

## A critical Analysis of ChatGPT's Potential and Pitfalls for Business Use Cases

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### Article Info

#### Article history:

Article received on 22 April 2023

Received in revised form 25 April 2023

#### Keywords:

ChatGPT, Business, Artificial intelligence, Business, review paper

**ABSTRACT:** This literature review explores the impact of ChatGPT on businesses. ChatGPT has been widely adopted in various companies to generate content. This review examines the existing research on the benefits and drawbacks of ChatGPT in business settings, including its effect on business management and operations. Through an analysis of articles and academic literature, we evaluate the impact of ChatGPT on businesses and provide insights into its potential applications. The findings suggest that ChatGPT can significantly improve sales and production processes. Additionally, the review highlights the need for further research to address the limitations and challenges associated with ChatGPT. Overall, this literature review provides a comprehensive analysis of the impact of ChatGPT on businesses and highlights the opportunities and challenges associated with its adoption.

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## 1. INTRODUCTION

As technology advances, artificial intelligence (AI) has become a prominent force in various industries [1]. The development of AI technology has disrupted the way businesses operate [2] and has opened new opportunities from communicating with consumers to optimizing production. With new innovations emerging every few decades, Chat Generative Pre-Trained Transformer (ChatGPT), offers a fresh perspective on human and AI interaction. It is a natural language processing model that utilizes the Transformer architecture to produce human-like responses in real-time conversation that enables more natural interactions between humans and AI systems and can be used to accomplish a wide range of tasks [3]. However, the capabilities of AI have raised questions about its impact on the economy. From algorithmic intelligence to linguistic intelligence [4], AI has expanded its horizons and is now being used for data analysis, providing

recommendations, and even processing orders in business [5]. It can also combine a knowledge assessment and a task-based decision-making process, enabling Industries 5.0 to utilize its corpus and provide related answers. The last stage of the Industrial Revolution was ‘AI and Parallel Machine,’ and it is evident that AI will play a significant role in the future of business [4]. This raises the question of how businesses can effectively adapt to the changes brought by artificial intelligence (AI) technology, particularly with the emergence of ChatGPT and its impact on various industries and business functions.

The objective of this study is to conduct a systematic review and analysis of existing research on how ChatGPT, an AI tool, may shape businesses. Specifically, the study aims to examine how this tool can be used in various aspects of business management and operation. It also seeks to investigate how industries have utilized ChatGPT to enhance their sustainability, sales, and production processes. The study will involve a comprehensive search of relevant literature and

studies and will use a narrative review to synthesize the results. The goal of this research is to provide insights into the potential benefits and limitations of ChatGPT in the context of businesses, and to identify areas for future research.

This research seeks to contribute to the understanding of ChatGPT's impact on the various stages of the business process and how existing businesses can leverage this technology to achieve growth and sustainability. By providing valuable insights into the potential benefits of ChatGPT, this study aims to encourage more businesses to adopt and utilize this technology and capitalize on its many benefits.

## 2. METHODOLOGY

The methodology used in this research study comprises two phases to identify and select relevant articles for investigating the impact of ChatGPT on businesses: Identification and Extraction of Articles and Article Preparation and Analysis [6].

To ensure the selection of high-quality, peer-reviewed research in various disciplines, including business and artificial intelligence, this review utilized four electronic databases: Google Scholar, Research Gate, IEEE Xplore, and Publish or Perish. These databases were chosen based on their reputation for containing a high volume of scholarly research on artificial intelligence and its applications in business. The search terms used in this review were primarily "ChatGPT" and "Business," along with relevant terminologies such as but not limited to business plan, marketing, and management. The inclusion criteria applied involved selecting papers that discussed ChatGPT and had a business element in the research study, such as the use of ChatGPT for business planning, business operation, customer service, marketing, and supply chain management across various industries, including finance, retail, and hospitality. These papers were then screened according to the inclusion criteria. Papers that did not meet these criteria were excluded from the review. The selected papers were then thoroughly analyzed and synthesized to draw conclusions about the impact of ChatGPT on businesses. A comprehensive literature analysis, following the appropriate content analysis approaches [6], was conducted, considering the usage of ChatGPT, the business element discussed, the type of impact studied, and the methodology used in the study. The literature studies extracted were further analyzed and presented with the aim of explaining possible impact of ChatGPT in business.

## 3. IMPACT ON BUSINESSES

This section of the paper presents a comprehensive analysis of each research paper that contributes to the understanding of how ChatGPT can impact businesses in different paradigms. This section will also provide an overview of the selected papers, encompassing a diverse range of perspectives, methodologies, and findings which offer valuable insights into the subject matter and establish a foundation for further exploration and discussion.

Table 1 consists of the titles and authors of the research papers, which have been carefully selected based on their relevance, quality, and contribution to the field. Each paper offers a unique perspective and addresses distinct aspects of the topic, thereby contributing to the overall understanding of the subject matter. The analysis will delve into the key findings, methodologies, and implications of these papers, facilitating a comprehensive discussion.

Table 1. List of contributions for the review of business impact of ChatGPT

	<b>Contribution Title</b>	<b>Author/s</b>
<b>A. Strategic Business Planning And Management</b>		
1	"So What If Chatgpt Wrote It?" Multidisciplinary Perspectives on Opportunities, Challenges and Implications of Generative Conversational AI For Research, Practice and Policy	Y. K. Dwivedi <i>et al.</i>
2	The Benefits and Limitations of ChatGPT in Business Education and Research: A Focus on Management Science, Operations Management and Data Analytics	I. Cribben and Y. Zeinali
3	Generative AI in the Workplace: Employee Perspectives of ChatGPT Benefits and Organizational Policies	P. W. Cardon, K. Getchell, S. Carradini, C. Fleischmann, and J. Stapp
<b>B. Financial Research</b>		
4	ChatGPT for (Finance) research: The Bananarama Conjecture	M. M. Dowling and B. M. Lucey
5	Automation and Stock Prices: The Case of ChatGPT	M. Blomkvist, Y. Qiu, and Y. Zhao
6	GPT as a Financial Advisor	P. Niszczoła, S. Abbas
<b>C. Marketing</b>		

7	Generative AI is here: How tools like ChatGPT could change your business	M. Chui, R. Roberts, and L. Yee
8	Social Commerce Ecosystem, Social Media Marketers' New Tool ChatGPT, and E-Commerce Profitability Improvement Based on Immersive Product Imagery	I. M. Purcarea
9	The Prospects and Challenges of ChatGPT on Marketing Research and Practices	V. Jain, H. Rai, Parvathy, and E. Mogaji

**D. Other Industries**

10	Future of Textile: Sustainable Manufacturing & Prediction via ChatGPT	D. B. Rathore, "Future of Textile
11	ChatGPT for Tourism: Applications, Benefits, And Risks	I. Carvalho and S. Ivanov
12	Assessing the Capabilities of ChatGPT To Improve Additive Manufacturing Troubleshooting	S. Badini, S. Regondi, E. Frontoni, and R. Pugliese
13	How will Language Modelers like ChatGPT Affect Occupations and Industries?	E. Felten, M. Raj, and R. Seamans

**3.1. STRATEGIC BUSINESS PLANNING AND MANAGEMENT**

*3.1.1 Contribution 1.* The article examines the opportunities, challenges, and implications of generative AI technologies, specifically ChatGPT, in the context of education, business, and society. It is discussed as a tool that boosts productivity by automating tedious and repetitive tasks, freeing individuals to concentrate on imaginative and unique endeavors. While the authors acknowledge the potential benefits in enhancing productivity and business activities, they also highlight limitations, disruptions, threats to privacy and security, and consequences of biases, misuse, and misinformation. The authors use contributions from 43 experts to examine the critical perspectives on the impact and core challenges associated with ChatGPT and generative AI technologies. It is good to note that one of the contributions mentioned that generative AI tools, such as ChatGPT, generate new data instead of relying on traditional usage of existing data for presenting information which presents great risks when using it for research, practice and productivity. In conclusion, ChatGPT has the capability to understand and generate natural language, potentially mimicking humans and playing significant roles in business and society [5]. Compared to prior technologies, generative AI tools

with natural language capabilities may trigger creative thoughts among humans and present synthesized summaries from different perspectives, playing a significant role in business and society.

*3.1.2 Contribution 2.* The article explores the impact of ChatGPT on business education and research, highlighting the benefits and limitations of the technology in these areas. ChatGPT is a versatile AI chatbot that can be used for various applications including content creation, personalized recommendations, copy creation, and language translation. In business, it has the potential to revolutionize data analysis, provide recommendations, and process orders. The article discusses the potential uses of ChatGPT in management science, operations management, and data analytics for both professors and students [7]. For professors, ChatGPT can be used to design courses, create content, and help with grading, while for students, it can explain complex concepts, create and debug code, and create sample exam questions. The authors find that ChatGPT's greatest strength for educational and research purposes is its ability to write and debug code. However, the technology has limitations, including its tendency to make mistakes and its requirement for a deeper or advanced knowledge of the domain. Lastly, the study raises concerns about potential biases and plagiarism that may arise from the use of ChatGPT in business education and research.

*3.1.3 Contribution 3.* The purpose of this paper was to understand what attitudes professionals hold towards the impact of AI on society, while also examining the ways in which they utilize ChatGPT, along with the perceived benefits of it. According to the research, many US workers are using ChatGPT for professional purposes. Early adopters of ChatGPT in this seem to hold much different views of AI than do non-users of ChatGPT [9]. They seem to be much more likely to think AI is good for society than non-users do (64% to 22%) and believe it will make them more productive (82% for early adopters; 26% for non-users); however, they are also more likely to worry about the ethical implications of AI (68% to 55%) and worry that their own job will be replaced by AI (41% to 20%). Two studies were conducted as part of the research. Study 1 was an exploratory study, which inquired how many adults have heard of ChatGPT and to capture their views of AI. 61% of the screened respondents have heard of ChatGPT. Participants revealed mixed views of AI. 43% think that AI is good for society, and 46% say that it will do more good than harm. 52% believe that AI will replace more jobs than it will create, and 52% say that

it will increase productivity. It is noteworthy that early adopters of ChatGPT are about 3 times as likely to think that AI will help them in their jobs compared to non-users. Study 2 was conducted in order to understand the number of professionals that are using ChatGPT in order to perform content generation and communication tasks. It also aims to answer what they view as the benefits of generative AI and their experiences with corporate policies regarding AI. The study showed that professionals are widely using ChatGPT for content creation purposes, along with communication purposes. Around 42% have used it to research a topic, while 32% have used it to draft an email or text. 26% to draft text for a longer document, 21% to edit text and 22% to summarize text. Over 1/3 of executives (36%) and managers (34%) have used it to draft emails. Early adopters are far more enthusiastic about its benefits than non-users. About 35% of early adopters say that ChatGPT can help them generate work ideas compared to 50% of non-users. Around 73% of early adopters claim that ChatGPT can help improve the quality of their work compared to 42% of non-users. Those that work in an organization that has an AI policy say that it has provided more comfort in using ChatGPT for work purposes.

### 3.2. FINANCIAL RESEARCH

*3.2.1 Contribution 4.* The paper first gives a general introduction on ChatGPT, how it came to be as well as gives a literary review with an aim to show previous progress of the usage of ChatGPT for creation of credible and respected research papers. The authors also posit that in their groundbreaking study, they are the pioneers in conducting structured testing to assess the potential of ChatGPT in aiding the writing process of a research study. The focus of the paper was on bitcoin and cryptocurrencies for a financial topic of interest. Author proposes 5 stages which through goes any research study creation process and they are as following:

1. Idea generation
2. Prior literature synthesis
3. Data identification and preparation
4. Testing framework determination and implementation
5. Results analysis

ChatGPT is unable to analyze empirical output [10] so authors could not evaluate analysis results and are evaluating on other four stages. Three versions of the same general cryptocurrency research idea are generated. The first version only uses public data which

is already available within ChatGPT, second version adds on private data gathered from articles from Elsevier Scopus database, whereas third version would improve upon second version by adding on its output some suggestions from domain-based experts on how and what to improve. For the evaluation stage, authors carefully selected a team of experienced authors and reviewers, all of whom have prior experience as reviewers or published authors for ABS-level5 finance journals. 32 reviewers were assigned to review a complete single version of the output, encompassing all four research stages of a full research study. Reviewers were asked to rate two aspects of each stage of the output and were encouraged to provide voluntary comments. The paper's concluding remarks highlight that the inclusion of private data and researcher expertise in iterative processes led to remarkably impressive results. It is important to note that these achievements were obtained without the benefits of GPT-4, which was not launched at the time of writing. With advancements in algorithms and over 600 times the amount of testing parameters used [11]; GPT-4 promises to take language modeling to unprecedented heights. Authors of the paper also raised ethical issues in this kind of behavior and asked some questions to ponder over as to who should be credited and how the work should be treated by various copyright laws.

*3.2.2 Contribution 5.* This study examines how the introduction of ChatGPT affects stock prices. After the introduction, companies operating in industries with workforces more substitutable to AI techniques are associated with significantly negative stock returns. The authors of the paper attribute the negative share price reaction to increased competition from modern technology [12]. Recent technologies underline the impact of AI in shaping labor demand, corporate policies, and wages. The consensus is that AI substitutes routine tasks like data entry and basic research. New AI technology affects wages and employment, but we have limited knowledge of how this modern technology affects share prices, the authors' aim was to expand on this knowledge. To identify ChatGPT's introduction's effect on share prices, the authors estimate a difference-in-differences model (Diff-in-Diff) around the event. Treatment and control groups were created by labor AI substitutability measure (LAS) [13]. This measure captures the sensitivity of an industry's workforce to new AI technology. The authors developed two competing hypotheses. The first is the efficiency hypothesis: firms can cut costs and gain efficiency through the adoption of modern technology, since a reduced labor force can produce a similar output using

AI. The second hypothesis is the competition hypothesis: the firms' services become redundant due to the competition of modern technology. The first hypothesis predicts a positive share price reaction, while the second one predicts a negative share price reaction. The authors lend support to the competition hypothesis and show that the introduction of ChatGPT has led to negative share price reactions for companies that are more affected by AI technology. Consequently, the stock market views the introduction of ChatGPT as a threat instead of an opportunity for firms with more substitutable workforces. This suggests that new AI technology increases competition from substitutes rather than enhances efficiency for firms most impacted by AI[14].

**3.2.3 Contribution 6.** The paper titled "GPT as a financial advisor" explores the potential impact of ChatGPT as a financial advisor for the laypeople not well versed with financial knowledge. The paper has four contributions: First, the measurements done on how GPT performed on tests aimed at measuring financial literacy. It was found that GPT could be considered an inexpensive robo-advisor for the lay people [15]. Secondly, a comparison was conducted between actual financial literacy scores and laypeople's predicted scores to identify any disparities between expected and real performance. This was done to assess the potential for overreliance on such technologies. Third, a hypothetical household financial problem was utilized, related to savings to evaluate the extent to which people utilize advice from GPT. In the fourth and final method, a comparison of the performance of the latest release (GPT-3.5) in two different variants was made: the conventional variant (Davinci) and the publicly available conversational variant (ChatGPT OpenAI, 2022). To measure financial literacy, a combination of items from the 'Big Three' questionnaire [16] and the Financial Literacy Baseline Survey [17] was used, resulting in a total of 19 multiple-choice test questions. In the first method, after conducting over 20 trial runs, Davinci achieved an overall financial literacy score of 58%, while ChatGPT achieved a score of 67%. A general analysis suggests that large language models have limited knowledge in financial matters, as they only score between 58-67%, compared to an expected score of 31% from random responses. By using a simple savings problem and the Judge-Advisor System, the researchers estimate that advice utilization is significant, with a weight of advice index (WOA) of 0.650, and even higher for individuals with low subjective financial knowledge (WOA = 0.740). This highlights that those with low financial knowledge may

be at a higher risk of relying too heavily on large language models for financial guidance. Some limitations were recognized by the authors. The use of only one language model – the one from OpenAI, although other solutions exist. Furthermore, the responses were heavily influenced by the prompts made, better results could have been obtained by different question prompts. The last limitation is that the results are obtained only for a single hypothetical question and thus could not be extrapolated to be as performant on other types of questions related to financial problems. Authors also raised concerns over the possibility of bad actors misusing the tool and giving examples to increase beneficial use of the utility for financial problems.

### 3.3. MARKETING

**3.3.1 Contribution 7.** The authors see ChatGPT as a powerful tool for businesses looking to improve their marketing and sales efforts through the creation of personalized content, social media posts, technical sales content, and product user guides. Businesses can generate content that resonates with their target audience, leading to increased engagement and stronger relationships with customers. The AI's ability to create analysis also allows businesses to create more effective marketing content more fitting to target audience [18]. Additionally, ChatGPT is also seen to help businesses create user-friendly product guides that provide clearer and easy-to-understand instructions on how to use their offerings, leading to improved customer experiences and increased satisfaction. Businesses that utilize ChatGPT in their marketing and sales efforts can achieve greater success and growth.

**3.3.2 Contribution 8.** Social Media nowadays has become part of the daily lives of everyone which even created a medium to socialize but also to explore products that are on trend [19]. This behavior paved way to the emergence of the social commerce ecosystem. The study examined the use of ChatGPT as the latest content writer and social media content strategist that is seen to help businesses take advantage of these opportunities. With its advanced language understanding capabilities, ChatGPT enables the rapid creation of high-quality, unique content that resonates with customers and drives engagement. By leveraging the power of ChatGPT, businesses will be able to enhance their social media strategies and better understand the nuances of the social ecommerce ecosystem, driving growth, expand greater customer

reach and success in the competitive world of social commerce.

*3.3.3 Contribution 9.* This research paper explores the use of ChatGPT as a tool for marketing research and practice, focusing on the aspects of consumer behavior, branding, advertising, and sales. While acknowledging the emerging literature on ChatGPT, the paper aims to contribute to the ongoing discussion and identifies a wide range of opportunities for leveraging ChatGPT as an enabler in marketing research and practice. The paper concludes by stressing the need for using ChatGPT with human intervention in marketing research and practice. While ChatGPT can be a powerful tool, it cannot replace the importance of human expertise and intuition in interpreting and making decisions based on the insights generated by the technology. By using ChatGPT in conjunction with human expertise, marketers can unlock new insights and opportunities for growth and innovation in various aspects of marketing [3]. However, it was also highlighted the importance of being mindful of the limitations and ethical concerns associated with the technology, and to continue exploring ways to maximize its potential while minimizing its disadvantages.

### **3.4. OTHER INDUSTRIES**

*3.4.1 Contribution 10.* The research aims to investigate how ChatGPT can be utilized in the textile industry to optimize production processes, improve customer support, and generate personalized recommendations for shoppers. The traditional methods in the textile industry are often time-consuming and inefficient, leading to poor user experience [20]. With ChatGPT, companies can train the technology to detect anomalies in the production line, provide personalized support to shoppers, and generate recommendations based on customer preferences without additional cost. This can improve the customer experience and make services more efficient, cost-effective, and prompt. Integration of the AI tool all throughout the supply chain was also examined. Additionally, the research aims to explore how ChatGPT can be used to mitigate waste generation, improve product quality, and achieve sustainability in the industry. By utilizing ChatGPT, companies can transform their traditional methods into more innovative, efficient, and sustainable practices.

*3.4.2 Contribution 11.* This research paper focuses on the use of ChatGPT and other large language models in the tourism industry. The paper identifies the potential applications, benefits, and risks associated with the use

of ChatGPT and outlines a research agenda for investigating the implications of these models in tourism. The findings of the research suggest that ChatGPT and other similar models can have a significant impact on various tourism processes, including customer service and back-of-house operations [2]. While negative consequences for human resources are expected, this technology mostly enhances tourism employees.

*3.4.3 Contribution 12.* Most of the research done in ChatGPT dwelled mostly on the natural language capability of the tool in generating text articles. But this paper explores the potential of using ChatGPT using its programming capability for additive manufacturing, also known as 3D printing, as it addresses the challenges and improves the efficiency of the Gcode generation process. The Gcode generation process controls the movements of the printer's extruder and is essential for ensuring the quality of the final product and reducing print time and waste. ChatGPT can be trained on existing Gcode data to generate optimized Gcode and analyze and optimize the Gcode based on various printing parameters [21]. The paper provides effective feedback on the performance of ChatGPT and assesses its potential for use in the AM field. The use of ChatGPT for AM process optimization has the potential to revolutionize the industry by offering a user-friendly interface and utilizing machine learning algorithms to improve the efficiency and accuracy of the Gcode generation process and optimal printing parameters, leading to considerable time and material savings. This AI tool contributed to automation of AM and demonstrates possible profound impact for Industrial Control Systems Programming.

*3.4.4 Contribution 13.* According to this paper, with the title "How will Language Modelers like ChatGPT Affect Occupations and Industries?" Artificial intelligence will affect the economy in numerous ways. The effect that artificial intelligence will have on industries is varied, according to the nature of the industries in question [22]. Research shows that the adoption of AI technology is high in certain industries, for instance IT (Information Technology) and Finance, while in other industries such as healthcare and construction the adoption of AI technologies remains low [23]. ChatGPT has gained a massive amount of attention since it was released. Some worry about the negative impact this may have on jobs, while others see practical and commercial promise from it. For instance, Microsoft has announced a \$10 billion partnership with OpenAI and has linked ChatGPT to Bing. This paper uses a methodology called AI Occupational Exposure

(AIOE) measure [24][25]. The author used this measure to measure the exposure of industries, occupations and geographies which are most exposed to AI. The paper expands on this research to apply the AIOE approach and adapt it to account for the recent explosion of language modelling. AIOE measure was constructed by linking 10 AI applications to 52 human abilities [24]. Then a crowd sourced matrix was used that indicates the level of relatedness between each AI application and human ability. The results of this paper show that some occupations appear in both lists, in the original research by Felten et. al. [25] and in the paper, which describes the top 20 occupations exposed to AI enabled advances in language modelling capabilities. Occupations that coexist in both papers include “clinical, counseling, school psychologists, history teachers, postsecondary.” It is notable that occupations adjacent to education are likely to be more impacted by recent advances, according to the paper. The notable difference is that higher-education related industries are put in the first spot: Junior colleges, grantmaking and giving services, and business schools and computer and management training all appear within the top twenty exposed industries.

#### 4. CONCLUSION

ChatGPT is a generative AI technology, that makes immense potential in various fields such as education, medicine, business, and research. As a language model, it can analyze, understand, and generate human-like text [5]. Its ability to perform natural language processing shows the possibility to transform various industries [23][24] and continue to develop [25], integrating itself into various applications.

As a generative AI, ChatGPT has demonstrated success in suggesting improvements in management [7][10][11], operations [4], and production [4][20][21] processes by analyzing existing procedures [10] and providing optimization and troubleshooting [20][21] to create better outcomes for businesses. It is also a valuable tool for learning and comprehending [15][16][17] existing business concepts. This technology even has the potential to help employees in the performance of their tasks [3] by automating tedious and repetitive tasks [5] and focusing more on the more creative tasks. Some may view ChatGPT as a tool that can replace human employees, while others argue that it still requires human intervention [3]. But this interaction between humans and ChatGPT can enhance employees' skills and it is unlikely to reduce employment opportunities. Enhancing the quality [20][9][21] of the

overall workflow in offices is not only a sign of business growth, but also sustainability. ChatGPT not only provides suggestions for processes, policies, and methods, but also offers recommendations that foster creativity and innovation [10], which benefit employees [2][9], especially in industries that require creativity. One area of application is marketing [3][11], where it plays a crucial role in business success, as it translates to sales, brand awareness, and customer satisfaction [2][11][19][20]. With the advent of social commerce [19], consumers are now at the fingertips of every business. In a world where social media users can quickly swipe through content, ChatGPT provides a solution for businesses to generate captivating content [7][11][14] that can attract users, playing a critical role in marketing and having a significant impact on the success of the business.

However, ChatGPT also has its limitations, disruptions, threats to privacy and security, biases, misuse, plagiarism, and misinformation [3][5][7][17]. Its tendency to make mistakes [7] and its requirement for a deeper or advanced knowledge of the domain [11] can lead to inaccuracies and errors [10]. Relying solely on ChatGPT for business research that needs actual data may be disadvantageous [5][7] more than beneficial.

The potential benefits of ChatGPT in business are vast, ranging from suggesting improvements in business planning, production, to marketing strategies. However, there is still much to explore regarding the actual applications and impact of ChatGPT in various industries. In the research papers analyzed for this study, only a few discussed specific industries, such as tourism, textile, and additive manufacturing. As ChatGPT's impact on businesses varies depending on the industry, more studies should be conducted to explore its actual impact on other industries. By leveraging the promising applications discussed in this study, further research could unlock ChatGPT's potential in the business sector.

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