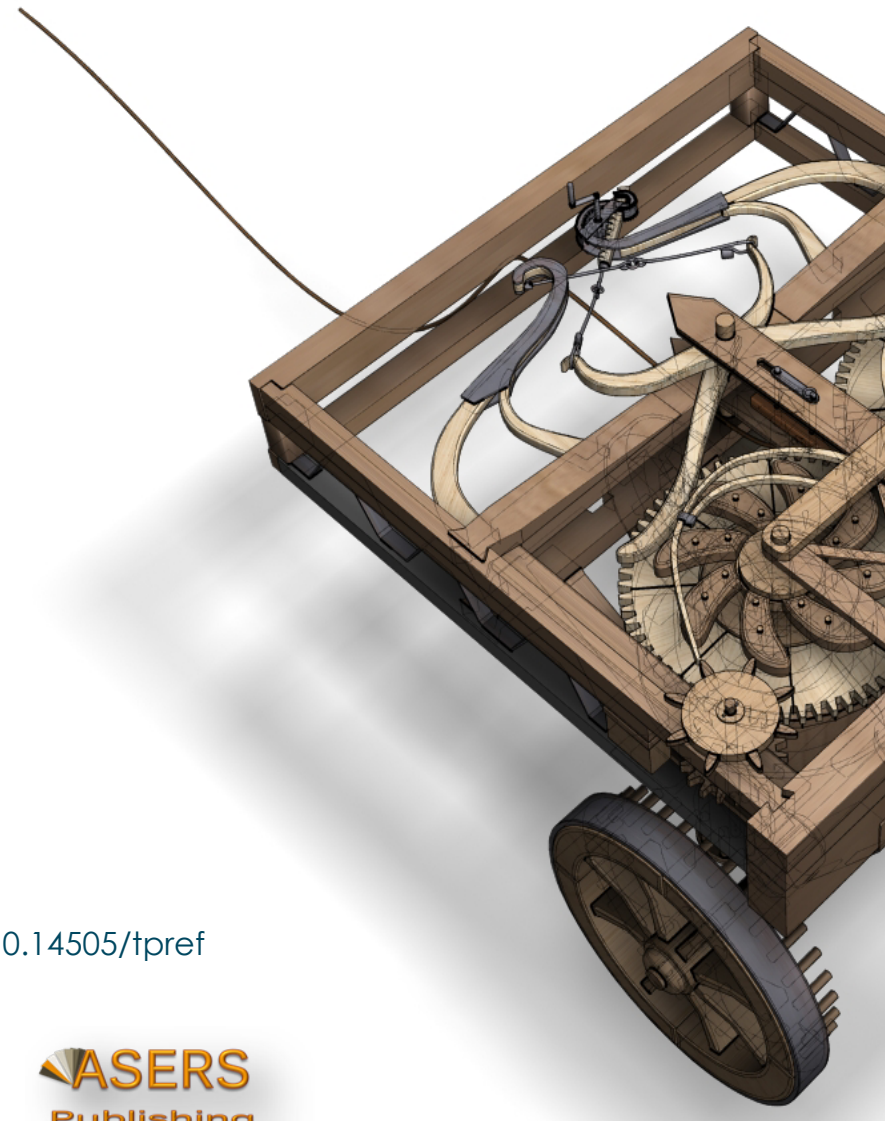
Theoretical and Practical Research in Economic Fields



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Call for Papers
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Theoretical and Practical Research in Economic Fields

Many economists today are concerned by the proliferation of journals and the concomitant labyrinth of research to be conquered in order to reach the specific information they require. To combat this tendency, **Theoretical and Practical Research in Economic Fields** has been conceived and designed outside the realm of the traditional economics journal. It consists of concise communications that provide a means of rapid and efficient dissemination of new results, models, and methods in all fields of economic research.

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The Impact of the ChatGPT Platform on Consumer Experience in Digital Marketing and User Satisfaction

Nikola PAVLOVIĆ
Department of International Sales and Marketing
International Business College Mitrovica, Kosovo
ORCID: 0000-0001-5466-576X
npavlovic@ibcmitrovica.eu

Marko SAVIĆ
Academy of Applied Studies in Leposavić, Serbia
ORCID: 0000-0002-0254-8171
savic22@yahoo.com

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Abstract: ChatGPT, an artificial intelligence (AI) chat platform, facilitates conversation between humans and bots. By integrating machine learning and natural language processing, it revolutionizes the way people interact with AI. Many people are excited about using ChatGPT because it has numerous potential applications and advantages compared to other similar programs. Therefore, this paper demonstrates that, in line with specific ethical considerations, ChatGPT has enormous potential to revolutionize and shape the future of marketing. We begin by questioning whether ChatGPT has a significant impact on consumer experience in digital marketing and overall user satisfaction. The methods used in the study include descriptive and inferential statistical methods, as well as the OLS method. The results show that the use of ChatGPT is continuously rising and increasingly being implemented in various industry segments, particularly in the field of digital marketing. Automation of customer care, increased productivity, automated research, and better understanding of consumers are ways it can assist marketing professionals.

Keywords: marketing; digital; ChatGPT; satisfaction; consumers.

JEL Classification: M00; M30; M31.

Introduction

Organizations are experiencing significant changes in content campaign creation, lead generation, reduction of customer acquisition costs, customer experience management, talent recruitment, and social media conversion rates thanks to AI-powered digital marketing. Real organizations in digital marketing abundantly utilize artificial intelligence (Van Esch *et al.* 2021).

Compared to human content writers, ChatGPT can produce marketing content such as product descriptions and promotional messages faster and possibly of better quality. ChatGPT's capacity to compress and analyze vast amounts of data enables the collection of consumer feedback and interactions on social media (Zielinski *et al.* 2023). In light of this, marketing studies could learn more about product perception in the eyes of customers regarding campaigns, attitudes, and vocabularies. To ensure that the specific needs and desires of each customer are met, it is possible to automatically create and modify personalized emails and recommendations with minimal human intervention. Problems with traditional chatbots, such as generic responses and indifferent tones, can be addressed by training chatbots to offer 24/7 service with a human touch. By automating the process of understanding user concerns, identifying relevant information, suggesting sustainable solutions, and responding more quickly, ChatGPT can help call center customer support workers save money and address issues more efficiently and accurately. By using ChatGPT to gather real-time data from many sources, the new product development team could learn about emerging user behavior patterns and create

innovative products. When properly applied, ChatGPT could cause a meteoric rise in the marketing industry in the years to come (Rivas and Zhao, 2023). The marketing industry is one that has been greatly influenced by the new age of artificial intelligence (AI) due to rapid advancements (Dwivedi *et al.* 2021). AI systems are becoming increasingly capable of analyzing large datasets, finding patterns, making predictions, and even making judgments with little or no human input. AI holds tremendous promise for digital marketing, which is defined by its fluidity and reliance on real-time data. AI has the potential to completely change how brands communicate with their customers online through features such as personalized customer experience and predictive analytics (Ziakis and Vlachopoulou, 2023). The future of AI-based digital marketing is entirely uncertain at this point. According to research, negative outcomes can result from poorly executed digital marketing (Roggeveen *et al.* 2021). For organizations looking to integrate artificial intelligence into their processes, this can be a challenge (Aceto *et al.* 2018).

Since artificial intelligence relies on accurate and high-quality marketing data, solid IT infrastructure is necessary for organizations that want to offer efficient AI-based digital marketing. Following a service quality study, there is a correlation between actual service delivery and users' previous expectations for potential support benefits (Nagy and Hajdú, 2021). Several studies have examined customer reactions to AI services, particularly regarding the quality of these services and their overall shopping experience (Chopra, 2020). Service quality in social organizations and AI-supported services is expected to vary greatly because AI services typically rely on innovations in self-management (Guha *et al.* 2021). The term "artificial intelligence" (AI) has gained additional significance due to the hu-man-like responses that systematic computing can provide (Goralski and Tan, 2022). In the past, discussions about artificial intelligence were stretched, much like those about space travel and other similar fantastic ideas. On the other hand, the COVID-19 pandemic and interest in real-time computing have made artificial intelligence (Lim *et al.* 2022) a reality and a necessity (Dwivedi *et al.* 2023), noting that the original intention of artificial intelligence was to solve problems rather than expand knowledge. As new computing capabilities became evident, the use of artificial intelligence evolved (Buhalis and Karatay, 2022). Using neural networks and algorithms, deep learning has been enabled in artificial intelligence (Lundmark, 2022; Moy and Gadgil, 2022). An increasing number of people are interested in chatbots that can respond to inquiries (Buhalis *et al.* 2023). According to Davis *et al.* (2009), chatbots offer a comparable service by providing real-time feedback.

This research brings novelty to the understanding of ChatGPT's impact on consumer experience in digital marketing and user satisfaction. While existing literature explores the application of AI in marketing, this study focuses on the specific role of ChatGPT in personalizing communication, improving customer support, and analyzing real-time feedback. Additionally, the research highlights how ChatGPT can reduce costs and increase the efficiency of marketing campaigns, opening up new opportunities for innovation in product development and customer experience.

The main idea of this paper is to determine the impact of ChatGPT on consumer experience in digital marketing and overall user satisfaction. The use of ChatGPT is on a continuous rise and is increasingly being implemented in various industry segments, with growing application in the field of digital marketing.

Research hypotheses:

Hypothesis 1: The variable technological knowledge will positively moderate the variable consumer experience in digital marketing.

Hypothesis 2: The variable type of business will positively moderate the relation-ship between the variable consumer experience using ChatGPT and the variable General impression of ChatGPT.

Hypothesis 3: Gender structure will positively moderate the relationship between the variable consumer experience using ChatGPT and the variable General impression of ChatGPT.

Hypothesis 4: Age difference will positively moderate the relationship between consumer experience using ChatGPT and general impression.

1. Consumer Experience and General Impression of Consumers

The general impression of consumers and their satisfaction is more likely when sellers provide reliable, relevant, up-to-date, and detailed product information, reducing uncertainty, eliciting positive attitudes, fostering psychological bonds, and leading to consumer readiness to purchase and repeat purchases of premium-priced brands. For example, Twitter bots can mimic human agents in providing reliable communication and satisfying customers, but they do so through digital tools and computer-mediated communication (Edwards *et al.* 2014; Lowry *et al.* 2009). Specifically, fashion companies use chatbot e-services to interact with customers, offer quick responses to inquiries, and provide comprehensive information to enhance customer satisfaction and reduce confusion (Chen and Xie, 2008; Mimoun *et al.* 2017).

This study suggests that satisfactory general impressions positively affect favorability in human-chatbot interactions. Previous studies in information systems have identified favorability as a result of satisfaction (Limayem and Cheung, 2008; Lee and Kwon, 2011; Lu *et al.* 2019). Authors also suggest that user satisfaction influences the continuous use of information technology (IT), and satisfaction significantly affects consumers' use of IT (Kim, 2010; Lin, 2012; Hew *et al.* 2016, Chiu *et al.* 2021). Addition-ally, several studies have shown that satisfaction affects favorability towards chatbots (Araujo, 2018; Johari *et al.* 2019; Rossmann *et al.* 2020). Namely, the available literature suggests that consumer experience is reflected in various effects that should be analyzed, including identified individualization, authenticity, reliability, and suitability (Liu and Lee, 2020; Zhang and Zhu, 2020).

2. Consumer Knowledge of Technological Advancements

In this research chapter, the impact of consumer familiarity with technological advancements on their satisfaction when using ChatGPT in digital marketing was examined. Consumers want to receive responses from chatbots that are simple, unique, fast, and usable. Additionally, they desire a chat interface that is easy to use. In the following table, we can observe that available chatbots do not provide an absolutely simple and easy way to use. We have presented several criteria that demonstrate the ease of use of the most popular AI chatbots.

Table 1. Display of the usability of various chatbots

	Fin Intercom's Fin	ChatGPT Open AI chatbot	Google Bard Google AI chatbot	Microsoft Bing AI Microsoft	Chatsonic Chatsonic.ai
The directions are crystal clear	2/5	2/5	4/5	4/5	4/5
Simple navigation	2/5	3/5	4/5	4/5	4/5
Response speed	4/5	4/5	4/5	4/5	4/5
Warnings and errors	3/5	3/5	4/5	4/5	4/5
Learning curve	4/5	4/5	4/5	4/5	4/5

Source: Author's own translation (Gordijn and Have, 2023; Klang and Levy – Mendelovich, 2023; Intercom, 2024)

Contemporary messengers and social media sites are filled with chatbots, which are easy to create and use due to the growth of chat platforms; however, AI-powered chatbots are still in their infancy. Most consumers dislike using chatbots because they are very difficult to teach to respond to human inquiries, and since chatbots are not perfect, consumers do not trust them (Tebenkov and Prokharov, 2021). On the other hand, some research adopts traditional and general variables to describe the characteristics of AI chatbots, such as information quality, perceived enjoyment, service quality, and perceived ease of use (Ashfaq *et al.* 2020; Li *et al.* 2021). We find two gaps in the literature on AI chatbot recommendations. Firstly, while some previous works examined AI chatbots in relation to e-commerce, most of them focused on e-commerce in general. As a key part of the online shopping process, sellers rely on customers to listen to product advice from AI chatbots during the pre-purchase phase. However, there has not been much research on how customers react to the advice offered by AI chatbots. Secondly, as predecessors, consumer attributes and perspectives have been the primary focus of research on consumer behavior regarding AI chatbot services (Chen *et al.* 2023).

Graph 1. Display of strengths, opportunities, challenges, and threats

Source: Jang *et al.* 2021; Ramaul, 2021, Kumar *et al.* 2024

Satisfaction with human-chatbot interaction, or 'authenticity,' is crucial for chat-bots. Research based on the Technology Acceptance Model and satisfaction theory has shown promise in numerous domains, for example, investigating the reasons individuals use virtual goods Kaur *et al.* (2020) and the extent to which they embrace technology providing internet information services (Luo *et al.* 2006). Acceptance depends on various factors, with privacy and security concerns, or 'risk,' in the context of online transactions being the most prominent. As it promotes audience initiative and challenges a passive view of audience experience, the satisfaction and use model is widely accepted. Consumer motivation research has shown that embracing such a theory is an effective framework for drawing useful conclusions (Rese *et al.* 2020). The hedonistic dimension of the chatbot experience can enhance its value by providing an opportunity for relaxation and escape.

3. Materials and Methods

This research involved consumers of digital marketing who utilized ChatGPT. Survey participants had to be of legal age and have used ChatGPT for digital marketing purposes at a certain point in time. The tabular presentation provides basic information from the questionnaire. The first segment of the questionnaire covers basic questions related to respondents' demographic characteristics. The second segment of the questionnaire covers questions related to technology literacy. The third segment of the questionnaire covers consumer experiences, while the last segment covers consumers' general impressions. A five-point Likert scale was used to assess these questionnaires.

Table 2. Display of Observed Variables and Questions

TECHNOLOGICAL LITERACY	
	When interacting with companies, I am comfortable using technology.
	I consider myself to be familiar with and understand well the tools used for digital marketing.
	I feel confident when using ChatGPT in digital marketing.
CONSUMER EXPERIENCE WHEN USING CHATGPT	

TECHNOLOGICAL LITERACY	
Identified personalization	
	Based on my specific requests, ChatGPT tailored the information it provided.
	ChatGPT understood my requests adequately.
	ChatGPT provided guidance that is relevant to my specific requirements.
Identified credibility	
	The data provided by ChatGPT were extremely credible for the requirements I outlined.
	The data and information were very useful and well-supported.
	ChatGPT provided me with comprehensive solutions.
Identified reliability	
	ChatGPT provided accurate information.
	ChatGPT provided me with up-to-date information.
	There is trust in the information provided by ChatGPT. Author
Identified suitability	
	ChatGPT was very easy to use.
	ChatGPT effectively responded to my query.
	ChatGPT shortened my time compared to other interaction methods.
OVERALL IMPRESSION	
	Interaction with ChatGPT was completely satisfactory.
	I intend to recommend ChatGPT to others.
	Given the opportunity, I would use ChatGPT again.
Type of business	
	Retail (*e.g.*, stores, online shopping platforms, product distributors)
	Healthcare industry (*e.g.*, medical facilities, healthcare professionals, pharmaceutical companies)
	Financial sector (*e.g.*, financial institutions, insurance companies, investment advisors)
	Travel and hospitality industry (*e.g.*, travel agencies, restaurants, transportation companies)
	Technology sector (*e.g.*, software companies, electronics manufacturers, telecommunications firms)
	Education sector (*e.g.*, educational institutions, online educational platforms, courses)
	Other (please specify)

4. Research Results

Application of Least Square Regression - OLS. By using the OLS methodology in the research, we conducted an examination of the correlation between various variables including technological knowledge, type of business, and age, with consumer experience and general impression.

The results obtained suggest that identified individualization has a statistically significant positive impact on consumer experience, while identified credibility and identified reliability have a negative impact. Identified suitability also shows a negative impact, but with lower statistical significance. Regarding the general impression, it is positively associated with technological knowledge but negatively associated with the type of business and age. However, not every hypothesis was confirmed. For example, the hypothesis of a positive relationship between identified credibility and consumer experience was not supported, while the hypothesis of a negative relationship between age and consumer experience was confirmed.

Table 3. Least Square Regression – OLS observed variables

Variables	OLS – Least Square Regression
Technological literacy - Consumer experience	
Identified personalization	0,485 (0,032)***
Identified credibility	-0,045 (0,038)
Identified reliability	-0,154 (0,045)***
Identified suitability	-0,123 (0,072)*
Technological literacy - Overall impression	
Overall impression	0,134 (0,031)***
Type of business - Consumer experience	
Identified personalization	0,106 (0,091)
Identified credibility	-0,090 (0,152)
Identified reliability	0,084 (0,127)
Identified suitability	-0,176 (0,080)**
Type of business - Overall impression	
Overall impression	-0.187 (0,183)*
Age - Consumer experience	
Identified personalization	-0.420 (-0.420)***
Identified credibility	-0.256 (0,096)*
Identified reliability	-0.144 (0,080)*
Identified suitability	-0.031 (0,051)
Age - Overall impression	
Overall impression Top of Form	-0.564 (0,113)***

*The data in parentheses represent the standard error, *, **,*** They represent statistical significance*

The following table provides an overview of the demographic characteristics of the respondents according to gender, age structure, level of education, and years of age.

Table 4. Overview of Respondents' Demographic Structure

Variables	Frequency n=384	%
Chatbot knowledge		
Yes	352	91,66
No	32	8,33
Gender		
Men	196	58,33
Women	188	41,66
Level of Education		
Primary and secondary vocational education	29	7,55
Undergraduate studies	160	41,66
Master's studies	187	48,69
PhD studies	8	2,08
Age		
18-25	121	31,51
26-35	155	40,36
36-45	61	15,88
46-55	47	12,23

The application of Spearman's coefficient and the statistical method ANOVA.
Significance level: () p > 0.001, () p > 0.01, and () p > 0.05.

Hypothesis 1: The technological knowledge variable will positively moderate the relationship between consumer experience in digital marketing. Spearman's coefficient was used to examine the role of technological knowledge in influencing the relation-ship between identified individualization (Spearman's = 0.498, $p < 0.05$), identified credibility (Spearman's = -0.074, $p < 0.05$), identified reliability (Spearman's = -0.172, $p < 0.05$), and identified suitability (Spearman's = -0.048, $p < 0.05$). The interaction be-tween the observed variables was statistically significant, indicating that the implications of identified individualization, identified credibility, identified reliability, and identified suitability on the general impression varied significantly among technological knowledge.

Hypothesis 2: The type of business will positively moderate the relationship be-tween consumer experience when using ChatGpt and the general impression of ChatGpt. To obtain results, we used ANOVA to establish the relationship between the type of business and the variables of consumer experience when using ChatGpt and the general impression of ChatGpt. The findings indicate that the type of business mitigates the association between identified individualization ($F = 0.815$, $p > 0.05$), identified credibility ($F = 1.59$, $p > 0.05$), identified reliability ($F = 0.364$, $p > 0.05$), and identified suitability ($F = 1.213$, $p > 0.05$) with overall satisfaction. The interaction between the observed independent variables and the variable related to the type of business was statistically significant, suggesting that the implications of identified individualization, identified credibility, identified reliability, and identified suitability on the gen-eral impression varied significantly among types of businesses.

Hypothesis 3: Gender structure will positively moderate the relationship between consumer experience when using ChatGpt and the general impression of ChatGpt. Testing the hypothesis, we applied the statistical method of Mann-Whitney U test to determine the moderating role of gender in consumer experience when using ChatGpt and the general impression of ChatGpt. The following results were obtained when determining the role of gender in identified individualization (MW = 18031.000, $p > 0.05$), identified credibility (MW = 18053.000, $p > 0.05$), identified reliability (MW = 18051.000; $p > 0.05$), and identified suitability (MW = 17398.500, $p > 0.05$). The results suggest that there is no difference in medians between male and female genders regarding consumer experience when using ChatGpt. Additionally, we explored the role of gender in the general impression of ChatGpt. The results (MW = 18013.000, $p > 0.05$) suggest that there is no difference between male and female genders regarding the general satisfaction with ChatGpt.

Hypothesis 4: Age difference will positively moderate the relationship between consumer experience when using ChatGpt and the general impression. ANOVA shows the moderating role of age in the influence of ChatGpt on identified individualization ($F = 41.34$, $p < 0.001$), identified credibility (14.45, $p < 0.001$), identified reliability ($F = 7.67$, $p < 0.001$), while there is no significant influence of age on identified suitability in the influence of ChatGpt ($F = 71.53$, $p > 0.001$). The average rating for consumer experience was higher among younger consumers compared to older ones, indicating that the favorable effect of ChatGpt was much greater among younger consumers. Also, analyzing the moderating role of age in the influence of ChatGpt on the general im-pression and satisfaction, we observe a significant moderating influence on the association between ChatGpt and the general impression, especially among younger consumers ($F = 31.99$, $p < 0.001$).

Table 5. Significance attributed to specific factors of user experience

	Mean	Std Dev	IP on .05 level
Identified personalization	3,894	0,855	0,80≤ 3,98
Identified authenticity	4,055	0,512	4,02≤ 4,08
Identified reliability	3,729	0,631	3,697≤3,761
Identified suitability	3,557	0,977	3,507≤3,606

Significance level: (***) $p > 0.001$, (**) $p > 0.01$, and (*) $p > 0.05$

In this case, ANOVA was used to determine the influence of educational level on the impact of ChatGpt on consumer experience. The results suggest a positive impact on identified individualization ($F = 9.92$, $p < 0.001$), identified credibility ($F = 9.72$, $p < 0.001$), identified reliability ($F = 6.84$, $p < 0.001$), while there was no statistically significant impact on identified suitability ($F = 1.29$, $p > 0.001$). Consumers with higher levels of education had significantly better results for consumer experience compared to those with lower levels of education, indicating that the impact of ChatGpt was much higher on consumers with higher levels of education. The research findings are consistent with studies (Siregar *et al.* 2023). Additionally, (Fu *et al.* 2024) mention certain drawbacks associated with ChatGpt that need to be overcome, such as plagiarism, while accuracy and reliability are considered important factors in ensuring consumer satisfaction. Roy *et al.* (2023) suggest that factors such as convenience, efficiency, and motivational factors influence the formation of a positive general impression on

users. In this sense, it is necessary to continue and expand research in this area, considering the importance and effects of this extremely current area (Denić *et al.* 2018).

Conclusions and Further Research

Although there is knowledge about the benefits provided by AI intelligence and chatbots, the impact of other factors on consumer experiences, as well as their overall impression and satisfaction with ChatGPT, has not been adequately explored in previous research. In this study, we aimed to determine the moderating role in cases of technological knowledge, type of business, gender, age, and level of education. Consumer familiarity with technology can greatly influence their consumer experience and their overall impression. This increases the likelihood that they will perceive and use chatbots as highly useful. Our findings indicate that the level of technological knowledge significantly affects consumer experience with ChatGPT and their overall impression in digital marketing.

Our research enables the use of alternative methodologies, a more detailed examination of the impact of technology on user interaction, the study of factors influencing the relationship between technology and user experience, tracking the lasting effects of technology use, and the use of qualitative research methods. Future research topics are based on observations and implications from our study and provide potential areas for further investigation. Future researchers can expand on our work by exploring these areas and other generative AI tools, leading to a deeper understanding of the complex interaction between AI technologies such as ChatGPT and the broader social environment in which they exist.

Credit Authorship Contribution Statement

Nikola Pavlović: Conceptualization, Project administration, Writing – original draft, Supervision, Data curation, Validation;
Marko Savić: Writing – original draft, Formal analysis, Visualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of Use of Generative AI and AI-Assisted Technologies

The authors declare that they have not used generative AI and AI-assisted technologies during the preparation of this work.

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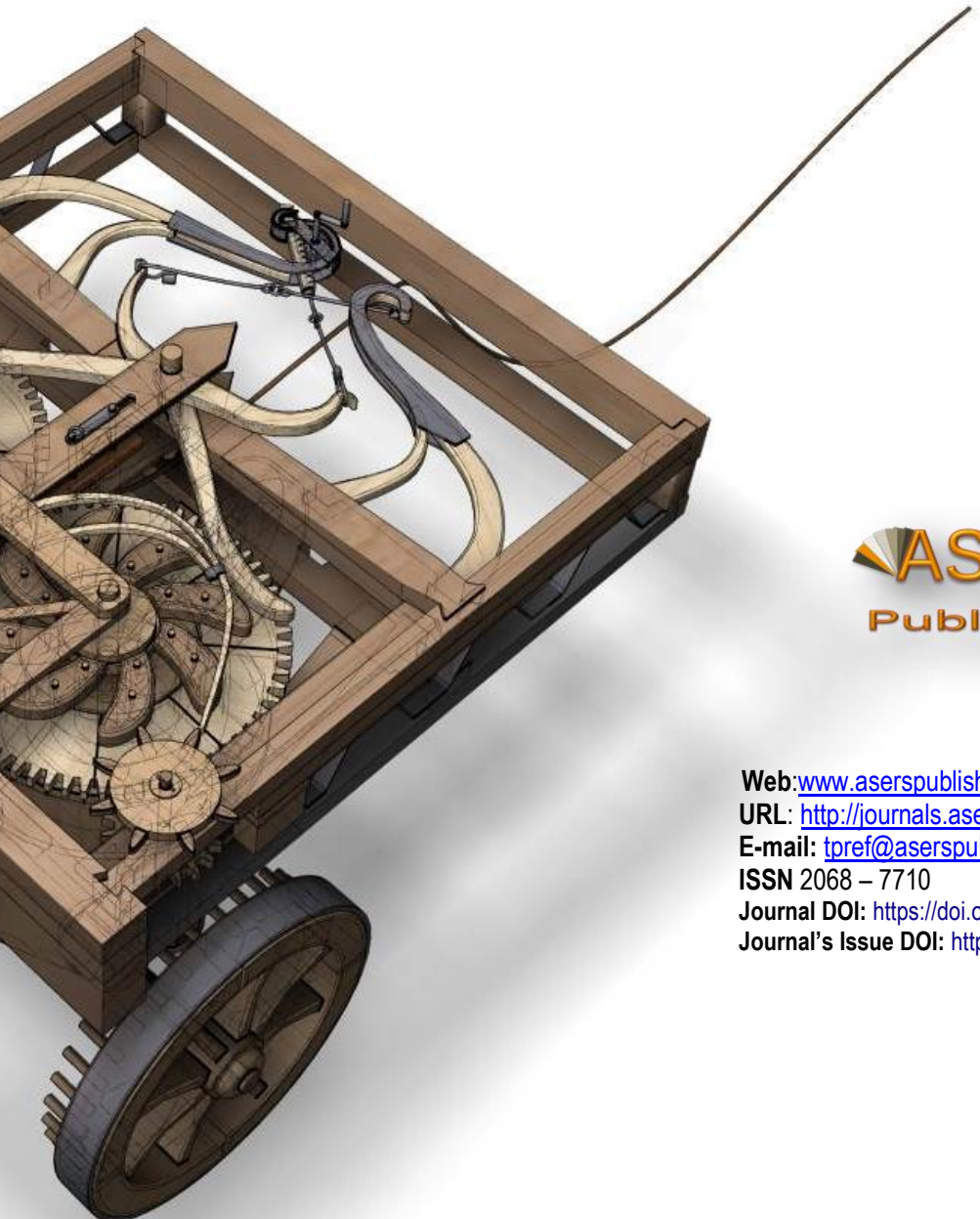

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