the agency posted a detailed property video, showing

		both the interior and surroundings."
Theme 2: Perception of the communication message	Transparency, efficient and personalized communication strengthens consumer trust.	"The agency's listing didn't specify additional fees like taxes and commission." "If I see one thing on Facebook but something else on the agency's website, I lose trust."
Theme 3: Loyalty and trust factors	Honest and accurate visual representation in real estate build consumer confidence and loyalty.	"Many listings have photos that don't match reality; rooms look larger or brighter in the pictures than in real life." "I want fast, detailed answers. Agencies slow to respond or inconsistent raise doubts."
Theme 4: Conclusions and personal preferences	Timeliness in response, transparency in cost and high-quality in presentation, positive reviews lead to trust an negative reviews lead to mistrust.	"If I see positive experiences from other clients, I'm more inclined to trust the agency."

Source: Authors' own research results

Theme 1: Preferred communication channels

Assessing the preferred communication channels of the respondents reflected on their digital interactions with real estate agencies. Many of them reported positive interactions through agency websites, social media profiles, as well as mobile apps, highlighting timely and relevant responses. One of the respondents noted: *"I used the agency's website to browse offers and received quick, clear responses through chat."* – thus highlighting the importance of personalized communication, as presented by Schultz et al. (1993).

As a further consideration, several participants also noted adverse experiences, such as delays or obsolete information, underscoring the importance of real-time, tailored consumer responses in digital interactions. Constant and responsive digital communication is quintessential in fostering trust in consumer-brand interactions (Fill, 2006), while digital channels are unanimously acknowledged as crucial in decision making processes, thus offering swift access to property information and allowing customers to do valuable comparisons.

Furthermore, participants also noted the ease of platforms for making informed decisions, with an individual noting that *"Without the internet and social media, I would not have discovered most opportunities; they are indispensable."* This reinforces the key role played by IMC in the real estate sector, as presented in the literature review section (Armstrong et al., 2013), with participants also noting that certain elements prompted them to evaluate certain real estate proposition, while identifying clarity, detail and visual quality as essential characteristics. Considering the relevant literature, the respondents' predilection for high-quality photos and comprehensive description came as no surprise. Key visuals play a key role in the respondents' consumer journey, particularly video content, which allows for a better understanding of the property being presented. *"I contemplated an Instagram proposal due to the agency's comprehensive property video, showcasing both the interior and the surroundings."* The focus on images aligns with the function of visual marketing in fostering customer trust, as articulated by Bruhn and Schnebelen (2017), who contend that meticulously chosen, authentic visual content enhances consumer engagement.

Theme 2: Perception of the communication message

Several respondents mentioned having encountered challenges in comprehending digital communications, regarding pricing or when referencing intricate terminologies. For example, one of the respondents noted that: *"The agency's listing did not specify supplementary charges such as taxes and commission."* Furthermore, real estate terminology can be perceived as complicated, establishing obstacles for potential or current customers, clearly showing the need in maintaining clear communication for reducing ambiguity and mitigate the risk of misinterpretation (Kotler & Keller, 2016). Withal, transparency is of the essence in the real estate business, as it is a high-value industry, characterized by greater commitment – from a financial point of view and not only. The relevant literature is once again being supported by the research results (Bruhn & Schnebelen, 2017), thus highlighting the importance of transparency in making informed long-term decisions.

Moreover, another respondent highlighted the need for consistency throughout communication channels, noting that *"When encountering one message on Facebook and a different one on the agency's website, my trust diminishes."* Emphasizing the need for message consistency across all platforms, Duncan and Moriarty's (1998) IMC principles are once again proven right, as a way of ensuring a cohesive presentation, and enhancing consumer trust. While conducting the research, transparency, effectiveness and tailored communication stood out as key factors of influence for the real estate market.

Theme 3: Loyalty and trust factors

Providing transparent cost breakdowns and timely responses turned out to be of great importance when establishing loyalty and trust factors, observation which can also be confirmed by the findings of Belch & Belch (2018), who identified transparency in pricing as one of the main factors in cultivating brand loyalty for high-value industries.

On the other hand, participants articulated frustration regarding properties appearing dissimilar when compared to their listings (both through visuals & text), with one individual noting that *"Many listings feature images that do not portray the reality; rooms appear larger or seem to have better lighting, while in reality things are fundamentally different."* This emphasizes the significance of truthful depictions, while inconsistencies are eroding consumer trust and allegiance. It can also be noted that respondents often highlighted the need for openness in terms of cost disclosure, as well as the use of real-life images, not only as a way of gaining consumer trust, but also to boost online real estate communications. Virtual tours were notably mentioned, as well as promptness in inquiry resolution, with a respondent noting *"I want fast, detailed answers. Agencies slow to respond or inconsistent raise doubts"*.

Theme 4: Conclusions and personal preferences

In terms of personal preferences and conclusions, when asked about suggestions to improve digital communication in the real estate sector, respondents once again mentioned the greater need for transparency, particularly in cost presentation, as well as the use of real-life photos, as opposed to renders or altered key visuals. Fast, detailed answers when reaching out to agencies were also noted, with customer reviews being also mentioned as a key decision-making factor *"If I see positive experiences from other clients, I'm more inclined to trust the agency"*, said one respondent.

Conclusion, limitations and future research

As highlighted through the above sections, this research depicts the key roles digital marketing and IMC have in the real estate market. Message clarity, price transparency as well as consistency and timely communication are some of the detrimental factors which cultivate

loyalty in such a high-value sector. When effectively implemented, they serve as essential pillars in establishing consumer relations, for those individuals highly reliant on digital platforms when researching property and making impactful decisions. Furthermore, companies can become flexible and adaptable to changes in the external environment, thanks to the application of digital marketing, while building effective relationships with their customers, as well as being more responsive to their needs and understandings (Veleva & Tsvetanova, 2019). Petermann (2021) shows that due to the availability of online platforms as intermediary websites, the complexity of interaction relationships between providers, demanders, and real estate agents has increased significantly. The changes brought in recent years in the field of real estate marketing are based on the development and implementation of digital technologies in the relationship with consumers, which will contribute significantly both to increasing the value of the offer and to strengthening trust in the partnership between the seller and the client. Thus, real estate firms can benefit from the correct implementation of IMC practices, such tactics emphasizing the provision of coherent, consistent and easily available messaging across various digital platforms. Given the customer desire for rapid and precise information, IMC comes as the means for real estate brands to not only fulfil these expectations, but also convey a professional and reliable brand image. Especially vital in real estate transactions, such traits help ease buyers, who undertake significant financial commitments and require assurance in their decisions. As previously stated, transparency has become a core element in fostering trust, offering explicit and upfront information regarding expenses, property specifics and transaction conditions. Consumers tend to feel more confident in their interactions, provided that the firm is honest and transparent, while uniform messaging across platforms is detrimental in strengthening the brand positioning, while minimizing confusion. Hence, ensuring the alignment of the information in digital advertisements, website content and social media fosters a unified and professional experience. As for consumer – real estate firm interactions, the responsiveness of the latter plays a crucial factor in ensuring consumer satisfaction, agencies providing rapid communication and responses being considered to exhibiting dedication in fulfilling consumer requirements.

This study's findings, corroborated by current literature on IMC and digital marketing, indicate that real estate firms can achieve a competitive advantage, by emphasizing transparent cost information, genuine and high-quality visual content, and effective communication strategies. High-resolution photos and virtual tours can assist consumers in the establishment of realistic expectations, while also enhancing their confidence when making long-term purchasing decisions. Furthermore, the integration of these elements, along with coherent, harmonized messaging, fosters the establishment of a reliable brand presence. In the context of the current digital environment, organizations employing such methods have a higher chance of fulfilling and surpassing consumer expectations. Real estate firms may develop enduring relations with their clients by cultivating trust, increasing engagement, and providing value through transparent and regular communication. Consumer loyalty can be enhanced by such strategies, while also guaranteeing enduring success in a swiftly changing market.

As for the study's shortcomings, the limited sample size of 15 respondents should be noted, as it constrains the applicability of the findings to a wider consumer demographic. A more thorough comprehension of consumer attitudes and behavior could be achieved through an expanded, more heterogeneous sample regarding age, income, and regional origin. Additionally, focusing on urban respondents, particularly those living in Bucharest, might inadequately depict the experiences of consumers from rural or smaller urban locales, where digital real estate marketing strategies may differ in terms of effectiveness and influence.

The timing allocated for data collection represents a further constraint with the study having been conducted between October and November 2024, with seasonal variables and

market volatility possibly affecting consumer behavior and preferences, hence, the results might not reflect behaviors applicable throughout the entire year. As for data reporting, it should be noted that the study was reliant on qualitative, self-reported data, allowing for the possibility of response bias, as participants could have opted for offering answers which are in alignment with socially acceptable norms, rather than their authentic experiences.

The enhancement of this study could be done by incorporating a quantitative element, facilitating a more statistically rigorous analysis, while longitudinal studies may yield significant insights into the evolution of customer attitudes regarding digital real estate marketing, given that digital technologies and platforms are swiftly growing within the real estate sector. Lastly, should the study be of relevance to real estate firms and professionals, along with continuing its research efforts, key opinion leaders could try implementing relevant consumer feedback, as presented through the semi-structured questionnaire.

Future communication approaches of companies operating in the real estate market must consider competitive dynamics, the conjuncture factors that define demand and supply, the accessibility and preference of digital communication channels in such a way that communication strategies lead to business success.

References

Armstrong, G., Adam, S., Denize, S. and Kotler, P. 2014. Principles of Marketing. Melbourne: Pearson Australia.

Belch, G.E. and Belch, M.A. 2018. Advertising and Promotion: An Integrated Marketing Communications Perspective. New York: McGraw-Hill.

Bruhn, M. and Schnebelen, S. 2017. Integrated marketing communication–from an instrumental to a customer-centric perspective. European Journal of Marketing, 51(3), pp. 464-489. https://doi.org/10.1108/EJM-08-2015-0591

doi:10.1088/1757-899X/940/1/012065IS 2019

Duncan, T. and Moriarty, S.E. 1998. A communication-based marketing model for managing relationships. Journal of Marketing, 62(2), pp. 1-13. https://doi.org/10.1177/002224299806200201

Fill, C. 2006. Simply Marketing Communications. Harlow: Pearson Education.

Keller, K.L. 2013. Building Strong Brands in a Modern Marketing Communications Environment. In: The Evolution of Integrated Marketing Communications. New York: Routledge, pp. 65-81. https://doi.org/10.1080/13527260902757530

Kliatchko, J. 2008. Revisiting the IMC construct: A revised definition and four pillars. International Journal of Advertising, 27(1), pp. 133-160. https://doi.org/10.1080/02650487.2008.11073043

Kotler, P. and Keller, K.L. 2016. A Framework for Marketing Management. Upper Saddle River, NJ: Prentice Hall.

Kumar, B. 2014. Impact of Digital Marketing and E-commerce on the Real Estate Industry. International Journal of Research in Business Management, 2(7), pp. 17-22.

Petermann, J. 2021. Development of real estate marketing – trends for the future. Marketing Science & Inspiration, 16(4), 10-19. https://doi.org/10.46286/msi.2021.16.4.2

Realmedia Network. 2024. *Anunţuri imobiliare în România - Vânzare şi închiriere proprietăţi | Imobiliare.ro*. Available at: https://www.imobiliare.ro/

Schultz, D., Tannenbaum, S. and Lauterborn, R.F., 1993. Integrated Marketing Communications: Putting it Together & Making it Work. New York: McGraw-Hill Professional.

Storia. 2024. *Grupul OLX. Storia.ro - anunţuri imobiliare pentru apartamente, case, terenuri*. Available at: https://www.storia.ro/

Veleva, S.S., Tsvetanova, A.I. 2019. Characteristics of the digital marketing advantages anddisadvantages. IOP Conf. Series: Materials Science and Engineering 940 (2020) 012065.

Climate Change and Organizational Performance: The Mediating Role of Supply Chain Engagement

Clement NANGPIIRE

Simon Diedong Dombo University of Business and Integrated Development Studies
cnangpiire@ubids.edu.gh

Théophile Bindeouè NASSÈ

Simon Diedong Dombo University of Business and Integrated Development Studies
nassetheophile2009@gmail.com

Samuel Koffi SOGAH

Simon Diedong Dombo University of Business and Integrated Development Studies
sksogah@gmail.com

Abstract
The main purpose of this research is to evaluate the moderation role of supply chain engagement on the relationship between climate change risk and organizational performance. The study used a quantitative research approach and an explanatory research design to conduct its investigation. The target population consisted of 704 procurement officers, operations managers, and officers of manufacturing firms in the four main manufacturing hubs in Ghana. The results showed that climate chain risk significantly and positively enhances organizational performance. The results showed that supply chain engagement significantly and positively enhances organizational performance. With the inclusion of the mediation variable in supply chain engagement, the effect of climate chain risk on organizational performance was found to be significant. This shows that the relationship between climate chain risk and organizational performance is partially mediated by supply chain engagement. It was recommended that organizations should foster collaboration among their supply chain partners to build a shared understanding of climate change risks and opportunities.

Introduction

Recent years have seen a rise in the complexity of supply chains, both in terms of their geographic reach and the range of activities they encompass. Participating in a supply chain is now crucial to the development and competitiveness of many businesses (Hsu et al., 2013) to reduce operational exposure to climate change hazards. Managers and investors are searching for solutions to reduce the risks associated with climate change by changing their operations (Lin, et al., 2020). Climate change concerns have significantly shifted to top decision-making, both governmental and private, compared to widespread belief just a few years ago (Blanco, 2021).

Human activities contribute to this expanding global problem, which has impacted patterns of temperature and precipitation throughout the world (Rafindadi & Usman, 2019). The average temperature increase in Ghana during the past ten years has been 0.21°C. By 2030, this is anticipated to increase by 1.7°C to around 2.04°C (Tetteh et al., 2022). Manufacturing, despite producing essential goods, providing employment, and fostering innovation,

significantly impacts the environment and is under scrutiny from various stakeholders, including consumers, workers, authorities, and communities (Pankratz & Schiller, 2021).

As a result of their excessive use, climatic change has been hastened. This risk has significantly influenced organizations' operational and financial successes (Villena & Dhanorkar, 2020). Current climate models predict that the future effects of climate change and its ripple effects will continue to have an impact on global supply chains (Pankratz & Schiller, 2021; OECD, 2015). Collaborating with supply chain partners is crucial for creating climate-resilient networks, requiring a thorough understanding of mutually-influencing interactions and their impacts. Companies are increasingly requesting suppliers to disclose climate change strategies, but mere collection of information is unlikely to significantly impact the issue (Yawar & Seuring, 2018). Promoting information exchange among supply chain partners is crucial for engagement (Sarkis, 2012).

Some few studies assessed the factors influencing the organizational performance of enterprises, (Dung et al., 2020). In Ghana, there is currently no study that assessed the effect of climate change on organizational performance. In light of the above, this research investigated the effect of climate change risk on organizational performance by examining the role of supply chain engagement. Thus, it assessed the effect of climate change risk on organizational performance; evaluated the effect of supply chain engagement on organizational performance; and examined the mediating role of supply chain engagement on the relationship between climate change risk and organizational performance.

1. Literature Review
1.1. Theoretical Review – Organizational Information Theory

Organizational information theory is a communication theory that provides a systematic approach to understanding and exchanging information within and among organizational participants. It provides a prism for fresh perceptions of the procedures included in handling information asymmetries (Busse et al., 2017); and its implementation to supply chain management issues, however, has received very little attention (Busse et al., 2017). According to Sarkis (2012), information is crucial for managing supply networks. Information barriers in supply chain hinder information flow, but it offers opportunities for organizational learning and performance enhancement, making business handling crucial for partners. For instance, Solér et al. (2010), and Oelze et al. (2016), offer insights into the features, contingencies, and changes in information management for the establishment of sustainable supply chain. Some impediments to companies developing collective reactions inside their supply chains include economic reasoning, poor actor relationships, and divergent interpretations of the game rules (Busse et al., 2017). Sustainability challenges in supply chain management add uncertainty, hindering collaboration and improving performance. Addressing environmental and ethical issues increases uncertainty in managing supply networks (Schulz et al., 2022). It is crucial to note that academic research topics are incorporating the new and significant informational asymmetries that climate change imposes (Zhao et al., 2018). The information on the impact of materials and goods on climate change and the vulnerability of business practices to legal and physical risks throughout the supply chain is highly ambiguous (Plambeck, 2012).

Organizational information theory emphasizes the importance of information in addressing information asymmetry, which can lead to uncertainty and ambiguity in shared data. Lack of sufficient and high-quality information is what uncertainty means when doing activities (Galbraith, 1974). To achieve a particular performance level, a corporation must acquire and interpret more data the more uncertainty it faces (Bode et al., 2011). For Simanjuntak et al. (2024) information accuracy is important to avoid equivocality or situations

where information is ambiguous and messy, leading to competing interpretations and a lack of comprehension (Daft & Lengel, 1986).

1.2. Conceptual Review – Climate Change Risk

Climate change risk refers to long-term changes in temperature and weather patterns, primarily caused by human activity since the 1800s. Hence, climate change risk is a long-term shift in the climate's mean and variability that can be measured using statistical tests (Ching et al., 2018). Climate change risk is an abnormal change in weather. Climate change risks can lead to physical asset loss, increased expenses, business interruptions, and reduced operating income, negatively impacting the financial performance of businesses reliant on environmental conditions. Natural catastrophes made worse by climate change can interfere with businesses' manufacturing processes and seriously hurt their earnings (Hong et al., 2019). Climate change impacts manufacturing firms' value chain, affecting raw material availability, workforce, and market demand. It can reduce production capacity, alter capital structures, increase costs, and decrease profitability. Businesses must adapt strategies. For Sussman and Freed (2008) value chain, operational risks and infrastructural changes are the three primary risks associated with climate change that impact organizations.

1.3. Organizational Performance

Organizational performance refers to the evaluation of an organization's effectiveness and efficiency in achieving its goals and objectives. It includes several facets of a company's operation, such as financial performance, operational effectiveness, customer happiness, staff productivity, and overall success in providing goods or services. Financial performance, product performance, and operations as the three pillars of an organization's overall success, encompassing sales volume, return on equity, profit margin, turnover rate, and efficiency. Product performance, customer satisfaction, and operational success are influenced by factors like functionality, service, running costs, comfort, and ease of use, with improved performance increasing satisfaction and staff happiness. Collecting, analyzing, reporting, and analyzing performance data, as well as defining a set of performance measures, are all components of performance measurement (Paulraj et al., 2017). Efficiency refers to how efficiently requests from consumers are fulfilled with the available resources, whereas effectiveness evaluates how well those resources are put to use (Peng et al., 2022). Performance measurement helps organizations assess their effectiveness, identify areas for improvement, and enhance process visibility, efficiency, and competitive advantage through a well-implemented management system.

After, the review of literature on Climate change risk and organizational performance it comes out that organization's performance of may be impacted by climate change in diverse ways, as suggested by Luo and Tang (2016). The risk could be direct, or indirect. The researchers, therefore, hypothesize that:

H₁: Climate change risk significantly influences organizational performance

1.4. Supply Chain Engagement

Supply chain engagement refers to the proactive participation, coordination, and communication between various actors in a supply chain network, such as suppliers, manufacturers, distributors, retailers, and customers. In order to improve the overall effectiveness and efficiency of the supply chain, it places a major emphasis on cultivating connections, encouraging collaboration, and coordinating interests and objectives (Ahi & Searcy, 2013). Supply chain engagement is a business strategy that involves a company's

carbon management efforts to engage both its upstream and downstream supply chain partners in achieving common goals. These goals may include addressing challenges related to climate change and reducing carbon emissions throughout the supply chain (Lintukangas et al., 2022; Ahi & Searcy, 2013). Supply chain engagement lowers information asymmetry and makes it easier to analyze sustainability data from both suppliers and consumers through relational behaviors and collaborative activities (Dahlmann & Roehrich, 2019). Non-governmental, market-based strategies to combat global climate change, such as the adoption of quality management system standards like ISO 9000 throughout supply chains, are also a part of carbon management (Corbett, 2006). Operational advancements, such as the incorporation of technology into the supply chain, encourage more cooperation amongst all supply chain participants on environmental issues (Vachon & Klassen, 2006). From the views of both the upstream (suppliers) and downstream (customers) supply chain, the supply chain interaction is explained (Lintukangas et al., 2022).

After a review of the literature on the concepts organizational performance and supply chain engagement, it is noticed that, supply chain engagement enhances the organizational performance, by boosting its overall efficiency, and by reducing its overall operating costs (Dung, et al., 2020). Engaging the supply chain may also be a helpful strategy for supporting organizational strategies and preserving competitive advantages. Thus, the researchers, therefore, hypothesize that:

H₂: Supply chain engagement significantly influences organizational performance

After the literature review on the three key concepts namely it is notice that companies that sponsor efforts to protect the environment may find that it helps them in the long run (Li et al., 2019). Companies should invest in equipment, technology, and production models to improve performance, reduce environmental compliance costs, and promote resource efficiency, while proactively responding to climate change and publishing emissions information. The researchers, therefore, hypothesize that:

H₃: Supply chain engagement significantly mediates the relationship between climate change risk and organizational performance.

1.5. Research Model

The basic tenet of this model is that the link between climate change and organizational performance is mediated by supply chain engagement. Figure 1 serves as an illustration of the relationships between the different variables.
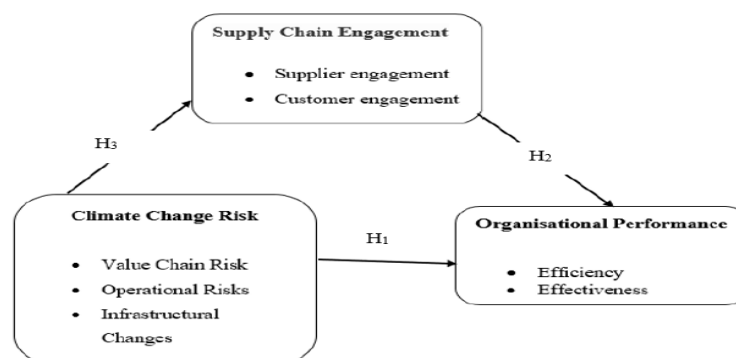
Figure 1: Research model
Source: Authors' construct (2023)

2. Methodology

Research Approach: This research is basically quantitative. The selection of quantitative research was based on the study's purpose, specific objectives or inquiries, and the primary data to be gathered and analyzed. The quantitative approach involves describing phenomena using numerical data and interpreting them using statistical methodologies (Creswell, 2014). The quantitative research involves collection of data, predicated on a hypothesis or theory, and the use of descriptive and inferential statistics (Teddlie & Tashakori, 2003). Quantitative analysis is crucial for its accuracy, truthfulness, and generalizability in estimating cause and effect (King, Cassell & Symon, 1994).

Research Design: A research design, according to Babbie and Mouton (2003), is a plan that specifies how data on a certain topic should be gathered and processed. The descriptive research design is adopted here because it helps to evaluate how climate change affects organizational performance. To better explain phenomena, several academics have stated that descriptive research design enables researchers to acquire huge volumes of data (Creswell & Clark, 2017) and it avoids the difficulties of compiling and managing huge sample sizes (Creswell, 2014).

Population: The population include both privately and publicly held manufacturing companies, with an emphasis on Sekondi-Takoradi, Kumasi, Accra, and Tema, respectively. Table 1 shows the 704 manufacturing companies that were selected as part of the target population in the AGI (2017) study. Thus, the population comprised 704 procurement officers, operations managers, and officers of manufacturing firms. Hence, the units of analysis are procurement officers, operations managers, and officers of manufacturing firms of these four manufacturing firms in Ghana.

Table 1: Population of Study

Metropolis	Population
Tema	104
Accra	382
Sekondi-Takoradi	9
Kumasi	209
Total	704

Source: AGI (2017)

Sample Size and Sampling Procedure: For Kumar (2011) sampling is a methodical procedure for selecting a subset of the population from which to draw inferences about the frequency distribution of a variable of interest. Bryman and Lilley (2009) argue that sampling is vital and they identified three sampling strategies: non-probability, probability, and mixed-approach sampling. To ensure a sufficient number of participants, a random sample method is used instead of a large population-sampling frame. To determine the sample size, the formula by Ganassali (2009), and Nassè et al. (2019) is used: $n = (p \times (1-p)) / (e / 1.96)^2$; p is the observed percentage and e the maximum error. Therefore, $n = (0.5 \times (1 - 0.5)) / (e / 1.96)^2 = 0.25 / (0.07/ 1.96)^2 = 196$. The number of respondents for a maximum error of 7% is 196. The total number of respondents that filled out the questionnaire and returned it is 226 for 248 questionnaires distributed. This represents 91.1% of the response rate and it is a little bit appropriate. A response rate of at least 70 % is considered a representative sample (Babble, 2007). The multi-stage sampling approach is also used to ensure equal selection of respondents, minimized bias, high-quality data collection, reliability and competence of the informant. To make sure it matches the model, the PLS-SEM sample size was also examined. Basic guidelines for assuring sample adequacy in a PLS-SEM model were offered by Hair et al. (2012). The minimal sample

size, they emphasized, should be equivalent to 10 times the number of structural routes that lead to a particular latent variable in the model. A maximum of three structural routes can each be directed at the different latent variables in the structural model that was used for this study. As a result, the model's utilization of 248 replies was accurate and pertinent.

Data Collection Instrument: A questionnaire was used to collect primary data. According to Zikmund (2003) standardized surveys save time and money due to their efficiency in administration, evaluability, and cost-effectiveness. Causal investigations necessitate structured primary data-collecting procedures because they are inherently well-structured (Maxwell & Mittapalli, 2010). Questionnaire surveys, as mentioned by Young and Javalgi (2007), are perhaps the most popular method of data gathering in research (Singer & Couper, 2017). Respondents choose a single answer from a pre-established group and evaluate it independently. For Singer and Couper (2017), checklists are commonly utilized in research and consist of closed-ended items such as lists of activities, attributes, or other studied phenomena. Additionally, Likert scales are recommended for evaluating behaviors, attitudes, or other relevant phenomena on a continuum. A Likert scale of five points was used to determine the views, attitudes, and behaviors of the participants.

Data Collection Procedures: Warner (1965) suggests using data collection methods that provide researchers access to confidential information while protecting the privacy of study participants. Six weeks were spent on the first data collection. Data was gathered via Google Forms that were shared with participants online and self-administered surveys. Companies that continued to employ COVID-19 methods were asked to fill out Google forms.

Data Processing and Analysis: To highlight important information in decision-making, data analysis is a method of editing, cleaning, manipulating, and modelling data (Adèr, 2008). The data gathered from the respondents was thoroughly cleaned and checked for inaccuracies before being entered into the system. All collected questionnaires were coded to facilitate the sorting of non-responses, and to facilitate the data analysis by SPSS. The structural equation modelling (SEM) is used to test the hypothesis (Babin, Hair & Boles, 2008) and correlations between constructs (Hair et al., 2021).

Validity and Reliability of Instrument: The survey's validity was calculated using Cronbach's alpha. When the reliability coefficient was 0.70 or above, the information was trusted (Cohen, 2006). However, the validity dispute revolves around how well data techniques evaluate their focus variables. For Saunders et al. (2009), an instrument is only as trustworthy as the precision with which it measures its target concept. The researchers ensured the validity of questionnaires by examining relevant supplementary material and obtaining reliable evidence from reliable sources.

3. Results and Discussions

This section covers the respondents' demographic information, and the findings. Discussions based on the data collected make up the last portion.

Table 2: Response category

Questionnaire	Frequency
Total Distributed	248
Total Returned	226
Response Rate	**91.1%**

Source: Field Survey, (2023)

The response rate was 91.1%, based on a total of 226 replies. The goals, as seen by the respondents, are discussed and findings are presented in this part. Since the study by Mugenda and Mugenda (2003) indicates that a response rate of 60% or above can be utilized, the response rate is valid.

3.1. Demographic Data

The demographic data shows that 143 respondents are male, while 83 respondents are female. Additionally, 125 respondents are within the age range of 21 to 30 years, 53 respondents are within the age range of 31 to 40 years, 32 respondents are aged between 41 to 50 years, and 11 respondents are above the age of 50 years (see Appendix 1).

3.2. Measurement Criteria

This research evaluated measurement criteria such as factor loadings, construct reliability, discriminant validity, and collinearity statistics, assessing whether individual items accurately reflect the study's construct. Hair *et al*. (2021) proposed a 0.708 threshold. For an indicator to be accepted, it must exceed the recommended threshold of 0.708. Similarly, Hair *et al*. (2019) and Gaskin *et al*. (2018) indicated that for the reflective constructs to be valid, the factor loadings should attain a minimum of 0.7 and their respective t-values must be greater than 1.96.

The results presented in Figure 1 show that all the indicators are higher than 0.708 indicating that all the reflective indicators are valid. Indicator loadings ranged from 0.719 to 0.928. Similarly, findings presented in Figure 2 indicated that all the indicators have t-values greater than 1.96 as proposed by Hair *et al*. (2019) and Gaskin *et al*. (2018). The t-values presented in Figure 2 ranged from 19.687 – 103.925. The figures presented indicated that all the indicators are valid.

Figure 2: Factor Loadings
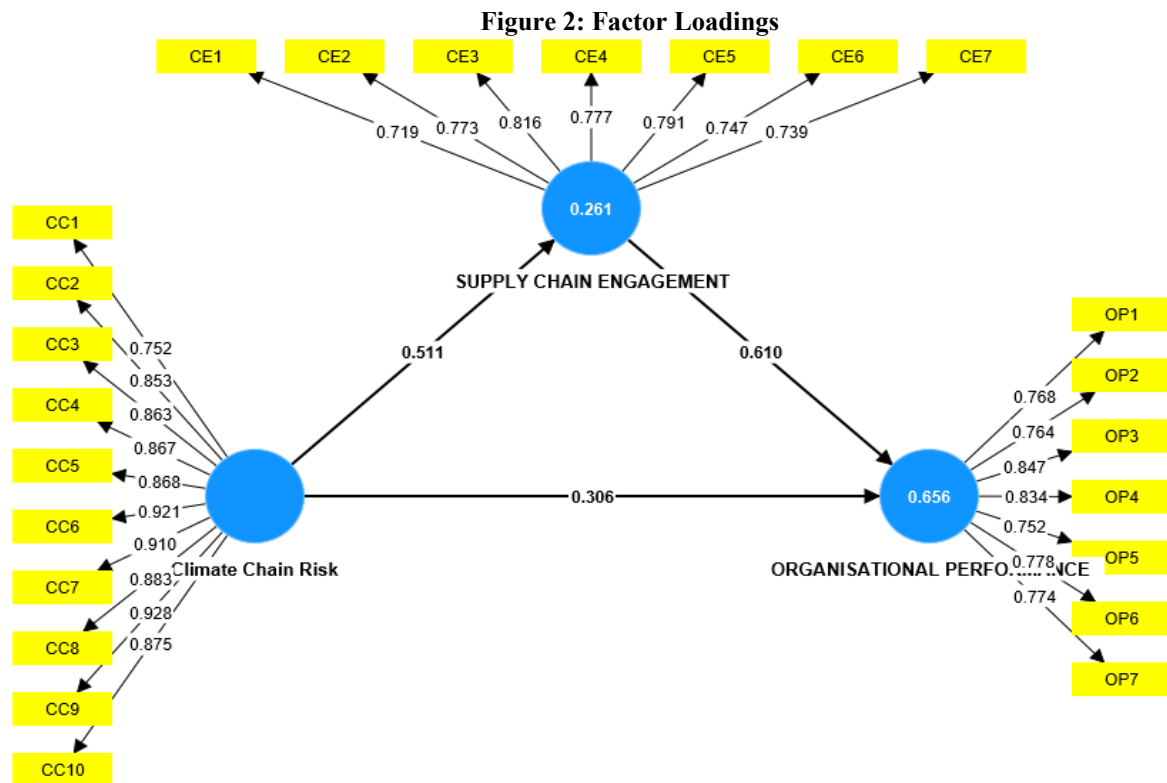
Source: Field Survey, (2023)

Figure 3: T-Values for the indicator loadings

Source: Field Survey, (2023)
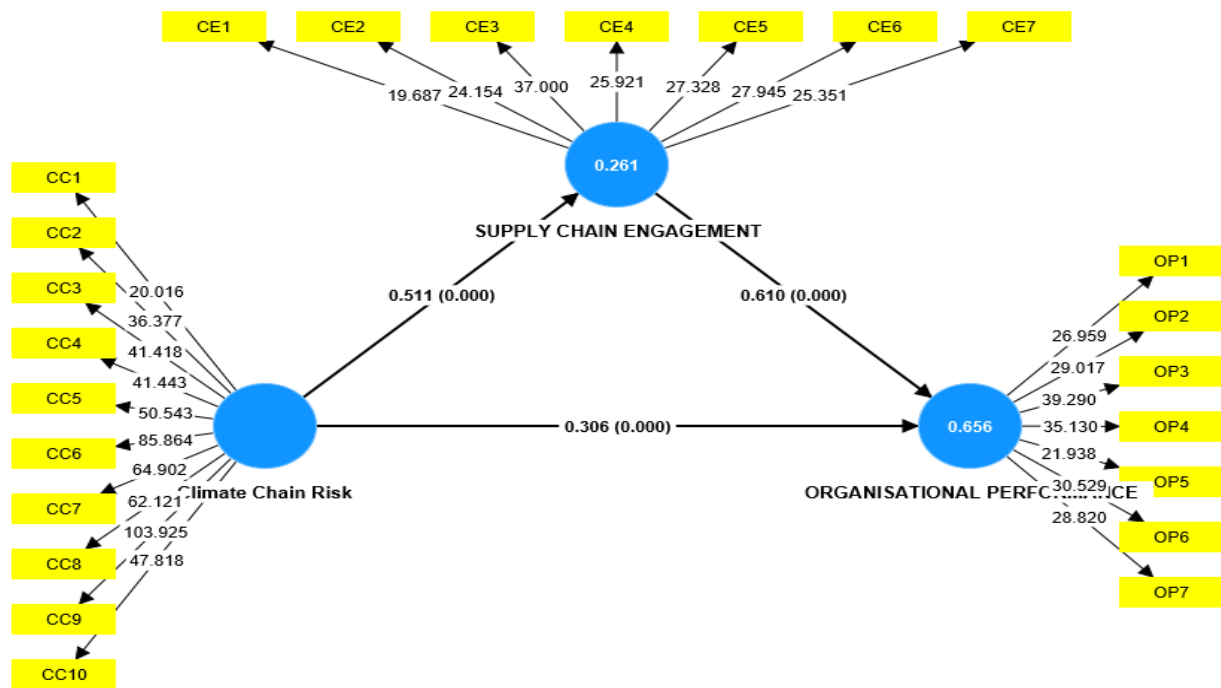
The research provided an analysis of the reliability of the construct and its convergent validity. Table 3 presents an analysis of the Cronbach alpha, composite reliability, Rho-A, and average variance extracted (AVE). According to the recommendations of Hair et al. (2018), and Ringle et al. (2022), it is advisable to use a threshold of greater than 0.70 for composite reliability, greater than 0.50 for average variance extracted, greater than 0.70 for rho_A, and greater than 0.70 for Cronbach's Alpha. The results presented in Table 3 showed that all values for the variables exceeded the recommended thresholds. The Cronbach values ranged from 0.884 (supply chain engagement) to 0.899 (organizational performance) and 0.965 (climate change risk). Similarly, the values for rho-A ranged from 0.888 (supply chain engagement) to 0.920 (organizational performance) and 0.970 (climate change risk). Additionally, the composite reliability values ranged from 0.909 (supply chain engagement) to 0.920 (organizational performance) and 0.970 (Climate change risk). Lastly, the average variance extracted (AVE) was computed to establish the convergent validity. Hair *et al*. (2022) revealed that convergent validity would be established if the AVE value is higher than or equal to 0.50 and items converge to measure the underlying construct. The result presented in Table 3 showed that all the AVE values are greater than 0.50, indicating no problem with convergent validity. The values ranged from 0.588 (supply chain engagement) to 0.662 (organizational performance) and 0.762 (climate change risk). The results presented in Table 3 indicate that construct reliability and convergent validity have been established.

Table 3: Construct Validity and Reliability

	Cronbach's Alpha	Rho_A	Composite reliability	Average Variance Extracted (AVE)
Climate Change Risk	0.965	0.970	0.970	0.762
Organizational Performance	0.899	0.905	0.920	0.622
Supply Chain Engagement	0.884	0.888	0.909	0.588

Source: Field Survey, (2023)

Table 4: Heterotrait-monotrait ratio of correlations

	1	2	3
Climate Change Risk (1)	-		
Organizational Performance (2)	0.65	-	
Supply Chain Engagement (3)	0.534	0.838	-

Source: Field Survey, (2023)

The average correlations of the indicators between different constructs are what the HTMT criterion looks at. The discriminant validity levels that are considered acceptable (less than 0.90), as proposed (Henseler et al., 2015). It is recommended for determining the distinctiveness of the constructs, although it ought to be used with 0.85 or 0.90 as a precautionary factor. The discriminant validity was assessed using the heterotrait-monotrait ratio of correlations. Hensler et al (2015) revealed that to establish discriminant validity with the HTMT all values must be less than 0.9. The results presented in Table 4 indicated no issue of discriminant validity because the values are all below the recommended threshold of 0.90.

The quantification of multicollinearity in regression analysis is accomplished through the use of VIF. Multicollinearity arises in a multivariate regression model when there exists a correlation among multiple independent variables. The regression findings may be significantly impacted by this. Finally, the inner variance inflationary factors (VIFs) in Table 5 show no evidence of multicollinearity and common method bias because all the inner VIFs are smaller than 5 (Ringle et al., 2009).

Table 5: Collinearity Statistics

	Climate Change Risk	Organizational Performance	Supply Chain Engagement
Climate Change Risk		1.353	
Organizational Performance			1.00
Supply Chain Engagement		1.353	

Source: Field Survey, (2023)

3.3. Hypothesis testing

The individual hypothesis was examined after determining whether or not the measurement model satisfies the PLS-SEM criteria. The hypotheses were examined by looking at the direction and strength of the relationship using the path coefficient. The significance level was determined using t-statistics produced from 5000 consistent bootstraps, a 2-tailed test suggested by Hair *et al.* (2014). According to Hair *et al.* (2014), the t-statistics must be greater than 1.96, and the p-values must be lower than 0.05 for the hypothesis to be statistically significant. The hypotheses were analyzed and the results presented in Table 6 showed that all the hypotheses were supported because all the t-values were greater than 1.96 and the respective p-values were all less than 0.05.

Table 6: Hypothesis testing

	B	mean	Standard deviation	T statistics	P values	Decision
Climate Change Risk -> Organizational Performance	0.306	0.308	0.057	5.344	0.001	**Supported**
Climate Change Risk -> Supply Chain Engagement	0.511	0.514	0.055	9.360	0.001	**Supported**

Supply Chain Engagement -> Organizational Performance	0.610	0.608	0.051	11.910	0.001	**Supported**
Specific Indirect Effect						
Climate Change Risk -> Supply Chain Engagement -> Organizational Performance	0.312	0.312	0.034	9.260	0.001	**Supported**

Source: Field Survey, (2023)

A. Climate Change Risk and Organizational Performance

The first objective seeks to investigate the effect of climate change risk on organizational performance. The study hypothesized that climate change risk enhances organizational performance. The results showed that climate change risk significantly and positively enhances organizational performance ($\beta = 0.306$; t = 5.344; p = 0.001; p<0.05). The t-stats of 5.344 is greater than the recommended threshold of 1.96, and the p-value is less than 0.05 (p = 0.00). Thus, climate change risk positively and significantly enhances organizational performance; thus, the hypothesis was supported. The findings imply that a unit change in climate change risk will enhance organizational performance by 30.6%. According to Luo and Tang (2016), there is a statistical link between organizational performance and climate change risk. The organization's financial performance may be impacted by climate change in a number of different ways. The risk could be direct (cost of production), indirect (loss of client base owing to reputational risk), or present an opportunity (loss of business opportunities due to a delay in the implementation of a project). The findings of the study align with the study of Luo and Tang (2016), Firdaus et al. (2019), Sun et al. (2020), and Siamabele (2021). The findings of Firdaus et al. (2019) showed a positive relationship between stock performance and climate change risk. Similarly, Siamabele (2021) confirmed a positive relationship between climate change risk and performance.

B. Climate Change Risk and Supply Chain Engagement

The research hypothesized that climate change risk enhances supply chain engagement. The results showed that climate change risk significantly and positively enhances supply chain engagement ($\beta = 0.511$; t = 9.360; p = 0.001; p<0.05). The t-stats of 9.360 is greater than the recommended threshold of 1.96, and the p-value is less than 0.05 (p = 0.001). Thus, climate change risk positively and significantly enhances supply chain engagement; thus, the hypothesis was supported. The findings imply that a unit change in climate change risk will enhance supply chain engagement by 51.1%. For Dahlmann and Roehrich (2019) supply chain engagement improves data accuracy and carbon accounting, reducing emissions and mitigating climate change risks through optimization of products, logistics, and procurement.

C. Supply Chain Engagement and Organizational Performance

The research hypothesized that supply chain engagement enhances organizational performance. The results showed that supply chain engagement significantly and positively correlates with organizational performance ($\beta = 0.610$; t = 11.910; p = 0.001; p<0.05). The t-stats of 11.910 is greater than the recommended threshold of 1.96, and the p-value is less than 0.05 (p = 0.001). Hence, supply chain engagement positively and significantly enhances organizational performance; thus, the hypothesis was supported. The findings indicated that a unit change in supply chain engagement will enhance organizational performance by 61.0%.

This research findings aligned with the study of Feng and Zhao (2014), Sousa Jabbour et al., (2018), Lim-Camacho et al. (2017) and Ghadge et al., (2020). The findings of Feng and Zhao (2014) revealed that organizations optimized performance when they are able to integrate their supplier and customers in managing climate change. The findings of Lim-Camacho et al

(2017) and Jabbour et al., (2018) affirmed that engaging supply chain partners in managing climate chain risk enhance organizational performance. Similarly, the findings of Ghadage et al (2020) confirmed a positive relationship between supply chain engagement and organizational performance.

D. Supply Chain Engagement, Climate Change Risk and Organizational Performance

Finally, a mediation test was conducted to evaluate the supply chain's mediating function in the link between the risk posed by climate change and organizational performance. The findings showed that there was a substantial effect of climate change risk on organizational performance ($\beta = 0.306$; t = 5.344; p = 0.001; p< .05). The effect of climate change risk on organizational performance was shown to be significant (β= 0.312, t=9.260, p= 0.001) with the mediation variable supply chain engagement included. Thus, supply chain engagement partially mediates the association between climate change risk and organizational performance. The results show that there would be a 31.2% increase in the association between climate change risk and organizational performance for every percentage increase in supply chain engagement.

This indirect effect is statistically significant, as indicated by the t-statistic of 9.260 and the corresponding p-value of 0.001. This suggests that the link between climate change risk and organizational performance is mediated, at least in part, by the level of engagement with the supply chain. Andreoni and Miola (2015) highlight the increasing complexity and interdependencies of the global economic system, making societies vulnerable to crises, exemplified by unforeseen events and climate change.

The indirect effect of supply chain engagement according to Lintukangas et al. (2022), leads to the alteration of the operational and competitive environment, which includes environmental legislation, climate policy, stakeholder attitudes, legal issues, and so forth. The sustainability and performance of the firm also change because of both direct and indirect effects (Sun et al., 2020). Global climate change impacts nature, affecting infrastructure and causing increased costs for companies operating normally.

Climate change threatens businesses with physical asset loss, increased expenses, business interruptions, and decreased operational income, exacerbated by natural catastrophes that can disrupt manufacturing processes and negatively impact earnings (Lim-Camacho et al., 2017). Climate change affects the value chain of product-producing industries, affecting raw material availability, production tasks, marketing, suppliers, employees, and market demand.

E. Coefficient of Determination

The R^2 is a statistical measure that indicates the degree to which one variable may explain the variation in another (Hair & Alamer, 2022). It has been established that the value of R^2 must be between 0 and 1. Values below 0.10, between 0.11 and 0.30, between 0.31 and 0.50, and over 0.50, respectively, indicate low, moderate, medium, and high levels of explanatory power. The findings reveal that climate change risk explains the variation in supply chain engagement by 26.1%. Similarly, climate change risk and supply chain engagement explain the variation in organizational performance by 65.6%. Thus, climate change risk and supply chain engagement explained 65.6% variation in organizational performance, the remaining 34.4% is explained by other variables not captured in the study.

F. Effect Size

The evaluation of the effect size is limited to the measurement of the strength of the relationship between latent variables, as stated by Wong (2013). Effect size can be used by researchers to assess the overall impact of a study. According to Cohen (1988) and Wong

(2013), effect size (f^2) values of 0.02, > 0.15, and >0.35 indicate small, moderate, and large effect sizes, respectively. The table depicts f^2 values ranging from 0.202 for climate change risk and organizational performance to 0.800 for supply chain engagement and organizational performance. Thus, supply chain engagement has a high effect size on organizational performance compared to climate change risk.

G. Predictive Relevance

Predictive relevance (Stone-Geisser's Q2) indicates the model's ability to detect indicators of each latent endogenous variable and shows that the data can be reformed with the help of the model and PLS parameters (Hair et al., 2014). Q-square, a predictive relevance indicator, is used to evaluate a model's accuracy in making predictions (a value greater than 0 is preferable). Q2 further establishes the predictive significance of the endogenous components. If the Q-square is positive, then the model has predictive relevance and has successfully reproduced the researcher's values.

After measuring the magnitude of R^2, predictive accuracy was also assessed (Geisser, 1974). The Q^2 assists in assessing the prediction performance of variables (Shmueli *et al.*, 2016). Q^2 values in < 0, >0.25, and >0.50 can be described as weak, moderate, and strong, respectively. The data revealed a strong predictive relationship between climate change risk and supply chain engagement. Also, the findings show a strong predictive strength on climate change risk and supply chain engagement on organizational performance.

Table 7: Output of R-square, F-square and Predictive Relevance

Organisational Performance	0.656	0.654
Supply Chain Engagement	0.261	0.258

Effect Size	Climate Chain Risk	Organisational Performance	Supply Chain Engagement
Climate Chain Risk		0.202	0.353
Organisational Performance			
Supply Chain Engagement		0.800	

Predictive Relevance	Q²predict	RMSE	MAE
Organisational Performance	0.374	0.796	0.572

Source: Field Survey, (2023)

Conclusion

This research examines the effect of supply chain engagement on climate change and organizational performance. It suggests that collaboration with suppliers can mitigate risks, improve operational efficiency, and foster innovation, ultimately enhancing resilience to climate change. Organizations should prioritize supply chain engagement to manage climate change risks, reduce costs, and improve performance. This involves collaboration, knowledge-sharing, and sustainability practices, identifying innovation opportunities, reducing environmental impact, and enhancing reputation.

Recommendations

To identify possible risks and vulnerabilities related to climate change, businesses should perform a complete climate risk assessment, according to study goal one. Physical, regulatory, and reputational risks, as well as any direct and indirect threats to the organization, should all be covered in the evaluation. These manufacturing firms should integrate climate risk into their strategic planning process. This includes developing strategies to address climate risks, such as investing in renewable energy, improving supply chain resilience, applying business ethics (Gbamara et al., 2024), observing corporate social responsibility (Nassè et al. 2024). The effect of business ethics and corporate social responsibility on business success: and enhancing sustainability practices.

Suggestions for Future Studies

Further research is needed to compare supply chain engagement practices across contexts and examine how cultural differences influence effectiveness.

Acknowledgements

The researchers are grateful to the respondents, and to the editors of the Journal of Emerging Trends in Marketing and Management for their valuable suggestions.

References

Adèr, H. J. 2008. Advising on research methods: A consultant's companion. *Johannes van Kessel Publishing*.

Ahi, P., & Searscy, C. 2013. A comparative literature analysis of definitions for green and sustainable supply chain management. *Journal of Cleaner Production*, *52*, 329-341.

Andreoni, V., & Miola, A. 2015. Climate vulnerability of the supply-chain: Literature and methodological review, JRC science and policy reports, European Commission. *Luxemburg: Publications Office*.

Babbie, E. R., & Mouton, J. 2003. Social statistics. Practice of social research.

Babin, B. J., Hair, J. F., & Boles, J. S. 2008. Publishing research in marketing journals using structural equation modelling. *Journal of Marketing Theory and Practice*, *16*(4), 279-286.

Blanco, C. C. 2021. Supply chain carbon foot printing and climate change disclosures of global firms. *Production and Operations Management*, *30*(9), 3143-3160.

Bode, C., Wagner, S. M., Petersen, K. J., & Ellram, L. M. 2011. Understanding responses to supply chain disruptions: Insights from information processing and resource dependence perspectives. *Academy of Management Journal*, *54*(4), 833-856.

Bryman, A., & Lilley, S. 2009. Leadership researchers on leadership in higher education. *Leadership*, *5*(3), 331-346.

Busse, D., Yim, I. S., & Campos, B. 2017. Social context matters: Ethnicity, discrimination and stress reactivity. *Psych Neuroendocrinology*, *83*, 187-193.

Ching, J., Mills, G., Bechtel, B., See, L., Feddema, J., Wang, X., ...& Theeuwes, N. 2018. WUDAPT: An urban weather, climate, and environmental modelling infrastructure for the Anthropocene. *Bulletin of the American Meteorological Society*, *99*(9), 1907-1924.

Cohen, L. 2006. The prevalence of anxiety and associated factors in a multiracial sample of older adults. *Psychiatric Services*, *57*(12), 1719-1725.

Creswell, J. W. 2014. *A concise introduction to mixed methods research. SAGE publications*.

Creswell, J. W., & Clark, V. L. P. 2017. Designing and conducting mixed methods research. *SAGE publications*.

Daft, R. L., & Lengel, R. H. 1986. Organizational information requirements, media richness and structural design. *Management Science*, *32*(5), 554-571.

Dahlmann, F., & Roehrich, J. K. 2019. Sustainable supply chain management and partner engagement to manage climate change information. *Business Strategy and the Environment*, *28*(8), 1632-1647.

Dung, T. Q., Bonney, L. B., Adhikari, R. P., & Miles, M. P. 2020. Entrepreneurial orientation, knowledge acquisition and collaborative performance in agri-food value-chains in emerging markets. *Supply Chain Management, 25*(5), 521-533.

Firdaus, R. R., Senevi Gunaratne, M., Rahmat, S. R., & Kamsi, N. S. 2019. Does climate change only affect food availability? What else matters? *Cogent Food & Agriculture*, *5*(1), 1707607.

Ganassali, S. 2009. Les enquêtes par questionnaire avec Sphinx. *Pearson education*.

Galbraith, J. R. 1974. Organization design: An information processing view. *Interfaces*, *4*(3), 28-36.

Gbamara, L., Nassè, T. B. & Akparep, J. Y. 2024. Examining the relationships between Business ethics, customer satisfaction and purchase behaviour: Perspectives from Wa Township in Ghana. *Advances in Consumer Research, 1*(1), 1-13.

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. 2021. Partial least squares structural equation modelling (PLS-SEM) using R: A workbook (p. 197). *Springer Nature*.

Hair, J. F., Ringle, C. M., & Sarstedt, M. 2012. Partial least squares: the better approach to structural equation modelling? *Long Range Planning*, *45*(5-6), 312-319.

Hong, C., Zhang, Q., Zhang, Y., Davis, S. J., Tong, D., Zheng, Y. ... & Schellnhuber, H. J. 2019. Impacts of climate change on future air quality and human health in China. *Proceedings of the national academy of sciences*, *116*(35), 17193-17200.

Hsu, C. W., Kuo, T. C., Chen, S. H., & Hu, A. H. 2013. Using DEMATEL to develop a carbon management model of supplier selection in green supply chain management. *Journal of Cleaner Production*, *56*, 164-172.

King, N., Cassell, C., & Symon, G. 1994. Qualitative methods in organizational research: A practical guide. *The Qualitative Research Interview*, *17*.

Kumar, K. 2011. Direct seeding of rice: recent developments and future research needs. *Advances in Agronomy*, *111*, 297-413.

Lim-Camacho, L., Plagányi, É. E., Crimp, S., Hodgkinson, J. H., Hobday, A. J., Howden, S. M., & Loechel, B. 2017. Complex resource supply chains display higher resilience to simulated climate shocks. *Global Environmental Change*, *46*, 126-138.

Lin, C., Schmid, T., & Weisbach, M. S. 2020. Climate change and corporate investments: Evidence from planned power plants. *Fisher College of Business Working Paper (2019-03)*, 026.

Lintukangas, K., Arminen, H., Kähkönen, A. K., & Karttunen, E. 2022. Determinants of supply chain engagement in carbon management. *Journal of Business Ethics*, 1-18.

Luo, L., & Tang, Q. 2016. Determinants of the quality of corporate carbon management systems: An international study. *The International Journal of Accounting*, 51(2), 275-305.

Maxwell, J. A., & Mittapalli, K. 2010. Realism as a stance for mixed methods research. *SAGE Handbook of Mixed Methods in Social & Behavioral Research*, *2*, 145-168.

Nassè, T. B., Nangpiire, C. & Linda, G. 2024. The effect of business ethics and corporate social responsibility on business success: Insights from Ghana. *Advances in Consumer Research, 1*(1), 1-17.

Nassè, T. B., Ouèdraogo, A. & Sall, F. D. 2019. Religiosity and consumer behavior in developing countries: An exploratory study on Muslims in the context of Burkina Faso. *African Journal of Business Management*, *13*(4), 116-127.

OECD, P. 2015. *OECD-FAO agricultural outlook 2015-2024*. OECD

Oelze, N., Hoejmose, S. U., Habisch, A., & Millington, A. 2016. Sustainable development in supply chain management: The role of organizational learning for policy implementation. *Business Strategy and the Environment*, *25*(4), 241-260.

Pankratz, N., & Schiller, C. 2021. Climate change and adaptation in global supply-chain networks. In proceedings of Paris December 2019 Finance Meeting EUROFIDAI-ESSEC. *European Corporate Governance Institute–Finance Working Paper* (No. 775).

Paulraj, A., Chen, I. J., & Blome, C. 2017. Motives and performance outcomes of sustainable supply chain management practices: A multi-theoretical perspective. *Journal of Business Ethics*, *145*, 239-258.

Peng, Y., Zhang, X., van Donk, D. P., & Wang, C. 2022. How can suppliers increase their buyers' CSR engagement: The role of internal and relational factors. *International Journal of Operations & Production Management*, *42*(2), 206-229.

Plambeck, E. L. 2012. Reducing greenhouse gas emissions through operations and supply chain management. *Energy Economics*, *34*, S64-S74.

Rafindadi, A. A., & Usman, O. 2019. Globalization, energy use, and environmental degradation in South Africa: startling empirical evidence from the Maki-cointegration test. *Journal of Environmental Management*, *244*, 265-275.

Ringle, C. M., Götz, O., Wetzels, M., & Wilson, B. 2009. On the use of formative measurement specifications in structural equation modeling: A Monte Carlo simulation study to compare covariance-based and partial least squares model estimation methodologies. *METEOR Research Memoranda (RM/09/014)*.

Sarkis, J. 2012. A boundaries and flows perspective of green supply chain management. *Supply Chain Management: an International Journal*, *17*(2), 202-216.

Saunders, M., Lewis, P., & Thornhill, A. 2009. Research methods. *Business Students 4th edition Pearson Education Limited, England*, *6*(3), 1-268.

Schulz, B., Backman, C., Verbeke, A. C., & Heger, H. R. 2022. Firm adaptation to climate change: Applying the GISTe model to a cohort of FT500 Firms 2004-2020. *Academy of Management Proceedings*, *1*(1), 17504.

Siamabele, B. 2021. The significance of soybean production in the face of changing climates in Africa. *Cogent Food & Agriculture*, *7*(1), 1933745.

Simanjuntak, M., Anggraini, A. M. T., & TRI, M. 2024. Toward safer E-Commerce transactions: The Influence of system quality, information accuracy, and government oversight. *Journal of Emerging Trends in Marketing and Management*, *1*(3), 7-19.

Singer, E., & Couper, M. P. 2017. Some methodological uses of responses to open questions and other verbatim comments in quantitative surveys. *Methods, Data, Analyses: a Journal for Quantitative Methods and Survey Methodology (Mda)*, *11*(2), 115-134.

Solér, C., Bergström, K., & Shanahan, H. 2010. Green supply chains and the missing link between environmental information and practice. *Business Strategy and the Environment*, *19*(1), 14-25.

Sun, Y., Yang, Y., Huang, N., & Zou, X. 2020. The impacts of climate change risks on financial performance of mining industry: Evidence from listed companies in China. *Resources Policy*, *69*, 101828.

Sussman, F. G., & Freed, J. R. 2008. Adapting to climate change: A business approach (p. 41). *Arlington, VA: Pew Center on Global Climate Change*.

Tetteh, B., Baidoo, S. T., & Takyi, P. O. 2022. The effects of climate change on food production in Ghana: evidence from Maki (2012) cointegration and frequency domain causality models. *Cogent Food & Agriculture*, *8*(1), 2111061.

Vachon, S., & Klassen, R. D. 2006. Extending green practices across the supply chain: The impact of upstream and downstream integration. *International Journal of Operations & Production Management*, *26*(7), 795-821.

Villena, V. H., & Dhanorkar, S. 2020. How institutional pressures and managerial incentives elicit carbon transparency in global supply chains. *Journal of Operations Management*, *66*(6), 697-734.

Warner, S. L. 1965. Randomized response: A survey technique for eliminating evasive answer bias. *Journal of the American Statistical Association*, *60*(309), 63-69.

Yawar, S. A., & Seuring, S. 2018. The role of supplier development in managing social and societal issues in supply chains. *Journal of Cleaner Production*, *182*, 227-237.

Young, R. B., & Javalgi, R. G. 2007. International marketing research: A global project management perspective. *Business Horizons*, *50*(2), 113-122.

Zikmund, V. 2003. Health, well-being, and the quality of life: Some psychosomatic reflections. *Neuroendocrinology Letters*, *24*(6), 401-403.

Appendix 1
Demographic data

	Frequency (n=226)	Percentage (%)
Gender		
Male	143	63.3
Female	83	33.7
Age of respondents		
Below 20 years	5	2.2
21-30 years	125	55.6
31-40 years	53	23.6
40-50 years	32	14.2
Above 50 years	11	4.4
Managerial Level		
Functional Level	123	54.4
Middle level	75	33.2
Top-level	28	12.4
Educational level		
SHS	26	11.5
Diploma	74	32.7
Degree	102	45.1
Masters/PhD	24	10.6

Years of experience

12 months and less	42	15.2
1-5 years	67	32.4
6-10 years	71	37.2
More than 10 years	46	15.2

Source: Field Survey, (2023)

Using Big Data in Consumer Behavior Analysis: A Case Study

Adrian Ionuț MOȘESCU
The Bucharest University of Economic Studies
ionutbz@yahoo.com

Denisa-Roxana BOTEA-MUNTEAN
The Bucharest University of Economic Studies
munteandenisa21@stud.ase.ro

Daniela MARINICĂ
The Bucharest University of Economic Studies
daniela.marinica@mk.ase.ro

Brîndușa BÎRSAN
The Bucharest University of Economic Studies
brindusabirsan@gmail.com

Daniela Maria STANCIU (FRĂȚILĂ)
The Bucharest University of Economic Studies
danielastannciu@gmail.com

Paul COSMOVICI
The Bucharest University of Economic Studies
paul.cosmovici@cosmovici-ip.com

Ștefan-Claudiu CĂESCU
The Bucharest University of Economic Studies
stefan.caescu@mk.ase.ro

Abstract
Based on the new environment of big data, this paper expounds the connotation and characteristics of big data, and analyzes the characteristics of consumer behavior under the application background of big data analysis technology. We discuss various sources of big data, such as online interactions, social media activity, purchase history, and sensor data, emphasizing how each contributes to a deeper understanding of consumer preferences, motivations, and decision-making. In today's fast-paced, ever-changing world, a growing number of consumers rely on online platforms for information, shopping, and banking transactions. Big Data technology enables consumers to find relevant products or information, while helping companies gain insights into customer behavior.

Introduction

Big data analytics has swiftly changed the landscape of how businesses interpret consumer actions. Traditionally, insights were drawn from methods like surveys, focus groups, and direct observations. However, today's analysis leans heavily on real-time information gathered from extensive datasets (Laney, 2011). This exploration highlights the groundbreaking impact big data holds over understanding consumer habits by detailing its applications and advantages while pondering over its academic foundations.

The importance of understanding consumer behavior has been greatly emphasized in the marketing literature. Consumer preferences, purchase decisions, and behavioral trends are central to designing effective marketing strategies (Solomon, 2013). However, with the increasing complexity of consumer journeys in the digital era, traditional methods often fail to fully capture consumer behavior. Big data bridges these gaps by delivering all-encompassing and usable insights that empower marketers to anticipate and understand customer actions with great accuracy.

Staring from the main question pf the paper: how big data influences consumer behavior analysis? – we define the role and scope of big data in marketing, exploring how big data impacts consumer decision-making, present case studies demonstrating practical applications and identify challenges and ethical considerations in using big data for consumer research.

1. Literature Review
1.1. Defining Big Data in Consumer Behavior

Big data is widely defined by the "5Vs": Volume, Velocity, Variety, Veracity, and Value (Laney, 2011). These attributes collectively allow businesses to process vast quantities of data to extract actionable insights Each dimension contributes to understanding and predicting consumer actions.

Gandomi and Haider (2015) argue that big data is not just about data scale but about transforming raw information into strategic value. For marketers, these characteristics enable tracking of consumer footprints across platforms and real-time personalization. By harnessing these characteristics, big data has shifted the paradigm of consumer behavior analysis, offering tools for both descriptive and predictive insights.

1.2. Consumer Behavior and Big Data Influence

Consumer behavior research has historically sought to understand the motivations and decision-making processes of individuals (Solomon, 2013). Using big data, researchers can now study behaviors at scale, incorporating new variables such as online behavior and location data. Big data facilitates both descriptive and predictive analytics, offering marketers tools to anticipate future trends (Erevelles et al., 2016).

Predictive analytics uses statistical algorithms and machine learning models to anticipate consumer behavior. Some online retailers utilize predictive analytics to recommend products based on browsing history and past purchases (Saura et al., 2021). Big data has also enhanced behavioral segmentation by identifying patterns across diverse consumer groups. Marketers can create detailed profiles based on demographics, psychographics, and behavioral data, improving the precision of their targeting efforts. Studies show that such data-driven segmentation increases marketing efficiency and customer satisfaction (Erevelles et al., 2016).

2. Case Study Results
2.1. Case Study 1: Local Retail Optimization

In their study of local retail markets, Jitsoonthronchaikul et al. (2019) demonstrated how big data could refine business strategies. Using location data, transactional records, and consumer feedback, retailers in Thailand tailored product offerings to specific communities. The findings revealed that localized data-driven approaches increased customer satisfaction and operational efficiency. One key finding from this case study is customization of offerings, by analyzing transactional data, retailers identified high-demand products for specific regions and adjusted their inventory accordingly. Another key finding is Improved Accessibility through location data who helped optimize store layouts and product placements, enhancing shopping experience. The last key finding is Consumer Feedback Integration which through

Qualitative insights from surveys provided context to quantitative data, enabling more informed decision-making.

This case study underscores the importance of integrating qualitative insights with quantitative data. For instance, customer feedback on convenience and product variety provided nuanced context to transactional data, enabling more effective inventory and marketing strategies.

2.2. Case Study 2: Personalization in Digital Marketing

Zhang and Tan (2020) explored the role of big data in digital marketing personalization. By employing the AISAS model (Attention, Interest, Search, Action, Share), the study illustrated how businesses could engage consumers at every stage of the decision-making process. So, in step Attention, we can capture interest through targeted advertisements tailored to browsing behavior. In steps Interest and Search, we can use data-driven content to sustain engagement by offering information aligned with consumer interests. In step Action we can facilitate purchases through personalized recommendations and streamlined checkout processes. In step Share we can encourage post-purchase sharing to create user-generated content, reinforcing brand loyalty.

3. Research Methodology

This research analytically combines the analysis of the specialized literature with the presentation of a case studies, in order to carry out an analysis on the recurring insights and challenges in big data applications related to consumer behavior.

Specialized literature: an analytical and exploratory review of the specialized literature on keywords such as consumer behavior, big data, data analytics, predictive analytics, artificial intelligence, behavioral patterns and segmentation established a theoretical basis for this work. This review included academic journals, industry reports and case studies focused on using big data in consumer behavior.

Case studies: selected cases provide real-world examples of how theoretical models apply in practice, serving as embedded units of analysis. Analysis were carried out on how big data could refine business strategies and the role of big data in digital marketing personalization. This case studies examined how analyzing transactional data retailers identified high-demand products and adjusted their inventory accordingly and how businesses could engage consumers at every stage of the decision-making process by employing the AISAS model.

Therefore, this approach provides valuable results of both conceptual foundations and practical implications while maintaining academic rigor.

4. Results and discussion

This study set out to examine the role of big data in shaping consumer behavior insights and marketing decision-making. The findings from the literature and case analyses confirm that big data analytics is not only transforming how consumer behavior is studied but also how marketing strategies are formulated and executed in practice.

The integration of big data into consumer behavior analysis reshapes how companies strategize marketing activities. Big data offers a new layer to the Theory of Planned Behavior and other decision-making models by incorporating real-time data points. It enables moving from self-reported behavior to observed behavior (Erevelles et al., 2016).

The case study of Thai local retail optimization (Jitsoonthronchaikul et al., 2019) demonstrates how big data operationalizes segmentation and personalization in physical retail settings. By tailoring inventory and layouts based on consumer data, businesses not only

enhance customer satisfaction but also improve operational efficiency. This exemplifies the application of big data in supporting localized marketing strategies.

The digital marketing personalization case (Zhang & Tan, 2020) shows how big data supports dynamic customer engagement using the AISAS model. By automating personalized responses across the attention-to-action journey, businesses can deepen engagement and influence behavior in real-time, strengthening the relevance of content and offers.

The advantages of big data in consumer behavior analysis are substantial. One of them is Enhanced Targeting: through which big data enables businesses to segment consumers more effectively, ensuring that marketing messages resonate with specific demographics and preferences. Real-Time Adaptability represent another advantage through the velocity of big data allows marketers to respond to changes in consumer behavior almost instantly, ensuring relevance in campaigns.

Another advantage is represented by Customer-Centric Strategies through which data-driven insights enable companies to develop marketing strategies that meet customer needs, increasing satisfaction and loyalty. Informed Decision-Making represent an advantage because big data reduces reliance on intuition, providing concrete evidence to support marketing decisions.

The effective implementation of big data analytics in consumer behavior faces several challenges. These challenges are Data Integration which represents combining data from diverse sources requires advanced infrastructure and expertise (Saura et al., 2021). An example is integrating unstructured data such as social media comments with structured data like sales figures remains complex.

Another challenge is Data Quality. Ensuring the reliability of data remains a significant hurdle. Poor-quality data can lead to inaccurate predictions, undermining marketing strategies (Gandomi & Haider, 2015).

Cost and Scalability represent another challenge because developing and maintaining big data systems is resource-intensive, limiting accessibility for smaller businesses (Bughin et al., 2016). Another challenge is the Complexity of Interpretation. The vast volume of data often necessitates specialized skills in data science and analytics. Misinterpretation of results can lead to companies to take wrong decisions.

While big data offers substantial benefits, it also raises ethical concerns, particularly around privacy. According to André et al. (2017) who highlight the boundary conditions of the preference for autonomy in choice: while consumers appreciate tailored experiences, they may also feel their ability to make autonomous choices is compromised by invasive data collection practices.

As consumers become more aware of data collection practices, businesses face pressure to adopt transparent policies. Thus, data privacy regulations, such as the General Data Protection Regulation (GDPR) in Europe and the California Consumer Privacy Act (CCPA) in the United States, have been developed, imposing strict rules on data collection and use (Saura et al., 2021). These regulations emphasize obtaining informed consent, anonymizing data, how data is used by companies or other institutions, and providing consumers with increased control over their information collected by other companies or even government institutions.

Conclusion

This study has shown how big data has changed the role of understanding and influencing consumer behavior. A look at academic literature and analysis of two illustrative case studies, local retail optimization in Thailand and digital marketing personalization via the AISAS model, show that big data gives marketers better ability to monitor, forecast, and influence consumer actions in digital and physical environments.

www.etimm.ase.ro

From the theory point, big data enriches classical models of consumer behavior by offering behavioral insights at a granular and dynamic level, thus forming a new research paradigm of accurate, real-time and predictive stand in decision-making, integrating as well both structured and unstructured data sources. Results indicate that companies who can leverage big data accurately will be able to develop more precise segmentation, messaging and adaptive marketing strategies in line with fast-changing consumer preferences.

Though not without challenges, big data quality, ethical data usage, system scalability, and the complexity of interpreting data continue to be major constraints. Constraints have also extended to the realization of the full potential of big data, with quality and ethical use on data privacy and consumer autonomy, that responsible governance frameworks and practices have become increasingly emphasized.

Big data presents enormous strategic benefits in the context of customer engagement and competitive positioning. However, we must ensure that big data is used strategically, ethically, and with a proper understanding of its limitations. The future of the analysis of consumer behavior, therefore, rests on the ability to balance technological acumen with human-centric values and ethical responsibility.

From this paper result some practical insights for marketing professionals. Companies should investment in data infrastructure and analytics capabilities first. This should include not only technology (for example, cloud platforms and machine learning tools) but also the workforce to work on raw data for marketing insights. Managers should use big data to help create a deeply personalized consumer experience. Analyzing behavioral and contextual data will enable firms to customize product recommendations, communications, and engagement strategies in ways that lead to conversion and loyalty.

The speed at which big data moves gives marketing teams the power to act on consumer signals right away. This agility is key in fast markets because it allows for adaptive pricing as well as promotions, and dynamic content delivery. Getting value from big data requires cooperation from different departments of the organization. Marketing, IT, customer service, and data analytics need to come together to ensure good data quality, relevance, and alignment with the business goals.

By integrating these practices, businesses can improve their marketing effectiveness and also cultivate deeper, trust-based relationships with the consumers. This would eventually turn big data from being a mere technological asset into a sustainable competitive advantage.

However, this paper acknowledges certain limitations in the examples used in the case studies are illustrative but focused primarily on retail and digital marketing contexts. . Further studies should consider sector-specific dynamics that shape how big data is utilized in consumer behavior analysis. Also, cultural, regulatory, and consumer behavior patterns vary significantly across regions, which may influence the relevance of certain data strategies. A cross-cultural comparative analysis would enrich the understanding of how big data practices must be adapted in different socio-economic contexts. Big data technologies, platforms, and analytics capabilities are evolving rapidly. Therefore, some tools or methods referenced in this study may become outdated or replaced by more advanced systems in the near future.

References

André, Q., Carmon, Z., Wertenbroch, K., Crum, A., Goldstein, W., Huber, J., Boven, L., Weber, B., & Yang, H. 2017. Consumer choice and autonomy in the age of AI and big data. *Customer Needs and Solutions*, 5(1), 28–37.

Bughin, J., Chiu, M., Manyika, J. 2016. Ten trends redefining enterprise IT infrastructure. *McKinsey Quarterly*.

Chkoniya, V. 2021. Challenges in Decoding Consumer Behavior with Data Science. *European Journal of Economics and Business Studies,* [e-journal] 7(1). 10.26417/897ovg79t

Degermen, H., A., & Mohammadabbasi, M. 2023. Using Big Data in Analysis of Consumer Behavior: A Qualitative Study. *Kırklareli University Journal of the Faculty of Economics and Administrative Sciences,* 12(1), 100-122

Erevelles, S., Fukawa, N., & Swayne , L. 2016. Big Data consumer analytics and the transformation of marketing. *Journal of Business Research*, 69(2), 897–904.

Fang, Z., Li, P. 2014. The Mechanism of "Big Data" Impact on Consumer Behavior[J].*American Journal of Industrial & Business Management*, 4(1).

Gandomi, A., & Haider, M. 2015. Beyond the hype: Big data concepts and analytics. *International Journal of Information Management*, 35(2), 137–144.

Jitsoonthronchaikul, M., Lomprakhon, c., Herabut, W., Chuerdbunmueng, S., & Benjasri, T. 2019. Challenges in using big data for consumer behavior. *MFU Connexion*, 8(2), 63–76.

Laney, D. 2011. 3D data management: Controlling data volume, velocity, and variety. *META Group*.

Saura, J.R., Palos-Sanchez, P., & Suarez, L., M., C. 2021. Understanding the digital marketing environment with big data. *Journal of Business Research*, 124, 599–606.

Yongzhou, W., & Yan, D. 2016. Analysis of Consumer Purchase Decision Behavior Based on Big Data Forecast. *Business Economics Research.* (23).

Zhang, C., & Tan, T. 2020. The impact of big data analysis on consumer behavior. *Journal of Physics: Conference Series*, 10.1088/1742-6596/1544/1/012165.

Resistance and Adaptation: How Senior Professionals in Advertising Relate to AI

Dalia POLEAC
The Bucharest University of Economic Studies
dalia.poleac@fabiz.ase.ro

Georgeta IONESCU
Faculty of Sciences, Physical Education and Informatics
National University of Science and Technology POLITEHNICA Bucharest, University Center of Pitesti
georgeta.ionescu82@upb.ro

Abstract
In recent years, the mass adoption of artificial intelligence (AI) tools capable of generating creative content, such as images, videos, and text, has transformed the way creative professionals work. Since the release of ChatGPT in November 2022, AI has become a focal point of interest. Research comparing ideas produced by generative AI with those generated by humans has gained traction. Our study is a qualitative investigation aimed at identifying perceptions regarding the use of AI in creative agencies and exploring how creative workers leverage this technology. We conducted interviews with key figures, including senior creative directors and agency founders, throughout Europe. The purpose of the study is to help readers understand the general impact of artificial intelligence on creative processes and the mindset of creative workers, addressing questions about the adoption of AI in advertising agencies, the implications of training creative professionals with AI tools, and the possible future repercussions of using AI on agency clients. The findings highlight the implications of AI on the perception and workflow of creative professionals in advertising, particularly in light of existing regulatory gaps, ethical concerns, and the hesitance among creative workers to fully embrace this technology. The findings also indicate a more subtle and less overt adoption of AI for commercial applications in communication, such as advertising design. Additionally, there is a growing usage of AI automation tools in business, to aid research, which could eventually lead to the replacement of certain services traditionally offered by advertisers. We conclude by discussing future research directions on AI and its potential impact on the advertising industry.

Introduction

Since 2020, the advertising industry has faced a decline resulting from changes in consumer behavior. Creative agencies and professionals in this sector have had to discover innovative methods for brand development and seek larger concepts, and also how to leverage technology (Ford et al., 2023). A key aspect of advertising creativity is often defined as the "big idea" that forms the foundation of a campaign (Hill and Johnson, 2003). As AI increasingly plays a role in brainstorming and research for insights, the significant ideas proposed by agencies are being reevaluated, requiring contributions from both human expertise and technology(Wheeler and Pereira, 2004). In 2024, a campaign by Pedigree, created with AI, won one of the biggest prizes at Cannes Lions Festival, the biggest festival dedicated to the advertising industry. Numerous creative professionals have recently expressed enthusiasm for the ways in which AI improves their work; however, underlying concerns are growing about the potential negative impact of this technology on employment.

Following a review of previous studies on the topic of the implications of AI in advertising, we observed that this sector is highly affected by the mass adoption of AI, but no holistic analysis has investigated the perception of creative workers on the use of AI. Moreover, there are few studies on how creative processes change because of AI. Studies on digital technologies that impact the business model of creative agencies have been conducted (Ceccotti et al., 2024), concluding that these businesses need tech partnerships to outsource some activities in search of flexibility. Although articles that focus on quantitative studies do exist, therefore observing the topic in broadness (Thomas et al., 2024; Daly, Hearn and Papageorgiou, 2025), we have observed a low number of works focusing on depth, meaning, there is an apparent lack of detailed analysis on individual experience with AI use. AI is a field that grows tremendously fast, and we consider it important to capture the moment in time at which this article is written. Therefore, with this work, we aim to bridge a research gap that we have identified, namely the lack of qualitative research in the literature.

The objective of the study is to illustrate, in detail, the manner of adoption and the attitude towards the adoption of AI in various European enterprises, by interviewing some of their central people in order to capture their personal experience with AI adoption in a work environment. This article has the following structure: in the first part, we examine the existing literature, also establishing the main purposes of advertisement. In the second, we explain the methodology that we have used, based on the literature. In the third, we illustrate the results of our research based on the methodology. In the fourth section, we discuss our results. In the fifth, we express our conclusions based on the previous chapters. Finally, we express the limitations of our study given the novelty of the topic of investigation.

1. Literature review

Advertising delivers applied creative services to businesses. According to Hill and Johnson (2003), these creative outcomes can be classified as follows: predominantly intangible (representations of ideas), intellectual property based on the advertiser's brief, typically formal based on an agreement – contract, highly customized, people-based. The creative services provided by creative agencies are social media marketing, content production, graphic design, paid ads, and strategic planning. Advertising and marketing are two sectors which support businesses, both focusing heavily on identifying novelty in the world and then exploiting it, through strategic insights (Lovelock, 1983; Zinkhan and Watson, 1996). The diagram in Figure 1 illustrates the various components and processes that influence the corporate image and customer attitudes. At the center lies the 'Corporate Image', which is directly related to 'Customer Attitudes'. Besides this core element are several key factors that play a significant role, including: products and services, the products of a company that directly impact consumer perceptions; advertising, messages and campaigns that inform and shape customer belief; public relations, efforts to manage company reputation and public perception; word of mouth, consumer discussions and recommendations that influence opinions about the brand; employees, the role that staff interactions play in shaping corporate image; atmospherics: the physical and emotional environment experienced by customers; litter, the impact of cleanliness and orderliness on brand perception; news stories, media coverage that can enhance or detract from corporate image, signs: visual elements that represent the brand and its messaging; personal experiences, individual customer encounters with the brand that impact their overall attitude.

Various definitions of advertising have been listed over the years. From its existence as oral expression prior to the invention of the printing press, advertising became a proper corporate service in the nineteenth century. The first agency was founded in 1841 by Volney P. Palmer (1799–1864). Later, Raymond Williams described advertising as 'the official art of

capitalist society' (Williams, 1961). Ogilvy views advertising as a medium of information, rather than an art form or entertainment, and wants the audience to see the advertising as interesting not creative (Ogilvy, 2023). According to these perspectives and the customer's attitude, advertising is definitely the sector which generates interesting and insightful big ideas, supporting brands to communicate their products and services and generate revenues (Sheehan and Morrison, 2009).
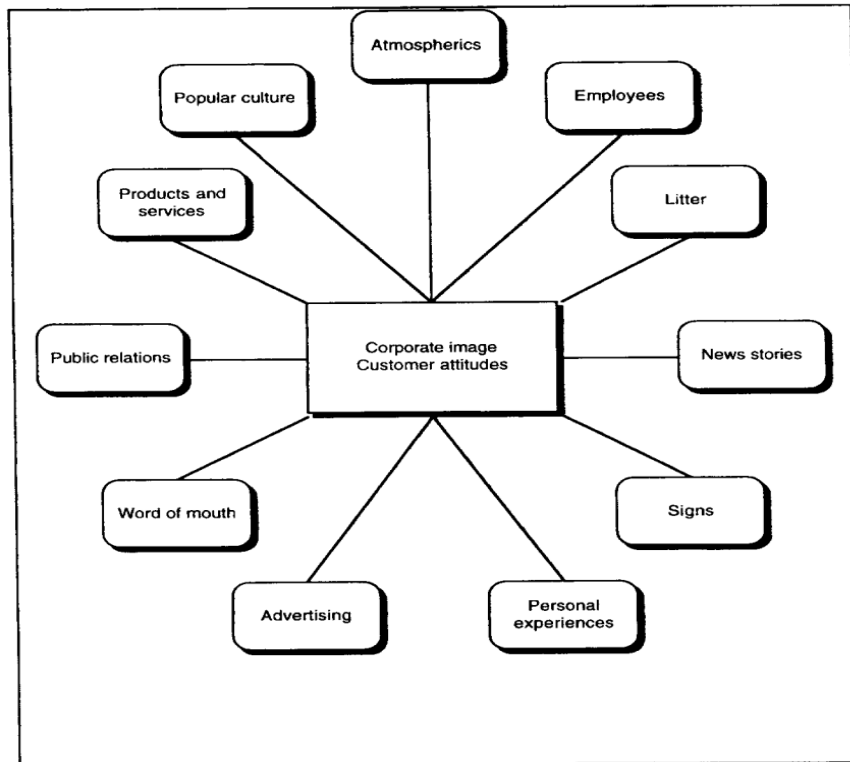
Figure 1. Components and processes that influence corporate image and consumer attitudes
Source: Zinkhan and Watson (1996), p.165

Advertising has three primary objectives: to inform, to persuade, and to remind (Mounir, 2023). One major drawback of advertising is its high cost, particularly with television ads, while print and digital options tend to be cheaper. Additionally, the effectiveness of reaching audiences is challenged by today's crowded media landscape, making it difficult for marketers to measure success and gather consumer feedback. To address these challenges, brands are increasingly turning to innovative strategies that leverage advanced technology, particularly artificial intelligence (AI). Artificial intelligence (AI) is transforming the creation, strategy, and execution of advertising campaigns. According to the report 'Think Big with AI' (Semrush, 2025), 67% of businesses used AI for content marketing and SEO in 2023. This indicates that AI in advertising is more than just a trend; it is an essential tool to maintain competitiveness and effectively meet customer needs.

The main objectives of advertising and how they were tackled with the use of AI:

To inform. In 2023 McDonald's 'Most Iconic Burger' campaign leveraged AI-driven insights to effectively highlight the cultural significance of the Big Mac, informing audiences of its status as the world's most recognized burger. Using data analytics, this campaign clarified the importance of Big Mac in fast food culture, highlighting its iconic status. Heinz's campaign that utilized DALL-E 2 to create AI-generated images also served a strong informative purpose. By showcasing visuals that clarified the association between ketchup and Heinz, the campaign educated consumers about why Heinz stands out from other ketchup brands, resulting in high

engagement and significant visibility in media coverage. As reported by About Marketing (2024), this strategy not only revitalized the 153-year-old brand, but also resulted in more than 850 million earned impressions, yielding a remarkable 2500% return on the media investment. The campaign success was further illustrated by a 38% increase in social media engagement compared to previous initiatives and prompted collaborative efforts with other brands for creative AI ketchup image mashups.

To persuade. Coca-Cola's innovative media buying campaign aimed to persuade advertisers of its commitment to supporting journalism while addressing the rise of disinformation. By partnering with Adelaide tech company and using eye tracking technology and AI to measure contextual signals, Coca-Cola developed a media buying algorithm that improved the results of advertising for news brands. This initiative led to an increase in the recall of ads by 16%, a 36% increase in the impact of the ads (Adelaide Metrics, 2024), and up to seven times more impressions across news brands. The campaign successfully reinforced Coca-Cola's stance as a socially responsible advertiser, fostering trust in the media while driving better business outcomes. Honda's campaign featuring HARVEY, a voice-activated AI website, focused on the objective of persuading younger Australian consumers. By simplifying the car buying experience and providing engaging, interactive responses to inquiries about the Honda HR-V, HARVEY effectively persuaded potential buyers by focusing on convenience and fun in the research process. Devised by creative agency Leo Burnett, the campaign resulted in over 20,000 conversations in just two months (Leo Burnett Australia, 2023), demonstrating how it successfully influenced purchasing decisions, particularly with the immediate sell-out of the hybrid model. Telekom's 'Beethoven X – The AI Project', designed by DDB, also aimed to persuade audiences of the positive potential of AI. By showcasing AI's ability to complete Beethoven's unfinished 10th symphony, the campaign positioned Telekom as a leader in innovative technology, persuading customers of the brand's commitment to enhancing human creativity through technological advancements.

To remind. AnNahar's "AI President" campaign aimed to remind Lebanon's citizens and government officials of the potential for objective leadership in a politically turbulent environment. Using 90 years of historical data, the initiative showcased the importance of data-driven governance. This campaign effectively reinforced the message that informed decision making can lead to positive change, encouraging audiences to consider new paradigms of leadership and governance. It garnered AnNahar its highest readership ever, generating more than 100,000 responses, significant media coverage worth more than $25 million, and increased website visits and subscriptions (Contagious, 2024).

In general, these examples illustrate how brands adapt their advertising strategies to overcome traditional challenges by leveraging technology such as AI, allowing them to inform, persuade, and engage audiences more effectively in a crowded market. The AI tools and technologies used in these campaigns included CoPilot for data optimization, DALL-E 2 for image generation, eye tracking technology for contextual insight measurement, and voice-activated systems for interactive engagement. By augmenting creative processes, improving efficiency, and driving impact, these technologies showcase the transformative potential of AI in modern advertising. Brands are not only achieving substantial business outcomes, but also navigating the complexities of a rapidly evolving media landscape, fostering greater consumer trust and engagement along the way.

The figure designed by semruch.com outlines AI-Powered Advertising, focusing on several key areas (Figure 2). Initially, user input and segmentation involve defining campaign goals and target audiences, with AI analyzing data to create precise segments. In the ad creation and targeting phase, AI tools assist in generating ad copy and designs tailored to specific audiences, guided by human input. Following launch, platforms such as Google and Meta use

AI to automate scheduling, bidding, and optimization for effective campaign management. Performance monitoring is continuous, with AI tools providing real-time insights for adjustments. Lastly, optimization and expansion are driven by performance data, where AI suggests improvements and identifies new scaling opportunities, improving overall advertising effectiveness and efficiency.
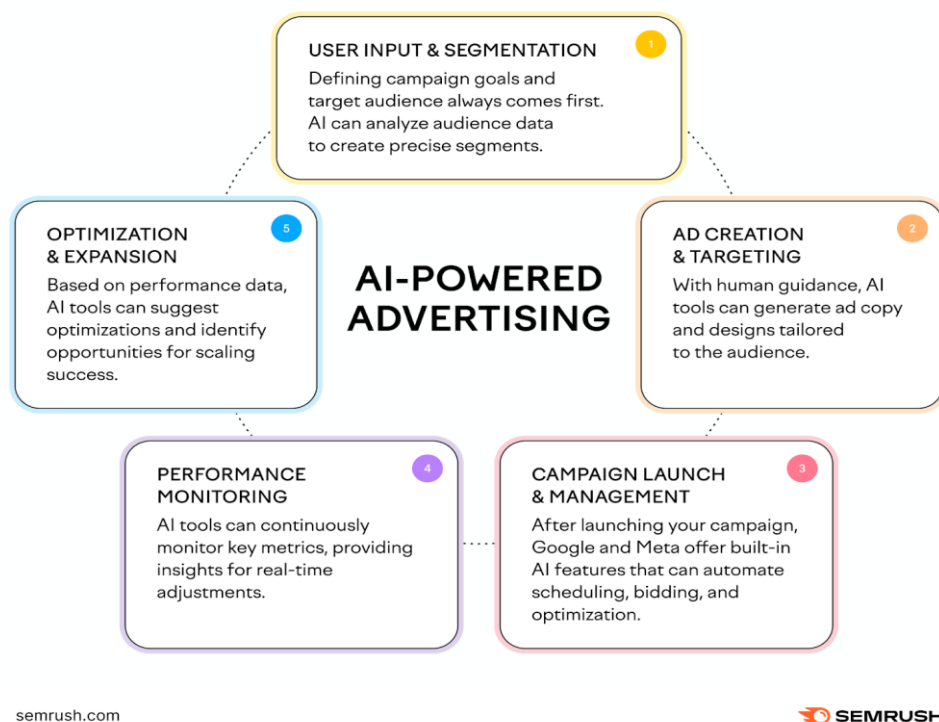
Figure 2. AI-Powered Advertising

Source: Semrush, 2025

Overall, AI is used more in some economic activities than in others, as shown in Figure 3. This can indicate that AI could be more relevant for specific activities; in 2024, the sector where AI adoption is more widespread is that of Information and communication, with 48.72%, which comprises advertising (Eurostat, 2025).
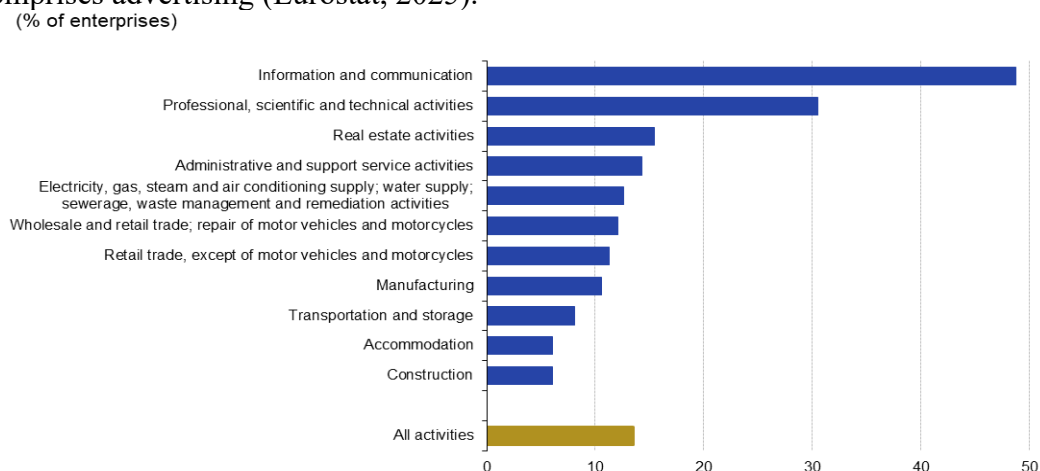
Figure 3. Enterprises using AI technologies by economic activity, EU, 2024

Source: Eurostat, 2025

The Publicis report '2025 Media Innovation Outlook' (Publicis Media, 2025) outlines key trends and insights into how AI and related technologies are transforming the media landscape and consumer interactions. As we move into 2025, AI is reshaping media experiences, turning consumers into co-creators, and deepening brand loyalty through personalized interactions (Publicis Media, 2025).

The growing academic research of recent years has offered insight into the potential uses, functions, features, and challenges of AI advertising (Hocutt, 2024). When technology is integrated in the team and agency, it becomes mixed with their creative know-how and can thus ignite creativity, generate insights, and activate processes (Ceccotti et al., 2024). Deciding whether to include AI in agency operations is an adoption of innovation. This innovation includes all tools that can be used to plan, strategize, create, and produce. Studies support the adoption of these tools (O'Connor et al., 2018). Integrating AI knowledge in advertising agencies can be challenging. As we can observe from previous studies on knowledge acquisition, individuals in the IT sector, developers, and AI enthusiasts, often perceive knowledge as an enhancement of information, whereas those in the natural sciences view information as a dilution of knowledge. In the former case, common metaphors revolve around communication channels and computers, while in the latter case, the focus tends to be on physical objects (Brătianu, 2015). This distinction highlights how creatives in advertising could display resistance to experimentation and the use of AI, as they may favors traditional methods and insights over the technological advances shaping other industries.

The widespread integration of generative AI in modern workplaces requires a thorough examination of the related challenges. While the implementation of algorithmic decision-making processes, developed by numerous companies, has introduced new operational approaches, it also disrupts conventional knowledge systems by reshaping authority structures, coordination methods, and evaluation processes, leading to transformative changes within industries (Benbya, Davenport and Pachidi, 2020). According to Colther and Doussoulin (2024), it is essential to create AI systems that work alongside human intelligence instead of replacing it. These systems should be developed to augment and strengthen human cognitive abilities and decision making, thereby fostering significant contributions and supporting individual independence (Colther and Doussoulin, 2024).

Agentic AI is a type of artificial intelligence that is all about doing, about acting autonomously to achieve goals, make decisions, take actions, and adapt to environments that are changing (Marr, 2025). Agentic AI can be introduced in advertising agencies to improve productivity and maintain quality, while automating processes and managing several proposals at the same time. This can benefit agencies in the short term and in the long term it can help them redefine business models and increase creativity through human-machine integration. While AI agents are increasingly encroaching on the territory of what has long been considered a uniquely human domain: intellectual creativity (Kalpokiene and Kalpokas, 2023), it is important to recognize that copyright law currently lacks established rules and doctrines addressing the role of AI.

Although AI has the capacity to enhance the meaningfulness of work by taking over routine tasks, enabling employees to engage in more complex and fulfilling roles, it can also reduce work meaningfulness by undermining workers' autonomy, diminishing the use of their skills, affecting the significance of their tasks, and impacting interpersonal relationships among colleagues (Bankins and Formosa, 2023). In 2022 IQ Ads launched a provocative campaign by SAATCHI Creative HUB Bucharest for the fictitious Artificial Creativity Future Company to emphasize the value of human creativity in the face of advancing AI technology. By creating a fictional narrative around the idea of AI replacing creative professionals, the campaign sought

to engage Romania's creative sectors through controversy. The campaign featured advertorials with a made-up CEO named Yuki Saki, intentionally tapping into the fears and concerns of creatives regarding automation's potential threat to their industry. The challenge was to provoke meaningful discussions without causing outright outrage, ultimately aiming to reaffirm the irreplaceability of human creativity. The results were remarkable, generating significant attention and dialogue within the Romanian creative community. The fabricated CEO's interviews sparked a mix of outrage and curiosity, rapidly spreading across social media and press outlets.

In the context of the adoption of artificial intelligence by the advertising industry, this article aims to explore how creative leaders perceive this transformation. It seeks to understand their experiences with AI, as well as the primary challenges and opportunities they have identified based on their insights. This paper investigates the following:

Question 1: How do senior creative directors, agency founders, and tech experts in the field with over 10 years of experience in advertising relate to AI?

Question 2: How do creative workers use AI?

Question 3: How are agency clients impacted by AI adoption?

2. Research Methodology

To achieve this objective, we employed a qualitative research approach that involves conducting in-depth interviews (Creswell and Poth, 2017). We selected 9 creative professionals, with over 10 years of experience in advertising, working in different countries in Europe. Romania, Germany, Italy, Holland, Poland, Cyprus, Serbia, Austria and Portugal. The choice to approach this research through this method was related to the objective of understanding 'how' AI is changing the advertising industry, thus generating a holistic view on the evolution of this technology and the challenges faced by the industry. Furthermore, expert interviews facilitate the effective gathering of data, particularly from niche or specialized areas that are often not publicly accessible (Bogner, Littig and Menz, 2009; Von Soest, 2023).

2.1. Sampling and informants

A total of 9 interviews with communication experts were conducted. The respondents come from companies located in capital cities all over Europe. The choice to have this diversity is: because of the international character of agencies such as DDB or Leo Burnett (global advertising networks), some of them are connected through the Arts Director Club community. Additionally, we selected figures who were able to share their experience with AI from different angles, which enriched this study. The interviewees belong to three categories (Table 1):

Category 1: Executive creative directors (n=3), to examine perception and how AI is implemented at the creative department level.

Category 2: Agency owners (n=3), to understand how AI is impacting the entire creative process, from briefing to strategy to production.

Category 3: Head of technology departments (n=3), to identify their vision of change.

We adopted the key informant approach as outlined by Robson and Foster (1989). This method was used to gather insights from the perspectives of senior leaders, as emphasized by Warner & Wäger (2019).

Table 1. Study informants (n = 9).

N	Category of worker	Country	Jobs in Advertising	Professional experience (n. of years)	Current company	Gender
1	Executive creative director	Cyprus	Creative Director	15	ReD Brand Design	M
2	Executive creative director	Italy	Brand and Creative VP	25	Translated	F
3	Head of technology	Holland	Global Head of Creative Technology	17	DDB	M
4	Founder	Poland	Co-founder	12	adaily.co	M
5	Executive creative director	Austria	Executive Creative Director	19	KUBRIK	M
6	Head of technology	Romania	Data Intelligence Director	14	Leo Burnett	F
7	Head of technology	Germany	Regional Vice President Regulated Industries	11	Salesforce	M
8	Founder	Serbia	Founder	15	Nura* digital	F
9	Founder	Portugal	Independent Creative Director and Co-Founder	13	Mafalda & Francisco	F

Source: Authors' research

2.2. Data Collection

When developing the interview guide, we initially employed broad descriptive questions to capture the interviewees' perspectives on working with AI and to introduce the interview topic. We partially adapted the interview guide to match the profile of the interviewee. The interviews were conducted via Meet, between February and December 2024, and recorded.

2.3. Data Analysis

A transcript was used for the analysis of thematic content (King and Horrocks, 2010). The duration of the conversations ranged from 30 to 45 minutes. The text was first analyzed and segmented into main ideas relevant to the research objectives. From this division, specific 'descriptive codes' were extracted, which encapsulate the themes in detail. This process of utilizing descriptive codes led to logical abstractions, ultimately resulting in the identification of conclusions and potential future research hypotheses. In accordance with the research objectives, distinct coding patterns were identified and are presented in the following table, which includes examples to illustrate the abstraction process (Table 2).

Table 2. Coding Examples

Interviewee	Interview Extract	Code
Research objective 1:		
How do senior workers relate to AI?		
Head of technology	For creative professionals and businesses, predictability and control are essential. However, with AI now resembling a black box, our goal is to provide individuals with control over this uncertainty, ensuring they regain the level of control they need.	Control
Executive creative director	When it comes to the delay in protection, the clear economic benefits often lead to a scenario where economics takes precedence over ethics.	Ethics
Head of technology L.B.	Large corporations such as Coca-Cola are hesitant to use AI-generated ads due to the absence of regulations. They fear	Regulation

	potential lawsuits arising from the use of copyrighted material.	
Head of technology	It didn't take long – just a matter of months – until the real question emerged: how do you make AI-generated work not look like it was created by AI?	Trust
Founder	The question is not if we use AI but how much AI shall we use?	
Head of technology L.B.	In 2023, we began to integrate AI into our operations with the goal of enhancing the creative process. We were fortunate to collaborate with a creative individual who is passionate about AI during this journey. However, we faced resistance, particularly within the creation department, and we are still working through these challenges.	Resistance
Research objective 2: **How do creative workers use AI?**		
Executive creative director	AI is influencing entry-level positions. We first send the brief to AI and then present the ideas generated to the creatives, stating: "This is your starting point!"	Idea generation and research
Founder	I use AI for research and concept design, at the level of drafting a brand strategy. I do not use it for creation.	
Head of technology	We used it for personal workflows…We started using something like Stable Diffusion for image generation, and then all the more commercial models came up.	Personal workflows
Head of technology	We are considering custom solutions that go beyond communication.	Personalization
Research objective 3: **How are agency clients affected by AI adoption?**		
Head of technology	Many of our clients are creative agencies.	AI Agents
Executive creative director	There will always be a creative director to orchestrate AI and people.	
Executive creative director	No traditional agency has fully embraced a new business model in response to the transformative impact of AI on the industry.	Resistance to change
Head of technology	I believe that large brands will be the last to adopt AI.	
Head of technology DDB	As production costs drop to zero, the value of genuinely creative work rises.	Reduction of cost
Head of technology S.	I can definitely say that a lot of the things that we have done in terms of qualitative research, as well as quantitative research, can now be done with a fraction of the cost.	
Executive creative director	Working with AI to produce ads may eliminate the journey to creation, stripping away the backstage experience.	

Source: Authors' research

3. Results
3.1. Interacting with AI

Through the insights gathered from the interviewees, we identified several codes that align with our three research objectives. First, we explored how senior creative directors, agency founders, and seasoned professionals with over a decade of experience perceive AI, focusing on themes such as control, ethics, regulation, trust, and resistance. Many contributors have pointed out that the integration of AI in creative work is still in its early stages, with creative teams in agencies facing significant resistance when encouraged to explore AI creative tools. The head of technology at L.B. shared insights into their experience with AI adoption, initially aimed at enhancing creativity, inspired by working with OpenAI's video generation model, Sora. One member from the art team expressed that they typically think in images, so being asked to generate them using prompts complicates their work rather than simplifies it; for them, drawing directly is a much quicker approach.

Others noted that feedback from end clients on AI-generated commercial content has fostered a sense of mistrust due to its 'too real' look. For instance, the head of technology at

S.F. mentioned that 2 years back, when they initially designed AI agents intended to assist individuals and companies with process automation (tools utilized by advertising agencies), they aimed to create a model with a personality, to make it feel more human. However, after receiving user feedback, they opted for a more animated character design, resembling a robot instead. Concerns arise regarding the prioritization of economic benefits over ethical considerations, particularly in light of potential delays in protection for creative work (Kazim and Koshiyama, 2021). In addition, big companies hesitate to utilize AI-generated ads due to lack of regulation and fear of legal repercussions related to copyright issues (Kalpokiene and Kalpokas, 2023).

3.2. Working with AI

Next, we explore how creative professionals are leveraging AI, specifically in areas such as idea generation and research, personal workflows, and personalization. Seven out of our nine contributors noted that AI is influencing entry-level positions by generating ideas from briefs, which creatives then use as their initial foundation. While AI is used to research and develop brand strategy concepts, it is less frequently applied in the actual creation phase. In some organizations, creative technologists or AI enthusiasts have been brought on board to assist the creative teams in adopting AI. A notable example of effective practice is L.B., where the head of technology hired someone who could develop custom tools for the department, incorporating a fun and engaging element alongside user-friendly technology to encourage creative professionals to utilize the tools.

The senior creative directors interviewed for this study exhibit less enthusiasm for incorporating AI into their personal workflows compared to heads of technology departments. This sentiment is similarly shared by agency founders who are shifting their focus towards advisory roles for businesses rather than purely creative pursuits. When discussing the future development of AI in advertising agencies, they foresight that AI agents will automate certain tasks and that new roles will emerge that integrate creativity with technology. However, they emphasize the continued significance of human creativity, viewing AI as a collaborative partner and researcher to aid in the generation of innovative ideas. Among the tools used by advertisers, we noted: ElevenLabs, Sora, Midjourney, ChatGPT, Stable Diffusion. In Industry 5.0 AI is seen as a complement to human creativity and work (Nikiforidis et al., 2025).

3.3. Impacting business

Finally, we investigated the impact of AI adoption on businesses, highlighting aspects like automation, resistance to change, and cost reduction. AI plays a crucial role in facilitating the monitoring of brand perception monitoring by analyzing comments and discussions, leading to quick insights that can significantly affect business strategies. In our research findings, it was highlighted that AI can generate communications that provide valuable key insights from customer feedback. Additionally, it allows for the transcription and review of all conversations within a call center, identifying the most pressing complaints. This capability not only enhances the understanding of consumer sentiment but also enables businesses to respond more effectively to customer concerns, ultimately driving improvement and fostering stronger relationships with clients.

Since the rise of social media platforms such as TikTok, much of communication has shifted towards immediate, specific interactions. There is less interest in developing a cohesive brand narrative. As a result of our research, we found that with the advent of social media, communication strategies have increasingly focused on immediate and precise engagements rather than on cultivating a comprehensive brand identity. This trend indicates a preference for brevity and relevance in messaging over traditional brand-building approaches. AI has the

potential to automate both content analysis and content generation, which may result in certain positions within marketing and advertising becoming redundant. However, companies benefit from cost savings by utilizing AI agents to perform these tasks. This integration of AI not only streamlines operations but also allows organizations to allocate resources more efficiently, enhancing overall productivity and enabling them to respond more quickly to market demands.

4. Discussion

AI is a rapidly evolving field. Innovations appear at a fast pace, and some aspects of AI implementation lag behind. In connection with our first research question, "How do senior creative directors, agency founders, and tech experts in the field with over 10 years of experience in advertising relate to AI?", this can be seen in the attitude of experts in the field, with feelings ranging from trust to resistance. According to similar research done by Daly et al. (2025), the foundation of trust in AI lays on the comprehension of its limitations and capabilities, its context of use, and human autonomy; the people who trust it the least can start trusting AI, should they deepen their understanding of it. Some participants also cite concerns on ethics and regulation, which confirms the observations of Ittefaq et al. (2025) and the conclusions in the IAB Europe Report (2024). As observed by Al-Busaidi et al. (2024), legal action can only arise from those holding rights to specific images.

For our second question, "How do creative workers use AI?", participants have cited idea generation, personal workflows, and personalization. This supports the ideas expressed by Holmström & Carroll (2024) who see prompt engineering as a skill that can be used by organizations to drive innovation through problem-solving, market research, content generation, decision support, prototyping and design. The implementation of AI models for fast idea visualization can be very productive and has great potential, according to Alcaide-Marzal and Diego-Mas (2025).

On our third question, "How are agency clients impacted by AI adoption?" respondents have also named, among others, resistance to change and reduction of cost, but also AI agency. This is a factor that could depend on each individual's openness toward innovation, as expressed by Thomas et al. (2024), who conclude that innovation appropriation, on an individual level, plays a determining role in adoption.

Conclusions

At the core of successful advertising lies creativity, which transforms standard messages into engaging campaigns that effectively resonate with audiences and deliver measurable results. The importance of creating internal tools, developed in collaboration with enthusiastic individuals, cannot be overstated; this approach can pave the way for a smoother adoption of AI technologies. Partnerships and teamwork are vital in ensuring that AI is leveraged to enhance processes rather than merely replace them. Companies like Publicis Group illustrate this by training AI solutions tailored to the profiles of creative professionals, providing valuable feedback that aligns with target audience expectations. This systematic methodology ensures that creativity is not only utilized but strategically applied to create compelling advertising solutions.

Tools like ChatGPT facilitate rapid content creation, idea generation, and personalized marketing, allowing advertisers to quickly produce creative assets that meet the growing demand for tailored experiences. However, the integration of AI also presents operational paradoxes, such as the conflict between the speed of content generation and the risk of producing low-quality output. This underscores the necessity for human oversight to maintain quality and reliability in advertising efforts. Ultimately, while generative AI has the potential to revolutionize the industry, it requires a balanced approach that marries technological

innovation with the irreplaceable insights of human creativity.

Concluding our research, it is evident that AI offers significant advantages for organizations, particularly in enhancing operational efficiency. However, until clear regulations and guidelines regarding legal aspects are established, such as those related to intellectual property rights, companies may hesitate to fully embrace its potential. Despite this uncertainty, the utilization of AI-generated content is primarily confined to internal use. Moreover, while the initial excitement surrounding AI suggested a desire to grant these agents a human-like persona, there must be caution. Overly realistic AI may lead to trust issues, as consumers may become wary of interactions that feel too human.

This article contributes to knowledge advancements by exploring, in depth, the impact of AI implementation in organizations, on an individual level. Our research attempts to complete the existing literature on the topic by nuancing the individual experience of experts in the field of advertising.

Our study comprises qualitative research with experts in advertising. However, some limitations should be acknowledged. First, the sample was quite low, with 9 respondents. The effectiveness of the research depends on the quality of the answers and their interpretation. Second, the subject of AI implementation in companies is very new. The adoption level is low and the adoption process is slow. Third, the research was done on articles written in the English language. Other international articles might reflect a different reality.

Future research could minimize the effect of these limitations by analyzing a larger amount of data with an evolved type of AI, that could also integrate research subjects and sources in other languages.

References

About Marketing, 2024. *aboutmarketing.pl*. [online] aboutmarketing.pl. Available at: <https://aboutmarketing.pl/> [Accessed 13 April 2025].

Adelaide Metrics, 2024. *Case Study: Coca-Cola | Brand Lift & Efficiency*. [online] Available at: <https://www.adelaidemetrics.com/case-studies/au-reveals-opportunities-to-increase-brand-lift-and-efficiencies-for-coca-cola> [Accessed 13 April 2025].

Al-Busaidi, A.S., Raman, R., Hughes, L., Albashrawi, M.A., Malik, T., Dwivedi, Y.K., Al-Alawi, T., AlRizeiqi, M., Davies, G., Fenwick, M., Gupta, P., Gurpur, S., Hooda, A., Jurcys, P., Lim, D., Lucchi, N., Misra, T., Raman, R., Shirish, A. and Walton, P., 2024. Redefining boundaries in innovation and knowledge domains: Investigating the impact of generative artificial intelligence on copyright and intellectual property rights. *Journal of Innovation & Knowledge*, 9(4), p.100630. https://doi.org/10.1016/j.jik.2024.100630.

Alcaide-Marzal, J. and Diego-Mas, J.A., 2025. Computers as co-creative assistants. A comparative study on the use of text-to-image AI models for computer aided conceptual design. *Computers in Industry*, 164, p.104168. https://doi.org/10.1016/j.compind.2024.104168.

Bankins, S. and Formosa, P., 2023. The Ethical Implications of Artificial Intelligence (AI) For Meaningful Work. *Journal of Business Ethics*, 185(4), pp.725–740. https://doi.org/10.1007/s10551-023-05339-7.

Benbya, H., Davenport, T.H. and Pachidi, S., 2020. *Artificial Intelligence in Organizations: Current State and Future Opportunities*. Available at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3741983> [Accessed 13 April 2025].

Bogner, A., Littig, B. and Menz, W., 2009. Introduction: Expert Interviews — An Introduction to a New Methodological Debate. In: A. Bogner, B. Littig and W. Menz, eds. *Interviewing Experts*. [online] London: Palgrave Macmillan UK. pp.1–13.

https://doi.org/10.1057/9780230244276_1.

Brătianu, C., 2015. *Organizational Knowledge Dynamics: Managing Knowledge Creation, Acquisition, Sharing, and Transformation*. [online] ResearchGate. Available at: <https://www.researchgate.net/publication/281032869_Organizational_Knowledge_Dynamics_Managing_Knowledge_Creation_Acquisition_Sharing_and_Transformation> [Accessed 13 April 2025].

Ceccotti, F., Vernuccio, M., Mattiacci, A. and Pastore, A., 2024. Traditional agencies on bridges: How is digital transformation changing business models? *Journal of Management and Governance*, pp.1–39. https://doi.org/10.1007/s10997-024-09703-1.

Colther, C. and Doussoulin, J.P., 2024. Artificial intelligence: Driving force in the evolution of human knowledge. *Journal of Innovation & Knowledge*, 9(4), p.100625. https://doi.org/10.1016/j.jik.2024.100625.

Contagious, 2024. *Creativity is Contagious*. [online] Contagious. Available at: <https://www.contagious.com/> [Accessed 13 April 2025].

Creswell, J.W. and Poth, C.N., 2017. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. SAGE Publications.

Daly, S.J., Hearn, G. and Papageorgiou, K., 2025. Sensemaking with AI: How trust influences Human-AI collaboration in health and creative industries. *Social Sciences & Humanities Open*, 11, p.101346. https://doi.org/10.1016/j.ssaho.2025.101346.

Eurostat, 2025. *Use of artificial intelligence in enterprises*. [online] Available at: <https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Use_of_artificial_intelligence_in_enterprises> [Accessed 13 April 2025].

Ford, J., Jain, V., Wadhwani, K. and Gupta, D.G., 2023. AI advertising: An overview and guidelines. *Journal of Business Research*, 166, p.114124. https://doi.org/10.1016/j.jbusres.2023.114124.

Hill, R. and Johnson, L.W., 2003. When Creativity is a Must: Professional 'Applied Creative' Services. *Creativity and Innovation Management*, 12(4), pp.221–229. https://doi.org/10.1111/j.0963-1690.2003.00285.x.

Hocutt, D.L., 2024. Composing with generative AI on digital advertising platforms. *Computers and Composition*, 71, p.102829. https://doi.org/10.1016/j.compcom.2024.102829.

Holmström, J. and Carroll, N., 2024. How organizations can innovate with generative AI. *Business Horizons*. [online] https://doi.org/10.1016/j.bushor.2024.02.010.

IAB Europe, 2024. *IAB-Europe-and-Microsoft-AI-in-Digital-Advertising-Report-2024.pdf*. [online] Available at: <https://iabeurope.eu/wp-content/uploads/IAB-Europe-and-Microsoft-AI-in-Digital-Advertising-Report-2024.pdf> [Accessed 13 April 2025].

Ittefaq, M., Zain, A., Arif, R., Ala-Uddin, M., Ahmad, T. and Iqbal, A., 2025. Global news media coverage of artificial intelligence (AI): A comparative analysis of frames, sentiments, and trends across 12 countries. *Telematics and Informatics*, 96, p.102223. https://doi.org/10.1016/j.tele.2024.102223.

Kalpokiene, J. and Kalpokas, I., 2023. Creative encounters of a posthuman kind – anthropocentric law, artificial intelligence, and art. *Technology in Society*, 72, p.102197. https://doi.org/10.1016/j.techsoc.2023.102197.

Kazim, E. and Koshiyama, A., 2021. *A High-Level Overview of AI Ethics*. Available at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3609292> [Accessed 13 April 2025].

King, N. and Horrocks, C., 2010. *Interviews in Qualitative Research*. [online] SAGE Publications Ltd. Available at: <https://uk.sagepub.com/en-gb/eur/interviews-in-qualitative-research/book241444> [Accessed 13 April 2025].

Leo Burnett Australia. 2023. Directed by HONDA - HARVEY CASE STUDY. Available at: <https://www.youtube.com/watch?v=ib2A2s2kLds> [Accessed 13 April 2025].

Lovelock, C.H., 1983. Classifying Services to Gain Strategic Marketing Insights. *Journal of Marketing*, 47(3), pp.9–20. https://doi.org/10.2307/1251193.

Marr, B., 2025. *Generative AI Vs. Agentic AI: The Key Differences Everyone Needs To Know*. [online] Forbes. Available at: <https://www.forbes.com/sites/bernardmarr/2025/02/03/generative-ai-vs-agentic-ai-the-key-differences-everyone-needs-to-know/> [Accessed 13 April 2025].

Mounir, A.S., 2023. An Overview of the Functions and Role of Advertising as a Communication Tool in Belarus, Egypt, and the UK. *World Journal of Social Science Research*, 10(2), p.p29. https://doi.org/10.22158/wjssr.v10n2p29.

Nikiforidis, K., Kyrtsoglou, A., Vafeiadis, T., Kotsiopoulos, T., Nizamis, A., Ioannidis, D., Votis, K., Tzovaras, D. and Sarigiannidis, P., 2025. Enhancing transparency and trust in AI-powered manufacturing: A survey of explainable AI (XAI) applications in smart manufacturing in the era of industry 4.0/5.0. *ICT Express*, 11(1), pp.135–148. https://doi.org/10.1016/j.icte.2024.12.001.

O'Connor, H., Kilgour, M., Koslow, S. and Sasser, S., 2018. Drivers of Creativity Within Advertising Agencies: How Structural Configuration Can Affect and Improve Creative Development. *Journal of Advertising Research*, 58(2), pp.202–217. https://doi.org/10.2501/JAR-2017-015.

Ogilvy, D., 2023. *Ogilvy on Advertising*. Welbeck Publishing.

Publicis Media, 2025. - *Future FWD 2025_CAIG.pdf*. [online] Available at: <https://d2ogafba1iq9ke.cloudfront.net/trend/PUBLICIS%20MEDIA%20-%20Future%20FWD%202025_CAIG.pdf#page=3> [Accessed 13 April 2025].

Robson, S. and Foster, A., 1989. *Qualitative Research in Action*. Edward Arnold.

Semrush, 2025. *2024 AI Content Marketing Report for SMBs*. [online] Semrush. Available at: <https://www.semrush.com/contentshake/ai-content-marketing-report/> [Accessed 13 April 2025].

Sheehan, K.B. and Morrison, D.K., 2009. The Creativity Challenge: Media Confluence and Its Effects on the Evolving Advertising Industry. *Journal of Interactive Advertising*, 9(2), pp.40–43. https://doi.org/10.1080/15252019.2009.10722154.

Thomas, A., Duggal, H.K., Khatri, P. and Corvello, V., 2024. ChatGPT appropriation: A catalyst for creative performance, innovation orientation, and agile leadership. *Technology in Society*, 78, p.102619. https://doi.org/10.1016/j.techsoc.2024.102619.

Von Soest, C., 2023. Why do we speak to experts? Reviving the strength of the expert interview method. *Perspectives on Politics*, 21(1), pp.277–287. https://doi.org/10.1017/S1537592722001116.

Warner, K.S.R. and Wäger, M., 2019. Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3), pp.326–349. https://doi.org/10.1016/j.lrp.2018.12.001.

Wheeler, G.R. and Pereira, L.M., 2004. Epistemology and artificial intelligence. *Journal of Applied Logic*, 2(4), pp.469–493. https://doi.org/10.1016/j.jal.2004.07.007.

Williams, R., 1961. *The Magic of Advertising*. [online] Available at: <https://readings.design/PDF/Williams,%20Raymond%20%E2%80%94%20The%20Magic%20of%20Advertising%20(1961).pdf> [Accessed 13 April 2025].

Zinkhan, G.M. and Watson, R.T., 1996. Advertising trends: Innovation and the process of creative destruction. *Journal of Business Research*, 37(3), pp.163–171. https://doi.org/10.1016/S0148-2963(96)00066-5.

Navigating Consumer Minds: A Neuromarketing Perspective on Employer Branding in the IT Industry using Eye-Tracking

Mariana-Alina CRUCEANĂ
The Bucharest University of Economic Studies
cruceanamariana21@stud.ase.ro

Mihaela CONSTANTINESCU
The Bucharest University of Economic Studies
mihaela.constantinescu@mk.ase.ro

Laura-Daniela ROȘCA
The Romanian-American University
rosca.laura.daniela@profesor.rau.ro

Abstract
This research explores the effectiveness of employer branding campaigns within the IT industry through an eye-tracking analysis of the visual engagement of potential employees. The study tries to figure out what resonates in terms of branding through messages or images and, later, influences decision-making towards the brand by IT professionals and job seekers. The experiment was conducted with a randomized block design approach in which the subjects were divided into two groups: those working in IT at that time and others seeking a career in IT for the first time. All the subjects were exposed to six employer branding campaigns launched by top IT companies, and their eye movements were recorded with the help of eye-tracking devices. Heatmaps and scan paths resulted from the eye tracking analysis confirmed that, the areas that interested users the most were those text sections that dealt with career development, work-life balance, and job stability. Corporate imagery received relatively low engagement, especially from those participants looking for clear benefits. It was found that the text-laden sections were engaged with for significantly more time by the participants, especially those that were to derive practical benefits concerning the themes of career growth and flexibility in jobs. To sum up, this study states that eye-tracking technology offers objective insights into the visual interaction of IT professionals with branding campaigns in a way that is highly valuable for the optimization of employer branding strategies. Such results can afford companies with more precise and specific campaigns to target the information that will attract potential employees based on their needs and interests. The study can be used as a new contribution to the field of employer branding by testing how effective neuromarketing tools are in refining recruitment strategies based on a pattern of visual engagement. Thus, it gives an evidence-based approach to improving efforts of talent acquisition in the IT sector.

Keywords: Neuromarketing, Eye-tracking, Employer Branding, IT Industry, Visual Engagement.

JEL classification: M31.

Introduction

In the fast-moving world of the IT sector today, employer branding has become one of the powerful tools for attracting, holding, and keeping the best forces. In this regard, a company simply has to stand above the rival by having a strong and charismatic brand capable of winning the hearts of the prospective workers. This paper presents an eye-tracking study on how branding elements in images and text seize attention, catering to the needs of both IT professionals and potential seekers by offering insights through the key element neuromarketing.

Employer branding is the process of creating the identity of choice for people with talent to attract a company (Ambler & Barrow, 1996). The field of IT is part of a more competitive field; thus, employer branding is considered seriously relevant only in recruitment and retention strategies (Backhaus & Tikoo, 2004). On the other hand, measures of effectiveness in branding are mostly descriptive survey methods, having a high potential for self-report bias. To offset this, in the present research, eye-tracking was used to collect objective, real-time responses from participants on their interactions with branding campaigns.

This paper aims to study employer branding in a data-informed way, using eye-tracking technology. The study investigates the eye movements of IT job seekers to determine which elements of branding campaigns are most effective in capturing their attention and affecting decision-making. This will be of help in understanding the optimization of employer branding strategies with tools of neuromarketing.

1. Literature Review

Neuromarketing is a burgeoning field that merges neuroscience with the exploration of subconscious factors influencing consumer choices. It aims to understand how various stimuli affect emotions, perceptions, and decision-making processes, as highlighted by Ramsøy (2015). In today's competitive marketplace, neuromarketing enables organizations to delve deeper into the emotional and cognitive motivations behind consumer behaviors, which is crucial for capturing consumer attention. The applications of neuromarketing are vast, ranging from product design to enhancing advertising effectiveness, as noted by Kumar (2015), and it provides valuable insights into emotional bonding in branding (Arthmann & Li, 2017). Research indicates that approximately 70% of purchase decisions occur unconsciously (Krajnovic et al., 2012), emphasizing the need for marketers to investigate the subconscious elements that shape consumer preferences, a gap that traditional marketing research often overlooks (Boksem and Smidts, 2015).

Employer branding is crucial for organizations to communicate their values and culture to attract and retain talent, particularly in competitive labor markets (Ambler & Barrow, 1996; Backhaus & Tikoo, 2004). Utilizing neuromarketing techniques, such as eye tracking, can provide insights into candidate engagement with branding materials, revealing emotional triggers that enhance organizational attractiveness (Lee et al., 2007). Strong employer branding not only attracts candidates but also fosters employee engagement and retention, especially in the fast-paced IT industry where competition for talent is fierce (Hadi & Ahmed, 2018; Berthon et al., 2005).

2. Research Methodology

This study applied a holistic quantitative approach using eye-tracking technology to assess how job seekers engage with employer branding campaigns in the IT industry. The research design was set in a methodologically structured manner to detailly explain the subconscious visual engagement patterns and provide an objective evaluation of effectiveness in employer branding.

2.1. Study Design

This study adopted a randomized block design, the appropriate level of control over the variability among participants would be established, as well as a balanced representation regarding different demographic and professional backgrounds. The major classification involved segmenting respondents into two major groups: those already working as IT professionals and those seeking jobs to enter into the IT sector. This categorization was important in ensuring that different strata of the workforce would respond to the employer

branding campaigns differently and, hence, provide a comparative overview while taking into consideration experienced professionals and newcomers during data collection.

2.2. Purpose

This study has thus aimed to establish the factors which influence the effectiveness of employer branding strategies specifically in the IT business. This research aims at investigating and understanding the various determinants of the effectiveness of these strategies, focusing on how they influence prospective and current employee perceptions and choices. Thus, through identifying these processes, the study seeks to provide pragmatic implications that would assist IT organizations to enhance their branding strategy for more effective recruitment and retention of top talents.

2.3. Objectives

The scope of the research will be to critically investigate the various factors that attract and retain personnel in the IT sector. The Key areas of focus are expected to include:

1. To assess if and how different attributes of employer branding strategies, for instance, company reputation, remote work, career growth, passion for technology, the desire to make a positive impact through technology, salary affect potential candidates' motivation and decisions to take up IT related jobs.

2. Assessing how communication content together with campaign design elements jointly affects perceptions, attention, and motivation among the target audience.

3. Evaluate the effectiveness of employer branding campaigns in IT using eye-tracking to understand subconscious engagement patterns.

2.4. Hypothesis

The research study makes several critical assumptions on which the methodology of investigation is based. The first of these is that human visual attention can be captured by cognitive engagement and interest in the branding components. This implies that once attention has been drawn, there exist possibilities of cognitive processing being further activated and hence reception and engagement with the presented content. There has been sound evidence confirming that the characteristics of visual stimuli influence visual attention concerning them as gauged by eye-tracking indicators of fixation time which might indicate the level of cognitive involvement and interest (Orquin and Holmqvist, 2018; Rubo and Gamer, 2018).

Perceptions and preferences of participants toward workplace branding are alleged to be influenced by a concoction of inner and external factors. While interests and preferences are associated with intrinsic motivations, the nature of promotional content can be that external variable that makes all the difference. The above description underscores the complexities of decision-making processes and attempts to perceive the internal causes as well as the external stimuli that affect individual responses to workplace branding activities. Such as, the campaign having the salary element in its content is the most effective.

The experiment relies on the assumption of the preciseness of eye-tracking technology to unveil visual and cognitive reactions by participants towards brand cues beyond a superficial level and thereby demonstrate finer differentiations in attentional patterns and cognitive operations. This assumption thus indicates that eye-tracking data provides a unique insight for researchers about participants' complexity in engaging employer branding campaigns. (Lang, 2014; Wedel et al., 2019)

2.5. Participant Selection

A total of 30 respondents were considered for the study. Among them, 13 were currently working IT professionals fulfilling certain criteria and 17 were job seekers willing to make a career in the field of IT. The respondents were approached through an online survey link, social media websites, and with the help of specific IT professional networks. The inclusion criteria set ensured that the respondents have at least one year of experience (for professionals) or the minimum required qualification (for job seekers) in the IT sector.

The study aimed at selecting respondents carefully, making sure they belonged to different genders, ages, and experience levels to reflect the diversity that prevails in the IT industry. This sample was thus a representative one that could reduce bias, and let the research make more general conclusions about individual visual engagement patterns, across segments of the IT labor market.

2.6. Employer Branding Campaign Selection

Respondents were exposed to ten employer branding campaigns and analyzed six of them as shown in Figure 1. Respondents were at the time exposed to the two campaigns in the beginning where the respondents had the most focus, two other campaigns in the end where respondents had the least focus, from major IT companies based on their focus on various aspects of employer branding. The choice and exposure to the campaigns were made by me looking at the fact that I had eliminated the logo from each of the poster images so as to find out how specific text and images would influence the decision to apply for that company. The campaigns varied in terms of giving importance to the key employer brand elements – company reputation, remote work, career growth, passion for technology, the desire to make a positive impact through technology, salary. Each campaign used both text and visual compositions (such as pictures of employees and certain elements from that employer) to express the company's employer brand value proposition.

The campaign had to be diverse enough in style and message strategy for the study to judge the impact that differing approaches to employer branding might have on engagement. The campaign also had to reflect those branding styles most characteristic of the IT industry – from highly textual to visually driven, and everything in between.
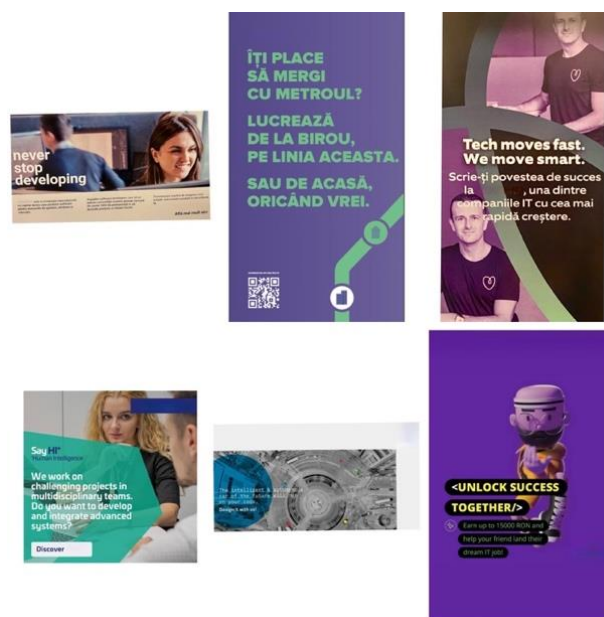

Figure 1. The 6 employer branding campaigns that were analysed in the eye- tracking experiment.

2.7. Eye-Tracking Setup

The primary tool used was a high-tech eye-tracking device with the capacity to capture real-time data on patterns of visual engagement. Frequently utilized in eye-movement tracking because of the accuracy involved, it provides crucial details to the researcher about where the participants are looking, their duration of looking at specific elements, and in which pattern they scan visually through the elements. The eye-tracking device was calibrated before the start of each session so that measurements were accurate.

Each participant sat in front of the screen as the branding campaigns, in order, were shown. It recorded fixation duration, which is the time amount that the participant's eye spends on some element of branding material, and saccades – rapid eye movements between fixations points – to measure the flow of attention.

2.8. Data Collection and Analysis

The data obtained in the eye-tracking sessions was processed with post-analytics of heatmaps, scanpaths, and gridded AOIs. These visualizations aimed to show in detail where the participants paid their attention to and how they navigated visually through branding campaigns. Areas of the highest visual engagement are illustrated by coloring in heatmaps, which provides a quick overview of them. (e.g., red for high engagement, blue for low engagement).

With scan paths, you can see how attention flowed sequentially from one area to another – the course, in other words, that attention took in moving from element to element of this branding campaign. For example, a scan path might show that users first looked at a big headline and only afterward looked at images or subtext.

Grided AOI analysis meant segmenting the branding materials (headline, subtext, images) and reporting what percentage of time subjects viewed or engaged with each segment. This data was very important in understanding which specific elements were most/least effective in capturing attention or driving engagement.

2.9. Ethical considerations

The study abides by ethical standards of confidentiality, informed consent, and data protection. All participants were informed regarding the objective of the study, and their identities were kept confidential throughout the research process.

3. Research Results

These findings are eye-tracking based insights into how potential employees in the IT sector and professionals engage with employer branding campaigns. Eye-tracking data brought out clear patterns of attention distribution and fixation duration and effectiveness on various branding elements in attracting interest. Each part of the results is supplemented by the corresponding visual data in the form of heatmaps, scan paths, and Areas of Interest (AOI) analyses, represented in the figures below.

In the first campaign, for the "intent group", a composite grid with numbers superimposed on an ad showing a female figure and the copy "never stop developing" points up regions of highest interaction around the headline of the primary text and the face of the woman. The group of IT professionals would then show either like patterns or some major difference in engagement that would center around the salient aspects of the content's focus and message, with the grid values specifying which elements do or do not catch the eye. The first heat maps use color gradients to show where readers are most intensely looking, red and yellow especially around major text and graphic features to indicate high engagement. Refer to Figure 2 for a comparison.

Figure 2. The Gridded Areas of Interest, Heat Map and Scan Path comparison between groups for the first campaign

For the second campaign, the results portray that importance of working remotely respondents for those planning to work in IT and already working in IT and a slight focus on the QR code. These are illustrated in Figure 3.
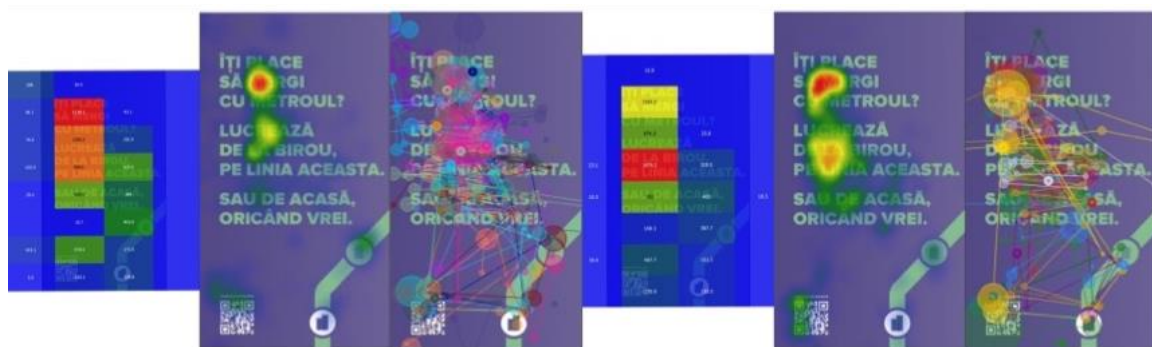

Figure 3. The Gridded Areas of Interest, Heat Map and Scan Path comparison between groups for the second campaign

In the third campaign, as clearly illustrated in Figure 4, the major differences are for those interested in working in IT, there is a distinct graphic image with color-coded areas implying increasing levels of attentiveness and putting special importance on key language parts such as "Tech moves fast. We move smartly." and "Write your success story with one of the fastest-growing IT companies," which infers–looking for a company that has room for career growth and financial security. If there is a comparison in the pattern of interaction for those already working in IT, then this hints at a consistency in viewer behavior towards textual information in advertising. If it is different, then this may imply a shift of attention, either bearing the nature of the message or visual layout.
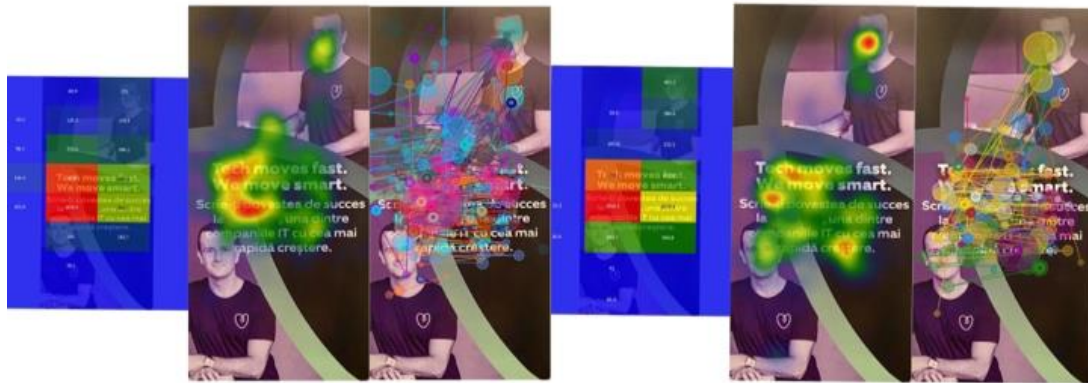
Figure 4. The Gridded Areas of Interest, Heat Map and Scan Path comparison between groups for the third campaign

The fourth campaign results in "People working in IT" details are numerically mapped across a few areas of an advertisement featuring a woman. The words "Say HI* Human Intelligence" and "We work on challenging projects in multidisciplinary teams" score high in attention value, stating that these areas of text are particularly engaging to the viewers and that one key aspect of getting hired is that the projects one will supposed to work on are very important. People who are already working in IT might see whether similar text segments or some other parts, like the woman's face or any other graphic features, bring out more attention. The analogy can be observed in Figure 5.
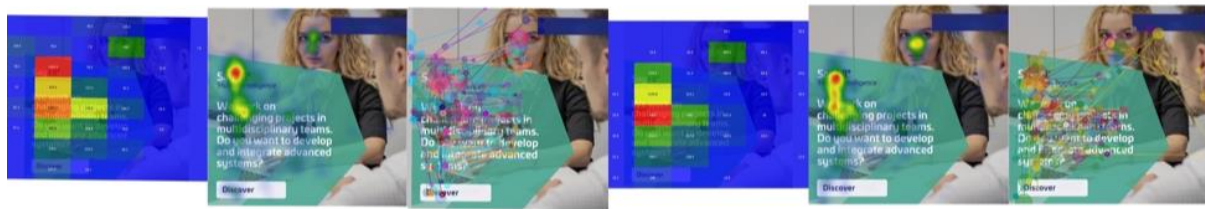

Figure 5. The Gridded Areas of Interest, Heat Map and Scan Path comparison between groups for the fourth campaign

The fifth campaign testifies to the difference in the groups because the group that already works in IT picked out words like, "The intelligent & autonomous car of the future will run on your code," which should be indicative of an advertisement's key technological features. Meanwhile, the group that wants to work in IT paid more attention to the visual representation with the car images and road layout; some of them misunderstood the whole message of the campaign and they were even trying to find out if they know that roundabout or not. (Refer to Figure 6).
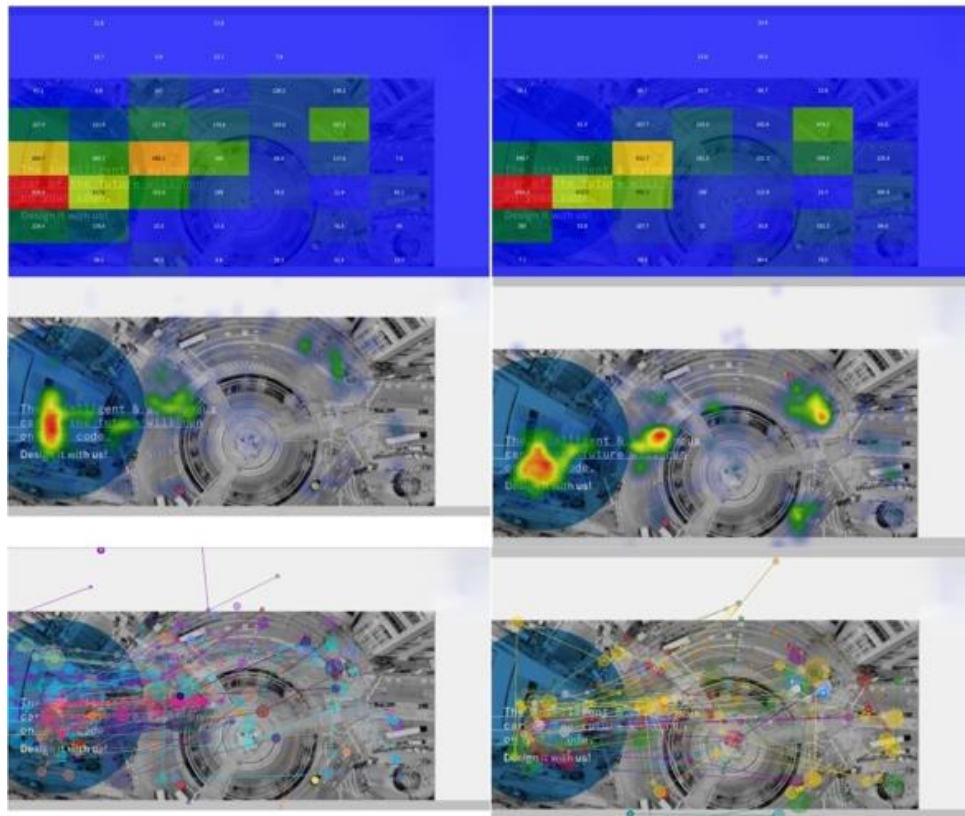
Figure 6. The Gridded Areas of Interest, Heat Map and Scan Path comparison between groups for the fifth campaign

For the sixth campaign, those currently working in IT place by far the most emphasis on salary, which was the most important criterion in selecting an employer, while those not currently working in IT but hoping to work in the industry divide their attention a bit more and also note the little man of the campaign, so much so that they are not giving salary as much weight as those already working in IT. See Figure 7 for the comparison.
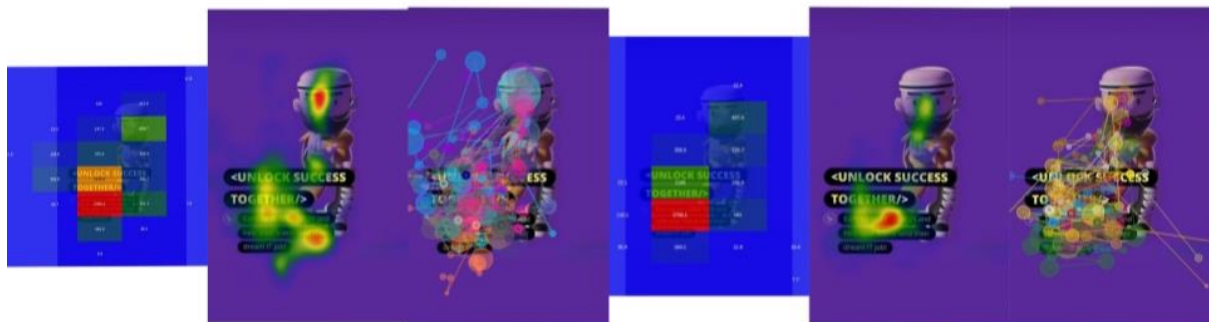

Figure 7. The Gridded Areas of Interest, Heat Map and Scan Path comparison between groups for the sixth campaign

Conclusion and Discussion

The results of this research can serve as strong reasoning for wider use of eye-tracking technology in access to effectiveness of employer branding campaigns, especially in highly competitive sectors like IT. Analysis proved that applicants react more positively to branding materials if these emphasize practical benefits and opportunities to advance a career. This brings support to the literature which puts more weight on emotionally resonant content in the process of talent attraction and retention (Backhaus & Tikoo, 2004).

The results of the eye-tracking analysis indicated that there was considerably higher engagement by participants with the text-heavier sections that explicitly noted job flexibility, clear career growth opportunities, and a supportive corporate culture. Prolonged fixations on specific wording like "Never Stop Developing" highlighted here seem to suggest that potential employees want actionable specifics, not abstract branding – even if the latter concerns corporate identity only. That is an indication that the information technology companies should change their approaches in developing employer branding by openly communicating what the candidates would expect from their experience while working for them.

The gap of who the current workforce in IT is and who the job seeker is further stresses the needed in branding messages to speak very specifically about what people will and will not be concerned about. Current professionals will be most concerned with issues of job security and the revelation of a salary, while job seekers are more concerned with stories of growth and personal development. This also is critical insight for HR professionals and marketers because it reinforces the final custom-tailoring messaging relative to the existing knowledge and pre-formed opinions of audiences about the company.

Moreover, if this study is anything to go by, then most employer branding campaigns that work should be designed to funnel potential employees through a coherent visual journey. The sequential eye fixations evident in the scan path analysis imply that branding materials should guide the candidate from general to specific details concerning employment opportunities and organizational values. That, in a structured manner, does the capturing of attention plus communicates what the organization uniquely offers in the most clear and engaging way.

This study enriches, with the practical application of neuromarketing tools, the strategies for attracting talents through recruitment and therefore makes a significant contribution to the field of employer branding. Yet, no man is without fault – it is likewise important to bear in mind the following limitations. Higher, in the present research is achieved at the expense of scope, as only quantitative measures were used with eye-tracking technology, leaving aside the quality part related to the perception of the candidate. The next step might be developing research that combines qualitative insights from, for instance, interviews or focus groups with eye-tracking data to fully understand how candidates comprehend and react to employer branding materials

Additionally, this study is of course a controlled environment and thus may not capture in full the complexities that define decision-making processes in reality. A possible line for further research would be to assess candidate perceptions in natural settings and observe how the different contextual factors impinge on engagement with employer branding campaigns.

Longitudinal studies need to be done to track the evolution of candidate perceptions spurred by employer branding initiatives over time. The long-term effects of such branding strategies on employee engagement and retention will provide organizations with the ability to better judge the utility of their initiatives.

As work life continues in its remote and digital manner, future research should explore the influence of virtual branding materials on the perceptions of candidates as the website and social media. It can also be critical to investigating how candidates interact with digital branding content through eye-tracking for effective strategies concerning online employer branding.

Even though employer branding campaigns are relatively new in the IT sector, it has been an interesting whirl analyzing eye-tracking metrics during this research. The research proved that the effective branding strategies should focus on the content designed to meet specific needs and aspirations of potential employees, especially in respect to career development and flexibility. Firms could also use these neuromarketing applications in developing an attractive

employer brand that will be relevant to their targeted recruit. This research equips IT companies with actionable steps in developing and improving their employer branding initiatives by emphasizing clear messages that bear benefits and answer personal and professional goals for the candidate.

Limitations and Future Researches

Limitations may include potential constraints with the sample size, participant bias related to self-reported data, and the known constraints of eye-tracking systems. Considering this last research limit, a future study can be done on the field, not in the laboratory, as conditions can change in terms of participants' attention, perturbation factors from the other people (such as those that will somehow cover part of the advertising just because the subway is crowded), as well as the time available in order to notice the ad (depending on the length of the travel).

Acknowledgments

References

Ambler, T., & Barrow, S. (1996). The employer brand. *Journal of Brand Management*, *4*(3), 185–206. https://doi.org/10.1057/bm.1996.42

Arthmann, C., & Li, I.-P. (2017). Neuromarketing-The Art and Science of Marketing and Neurosciences Enabled by IoT Technologies. *IIC Journal of Innovation*, 1–10.

Backhaus, K., & Tikoo, S. (2004). Conceptualizing and researching employer branding. *Career Development International*, *9*(5), 501–517. https://doi.org/10.1108/13620430410550754

Berthon, P., Ewing, M., & Hah, L. L. (2005). Captivating company: Dimensions of attractiveness in employer branding. *International Journal of Advertising*, *24*(2), 151–172. https://doi.org/10.1080/02650487.2005.11072912

Boksem, M.A.S. and Smidts, A. (2015) 'Brain responses to movie trailers predict individual preferences for movies and their population-wide commercial success', *Journal of Marketing Research*, 52(4), pp. 482–492. doi:10.1509/jmr.13.0572.

Hadi, N. and Ahmed, S. (2018) 'Role of employer branding dimensions on employee retention: Evidence from educational sector', *Administrative Sciences*, 8(3), p. 44. doi:10.3390/admsci8030044.

Krajnović, A., Sikirić, D., & Jašić, D. (2012) 'Neuromarketing and Customers' Free Will', *International Management Conference*, pp. 1143–1163.

Kumar, S. (2015) 'Neuromarketing: The New Science of Advertising', *Universal Journal of Management*, 3(12), pp. 524–531. doi:10.13189/ujm.2015.031208.

Lang, A. (2014) 'Dynamic human-centered communication systems theory', *The Information Society*, 30(1), pp. 60–70. doi:10.1080/01972243.2013.856364.

Lee, N., Broderick, A.J. and Chamberlain, L. (2007) 'What is "neuromarketing"? A discussion and agenda for future research', *International Journal of Psychophysiology*, 63(2), pp. 199–204. doi:10.1016/j.ijpsycho.2006.03.007.

Orquin, J.L. and Holmqvist, K. (2018) 'Threats to the validity of eye-movement research in psychology', *Behavior Research Methods*, 50(4), pp. 1645–1656. doi:10.3758/s13428-017-0998-z.

Ramsøy, T. Z. (2015). Introduction to Neuromarketing & Consumer Neuroscience. Neurons Inc ApS.

Rubo, M. and Gamer, M. (2018) 'Social content and emotional valence modulate gaze fixations in dynamic scenes', *Scientific Reports*, 8(1). doi:10.1038/s41598-018-22127-w.

Wedel, M., Pieters, R. and van der Lans, R. (2019) 'Eye tracking methodology for research in Consumer Psychology', *Handbook of Research Methods in Consumer Psychology*, pp. 276–292. doi:10.4324/9781351137713-15.