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The Use of Artificial Intelligence through Market Positioning in Small Businesses to Increase Revenue Growth in Small Businesses

Seetharama Rangareddygari

AP Capstone Program, AP Research, Chattanooga, Tennessee, USA
Email: seetharama07052007@gmail.com

Abstract

In recent years, AI has bloomed in terms of its availability and potential, especially in business. Furthermore, more and more businesses have begun to adopt AI, with nearly sixty-five percent currently using or planning to utilize AI in their practices. Due to AI's emerging relevance in businesses, AI's impact on companies' revenue should be the focus of future studies; this is especially true in small companies because of the limited resources and increased risk for small businesses. Through a qualitative *ex post* facto study, specifically a thematic analysis, the researcher analyzed multiple peer-reviewed sources to form conclusions about how AI could impact the revenue growth of small businesses through market positioning. Continually, the researcher also examined multiple publicly published case studies to gain an understanding of real-world applications and form a benchmark. Through analysis of both datasets, the researcher concluded the effectiveness of AI in increasing revenue in small businesses through market positioning. The researcher found that by adopting AI in marketing and data analytics, businesses can significantly alter or improve their market positioning, allowing them to ensure more revenue. However, companies must consider the barriers regarding implementation and create a plan to ensure that the adoption is genuinely beneficial. There were multiple limitations to this study that created possible areas of improvement for further research. Future researchers should dive deeper into this topic simply because of the abstractness and complexity of this subject, and future research will lead to better adoption of AI in small businesses.

Keywords

AI, Artificial Intelligence, Small Businesses, Market Positioning, Marketing,

Data Analytics, Obstacles to Adoption

1. Introduction

Market positioning is a crucial business strategy to increase revenue produced by a product. Market positioning is when business owners strategically place their products in the market to incite a particular product perception within the consumer's mind. For example, companies such as BMW and Mercedes Benz are considered luxury cars that show off status. In contrast, vehicles like Toyota and Honda are considered more economical and reliable. This strategy allows the business owner to target a specific consumer and cater to their target customer. According to Mike Vestil, an entrepreneur and author, "[Market Positioning] allows firms to differentiate their products from competitors and create a strong brand identity. By monitoring the market, adjusting their messages, and targeting the right audience, companies can position their products for success" (Vestil). Therefore, it is crucial to analyze how market positioning can be improved and made more accessible to smaller businesses, primarily through marketing and data analytics. One technology that could disrupt market positioning is artificial intelligence (AI). According to IBM, AI is "Technology that enables computers and machines to simulate human intelligence and problem-solving capabilities." (IBM). Artificial Intelligence (AI) has recently surged in implementation in businesses, especially tiny businesses. Recent data provided by Capterra indicates that 30% of small businesses have begun incorporating some form of AI into their business and that 56% have plans or are implementing AI into their practices (Westfall, 2021). Due to this recent surge in the implementation of AI into business, it is essential to analyze the benefits that AI can ensure for small business owners. However, it should also be noted that incorrect or improper implementation can lead to the business's potential downfall or even bankruptcy; this was present in a situation with BP. Eleven workers were killed in an explosion when a mistake regarding machine technology and AI occurred. This situation, known as the Deepwater Horizon disaster, dropped BP stock prices from sixty to 27 dollars within a month (Bartneck et al., 2020). Therefore, it is also essential to study the implementation costs and prerequisites that businesses should incorporate into their implementation process to ensure a seamless incorporation of AI.

Furthermore, it is necessary to analyze current trends in AI adoption and use cases to determine the future of AI and the possible benefits that come with it. Regarding AI in market positioning, it is imperative to analyze the potential benefits and costs that may occur with the implementation of AI to ensure a better understanding for small businesses. More specifically, it is essential to analyze AI's role in marketing and data analytics to study how AI can affect customer perception of a product or service. By answering these questions, the researcher

can help guide small businesses looking to incorporate AI into marketing strategies and data analytics.

2. Literature Review

2.1. Emergence of AI in Small Businesses

According to the United States Census Bureau, the SBA (Small Business Association) defines a small business through "firm revenue (ranging from $1 million to over $40 million) and by employment (from 100 to over 1500 employees)" (U.S. Small Business Administration Office of Advocacy, 2022). Having about 32 million small businesses in the United States, small businesses comprise almost 99.9% of all businesses in the U.S. (U.S. Chamber of Commerce, 2024). As shown, nearly all the current businesses in the United States are small businesses, and almost all emerging businesses also consist of small businesses. Although small businesses make up most of all businesses in the United States, due to market limitations, most small businesses only make around 53,000 dollars a year with an average profit margin of 10% (U.S. Small Business Administration Office of Advocacy, 2022). However, with new emerging technologies, these numbers are adept at changing; one such technology is artificial intelligence. With the adoption of AI, small businesses can increase their efficiency by allocating time-consuming tasks such as data processing, reduce their costs by automating repetitive tasks, and increase revenue and customer base through advertising. The increase of AI in business is already present, to some extent, in the United States; according to a survey conducted by Capterra, where they surveyed 1000 small businesses on their current use of AI, they found that about 300 (30%) of small businesses are currently using AI and that 330 (33%) are planning to adopt AI shortly (Westfall, 2021). This relatively low percentage of current AI adoption means there is room for further development and the discovery of newer ways to utilize AI in business.

Furthermore, Vamsikrishna Bandari, at the University of South Australia, used data from pre-existing studies and figures to evaluate how effective AI was in generating revenue in specific aspects of business. He found that using AI in small businesses is highly effective in generating massive amounts of revenue in most sectors while also having the potential to reduce costs. He also found that AI is being utilized in some fields more than others and that AI has much potential in the world of business (Bandari, 2019).

2.2. Current Applications of AI and Its Effect on Small Businesses

AI currently has many applications in small businesses, and as it develops, more applications may appear. According to a survey by O'Reilly, small companies use AI in many different ways with the following results: approximately 50% of businesses use AI in research and development, 30% in IT (information technology), 30% in customer service, 20% in marketing related tasks, 20% in opera-

tions and management, 15% in manufacturing, 15% in sales, 10% in supply chain and logistics, 7% in human resources, 5% in distribution, and 3% in legal (Magoulas, 2020). This source provides a significant amount of data on the specific people implementing AI, their most critical challenges in their business, their most important challenges with implementation, and where they are implementing AI. This study shows that AI is currently implemented to increase business efficiency, from tedious tasks such as "Research and Development" to "legal" tasks.

2.3. Market Positioning Effect on Business Revenue

Market positioning is when a business establishes an image or brand inside the consumer's head to improve customer perception. Businesses have long used this strategy to increase the appeal of their product; for example, Apple (a technology company) has painted a picture of luxury tech items in consumers' heads to increase the appeal of their products, while other companies may advertise themselves as affordable to increase their appeal in consumers that are looking for a budget-friendly option. Businesses can cater to their desired audience, allowing for an increase in sales by using these different appeals. According to a study by Charles Blankson, Stavros P. Kalafatis, and Julian Cheng, company executives, and owners/managers clearly understand the value that specific positioning strategies can have on overall firm performance (Blankson et al., 2008). These strategies range from "Service," "Top of the Range," "Brand Name," and "Selectivity," which impact consumer perceptions, sales margins, ROI, and overall company image. Different market positions had seemingly varying impacts and even applications; for example, the strategy of "Service" emerged to be effective in increasing profitability universally, while strategies such as "Country of Origin" held varying importance to larger firms compared to SMEs. They also found that branding was one of the cornerstones for success, regardless of levels of advertising. The study underscores the value of gathering qualitative data for a comprehensive understanding of how these strategies influence firm performance, contributing to the need to conduct further research on this specific topic regarding different business and market sizes, specifically small businesses. They also found that most participating firms attribute their success to tailoring their business and marketing strategies to specific target groups, emphasizing the role of market positioning on increased sales and profit. This study demonstrates the importance of market positioning on the profitability of a product. It also shows how tailoring one's product towards a specific group and then advertising it specifically for that group can increase the success of a business. If more small companies adopt this strategy, they will see more success.

2.4. Summary

There has been a growing interest in AI for businesses, especially small businesses, to increase their efficiency and profit margins. There has also been a va-

riety of current applications for AI in small enterprises ranging from tedious tasks such as "Research and Development" to more complicated tasks such as "Legal" related tasks. Further, understanding the implications of AI can help small businesses significantly expand into larger-scale companies. By implementing market positioning strategies, small businesses can also increase their profitability; understanding the consumer base and appealing to the target market will allow for greater profitability, as shown in the study by Charles Blankson, Stavros P. Kalafatis, and Julian Cheng. Small businesses can evaluate AI's potential in market positioning tasks, such as data collection, customer evaluation, and marketing- and whether to adopt AI in market positioning. Businesses can also assess AI's potential in market positioning by evaluating the potential profit-to-cost ratio.

3. Methodology

The method used for this study aligns with answering the question: How does AI usage for market positioning, specifically marketing and data analysis, lead to revenue growth in small businesses? The researcher used a qualitative ex post facto study, where the researcher helps gain a conceptual understanding of the topic through pre-existing data. The researcher decided that a qualitative ex post facto would be the best methodology for the study because using a qualitative ex post facto allows the researcher to gain a deep conceptual understanding and understanding of patterns that would enable the researcher to apply the results to any small business; however, since using a quantitative *ex post* facto would most likely require data from single corporations the data would not apply to all companies because of the variances from business to business. Furthermore, the researcher decided to collect qualitative data due to the challenges of obtaining quantifiable data regarding AI and small businesses. This challenge arose because of the relative newness of AI in business and will dissipate as time goes on. More specifically, the researcher decided to conduct a thematic analysis. Thematic analysis identifies, analyzes, and interprets qualitative data to understand patterns. The results provided by the thematic analysis for the data analytics component give a variety of perspectives and results, allowing for a complete conceptual understanding of the research question. The collected sources were then analyzed through a thematic analysis, one of the most common methods used in qualitative research that allows the researcher to investigate connections between sources by examining the themes/results of each study. This form of analysis allows the researcher to find valuable insights and then organize the data to enable the researcher to see the context and connections quickly. Furthermore, the researcher analyzed various case studies regarding "AI and its effect on marketing" to gain a real-world understanding and application of the topic.

Many previous studies regarding the topic have also utilized a thematic analysis or a very similar method. Some sources include" AI Automation and its Future in the United States" by Yarlagadda and "Artificial Intelligence in Produc-

tion Management: A Review of the Current State of Affairs and Research Trends in Academia" by Burggräf and colleagues. Although these studies investigated the qualitative approach to AI and marketing, they did not apply the results to a more considerable scope and study the effect AI has on market positioning, nor did they apply the results to small businesses.

3.1. Procedure

The first step is determining what aspects of the business fit under market positioning and what specific tasks the researcher will study. The researcher decided to split up market positioning to study data analysis, marketing, and the limitations of adopting AI. That is because those two components encompass the overall aspect of market positioning, and the third component provides the researcher with cautions for small businesses, which were mentioned throughout many of the foundational sources (Figure 1).
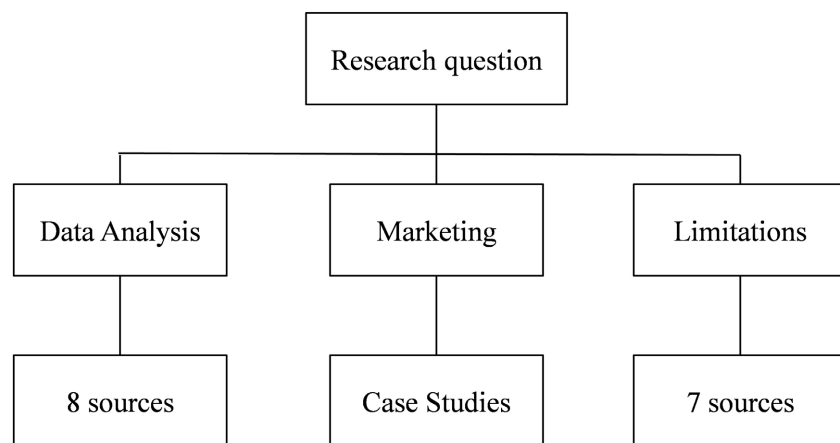

Figure 1. Procedure diagram.

Firstly, to gather data regarding AI in marketing, the researcher decided to stray from peer-reviewed sources and instead use a series of case studies, allowing the researcher to get a real-time understanding of AI's applications while also understanding its benefits. Remember that this differs from using quantitative data because the researcher only looks for general trends among the applications and results of the case studies. The researcher obtained a series of case studies regarding the use of AI in marketing for larger corporations. The case studies were found through internet searches with key terms and phrases such as "AI in marketing case studies" and "How is AI applied in marketing?". After collecting the case studies, the researcher organized the case studies onto a table made on Google Sheets and assigned each corporation a number to maintain simplicity (see Table A1). After that, the researcher would analyze the results of the case studies and write them in a separate column, describing how AI was applied for marketing purposes in those businesses. Then, the researcher found similarities in both the applications of AI and the results due to the applications of each case

study. It must be noted that the case studies were not considered small businesses due to the lack of available information on AI in small businesses. However, the results will still apply to small businesses since the fundamental benefits of AI—such as improved efficiency, enhanced customer insights, and optimized operations—are relevant regardless of business size. Small companies can scale the benefits in more giant corporations around their own needs, leading to similar results (proportionally).

The next step regarding the thematic analysis for applying AI in market positioning for small businesses is to understand the implementation costs and prerequisites for the business to implement AI into their businesses effectively. To understand this, the researcher conducted a thematic analysis of 7 sources to understand the implementation costs and drawbacks of implementing AI in small companies (see Table A2). These sources were gained through internet searches and databases such as "Google Scholar" and "EBSCO." The researcher acquired these specific searches through keywords and phrases such as "Limitations of AI in business," "Implementation of AI in business," and "Costs of implementing AI into business." After acquiring the sources, the researcher conducted a thematic analysis of the results of each source that was present, allowing the researcher to connect each study's results and gain a deep qualitative understanding of the potential hindrances of AI in small businesses, allowing the researcher to come to a more effective conclusion.

Transitioning into AI in data analytics, the researcher will conduct a thematic analysis of 8 peer-reviewed sources regarding the topic (see Table A3). These sources were selected due to the relevance and credibility of each source, allowing for a complex and credible understanding of the topic. The researcher acquired these sources through large databases such as EBSCO and Google Scholar. The researcher used keywords such as "AI and Data Analytics," "AI and Big Data," and "AI and data analytics in business." The peer-reviewed sources range from "Artificial Intelligence to Increase the Efficiency of Small Businesses" by Arzikulov to "An Artificial Intelligence Adoption Model for Large and Small Businesses" by Nascimento and Meirelles. These sources were collected via Google Scholar by entering keywords such as "AI in small business for data analysis," "AI implementation in data analysis," and "AI in big data." The researcher then summarized each of the sources gathered.

Upon collecting all the sources for the thematic analysis, the researcher would organize the data into a series of Google Sheets. The researcher would transcribe the source name and citation in columns 1 and 2 and the key findings in the article in column 3. From there, the researcher would find recurring themes between each source and list them in a separate table, including the present themes and a brief definition of said themes. After that, the researcher created a separate table with the source number in one column and each recurring theme in the other. By doing this, the researcher could draw connections between multiple sources regarding the subject quickly; furthermore, it also allowed the researcher

to connect the themes between the different components of the study.

3.2. Hypothesis

The researcher hypothesized that introducing AI into market positioning through marketing and data analytics would benefit small businesses, including revenue growth, efficiency increase, and a decreased need for labor. However, these results will only be attainable if the company can correctly implement AI into its current practices and train employees for adequate and ethical use of AI. Due to this requirement, the researcher believes that if businesses can adequately plan the implementation of AI into their business and overcome the obstacles, AI would benefit small businesses exponentially.

4. Results/Findings

The qualitative results originate from a systematic thematic analysis of sources selected by the researcher. The researcher analyzed the results of the present studies and searched for commonalities among the sources. The researcher then connected the themes on tables through Google Sheets, allowing for a more organized view of all the studies gathered. If more than one theme was present in a source, then the researcher chose to include all of the themes to maintain accuracy in the study.

4.1. Data Analytics

Table 1 introduces the recurring themes within each of the sources used for the data analytics portion of the study and briefly defines each theme (Trend identification, Business optimization, Increase in efficiency, Potential risks in adoption).

Table 1. Defining themes (data analytics).

Themes	Definitions
Trend Identification	AI's ability to process vast amounts of data allows for trend identification and optimization of business operations
Business Optimization	AI's ability to analyze vast amounts of company data to find lacking sectors and wastages to optimize the corporation
Increase in Efficiency	The introduction of AI into data analytics has allowed for much greater efficiency in processing data than before
Potential Risks in Adoption	Since AI is still a relatively new technology, further research should be conducted to ensure better adoption.

Table 2 goes into depth about each uncovered source, summarizing each source and the recurring themes present. The four recurring themes throughout the sources show the similarities of researchers' perspectives regarding the implementation of AI in data analytics.

Table 2. Summary of eight sources (data analytics).

Source	Source Summary	Recurring Themes
1	The introduction of AI into data analytics is changing many sectors of business. AI can identify trends and optimize operations through its ability to process vast amounts of data.	Trend identification, business optimization
2	AI-driven solutions allow small businesses to enhance decision-making processes and optimize operations.	Business optimization
3	Implementing AI into business allows for greater efficiency and precisions previously unknown; however, challenges persist in its ability to process large amounts of data.	Trend identification, increase in efficiency, potential risks in adoption
4	Applications of AI in businesses, through chatbots, automation, robotics, and machine learning, allow for notable impacts on efficiency and productivity in data analytics. Similarly, by simulating human intelligence, AI can predict future trends. However, many risks are still associated with AI, and more extensive research should be conducted.	Trend identification, increase in efficiency, potential risks in adoption
5	These new technologies can enable new entrepreneurial activities and offer opportunities to enhance productivity and efficiency. However, there is still an impending risk regarding the relative newness of AI.	Increase in efficiency, potential risks in adoption
6	AI can increase efficiency and preciseness in small businesses by automating tasks; however, there are still challenges and risks when implementing AI.	Increase in efficiency, potential risks in adoption
7	Integrating AI into small businesses has dramatically changed the business landscape. AI-powered data analytics tools enable small businesses to make more informed decisions and optimize operations. These technologies allow enterprises to identify trends. However, there are still possible risks and limitations that small businesses should consider.	Trend Identification, business optimization, potential risks in adoption
8	By harnessing AI and machine learning techniques, businesses can make more informed decisions, enhance efficiency, and drive growth. Integrating AI in data analytics improves accuracy and scalability and empowers enterprises to adapt to evolving market dynamics and stay competitive in the digital age.	Business optimization, increase in efficiency

1) Trend Identification

The first recurring theme was the ability of AI to help with trend identification through data analytics. Trend identification highlights AI's ability to help identify future trends. These trends may include consumer purchasing trends, pricing trends, and possibly even market trends; these trends provide small businesses with extensive knowledge regarding their current position within the

market and how they should go about future processes to better align themselves with the consumer perception they desire.

2) Business Optimization

The following recurring theme was "Business Optimization," meaning that AI through data analytics allows businesses to optimize their practices further. Although this process does not directly align with market positioning, it does align with a small business's ability to reduce its costs, allow it to allocate more resources towards market positioning, and help it align with its desired market perception.

3) Increase in Efficiency

The third recurring theme is "Increase in efficiency," meaning that implementing AI within data analytics increases the efficiency with which businesses process large amounts of data. Once again, this does not directly support market positioning; however, it allows companies to reallocate resources previously assigned to data analytics to processes that will affect market positioning, such as marketing and market analysis, tasks that AI can also automate.

4) Potential Risks

The last recurring theme was "Potential risks associated with adoption," meaning that there are risks associated with adopting AI into data analytics. This finding cautions small business owners to accurately assess the potential risks and limitations before implementing AI into their practices.

4.2. Marketing

Table 3. How AI was applied in each case study.

Business	How AI was applied
#1	Used AI to target more likely consumers and used AI to adjust the campaign in real-time to appeal to more target consumers
#2	AI was used to create ads to target consumers with families and other loved to encourage the purchase of their product
#3	AI was trained in real-time language and was used to maintain real-time conversations with consumers and advertise the products
#4	AI was used to analyze consumer suggestions and create new recipes to sell and advertise
#5	AI ads were used to personalize the experience and products for the consumer
#6	AI was used in real-time conversations with consumers, recommended locations and trips, and explained the benefits of their services. It was also used to increase ad reached to target consumers
#7	AI was used to analyze all the articles related to one of the products the business offers, then used to place in-image ads of the business to increase reach
#8	Through AI-generated audio ads, explore products and listen to AI-generated jingles about the products.

To maintain the simplicity of the studied businesses, the researcher assigned a

number to each business in the case studies. It should be noted that all analyzed businesses were large corporations simply because case studies based on small companies were difficult to find or needed more information. Table 3 shows how businesses applied AI throughout each of the case studies. Throughout the case studies, it became apparent that companies used AI to increase the engagement and personalization of the ads. For example, the use of AI in Business 8 helped create more engaging and persuasive ads, which led to more engagement and an unseen increase in the reach of the advertisements.

Furthermore, some businesses used AI to personalize their campaigns, which, in turn, made the ads much more effective; this was seen in businesses #3 and #6, where they used AI in the campaign to adjust the ads in real-time. Similarly, the results of Table 4 show how the ads' personalization significantly increased purchases and how the increased engagement of the ads was a prominent theme in the results. All studied businesses had varying benefits to introducing AI for their campaign. Within Business 1, the marketing campaign lowered the cost per booking by 170%, reducing the price for the company to sell a product by 170%. Meanwhile, in Business 2, AI increased the conversion rate by 60% - 70%. The use of AI in marketing also drastically increased the engagement rates in businesses 3, 7, and 8, eventually leading to more purchases. Furthermore, business 5 increased the number of conversations between representatives and the business, which led to a higher purchase rate. Additionally, it increased the influence of certain businesses, as seen in Business 8, where the reach of the business increased by nearly 60%.

Table 4. Case study results.

Business	Findings
#1	The campaign lowered the cost-per-booking for the business by 170%
#2	Significantly increased the conversion rates by 60% - 70% depending on the demographics of the consumer
#3	Increased engagement by 37% based on location and increased purchase consideration by 20% for men between 35 - 49
#4	A 190% increase in website submissions and a 27% mobile app completion rate
#5	15,000 conversations between consumers and businesses, a 17% increase in purchase rates, and an 8.5% increase in traffic
#6	Increased traffic, increased engagement between company and consumer, and a 48.6% increase in visits to Best Western Locations
#7	Through strategic targeting, it increased ad engagement and increased the business share of iPhone launch sales
#8	The total engagement rate was 14.13%, the interest rate was 4.28%, and the reach of the ads increased by 58.3%, which was unseen in the past

4.3. Barriers to Adopting AI

It should be noted that in Table 5, the table regarding the case studies, the researcher took a different approach since the table had a variable variance. The researcher collected a variety of case studies and transcribed the results of each case study in Table 5 while also gathering a background of each business through a thorough Google search.

Table 5. Recurring themes of adopting AI.

Themes	Definitions
High Implementation costs	Before small businesses can adequately adopt AI, there must be employees who can properly understand and utilize AI
Lack of technical expertise	Before small businesses can adequately adopt AI, there must be employees who can properly understand and utilize AI
inequality	There may be some inequality regarding the access that small businesses have to AI adoption
Privacy and security concerts	There may be some privacy breaches and online safety concerns regarding the adoption of AI.

Table 6. Summary of seven sources (Barriers to Adopting AI).

Source	Source Summary	Recurring Themes
1	AI benefits small businesses, allowing them to expand and develop quickly. However, their implementations have many limitations, such as high costs, lack of technical expertise, and potential safety concerns.	High implementation costs, lack of technical expertise, Privacy and safety concerns
2	Small businesses need help with the implementation of AI into their processes. These challenges include the high upfront implementation costs, the required technical skill to implement adequately, and potential privacy concerns that may limit the implementation. These are all factors that small businesses must consider before implementation.	High implementation costs, lack of technical expertise, Privacy and safety concerns
3	Many inequalities can lead to the unfair implementation of AI, such as geographical disparity, as this technology is predominantly concentrated in a few regions.	Inequality
4	The researcher analyzed 72 possible factors affecting the implementation of AI, and they found that environment and socio-economic status are among the most prominent factors limiting its adoption.	Inequality
5	Implementing AI into businesses can face many limitations, specifically ethically. There are many concerns regarding preserving civil rights and privacy.	Privacy and safety concerns
6	Many significant barriers limit small businesses from implementing AI into their processes. The two most essential obstacles include high implementation costs and a need for technical expertise to utilize AI properly. There are also many challenges regarding limited access to data sets and regulatory concerns, likely regarding privacy and safety.	High implementation costs, lack of technical expertise, Inequality, Privacy, and safety concerns
7	The study analyzed key barriers in Australian organizations from implementing AI into their practices and found that although 62% of companies have adopted AI, many obstacles, such as lack of in-house skills, still need to be overcome.	Lack of technical expertise

The recurring themes that were found through the thematic analysis regard-

ing the limitations and barriers to adopting AI ("High implementation costs," "Lack of technical expertise," "Inequality," and "Privacy and security reasons") are present in Table 5. The findings of each source and the recurring themes found throughout the source are presented in Table 6. Each of the four recurring themes represents a different barrier/limitation that small business owners must consider before implementing AI into their processes.

1) High Implementation Costs

Recurring theme one is the high implementation costs that come along with implementing AI. These costs could rise to one million dollars, a huge barrier that all business owners must keep in mind before deciding to implement AI into their business, especially for market positioning.

2) Lack of Technical Expertise

The recurring theme was a "Lack of technical expertise" within a business. "Lack of technical expertise" is most likely the most significant obstacle business owners must consider before adopting AI. Since properly utilizing AI requires employees and managers with the expertise to use them adequately. Without adequate experience or knowledge, AI will burden the business, costing it more than it brings in. Furthermore, the costs of training employees who are hiring already-trained employees will also add to the pre-existing high costs.

3) Inequality in Access

The third recurring theme is "Inequality," a barrier many businesses must consider before implementing AI. According to Soni N and colleagues (Authors of source 7), one of the most significant limitations to AI adoption is geographical disparities as the technology is located predominantly in one area (Soni et al., 2020). Business owners must consider whether they have equal access to AI and equal access to resources needed to utilize AI before they implement it into their business correctly.

4) Privacy and Security Concerns

The last recurring theme was "Privacy and security reasons." Although this is not a considerable limitation or barrier, it is still something business owners must consider. This concern for potential information violations is a risk that business owners must consider and implement adequate steps to prevent.

5. Discussion

The results of the study demonstrate the potential that AI has to affect data analytics, marketing, and even the limitations and barriers that business owners must take into account; however, the scope of the study is to analyze how AI can affect market positioning in small businesses through connecting the results of the study. The researcher found four recurring themes for data analytics, case study results for marketing, and four recurring themes/limitations for AI adoption.

5.1. Data Analytics

The use of AI in data analytics benefits a company inside and outside the scope

of the study. Although "How data analytics could be implemented to affect market positioning" was one of the main focuses of the study, the researcher also found that companies could use AI in data analytics to optimize the business as a whole. The recurring themes associated with AI in data analytics are almost all positive, describing how AI can increase efficiency, identify trends, and optimize business. Each of these can play a crucial role in market positioning within a business. By increasing the efficiency of data analytics within a business through AI, the business can reallocate resources to other business components regarding market positioning, such as advertising or price determination. However, this also optimizes the business as a whole and optimizes market positioning. Consequently, by optimizing a business through data analytics, companies can weed out unnecessary costs and resources and reallocate them to market positioning tasks, such as advertising and price identification. Lastly, by identifying trends within a market, the business can predict and make future moves to help with its positioning within the market. For example, by placing the trend of consumers tending to buy lower-priced goods from the business, the business can begin to align itself with the customer perception of it as a budget store, allowing it to increase its revenue. As a whole, AI can be applied to data analytics in small businesses to produce benefits not only regarding market positioning but also for the whole business.

5.2. Marketing

Companies can also apply AI in marketing to help with market positioning. Marketing is another crucial component of market positioning. Marketing allows businesses to advertise themselves in a way that aligns with or shifts a consumer's perception of their business. By examining the case studies, the researcher concluded that AI provides three vital benefits to companies in terms of marketing: more significant conversion rates of consumers, increased traffic, and further reach. The themes present were also similar to the results of another study by Abid Haleem and colleagues from the Department of Mechanical Engineering in New Delhi. Haleem found that "AI can create a more personalized brand experience, making cultivating user engagement and loyalty easier" (Haleem et al., 2022). These shared pros can significantly affect market positioning and revenue overall. By having an increase in traffic in consumers and collecting data on where this traffic is occurring, businesses can identify the current perception that consumers place on them.

Furthermore, increased traffic also allows businesses to spread their current appeal to potential consumers. This increased traffic has also been shown to lead to increased purchases. Likewise, the increased reach of ads can significantly increase revenue and market positioning, leading to increased revenue. Increased reach of ads allows businesses to expose their brand to a broader audience, emphasizing brand awareness. This heightened visibility will enable companies to spread their niche to more target audiences, positioning the business favorably.

Increased conversion rates were the last benefit that was present. Like the previously mentioned benefits, increased conversion rates also lead to a changing market position. Higher conversion rates signify strong consumer trust and preference, allowing businesses to appeal to a specific niche and alter their market standing. Furthermore, with a more significant conversion rate, the rate between ad viewership and the purchase rate of consumers, small businesses can experience an evident growth in revenue. To summarize, the evidence demonstrates that utilizing AI in marketing provides many benefits to the business, all of which enhance the consumer perception of the business and consequently increase the revenue of the business

5.3. Marketing and Data Analytics Applied

If small companies can adequately utilize AI in marketing and data analytics, they can drastically increase their ability to align themselves with their desired position. With all the benefits of using AI for market positioning in small businesses, incorporating AI into their practices can significantly increase the business's revenue. This is because AI allows enterprises to optimize themselves, expand the reach and audience of the business, reduce costs, and, most importantly, increase revenue while also affecting the business's market position, which has been shown to increase revenue in businesses. According to Micheal Yeboah, from the department of accountancy at Kumasi Polytechnic, "This study has shown that branding (trademarks and brand awareness) significantly have long run positive impact on sales" and "Companies which create and effectively manage their brand stand to gain more sales in the long run" (Yeboah, 2016). Businesses can alter their market positioning to the most optimal place and experience significant revenue growth through the benefits associated with data analytics and marketing.

5.4. Barriers to Adoption

Despite all these benefits, businesses must still be cautious when implementing AI into their practices. According to Table 3, there are four recurring themes regarding the limitations of adopting AI for businesses. These limitations include "High implementation costs," "Lack of technical expertise," "Inequality," and "Privacy and security reasons." These limitations are considerable barriers that small businesses must consider before adopting AI into their processes. One of the main barriers limiting adoption is "High Implementation Costs." This high upfront cost of implementation must be taken into account by small businesses to analyze whether the adoption of AI into their current plans is genuinely beneficial and sustainable. Likely, the most significant barrier that small businesses must overcome when implementing AI is "The lack of technical expertise." This is a barrier companies must consider before adopting AI because, without staff that can adequately use AI, AI processes might become a burden rather than beneficial. Additionally, training employees to utilize AI or hiring already

trained employees adequately will add to the high implementation costs. The third recurring barrier was "Inequality." This is another barrier that small businesses must consider because AI is predominantly available in only a few areas; therefore, companies must consider whether there is adequate access to AI and technical expertise in utilizing AI. Lastly, companies must consider "Privacy and security concerns". Although this is not a significant barrier, it is still a risk that companies should take into account and take steps to ensure it does not threaten the business. Overall, small businesses must take into consideration an array of barriers.

Small businesses must assess their current standing and decide whether they can effectively cover all the costs associated with adoption to combat these barriers. Suppose the business is deemed ready to go into the adoption phase. In that case, it must adequately plan its adoption to overcome the obstacles and minimize consequences if it does not go as planned. For example, an adequate plan would require all current employees or applicants to have some form of coursework or certification completed regarding the use of AI to reduce implementation costs. Furthermore, small businesses could set aside X amount of money in a separate location to ensure the business has emergency funds if the adoption does not go as planned. Lastly, the business would do thorough research to ensure that it implements the most cost-effective, available, and usable AI into its practices to reduce implementation costs and allow for optimal performance. By implementing a multi-step plan, like the previously mentioned, businesses can effectively overcome the barriers associated with adoption.

5.5. Final Conclusions

After examining works in the field, the researcher found that by adopting AI in marketing and data analytics, businesses can significantly alter or improve their market positioning, allowing them to ensure more revenue. However, companies must consider the barriers regarding implementation and create a plan to ensure that the adoption is genuinely beneficial.

6. Limitations

One limitation is the time frame of the study. This study only incorporated data from 2018 to the present, making all the data relatively new due to the relative newness of AI in business. Due to this, there needed to be more quantitative data for data analytics and the limitations of implementing AI, which would have further improved the study if there had been quantitative data. Furthermore, due to the lack of data present regarding the subject, the sample sizes for the thematic analysis also tended to be on a smaller scale, granted there were still enough sources to provide an adequate understanding of the topic; however, if there was more data that was present, the researcher could have explored more profound into the nuances of the implications of AI into small business.

Furthermore, it must be noted that the analyzed case studies were not specific to small businesses. Although the results still apply to small businesses, it would

be naive to eliminate the fact that they may need to be generalizable. This limitation once again relates to the relative newness of AI and the need for an extensive pool of research to gather data.

7. Future Studies

The study's limitations allow for new research areas regarding the topic. Future research should analyze the implementation of AI into marketing and data analytics in real-time, meaning that the researchers should conduct a case study on a small business currently implementing AI into their processes. The researcher should also perform a case study on similar companies that do not utilize AI and compare the processes of both businesses. By performing this, the researchers will be able to investigate the benefits and costs of implementing AI into small companies in real-time, allowing them to gain a highly complex quantitative and qualitative understanding of the results of implementing AI into marketing and data analytics processes. If a case study is not possible, the researcher should strive to conduct interviews with small business owners as the interviewee, allowing the researcher to gain the perspective of a real-time business owner. The researcher should also gain permission to access the businesses' financials, allowing them to examine the quantitative benefits of implementing AI for market positioning in small businesses, specifically through marketing and data analytics.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Alsheiabni, S., Cheung, Y., & Messom, C. (2019). *Factors Inhibiting the Adoption of Artificial Intelligence at Organizational-Level: A Preliminary Investigation.* Association for Information Systems.

Arzikulov, O. A. U. (2021). Artificial Intelligence to Increase the Efficiency of Small Businesses. *Theoretical & Applied Science, 100,* 412-415. https://doi.org/10.15863/tas.2021.08.100.77

Bandari, V. (2019). The Impact of Artificial Intelligence on the Revenue Growth of Small Businesses in Developing Countries: An Empirical Study. *Reviews of Contemporary Business Analytics, 2,* 33-44.

Bartneck, C., Lütge, C., Wagner, A., & Welsh, S. (2020). Risks in the Business of Ai. In C. Bartneck, C. Lütge, A. Wagner, & S. Welsh (Eds.), *An Introduction to Ethics in Robotics and AI* (pp. 45-53). Springer International Publishing. https://doi.org/10.1007/978-3-030-51110-4_6

Blankson, C., Kalafatis, S. P., Cheng, J. M., & Hadjicharalambous, C. (2008). Impact of Positioning Strategies on Corporate Performance. *Journal of Advertising Research, 48,* 106-122. https://doi.org/10.2501/s0021849908080124

Chui, M., Manyika, J., & Miremadi, M. (2018). *What AI Can and Can't Do (Yet) for Your Business.* McKinsey Quarterly.

Ghimire, A., Thapa, S., Jha, A. K., Adhikari, S., & Kumar, A. (2020). Accelerating Busi-

ness Growth with Big Data and Artificial Intelligence. In *2020 Fourth International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC)* (pp. 411-448). IEEE. https://doi.org/10.1109/i-smac49090.2020.9243318

Haleem, A., Javaid, M., Asim Qadri, M., Pratap Singh, R., & Suman, R. (2022). Artificial Intelligence (AI) Applications for Marketing: A Literature-Based Study. *International Journal of Intelligent Networks, 3,* 119-132. https://doi.org/10.1016/j.ijin.2022.08.005

Himeur, Y., Elnour, M., Fadli, F., Meskin, N., Petri, I., Rezgui, Y. et al. (2022). AI-Big Data Analytics for Building Automation and Management Systems: A Survey, Actual Challenges and Future Perspectives. *Artificial Intelligence Review, 56,* 4929-5021. https://doi.org/10.1007/s10462-022-10286-2

Nascimento, A., & Meirelles, F. (2022). An Artificial Intelligence Adoption Model for Large and Small Businesses. *SSRN Electronic Journal.* https://doi.org/10.2139/ssrn.4194043

Obschonka, M., & Audretsch, D. B. (2019). Artificial Intelligence and Big Data in Entrepreneurship: A New Era Has Begun. *Small Business Economics, 55,* 529-539. https://doi.org/10.1007/s11187-019-00202-4

Ojokoh, B. A., Samuel, O. W., Omisore, O. M., Sarumi, O. A., Idowu, P. A., Chimusa, E. R. et al. (2020). Big Data, Analytics and Artificial Intelligence for Sustainability. *Scientific African, 9,* e00551. https://doi.org/10.1016/j.sciaf.2020.e00551

Rahmani, A. M., Azhir, E., Ali, S., Mohammadi, M., Ahmed, O. H., Yassin Ghafour, M. et al. (2021). Artificial Intelligence Approaches and Mechanisms for Big Data Analytics: A Systematic Study. *PeerJ Computer Science, 7,* e488. https://doi.org/10.7717/peerj-cs.488

Roger Magoulas, S. S. (2020). *AI Adoption in the Enterprise 2020.* O'Reilly Media. https://www.oreilly.com/radar/ai-adoption-in-the-enterprise-2020/

Ruiz-Real, J. L., Uribe-Toril, J., Torres, J. A., & De Pablo, J. (2020). Artificial Intelligence in Business and Economics Research: Trends and Future. *Journal of Business Economics and Management, 22,* 98-117. https://doi.org/10.3846/jbem.2020.13641

Soni, N., Sharma, E. K., Singh, N., & Kapoor, A. (2020). Artificial Intelligence in Business: From Research and Innovation to Market Deployment. *Procedia Computer Science, 167,* 2200-2210. https://doi.org/10.1016/j.procs.2020.03.272

Sugar, E. (2023). *AI and Big Data: How Artificial Intelligence Is Transforming the Business Landscape.* DATAVERSITY.

U.S. Chamber of Commerce (2024, June 5). *The State of Small Business in America. The State of Small Business in America.* https://www.uschamber.com/small-business/state-of-small-business-now#:~:text=There%20are%2033.2%20million%20small%20businesses%20in%20America%2C,new%20business%20applications%20were%20filed%20in%20the%20U.S.

U.S. Small Business Administration Office of Advocacy (2022). *2022 Small Business Profiles for the States, Territories, and Nation.* SBA's Office of Advocacy. https://advocacy.sba.gov/2022/08/31/2022-small-business-profiles-for-the-states-territories-and-nation/

Westfall, B. (2021). *Top Applications of Artificial Intelligence for Small Businesses.* Capterra. https://www.capterra.com/resources/applications-of-artificial-intelligence/

Wordpress, 2U. (2023, October 27). *Big Data and Artificial Intelligence: How They Work Together.* Maryville University Online.

Yeboah, M. (2016). Impact of Product Branding on Sales Revenue of Listed Companies in Ghana. *International Journal of Academic Research in Business and Social Sciences, 6,* 112-124. https://doi.org/10.6007/ijarbss/v6-i9/2297

Appendices

Table A1. Case study businesses and associated number.

Business	Business Name
#1	Norwegian Airlines
#2	The Humane Society
#3	Toyota Prius Prime
#4	Campbell
#5	Behr
#6	Best Western
#7	Vodafone
#8	Ikea

Table A1 shows the businesses that were studied for the case study analysis. Furthermore, it assigns a number to each company to help maintain simplicity throughout the study.

Table A2. Case study business demographics.

Business	Corporation Size	Industry
#1	Large	Transportation
#2	Large	Animal Protection
#3	Large	Automobile
#4	Large	Food
#5	Large	Painting and Coating
#6	Large	Hospitality
#7	Large	Telecommunications
#8	Large	Furniture

Table A2 shows the demographics of each of the businesses. It shows the business number mentioned in **Table A1** in the left-most column, then the corporation size in the middle column, and the industry that the business is in the right-most column.

Table A3. Table with eight sources regarding AI and data analytics.

Source Number	Source
#1	Big Data and Artificial Intelligence: How They Work Together. Wordpress, 2U (2023, October 27). Big Data and artificial intelligence: How they work together. Maryville University Online. https://online.maryville.edu/blog/big-data-is-too-big-without-ai/#:~:text=According%20to%20Forbes%2C%20the%20most,64%25%20of%20data%20collection%20tasks.

Continued

#2	Big Data, Analytics, and Artificial Intelligence for Sustainability Ojokoh, B. A., Samuel, O. W., Omisore, O. M., Sarumi, O. A., Idowu, P. A., Chimusa, E. R., ... & Katsriku, F. A. (2020). Big data, analytics, and artificial intelligence for sustainability. Scientific African, 9, e00551.
#3	Artificial Intelligence Approaches and Mechanisms for Big Data Analytics: A S'? >Systematic Study. Rahmani, A. M., Azhir, E., Ali, S., Mohammadi, M., Ahmed, O. H., Yassin Ghafour, M., Hasan Ahmed, S., & Hosseinzadeh, M. (2021, April 14). Artificial Intelligence Approaches and mechanisms for Big Data Analytics: A systematic study. PeerJ. Computer science. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8053021/
#4	AI and Big Data: How artificial intelligence is transforming the Business Landscape. Sugar, E. (2023, July 6). AI and Big Data: How artificial intelligence is transforming the Business Landscape. DATAVERSITY. https://www.dataversity.net/ai-and-big-data-how-artificial-intelligence-is-transforming-the-business-landscape/#:~:text=Combining%20AI%20with%20Big%20Data%20to%20Improve%20Business%20Performance&text=In%20sales%20and%20marketing%2C%20AI,the%20value%20of%20data%20grows.
#5	Artificial Intelligence and Big Data in Entrepreneurship: A New Era has Begun. Obschonka, M., & Audretsch, D. B. (2019). Artificial intelligence and big data in entrepreneurship: A new era has begun. Small Business Economics, 55, 529-539.
#6	Artificial Intelligence Approaches and Mechanisms for Big data Analytics: a Systematic Study Rahmani, A. M., Azhir, E., Ali, S., Mohammadi, M., Ahmed, O. H., Ghafour, M. Y., ... & Hosseinzadeh, M. (2021). Artificial intelligence approaches and mechanisms for big data analytics: a systematic study. PeerJ Computer Science, 7, e488.
#7	AI-big Data Analytics for Building Automation and Management Systems: A survey, Actual Challenges, and Future Perspectives. Himeur, Y., Elnour, M., Fadli, F., Meskin, N., Petri, I., Rezgui, Y., ... & Amira, A. (2022). AI-big data analytics for building automation and management systems: a survey, actual Challenges, and future perspectives. Artificial Intelligence Review, 56(6), 4929-5021.
#8	Accelerating Business Growth with Big Data and Artificial Intelligence. Ghimire, A., Thapa, S., Jha, A. K., Adhikari, S., & Kumar, A. (2020, October). Accelerating business growth with big data and artificial intelligence. In 2020 Fourth International Conference on I-SMAC (IoT in Social, Mobile, Analytics, and Cloud) (I-SMAC) (pp. 441–448). IEEE.

Table A3 shows the sources studied for the thematic analysis, specifically for the AI in big data portion, while assigning a number to each source to maintain simplicity.

Table A4. Table with seven sources regarding AI and its limitations.

Source Number	Source
#1	Artificial Intelligence to Increase the Efficiency of Small Businesses Arzikulov, O. A. (2021). Artificial intelligence to increase the efficiency of small businesses. ISJ Theoretical & Applied Science, 8(100), 412-415.
#2	The Impact of Artificial Intelligence on the Revenue Growth of Small Businesses in Developing Countries: An Empirical Study Bandari, V. (2019). The impact of artificial intelligence on the revenue growth of small businesses in developing countries: an empirical study. Reviews of Contemporary Business Analytics, 2(1), 33-44.
#3	Artificial Intelligence in Business: From Research and Innovation to Market Deployment Soni, N., Sharma, E. K., Singh, N., & Kapoor, A. (2020). Artificial intelligence in business: from research and innovation to market deployment. Procedia Computer Science, 167, 2200-2210.
#4	An Artificial Adoption Model for Large and Small Businesses Nascimento, A., & Meirelles, F. (2022). An Artificial Intelligence Adoption Model for Large and Small Businesses. Available at SSRN 4194043
#5	Artificial Intelligence in Business and Economics Research: Trends and Future Ruiz-Real, J. L., Uribe-Toril, J., Torres, J. A., & De Pablo, J. (2020). Artificial intelligence in business and economics research: Trends and future. Journal of Business Economics and Management, 22(1), 98-117.
#6	What AI Can and Can't Do (Yet) for Your Business Chui, M., Manyika, J., & Miremadi, M. (2018). What AI can and can't do (yet) for your business. McKinsey Quarterly, 1(97-108), 1.
#7	Factors Inhibiting the Adoption of Artificial Intelligence at Organizing-level: A Preliminary Investigation Alsheiabni, S., Cheung, Y., & Messom, C. (2019). Factors inhibiting the adoption of artificial intelligence at organizational-level: A preliminary investigation. In Americas Conference on Information Systems 2019 (p. 2). Association for Information Systems.

Table A4 shows the sources studied for the thematic analysis, specifically for the limitations of AI adoption, while assigning a number to each source to maintain simplicity once again.