

“OPTIMIZING AVIATION MRO CONTENT MARKETING: A CASE STUDY USING AHP AND GENERATIVE AI FOR CONTENT IDEA GENERATION”

Research Paper

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”Abstract”

This research is the first phase of a broader study, into the performance of GPT-4 as a Generative AI (GenAI) model in crafting specialized marketing content ideas, for the aviation Maintenance Repair and Overhaul (MRO). The study emphasizes three primary content types including short informative articles, case studies, and white papers. Using the Analytic Hierarchy Process (AHP), six industry experts evaluated the AI-generated content ideas based on their relevance to the industry, trendiness, and appropriateness for the content type. The findings revealed that GPT-4 was most effective at generating white paper ideas, with an effectiveness score of 93.13%, followed by short article ideas at 90.44% and case study ideas at 86.88%. The findings demonstrate how GenAI models, like GPT-4 can improve content marketing in sectors such, as aviation MRO where accurate and trustworthy information is essential. This study stands out for its use of GenAI, in the MRO industry showcasing proof of its ability to generate unique content ideas tailored to the sector setting the groundwork, for content development.

Keywords: Generative AI, Content Marketing, Aviation MRO, B2B Marketing, GPT-4.

1 Introduction

In today's digital age, organizations must adapt their marketing strategies to remain competitive by leveraging digital technologies to enhance customer engagement, streamline operations, and optimize decision-making processes (Jadhav, Gaikwad and Bapat, 2023). Digital transformation has reshaped marketing strategies, necessitating new skills and approaches (Pascucci, Savelli and Gistri, 2023). By embracing digital transformation, using data analytics, and fostering customer-centric strategy, organizations can achieve sustainable growth and remain relevant in an ever-evolving digital landscape (Cioppi *et al.*, 2023).

Digital marketing encompasses various strategies, from search engine optimization to social media campaigns promoting products and services through digital channels (Robul *et al.*, 2023). Traditional marketing relied heavily on direct advertising, which used straightforward one-way communication to persuade consumers to buy products or services. This approach included media like print ads, TV commercials, radio spots, direct mail, and billboards, aiming to reach a broad audience quickly and drive immediate sales. While effective for mass outreach, traditional marketing was costly and less interactive, lacking the engagement opportunities provided by modern digital marketing (Risdiyanto, 2024).

Consumers today demand more than just direct buying incentives from brands; they seek value, engagement, meaningful interactions, and personalized experiences that cater to their preferences and needs (Guo & Jiang, 2023; Page & Malblanc, 2023).

To meet these evolving consumer expectations, the rise of content marketing has become one of the most transformative aspects of digital marketing for any business to make meaningful connections with new and returning customers (Farkas and Geier, 2024). It concentrates on creating and sharing value via information-based content to engage the target audience. This can be in blog posts, articles, or other media formats (Czapla *et al.*, 2023).

According to the Dencheva report, content marketing revenue reached \$36.9 billion in 2018 and is projected to hit \$107.5 billion by 2026, underscoring its increasing importance in the digital world. Organizations are realizing the cost-effective benefits of creating engaging, on-brand content targeted at specific segments to generate interest. As Dencheva (2024) showed in his research, effective content marketing enhances brand visibility, establishes thought leadership, and aids in converting buyers (Dencheva, 2024).

B2B companies—our focused sector in this study—concentrate on building long-term relationships and trust with their clients through detailed and valuable content that addresses specific business needs and challenges. This approach attracts potential clients and nurtures existing relationships by consistently providing insightful and relevant information (Neuhaus, Millemann and Nijssen, 2022; Caerels, 2023). Consequently, the success of B2B content marketing is primarily attributed to knowing the audience, setting aligned goals, and establishing thought leadership (Dencheva, 2023a). Figure 1 shows the result of a survey conducted in March 2021 among B2B marketers in the United States; 21% of respondents claimed that understanding buyer motives was one of the most difficult challenges in nurturing leads. Re-engaging inactive leads in the pipeline was viewed as a difficulty by 20% of B2B marketing decision-makers (Faria, 2023).

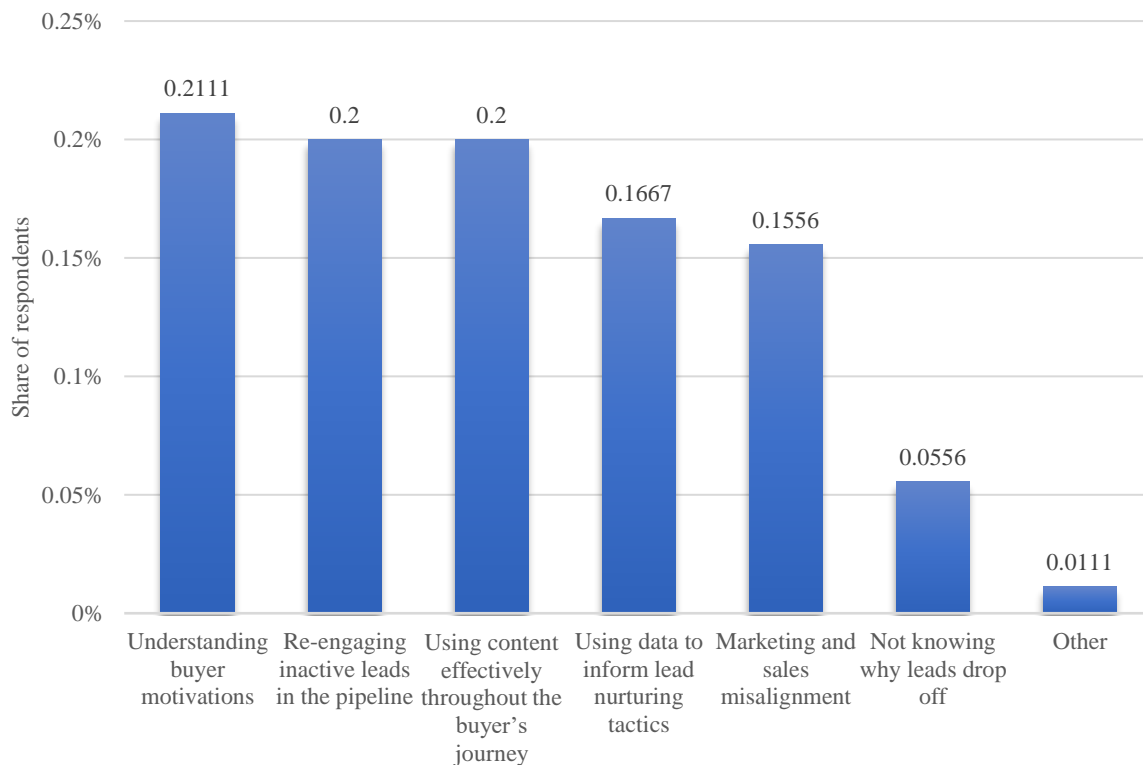


Figure 1. B2B lead nurturing challenges

With the advent of GenAI and Large Language Models (LLMs), content marketing is poised to overcome its longstanding challenges and achieve new heights of effectiveness (Fui-Hoon Nah *et al.*,

2023). GenAI includes many models, each designed to perform specific tasks. These technologies can generate text, music, video, graphics, and code closely resembling the data on which they were trained (Epstein et al., 2023; Feuerriegel et al., 2024).

The rapid growth and substantial investment show that GenAI's power to redefine marketing is more potent than ever. As illustrated in Figure 2, total GenAI investments in the U.S. jumped from \$7.1 billion during a year between September 2021 and August 2022 to an estimated high of \$19.8 billion for the next annual cycle running through September to develop this technology for a wide range of use cases, including LLM platforms and search engines.

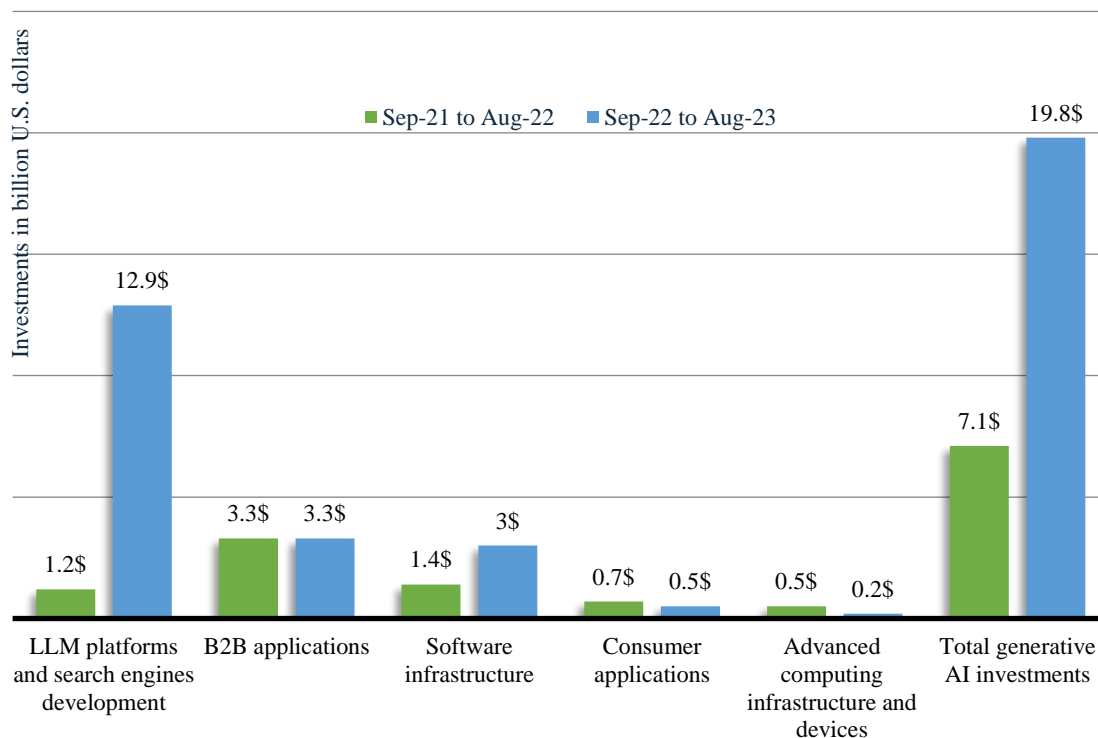


Figure 2. U.S. investments in generative AI from 2021 to 2023

This growth in investment in GenAI models is expected to continue even faster as there is a positive perspective on integrating GenAI in marketing campaigns. According to a survey among adult consumers about how they supported brands using AI to create ads or content, more than 50% of respondents supported brands using AI in marketing activities. Although this survey was conducted only in the USA and included just 1,000 adult respondents without specifying target industries (Majidi, 2024), Similar results can be expected worldwide across various industries, with some variations due to differences in industry structures and regulatory environments. These findings highlight the urgent need for collaboration among researchers, developers, and business owners to improve the current situation. By working together, they can create more advanced and effective generative AI models that enhance marketing strategies and better meet consumer expectations across diverse sectors.

In this research, we focused on the aviation MRO industry. Its intricate structure and high stakes, which rely heavily on accuracy, safety, and regulatory compliance, make it an ideal sector for investigating the effectiveness of AI-driven content creation. The complexity and critical nature of MRO operations provide a robust framework for evaluating how AI can enhance precision, streamline processes, and ensure adherence to stringent standards (Korchagin et al., 2023). The MRO sector's requirement for detailed technical information and the necessity for building long-term relationships with clients through trust and expertise highlight the potential benefits of integrating GenAI for innovative content creation

(Canaday, 2023).

This research is organized into several key sections. The “Theoretical Background” reviews some of the most important theoretical aspects of content marketing, the “Literature Review” examines recent studies on using GenAI in content marketing, and the aviation MRO industry, the “Methodology” section outlines the research design, data collection methods, and analytical approaches used to evaluate the capabilities of generative AI in content idea generation. In the “Results” section, we present the findings derived from our empirical investigation using qualitative and quantitative data interpretation techniques. The “Conclusion” summarizes the main insights, highlighting the implications of our results for B2B content marketing in the aviation MRO sector. Finally, the “Discussion” section explores the broader impact of our findings, addresses potential limitations, and suggests directions for future research in integrating AI technologies into content marketing strategies.

2 Theoretical Background

In today's competitive marketplace, exceptional customer experience is paramount for long-term success (Roy, Gruner and Guo, 2022). The most effective marketing strategies today are those that are customer-centric, emphasizing the importance of understanding and addressing the needs and preferences of the customer (Tuominen *et al.*, 2023). It is Grounded in principles like Relationship Marketing Theory and Customer Value Theory. Relationship marketing theory emphasizes long-term customer relationships over single transactions. It integrates marketing and customer service to foster loyalty and satisfaction through sustained engagement and personalized interactions (Berry, 1995). Customer value theory focuses on delivering superior value to customers by understanding and meeting their needs better than competitors. It emphasizes creating, delivering, and communicating value, exceeding customer expectations, and fostering loyalty and long-term satisfaction. This theory highlights the importance of customer perceptions and the benefits they receive relative to their costs, driving businesses to innovate and improve their offerings continuously (Slater, 1997; Woodside, Golfetto and Gibbert, 2008; McFarlane, 2013).

Customer-centric marketing goes beyond mere transactions to build long-term relationships that foster loyalty and satisfaction. By leveraging concepts such as Service-Dominant Logic, which emphasizes value co-creation through interactions between providers and customers (Vargo and Lusch, 2017; Ajmal *et al.*, 2024; Jaakkola *et al.*, 2024), and Customer Experience Management, which focuses on managing the entire customer journey to ensure positive and seamless experiences (Wetzels and Wetzels, 2023); businesses can create more meaningful interactions and consistent experiences across all touchpoints. This approach also incorporates personalization and customization theories, tailoring products, services, and messages to individual customer behaviors and preferences, enhancing engagement and retention (Tran *et al.*, 2024). Ultimately, by focusing on Customer Lifetime Value, businesses can ensure that their marketing efforts are effective in the short term and contribute to sustainable growth by maximizing the total value derived from each customer relationship (Zhao *et al.*, 2023).

In the B2B sector, content marketing is a key strategy for creating thought leadership for building trust, establishing authority, and fostering long-term client relationships (Aapola, 2012; Pelkonen, 2020). By consistently producing high-quality content that addresses the complex challenges and opportunities businesses face, companies can enhance their credibility and influence in their respective industries, ultimately driving more informed and strategic purchasing decisions (Strong, 2020). The first step in B2B content marketing is identifying the audience through detailed buyer personas (Jansen *et al.*, 2024). The next step is creating effective and personalized content. Following this, effective content must be distributed via appropriate platforms, such as LinkedIn, X, or the company website, at optimal times (Gounaris and Almoraish, 2024; Tuominen *et al.*, 2023). Finally, success should be assessed by monitoring performance indicators and KPIs to refine and improve the strategy (Aagerup *et al.*, 2022; TAVŞAN and ERDEM, 2021).

Recent advancements in GenAI models have revolutionized content marketing, enabling more personalized, efficient, and scalable content creation. These models can generate high-quality text,

music, video, graphics, and code closely resembling the data on which they were trained (Epstein et al., 2023; Feuerriegel et al., 2024). Figure 3 shows the various types of GenAI for different purposes.

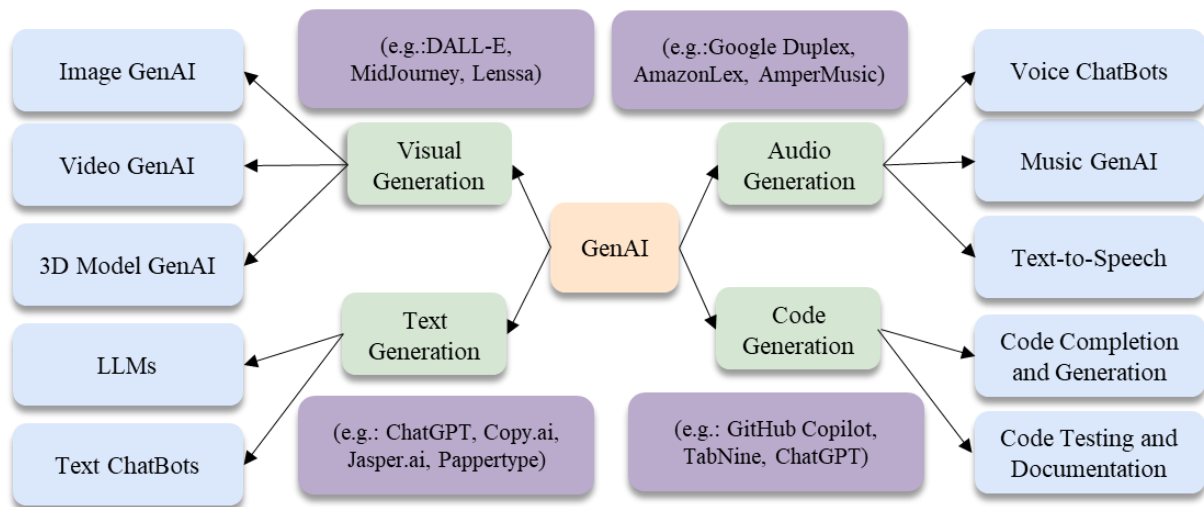


Figure 3. Generative AI types

LLMs like ChatGPT, Copy.ai, and Jasper.ai are the leading GenAI models used for marketing purposes (Dencheva, 2023c). They are trained using sophisticated deep learning techniques on a vast corpus of text data to accomplish various tasks, such as comprehending, processing, producing natural language, summarizing data, managing complex reasoning, and intelligently answering questions (Myers *et al.*, 2024). Businesses can leverage these models' capabilities and speed for in-depth, extensive data analysis to explore market trends and customer preferences and gain insights. These insights are essential in developing customer-oriented and data-informed marketing strategies (Alqurashi et al., 2023; Grandhi et al., 2021). While LLMs have tremendous potential to support diverse writing processes, their effectiveness is primarily determined by the task's complexity and the required output quality (Dencheva, 2023b; Gmeiner & Yildirim, 2023). LLMs' capabilities must match the complexity of the writing task. LLM skills are more suited to tasks requiring lower output quality, such as aiding in framework selection, generating code explanations (Agarwal *et al.*, 2024), word associations, summarization, and reformatting (Yang *et al.*, 2020). The limitations of LLMs become more evident for more challenging activities that require higher levels of creativity and originality, such as creating new content or sophisticated story plots (Yuan *et al.*, 2022). Joon et al. (2023) studied using LLMs for textual content generation, focusing on increasing diversity while keeping accuracy. They investigated approaches such as logit suppression and temperature sampling to improve the quality of the generated datasets (Joon *et al.*, 2023). However, there are several novel approaches to fine-tuning LLMs and improving their efficiency. Users can get better and more relevant results from LLMs by creating prompts that explicitly define the criteria and context. This is especially important for jobs demanding sophisticated comprehension and creativity (Ratnayake and Wang, 2024). Furthermore, employing retrieval-augmented generation (RAG) and knowledge graphs (KGs) can greatly increase performance on complicated linguistic tasks. These strategies allow LLMs to acquire more relevant information and produce more accurate and contextually appropriate results, increasing their utility in high-complexity tasks (Bianchini *et al.*, 2024).

3 Literature Review

Today's Businesses are integrating AI technology across various strategic, operational, and technological levels to drive innovation, enhance customer engagement, and optimize operations.

At the strategic level, AI significantly impacts marketing strategies and product management. For example, AI-driven digital marketing enables FMCG companies (Fast-Moving Consumer Goods) to

enhance their marketing strategies through real-time insights and personalization, leading to improved performance and competitive alignment (Mukhopadhyay, Singh and Jain, 2024). Similarly, AI is transforming the subscription economy (Olimjonovich, 2024) in B2B markets by automating services and personalizing customer interactions, driving the need for business model adaptations. While AI enables suppliers to manage tasks for customers or empower self-service, maintaining high-touch, personalized interactions remains crucial for delivering tailored offers and sustaining ongoing value creation (Kowalkowski and Ulaga, 2024). AI also optimizes marketing strategies by refining target audiences and improving operational efficiency, ensuring that marketing efforts are more focused and effective (Supriadi, 2024). In the realm of product management, AI drives innovation by enabling rapid prototyping, market validation, and strategy optimization (Ogundipe et al., 2024). AI also, serves as a critical enabler of innovation, optimizing every stage of the product lifecycle from ideation to market launch, which is essential for maintaining a competitive edge (Ogundipe, Babatunde and Abaku, 2024). Operationally, AI is transforming content marketing in B2B contexts by ensuring timely and relevant content delivery, which increases customer engagement and highlights the need for further investment in content delivery technologies (Salonen *et al.*, 2024). AI-driven marketing analytics is also enhancing customer agility and satisfaction, particularly in volatile markets, by fostering a data-driven culture that improves customer responsiveness to market changes (Agag *et al.*, 2024). Additionally, AI's role in clustering algorithms for customer profiling in digital start-ups enables businesses to tailor strategies to distinct customer groups, thus optimizing engagement and growth (Kasem, Hamada and Taj-Eddin, 2024). The integration of AI into B2B service sales strategies, especially through digital multi-sided platforms, is leading to the transformation of traditional value chains into dynamic value networks, requiring a rethinking of sales strategies and customer relationships (Heikinheimo *et al.*, 2024).

Technologically, AI is crucial for data analysis and predictive analytics, allowing businesses to extract actionable insights from vast datasets, make informed decisions, and anticipate market trends. This capability is vital in today's fast-paced business environment, as seen in the profound impact of AI on digital marketing analytics and the evolving role of analytics in measuring ROI (Rhoda Adura Adeleye *et al.*, 2024). AI also plays a pivotal role in enhancing customer service through tools like chatbots and virtual assistants, providing instant, automated support that improves customer satisfaction and operational efficiency (Supriadi, 2024). Moreover, AI transforms marketing education by integrating tools like ChatGPT into curricula, preparing students for future careers in AI-driven marketing environments (Guha, Grewal and Atlas, 2024). The integration of AI in AI-powered B2B marketing highlights its potential to mediate complex and socially embedded activities, addressing cultural and political contradictions that can arise during AI adoption (Keegan et al., 2024). It enhances personalization in marketing by analyzing consumer behavior and demographics, leading to more relevant and engaging customer experiences (Babatunde *et al.*, 2024).

However, the integration of AI is not without challenges. Ethical considerations such as data privacy, bias in AI algorithms, and the need to balance technology with human expertise are critical issues that businesses must navigate to ensure AI's responsible and effective use (Kaperonis, 2024). Furthermore, AI's role in digital and content marketing underscores the importance of cultivating a data-driven culture, especially in volatile markets where quick responsiveness to changes is essential (BAYRAKTAR, 2024; Kumar, Ashraf and Nadeem, 2024). Additionally, AI's transformative role in revolutionizing industries and business practices highlights the need for continued research and adaptation to new AI technologies (George *et al.*, 2024). Finally, AI's impact on the financial, customer, and internal processes within SMEs (Small and Medium-size Entrepreneurs) emphasizes the importance of viewing AI as a strategic resource and capability that can drive business performance and sustainability (Abrokwah-Larbi and Awuku-Larbi, 2024).

In the realm of AI integration, some industries have rapidly adopted the technology, leveraging its potential to enhance efficiency, innovation, and personalization. Sectors like technology, finance, and retail have found it relatively easy to incorporate AI due to their inherently digital and data-driven nature, enabling advancements like predictive analytics and personalized customer experiences. On the other hand, industries such as healthcare, manufacturing, and aviation face more complex challenges when integrating AI. In healthcare, AI's potential to revolutionize diagnostics and patient care necessitates extensive research to address concerns around data privacy and ethical decision-making (Kitsios *et al.*,

2023).

The aviation industry, similarly, sees potential in AI for improving safety, maintenance, and operational efficiency. However, the high stakes involved in aviation, such as stringent safety regulations and the need for absolute reliability, mean that AI integration must be approached cautiously, requiring thorough testing and validation before widespread adoption. The aviation MRO industry is characterized by its complexity, high stakes, and stringent regulatory standards. Consequently, leveraging GenAI and LLMs in this sector demands a nuanced understanding of the industry's technical, safety, and compliance aspects (Korchagin Aleksandr et al., 2023). AI in MRO procedures offers advantages, such as improved equipment reliability, cost savings, and compliance with safety standards. AI technologies, alongside Computerized Maintenance Management Systems (CMMS) (Cohen, Baretich and Gentles, 2020) and the Industrial Internet of Things (IIoT) (Munirathinam, 2020), are transforming the MRO industry by providing data insights and supporting maintenance planning. These advancements empower businesses to stay competitive by guaranteeing their equipment functions dependably (Sensemore, 2024). AI-driven predictive maintenance can anticipate issues by analyzing past and real-time data, enabling interventions to prevent unexpected breakdowns and optimize resource management. Additionally, standardized documentation and continuous improvement practices ensure that maintenance tasks are carried out consistently and efficiently, promoting excellence (Sensemore, 2024). Addressing challenges and industry trends through strategic data-driven content can help MRO businesses position themselves as market leaders. Sharing expertise on advancements such as AI inspections and predictive maintenance allows firms to demonstrate their commitment to simplifying procedures and supporting innovation. This technique attracts new consumers and helps maintain existing ones (Shaw, 2024).

Establishing a collaborative framework between human expertise and GenAI enhances and accelerates content marketing. GenAI can handle data-driven tasks like content generation, optimization, and performance analysis, while human marketers focus on strategy, creativity, and decision-making. To ensure optimal performance, it is necessary to assess GenAI's capabilities at different stages of content marketing—ideation, creation, distribution, and measurement. Continuous training and updates based on feedback and market trends are crucial. This dynamic collaboration enhances content quality, speeds up production, and ensures adaptability, driving more effective content marketing strategies.

4 Methodology

This research evaluates ChatGPT-4's ability to generate accurate, high-quality, industry and content-type-relevant content ideas for the aviation MRO sector.

Population and Sample: The study population consists of 81 content ideas created by GPT-4, all of which are focused on the aircraft MRO business and are divided into three categories. Which are assessed by six aviation and marketing specialists, resulting in 486 data points.

Instrumentation: Data collection employed a mix-methodology including surveys, literature reviews, and expert evaluations. Experts rated AI-generated content ideas on a 5-point scale based on relevance, trendiness, and appropriateness for content type.

Selecting Content Types and Evaluation Criteria: Through literature reviews and focus groups, we identified three effective content types and three critical evaluation criteria for B2B marketing in aviation MRO. Case studies, short informative articles, and white papers are among the chosen content types, with relevance, trendiness, and content type appropriateness as evaluation criteria.

Generating Content Ideas Using ChatGPT-4: ChatGPT-4 was prompted to create 30 unique content ideas for each type, ensuring the ideas were SEO-competitive and industry-relevant.

Evaluation and Scoring of Content Ideas: Six experts evaluated and scored the generated content on relevance, trendiness, and appropriateness for the content type.

Data Analysis: Using the Analytic Hierarchy Process (AHP), expert scores were analyzed to evaluate the effectiveness of AI-generated content ideas. The AHP implementation steps involve creating a hierarchy and defining evaluation criteria such as relevance, trendiness, and appropriateness for content type. Through pairwise comparisons, these criteria are prioritized, followed by a consistency check using the Consistency Index (CI) and Consistency Ratio (CR) to ensure reliable judgments. Scores are

synthesized by combining weighted ratings to calculate an overall score for each content idea. Finally, content ideas are ranked to assess GenAI's effectiveness in generating valuable content for the aviation MRO industry. This structured methodology provides a thorough and objective evaluation, aiding strategic decisions in content marketing.

Figure 4 outlines the step-by-step process of the methodology.

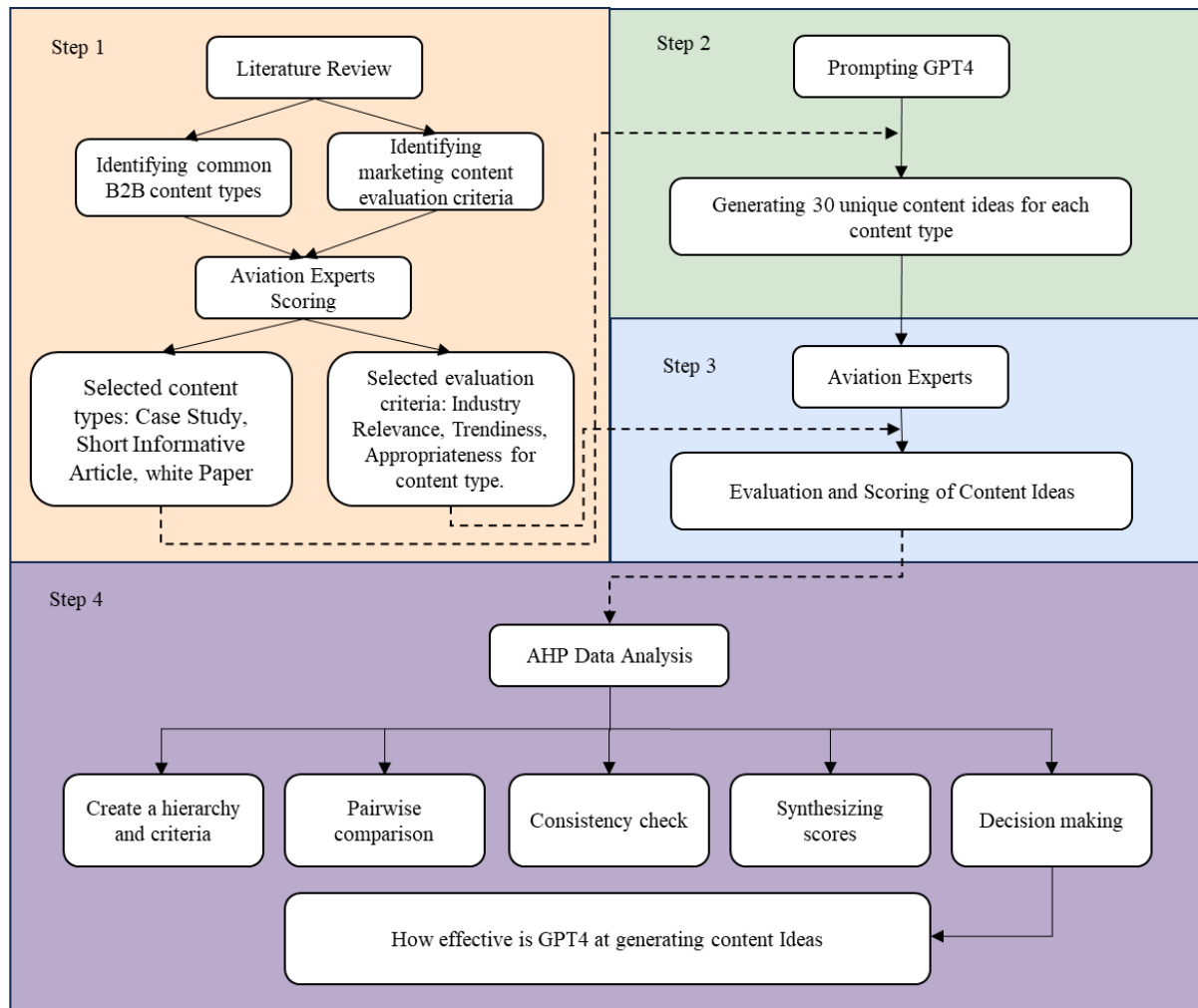


Figure 4. The Research Process

5 Results

This section presents the findings from our analysis of using GenAI to generate content ideas for the aviation MRO industry. In the first phase of this case study, through the data analysis, we decided to select three content types among common B2B content types and evaluate the content ideas based on three criteria.

The average scores for each content type and evaluation criteria were calculated and shown in Table 1.

Table 1 Content Types and Evaluation Criteria

Content type	Average Score
Short Articles	3.788
Case Studies	3.404

White Papers	3.327
Expert Interviews	3.269
News Updates	3.212
Infographics	3.077
Webinars/Podcasts	2.827
Evaluation Criteria	Average Score
Relevance	3.942
Appropriateness for content type	3.654
Trendiness	3.596
Conciseness	3.558
Uniqueness	3.346
Informational Value	3.308
Engagement Potential	3.288
Audience Reach	3.250
SEO Optimization	3.231
Clarity	3.115
Visual Appeal	3.077

Based on the findings, the three most common content types—short articles, case studies, and white papers—were selected as the primary categories for this study. The evaluation criteria chosen to assess these content ideas were relevance, appropriateness to the content type, and trendiness.

In the second phase of the case study, GPT-4 was tasked with generating 30 content ideas for each of the three content types. Six experts evaluated these ideas on a 1-5 scale, considering the three criteria mentioned above. The following steps involved analyzing the ratings to identify how GPT-4 effectively generated content ideas.

1. For each content idea, the scores given by six experts on all three considered criteria are summed up and then divided by the number of experts (6) to obtain the mean score.
The priority vector reflects the relative importance of each criterion as determined by the pairwise comparison matrix. The resulting weighted score provides a composite measure of how well each content idea meets the evaluation criteria, with higher scores indicating a stronger alignment with industry relevance, trendiness, and appropriateness for the content type.
2. The pairwise comparison matrix, shown in Table 2, was designed to systematically evaluate the relative importance of the selected criteria: relevance to industry, trendiness, and appropriateness for the content type. Each criterion was compared against the others to determine its relative weight in the overall evaluation process.
3. The normalized comparison matrix, as shown in Table 3, was created to ensure assessment consistency.
4. Table 4 presents the priority vector, calculated from the average of each row in the matrix, showing the importance of each criterion.
5. The consistency index (CI) and consistency ratio (CR) were calculated to verify the pairwise comparisons, as shown in Table 5. The CR=0.046 is below the acceptable threshold of 0.1, indicating that the pairwise comparisons are consistent.

6. The weighted score is calculated by summing the mean scores for relevance to industry, trendiness, and appropriateness for content type. Each score is multiplied by its respective priority vector to reflect the importance of each criterion.
7. These weighted scores were then converted into effectiveness percentages.
8. The final Effectiveness score for each content type is calculated by averaging the effectiveness percentage scores of all individual content ideas within that type. This comprehensively measures how well the AI-generated content meets the evaluation criteria across the entire category. The final result is displayed in Table 6.

Table 2 *Pairwise Comparison Matrix*

	Relevance to Industry	Trendiness	Appropriateness for Content Type
Relevance to industry	1	1	1
Trendiness	1	1	0.5
Appropriateness for content type	1	2	1

Table 3 *Normalized Pairwise Comparison Matrix*

	Relevance to industry	Trendiness	Appropriateness for content type
Relevance to Industry	0.333	0.25	0.4
Trendiness	0.333	0.25	0.2
Appropriateness for Content Type	0.333	0.5	0.4

Table 4 *Priority Vector*

Criterion	Priority Vector
Relevance to Industry	0.328
Trendiness	0.261
Appropriateness for Content Type	0.411

Table 5 *Consistency Index & Ratio*

Consistency Index (CI)	0.026
Consistency Ratio (CR)	0.046

Table 6 *AI Effectiveness Score*

Content-Type	Effectiveness Score (%)
case study	86.88
short informative article	90.44
white paper	93.13

The analysis showed that GenAI was most effective at generating content Ideas for white papers, at 93.13%, followed by short informative articles, at 90.44%, and case studies, at 86.88%. This demonstrates GenAI's strong capability to generate highly relevant content ideas for the aviation MRO industry.

6 Conclusion

In conclusion, this study underscores the significant potential of Generative AI, specifically GPT-4, in revolutionizing content marketing within the aviation Maintenance, Repair, and Overhaul (MRO) industry. The research demonstrates how AI can effectively generate high-quality, relevant content that aligns with industry standards and expectations by focusing on three critical content types- short articles, case studies, and white papers. Using the Analytic Hierarchy Process (AHP) to evaluate the AI-generated ideas ensured a rigorous and systematic assessment, highlighting GPT-4's strong performance, particularly in creating white papers with an impressive effectiveness score of 93.13%. These findings are particularly relevant for professionals and marketers within the MRO sector, providing empirical evidence that AI can significantly enhance content creation processes, offering a scalable and efficient solution to meet the industry's unique needs. The study also points to the broader implications of integrating AI into specialized industries, where the complexity and regulatory demands require precise and reliable information. However, it is equally important to acknowledge the role of human expertise in refining and contextualizing AI-generated content to ensure it fully meets the nuanced demands of the industry.

Overall, this research contributes to the growing knowledge of AI's role in content marketing, particularly in specialized sectors like aviation MRO. It calls for continued collaboration between AI developers and industry experts to optimize these technologies further, ensuring they meet and exceed the expectations of complex, high-stakes environments. The successful integration of AI into content marketing strategies holds the promise of transforming how businesses engage with their audiences, driving innovation, and sustaining competitive advantage in an increasingly digital world.

7 Discussion

The results of this study highlight the transformative potential of Generative AI, particularly GPT-4, in content marketing for the aviation Maintenance, Repair, and Overhaul (MRO) industry. The ability of AI to generate high-quality content ideas that are relevant, trendy, and well-suited to the specific needs of this highly specialized sector underscores its value as a tool for enhancing marketing efforts. By leveraging the Analytic Hierarchy Process (AHP) for a systematic evaluation, the study has demonstrated GPT-4's effectiveness and provided a robust framework for assessing AI-generated content in a way that aligns with industry expectations.

The broader implications of these findings extend beyond the aviation MRO sector, suggesting that AI-driven content generation can be effectively applied in various industries that require precise and reliable information. This is especially relevant in sectors with complex regulatory environments, where the accuracy and relevance of content are critical. The scalability and efficiency offered by AI in content creation can help businesses maintain a competitive edge by quickly responding to industry trends and customer needs.

While the study presents promising results, several limitations need to be acknowledged. The evaluation was conducted by a limited group of experts, which, while providing valuable insights, may not fully represent the diversity of perspectives within the broader industry. Expanding the pool of evaluators in future studies could lead to a more comprehensive understanding of AI's capabilities across different contexts. Additionally, the focus on the aviation MRO sector limits the generalizability of the findings, indicating a need for further research into how AI can be adapted and applied in other industries with different content needs and regulatory challenges.

Our next research as the second part of this study, focuses on evaluating the capabilities of Generative AI, specifically GPT-4, in creating short informative articles tailored to the aviation MRO sector. By analyzing the quality and effectiveness of AI-generated short articles, we seek to understand AI's potential and limitations in addressing the specific content needs of the aviation MRO industry, thereby providing deeper insights into its practical applications in content marketing strategies within this specialized field. Future research should explore the potential for more advanced AI models that can better capture industry-specific nuances in language, tone, and style. There is also significant value in

investigating how AI can work with human expertise to refine and contextualize content, ensuring that it meets the intricate demands of specialized industries. Another crucial area for future research is the ethical implications of AI in content marketing, particularly concerning data privacy, bias, and the impact on consumer behavior.

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