

Research Article

Pricing and Adaptation Strategies in Market Dynamics: A Systematic Literature Review

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ABSTRACT

This systematic literature review aims to explore pricing strategies and adaptation in the context of modern marketing management, considering the impact of digital technologies and data analytics. Using the PRISMA methodology, this review identifies approaches, models, and key factors that influence the success of pricing strategies. The results highlight the importance of a value-based pricing approach, considering market dynamics and customer behavior, as well as the opportunities and challenges associated with implementing the latest technologies. This review provides practical insights for managers in designing and implementing effective pricing strategies in the digital era, emphasizing the need for a holistic approach, capability development, and cross-functional collaboration. By integrating insights from multiple research streams, this review offers a comprehensive perspective on the determinants of success of pricing strategies in a changing business landscape.

Keywords: Pricing Strategy; Price Adaptation; Digital Technology; Data Analytics; Marketing Management

1. INTRODUCTION

Pricing is one of the most crucial strategic decisions in marketing management. Price not only determines a company's profitability, but also influences consumer perceptions of product value, brand positioning, and competitiveness in the market (Kotler & Armstrong, 2016). In the midst of increasingly complex market dynamics and rapid changes in consumer behavior, a company's ability to design effective and adaptive pricing strategies is a determining factor for business success. Understanding the value a product creates for customers is the first step in profitable pricing (Nagle, 2016). Companies must be able to identify the benefits a product provides, both functionally and emotionally, and set prices that align with customers' perceived value. This approach allows companies to maximize profitability while maintaining customer satisfaction and loyalty in the long term.

Pricing must also consider factors such as production costs, level of competition, and elasticity of market demand (Hinterhuber & Liozu, 2019). The cost-plus approach, which adds a profit margin to production costs, is often used as a starting point in pricing. However, this approach needs to be aligned with information about customer value perceptions and competitive dynamics in order to achieve optimal prices (Amaral & Guerreiro, 2019). The development of digital technology and data analytics has opened up new opportunities in pricing strategies. Dynamic pricing, which adjusts prices in real-time based on market demand, consumer behavior, and other external factors, is increasingly being adopted in various industries (Hou et al., 2024). This approach allows companies to optimize revenue and respond to market changes more quickly and accurately. However, pricing is not just about numbers. Psychological and behavioral aspects of consumers also play an important role in the success of pricing strategies. Understanding price perceptions, price sensitivity, and factors that influence consumer purchasing decisions is key in designing effective pricing programs (Simon, 2015). Companies must be able to communicate product value clearly and convincingly, and create a positive shopping experience for customers.

Apart from designing the right pricing strategy, the ability to adapt to market changes is also an important factor in business success. Companies must be ready to respond to price changes from competitors, shifts in market demand, and other external shocks quickly and effectively (Grewal et al., 2016). Flexibility in adjusting prices, whether through promotions, discounts or product bundling, can help companies maintain competitiveness and market share. Advances in digital technology and data analytics have also changed the way companies respond to price changes. By leveraging artificial intelligence, machine learning, and real-time data analysis, companies can make faster, more accurate, and adaptive pricing decisions (Akter & Wamba, 2016). A dynamic pricing system integrated with supply chain and inventory management

allows companies to optimize profit margins amidst market uncertainty. However, price adaptation must also be done carefully so as not to cause negative perceptions from consumers. Too frequent or drastic price changes can damage customer and brand trust (Herhausen et al., 2015). Companies must be able to clearly communicate the reasons behind price changes and ensure that the value offered is commensurate with the price consumers pay.

Existing literature studies have explored various aspects of pricing strategies and price adaptation in diverse contexts. However, with the rapid development of technology and changes in the business landscape, a more comprehensive and up-to-date literature review is needed. This review aims to integrate findings from various related studies, identify trends and best practices, and provide actionable insights for business people and academics. In this article, we will conduct a systematic literature review of research related to pricing strategy and price adaptation in the context of marketing management. We will analyze the different approaches, models and factors that influence the success of pricing strategies, as well as explore the role of digital technology and data analytics in the transformation of pricing practices. It is hoped that this review will provide a deeper understanding of the state-of-the-art in pricing strategy and price adaptation, as well as pave the way for further research and innovation in this area.

2. RESEARCH METHOD

This systematic literature review uses the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method to identify, select and analyze studies relevant to the topic of pricing strategies and price adaptation in marketing management. The PRISMA method is a structured and transparent approach to conducting literature reviews, which consists of identification, screening, eligibility and inclusion stages (Page et al., 2021).

2.1 Identification Stage

The initial stage is to identify keywords and search for related terms, including: "pricing strategy", "price adaptation", "dynamic pricing", "value-based pricing", "price elasticity", "price perception", "pricing psychology", "pricing analytics", and "pricing in marketing". The search was carried out on the title, abstract and keywords of the articles. After determining all the relevant terms, then carry out a search with the sciencedirect database in April 2024. This research took 2,306 articles from the sciencedirect database. Additionally, a hand search of other sources yielded an additional 14 articles. In the first stage of the systematic review procedure, 2,320 articles were found.

Table 1. The Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Timelie	2020 to 2024	Before 2020
Publication Type	Journal article	Book, Chapters in the book, Conference proceeding
Language	English	Non-English
Access Type	Open Access and Open Archive	Non-Open Access and Non-Open Archive
Indexed Journal	Scopus Q1 and Q2	Non-Indexed Journal Scopus Q1 dan Q2

Source: Processed by Researchers (2024).

2.2 Qualification Level (Eligibility)

After the filtering process (Screening), the rest of the articles will be observed and retrieved manually. This stage ensures that all selected articles meet all requirements for inclusion. As a result, researchers must review the suitability between the title and abstract of the article keyword research viz pricing strategy, price adaptation and dynamic pricing. At this feasibility stage, researchers removed 137 articles whose titles and abstracts were not relevant keyword which has been determined. So at this stage we produce 25 articles which will enter the synthesis stage.

2.3 Synthesis Stage (Included)

In this final stage, data is collected, analyzed and interpreted from articles deemed relevant. This process involves several important steps. First, data from each selected article is collected and organized systematically to facilitate analysis. Next, researchers conducted in-depth analysis to identify patterns, relationships, and main themes that emerged from the literature. This analysis includes not only quantitative but also qualitative assessments, which aim to understand the context and implications of existing findings to answer the research questions that have been asked. The entire stages of this literature review are depicted in the following PRISMA chart.

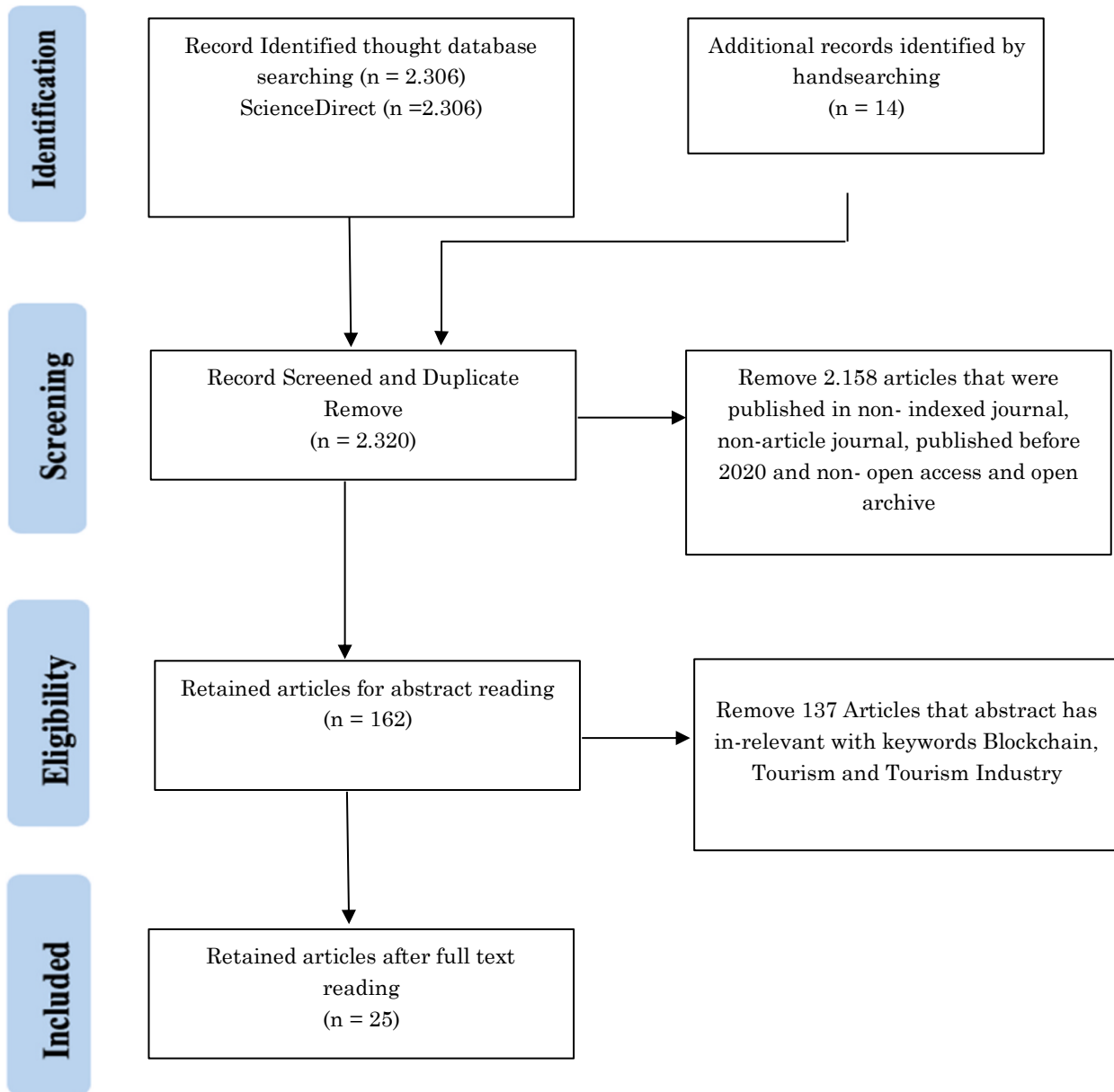


Figure 1. The Flow of PRISMA diagram of the search strategy and record selection

3. RESULTS AND DISCUSSION

3.1 General Results

In this section, we present the results of a systematic literature review that has been conducted on pricing strategies and adaptation in market dynamics. Through analysis of 25 articles that met the inclusion criteria, we collected relevant data and organized them into tables to facilitate further discussion. The table below presents the general findings.

Table 2. Summary of articles that met inclusion criteria

No	Author (Year)	Tittle	Rank Journal	Country	Research methods	Research result
1	(Abrate & Viglia, 2016)	Strategic and tactical price decisions in hotel revenue management	Q1	Italy	R-squared Shapley-Owen	The results show that online reputation is becoming more important than traditional star ratings.
2	(Akteer & Wamba, 2016)	Big data analytics in E-commerce: a systematic review and agenda for future research	Q1	Australia	Qualitative Analysis	Big data analytics (BDA) has emerged as a new frontier of innovation and competition across a broad spectrum of the e-commerce landscape due to the challenges and opportunities created by the information revolution.

No	Author (Year)	Title	Rank Journal	Country	Research methods	Research result
3	(Amaral & Guerreiro, 2019)	Factors explaining a cost-based pricing essence	Q1	Austria	Quantitative (Quantitative)	The results show that, for price makers, the essence of cost-based pricing is positively related to four factors (two barriers to implementing value-based pricing, company size and differentiation), but negatively related to one factor (premium pricing strategy)
4	(Ashlagi et al., 2020)	Queue Lengths as Constantly Adapting Prices: Allocative Efficiency Under Random Dynamics	Q1	New York	Qualitative Analysis	Our first result states that the allocative efficiency loss from the random price fluctuations is $O(C)$, and this bound is tight.
5	(Bambauer-Sachse & Massera, 2015)	Interaction effects of different price claims and contextual factors on consumers' reference price adaptation after exposure to a price promotion	Q1	Switzerland	Quantitative (Quantitative)	These findings provide retailers with insight into how they can avoid large RP drops following price promotions. The theoretical contribution consists of presenting a new model that goes beyond previous research that focused on direct impacts
6	(Bogomolova et al., 2017)	Retailers' and manufacturers' price-promotion decisions: Intuitive or evidence-based?	Q1	Australia	Quantitative (Quantitative)	Intuition and untested assumptions are the main inputs into these decisions
7	(L. Chen et al., 2016)	An empirical analysis of algorithmic pricing on amazon marketplace	Q1	United States	Quantitative (Quantitative)	In this study, we develop a methodology for detecting algorithmic pricing, and use it empirically to analyze their prevalence and behavior on Amazon Marketplace.
8	(Z. L. Chen et al., 2017)	Dynamic Pricing to Minimize Maximum Regret	Q1	Australia	Quantitative (Quantitative)	Further, our dynamic model generates a total expected revenue which closely approximates that of a maximum expected revenue approach which requires demand probability distributions.
9	(Gibbs et al., 2018)	Pricing in the sharing economy: a hedonic pricing model applied to Airbnb listings	Q1	Canada	Qualitative Analysis	As expected, the results show that physical characteristics, location, and host characteristics significantly impact price. Interestingly, more reviews are associated with a drop in price.
10	(Gnizy et al., 2017)	The empirical link between export dispersion and export performance: A contingency-based approach	Q1	United States	Quantitative (Quantitative)	Our findings imply that the management of the firm's level of export dispersion is a complex task, whereby the degree of export dispersion pursued needs to match external environmental and internal firm factors.
11	(Grewal et al., 2016)	Roles of retailer tactics and customer-specific factors in shopper marketing: Substantive, methodological, and conceptual issues	Q2	United States	Study results suggest limiting price plan variations positively affects customer inferences about transparency and fairness, and thus customer choice.	Building on Brinberg and McGrath (1988), this article highlights the importance of considering research from multiple perspectives: substantive, methodological, and conceptual.
12	(Herhausen et al., 2015)	Integrating Bricks with Clicks: Retailer-Level and Channel-Level Outcomes of Online-Offline Channel Integration	Q1	Switzerland	Qualitative Analysis	Results from three studies provide converging evidence and suggest that OI leads to competitive advantage and channel synergy rather than channel cannibalization. These findings have direct implications for marketers and retailers interested in understanding whether and how integrating different channels affects customer outcomes.
13	(Hinterhuber & Liozu, 2014)	Is innovation in pricing your next source of competitive advantage?	Q2	Austria	Qualitative Analysis	As a result of our research, we present a canvas laying out more than 20 possible avenues for innovation in pricing, offering to any organization regardless of size, industry, or nationality a few key ideas on how to increase both profits and customer satisfaction.
14	(Homburg et al., 2014)	How price complexity takes its toll: The neglected role of a	Q1	Australia	Quantitative	Study results suggest limiting price plan variations positively affects customer inferences about transparency and fairness, and thus customer choice.

No	Author (Year)	Title	Rank Journal	Country	Research methods	Research result
15	(Hou et al., 2024)	simplicity bias and fairness in price evaluations Pricing and inventory strategies for perishable products in a competitive market considering strategic consumers	Q1	China	Systematic Literature Review	This study explores strategic consumer behavior and its influence on sellers' pricing and inventory strategies in competitive markets.
16	(Hübner et al., 2016)	Retail logistics in the transition from multi-channel to omni-channel	Q1	German	Quantitative	The findings provide an insight into designing OC fulfillment and distribution structures. The concepts themselves, archetypes, challenges and development paths are analyzed. Identified logistics levers can be adjusted to pinpoint the steps required to advance integration.
17	(Ibrahim Anyars & Adabor, 2023)	The impact of oil price changes on inflation and disaggregated inflation: Insights from Ghana	Q1	Ghana	The NARDL model	From a policy point of view, these findings imply that to stabilize inflation, policies should be designed to strengthen the transport sector to contain oil price shocks.
18	(Kemper et al., 2019)	Marketing and sustainability: Business as usual or changing worldviews?	Q2	New Zealand	Qualitative approach	It is concluded that if institutions, including disciplines and business schools, remain wedded to assumptions regarding the compatibility between the environment and economic growth and acceptance of market forces then the development of alternative perspectives on sustainability remains highly problematic.
19	(Kienzler & Kowalkowski, 2017)	Pricing strategy: A review of 22 years of marketing research	Q1	Sweden	Internet Research	Results also indicate a persistent focus on consumer markets and economic theories, as well as an increasing consideration of demand-side respondents, at the expense of supplyside respondents.
20	(Kuester et al., 2017)	The catbird seat of the sales force: How sales force integration leads to new product success	Q2	United States	Quantitative	This study discusses how managers should act to fully benefit from the impact of sales force integration on new product success.
21	(Lee et al., 2016)	Online consumers' reactions to price decreases: Amazon's Kindle 2 case	Q2	Korea	OPRs	The authors found that all four features of OPRs (star rating, review depth, positive emotion, and negative emotion) and the number of OPRs per day had significantly changed after two price decreases for both long-term and short-term periods.
22	(Lie, 2021)	Implications of state-dependent pricing for DSGE model-based policy analysis in Indonesia	Q2	Indonesia	Dynamic stochastic general equilibrium (DSGE) model	In particular, the SDP model would call for a greater degree of monetary easing in response to the COVID-19 pandemic, than that prescribed by the standard time-dependent pricing (TDP) model.
23	(Martin et al., 2020)	Marketing capabilities and international new venture performance: The mediation role of marketing communication and the moderation effect of technological turbulence	Q1	United States	Quantitative	This study reveals the moderating effect of technological turbulence, which strengths two relationships, one between marketing capabilities and marketing communication, and the other, between marketing communication and competitive strategy.
24	(Wang et al., 2024)	Research on floating real-time pricing strategy for microgrid operator in local energy market considering shared energy storage leasing	Q2	Indonesia	Quantitative	He model, constrained by a price cap mechanism, employs distributed algorithms to optimize coordinated pricing strategies for trading and SES leasing.
25	(Yuniarto et al., 2024)	Customer's Response to Dynamic Pricing	Q1	Indonesia	Quantitative	The findings conclude that customers have presented an encouraging response to future implementation of ToU and express their thoughts ToU seems to bring potential

No	Author (Year)	Tittle	Rank Journal	Country	Research methods	Research result
		in Utility Energy Tariff Quality and Reliability with The Time of Use: An Empirical Case Study of Household Electricity Customers in Indonesia				benefits of saving electricity bills and looks as if it is fairly easy for customers to adapt to shifting their energy usage from peak times to off-peak times.

Source: Processed by Researchers (2024)

Based on the **Table 1**, can clarify the distribution of countries where research related to price setting and adaptation to market dynamics was carried out. Data on the distribution of these countries is shown in **Figure 3** below:

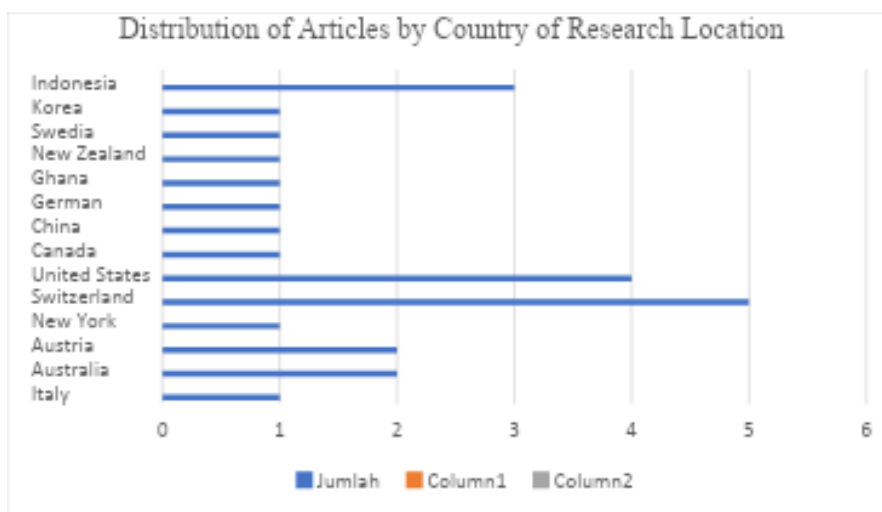


Figure 2. Distribution of Articles by Country of Research Location

Based on the **Figure 2**, it can be seen that much of the research on pricing and adaptation in market dynamics was carried out involving several at once (multi-regions) totaling 4 articles. Furthermore, we can also clarify the distribution of article publications based on year of publication, as follows:

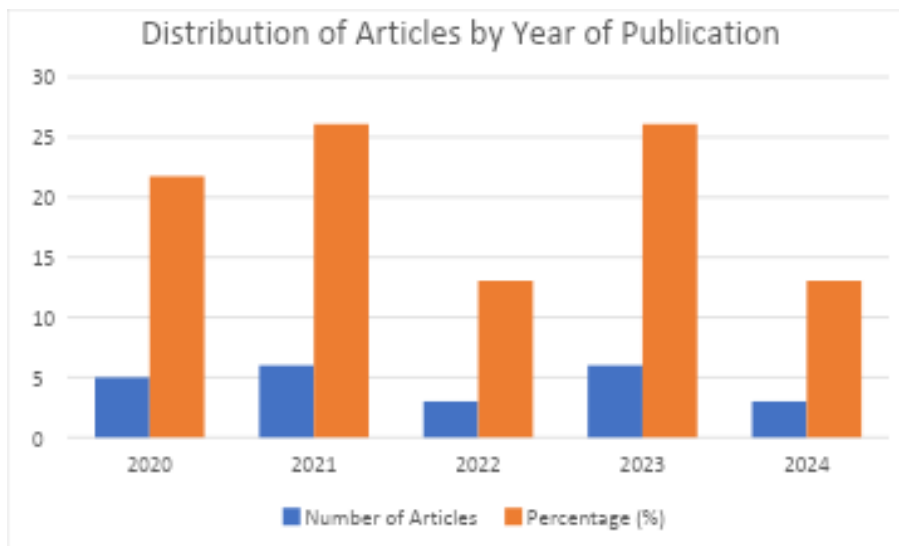


Figure 3. Distribution of Articles by year publication

If we look at the diagram, research on pricing and adaptation in market dynamics has an increasing trend from 2020 to 2024, although there is a visible decline in 2022, but in 2023 it will increase again. For 2024, this research was conducted in the middle of the year where in that half year there were already 3 related studies. Seeing this increasing trend the author assumes that by the end of 2024 related research could increase more than the previous year.

Table 3. Distribution of articles by field and journal of publication.

No	Journal	Journal Ranking	Number of Articles	Percentage (%)
1	Tourism Management	Q2	2	9,5%
2	Electronic Markets	Q1	1	4,77%
3	Journal of Business & Industrial Marketing	Q1	1	4,77%
4	In Proceedings of the 21st ACM Conference on Economics and Computation	Q1	1	4,77%
5	Journal of Retailing and Consumer Services	Q2	1	4,77%
6	Journal of Business Research	Q1	4	19%
7	25th International World Wide Web Conference	Q1	1	4,77%
8	Production and Operations Management	Q1	1	4,77%
9	Journal of Travel and Tourism Marketing	Q1	1	4,77%
10	International Business Review	Q1	1	4,77%
11	Journal of Retailing	Q2	1	4,77%
12	Business Horizons	Q1	1	4,77%
13	Transportation Research Part E: Logistics and Transportation Review	Q1	1	4,77%
14	International Journal of Physical Distribution and Logistics Management	Q1	1	4,77%
15	Research in Globalization	Q2	1	4,77%
16	Sustainability	Q1	1	4,77%
17	International Journal of Research in Marketing	Q1	1	4,77%
18	Internet Research	Q1	1	4,77%
19	Economic Analysis and Policy	Q1	1	4,77%
20	Applied Energy	Q2	1	4,77%
21	Helion	Q1	1	

Source: Processed by Researchers (2024)

Based on **Table 3**, can see the distribution of research articles on pricing and adaptation research in market dynamics based on fields and journal publications from 2020-2024, where the Sustainability journal is the journal that publishes the most articles related to pricing and adaptation research in market dynamics, namely 5 articles. Next there is the journal Environmental Science and Pollution Research which published 2 articles and was followed by other journals as shown in table 3 which published 1 article each. This information can be utilized by future researchers who are interested in publishing articles related to blockchain technology and the tourism industry, so they can choose publication journals that suit their research field. Apart from that, this research also presents the distribution of articles based on research methods, where development methods and qualitative methods are the research methods with the most published articles, namely 7 articles each. followed by quantitative methods with 5 articles, literature review methods with 3 articles and mixed methods with 1 article. An overview of this distribution can be seen in **Figure 4**.

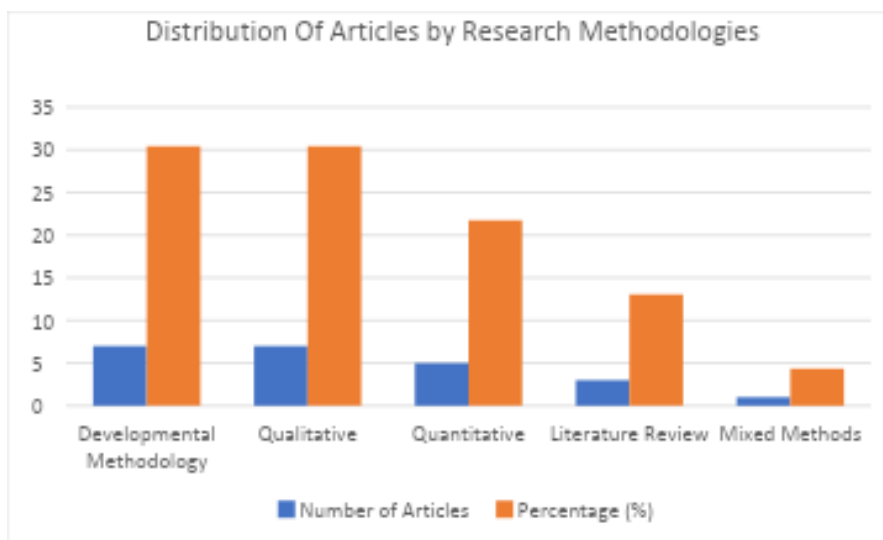


Figure 4. Distribution of Articles by Research Methodologies

Based on the data in the diagram above, mixed research methods can be used as a consideration for conducting further research related to research on pricing and adaptation in market dynamics, apart from that, literature review methods and quantitative methods also still have great potential to be chosen as research methods related to this theme.

3.2 Bibliometric analysis

In this section, we present the results of a systematic literature review that has been conducted on pricing strategies and adaptation in market dynamics. Through analysis of 25 articles that met the inclusion criteria, we collected relevant data and organized them into tables to facilitate further discussion. The table below presents the general findings. In this study, VOSviewer software was used to perform network visualization on 25 articles. VOSviewer is a popular tool in bibliometric analysis, allowing researchers to identify collaboration patterns, relationships between keywords, and the distribution of themes in the literature. Through visualization of the resulting network, this research is able to reveal connections and interactions between various concepts and authors relevant in the field under study. The use of VOSviewer allows for a more intuitive and informative presentation of data, providing deep insight into the structure and dynamics of existing research. This supports a better understanding of scientific developments and the identification of future research trends (Cheng et al., 2021).

In carrying out bibliometric analysis, researchers ensure that all articles that meet the inclusion criteria are included in the analysis, so that the resulting data can represent a comprehensive and accurate picture.

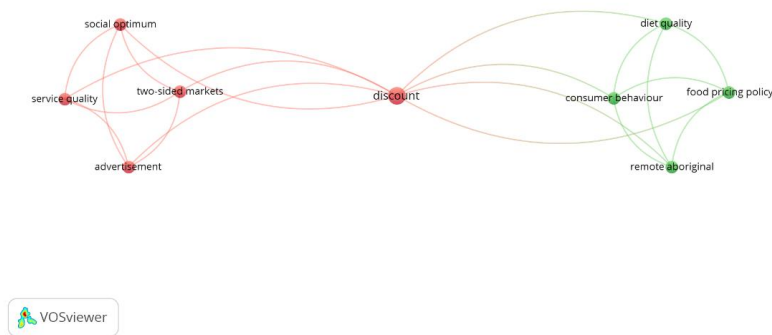


Figure 4. Network Visualization

Network visualization results of images generated using VOSviewer software show that “discount” is a central topic with many connections to other keywords. Keywords such as "consumer behavior" and "advertisement" which are directly connected to "discount" show that research on pricing and adaptation in market dynamics is developing and covers various aspects of its application. Connection with "service quality," "original remote," and "two sides market".

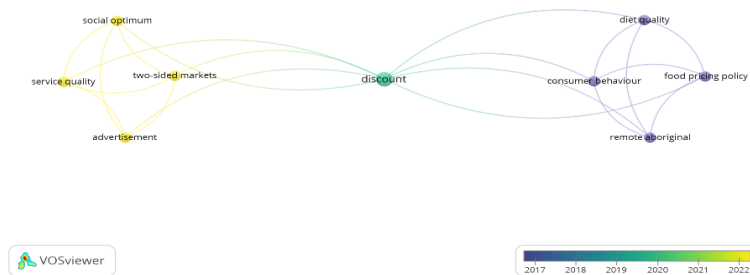


Figure 4. Overlay Visualization

The overlay visualization results of the images generated using VOSviewer software indicate several potential topics that could be the focus of future research in pricing. The topics "two sides market", "social optimum", "service quality" and "advertisement" which are colored yellow show that this is an area that is increasingly in demand and developing in recent years.

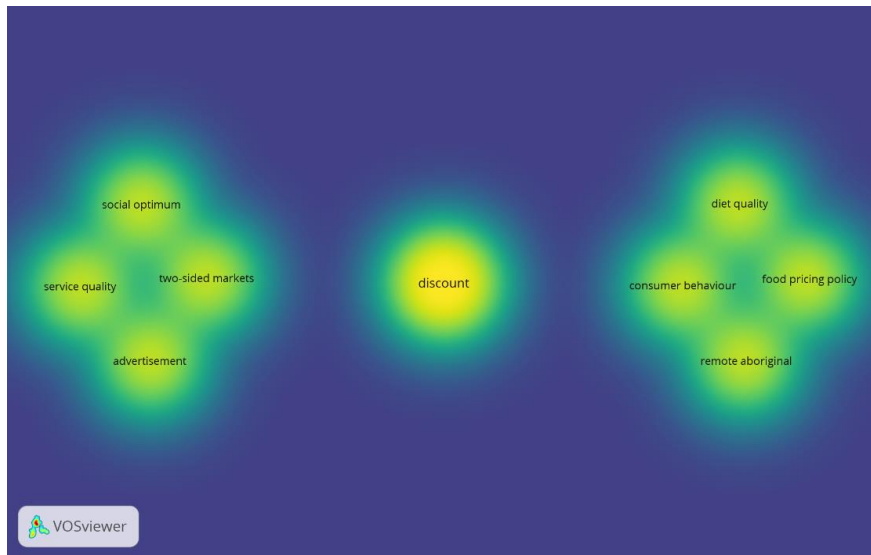


Figure 4. Density Visualization

The density visualization results from VOSviewer show that topics such as "two sides market", "social optimum", "service quality" and "net advertising" have low density, indicating great opportunities for future research. Research in these areas can open new insights and fill gaps in the current literature.

3.3 DISCUSSION

3.3.1 Research Question #1 : What are the approaches, models and key factors that influence the success of pricing strategies in the context of modern marketing management?

In the context of modern marketing management, the success of pricing strategies is influenced by various approaches, models and key factors. An approach that is increasingly emphasized is value-based pricing, where prices are set based on customers' perceived value of the product or service (Hinterhuber & Liozu, 2014). This approach shifts the focus from production costs to the value provided to customers, allowing companies to optimize prices based on customers' willingness to pay. Innovative pricing models, such as dynamic pricing and data-driven pricing, are also increasingly popular along with advances in digital technology (Akter & Wamba, 2016). These models leverage real-time data analysis and sophisticated algorithms to dynamically adjust prices based on factors such as market demand, customer characteristics, and situational context. This approach allows companies to optimize revenue by offering the most appropriate price to each customer at the right time.

Key factors influencing the success of a pricing strategy include a deep understanding of customers and their perceived value, accurate cost and profitability analysis, monitoring market dynamics and competitor actions, and the ability to adjust prices responsively (Kienzler & Kowalkowski, 2017). Understanding customers involves extensive market research, effective segmentation, and analysis of customer behavior data. Companies must also have a clear understanding of their cost structure and the impact of price changes on profitability. In addition, factors such as brand positioning, segmentation strategy, and product life cycle also need to be considered in designing an effective pricing strategy (Kotler & Armstrong, 2016). Prices must align with the brand image and the value promised to customers. Pricing strategies should also be tailored to different market segments and product life cycle stages. For example, the pricing strategy for a new product may be different from that for an established product in the market. External factors such as government regulations, macroeconomic trends, and industry dynamics can also influence pricing strategies (Nagle & Müller, 2016). Companies must monitor and adapt their pricing strategies according to changing business environments. The ability to anticipate and respond quickly to market changes is an important competitive advantage. In designing an effective pricing strategy, cross-functional collaboration within the organization is also an important factor (Liozu & Hinterhuber, 2013). Marketing, sales, finance, and operations teams must work together to develop and implement pricing strategies. This collaboration ensures alignment between pricing objectives and overall business strategy and allows for smoother execution.

3.3.2 Research Question #2 : How can companies design effective pricing strategies by considering customer value perceptions, market dynamics, and level of competition?

Designing an effective pricing strategy that takes into account customer value perceptions, market dynamics, and level of competition requires a holistic and adaptive approach. The first step is to build a deep understanding of customers and their perceived value through extensive market research and data analysis (Nagle & Müller, 2016). Companies must identify the product or service attributes and benefits that customers value most, as well as measure their willingness to pay. Techniques such as conjoint analysis and price sensitivity meters can be used to gain this insight (Ingenbleek & van der Lans, 2013).

Customer segmentation is also an important aspect in designing pricing strategies. Companies must identify different customer segments based on their characteristics, behavior, and price sensitivity (Iyer et al., 2015). By understanding each segment's unique needs and preferences, companies can adjust pricing strategies to maximize the value provided to customers while optimizing profitability.

Furthermore, companies need to continuously monitor market dynamics, including demand trends, changes in consumer preferences, and competitor activity. Careful competitive analysis helps companies position their prices strategically and avoid costly price wars (Ingenbleek & van der Lans, 2013). Companies must gather market intelligence about competitors' pricing strategies, product offerings, and value propositions. This information allows companies to adjust their pricing strategies to remain competitive while maintaining differentiation. Companies must also consider the price elasticity of demand and develop appropriate pricing strategies for each market segment and distribution channel. Price elasticity measures the sensitivity of demand to price changes (Hinterhuber, 2015). Understanding elasticity helps companies predict the impact of price changes on sales volume and revenue. Companies can use techniques such as regression analysis or price experiments to estimate price elasticity and optimize prices to maximize profitability. Effective communication of value and price is also critical in designing pricing strategies. Companies must clearly communicate the value proposition of their products or services, emphasize the unique benefits offered, and provide reasonable justification for the prices set (Töytäri et al., 2015). Communication messages must be tailored to each customer segment and distribution channel. Companies can also utilize psychological pricing techniques, such as odd pricing or bundling, to influence customers' perceptions of value and encourage purchases (Somervuori, 2014). Pricing strategies must also be aligned with overall brand positioning and consider the psychological impact of price on customer perception. Prices that are too low can reduce perceived quality, while prices that are too high can reduce the attractiveness of the product (Völckner & Hofmann, 2007). Companies must find the right balance between the value provided and the price set, and consistently communicate their price positioning in the market.

3.3.3 Research Question #3 : How are advances in digital technology and data analytics changing pricing practices and opening new opportunities for dynamic price optimization?

Advances in digital technology and data analytics have significantly changed pricing practices and opened up new opportunities for dynamic price optimization. By harnessing the power of big data, machine learning, and artificial intelligence, companies can now collect, analyze, and interpret large amounts of data related to customers, markets, and competitors in real-time (Aker & Wamba, 2016). This technology allows companies to gain deeper and more granular insights into customer behavior, market trends and competitive dynamics. Data analytics allows companies to gain a better understanding of price elasticity, customer sensitivity to price changes, and factors influencing purchasing decisions (Grewal et al., 2011). By analyzing historical transaction data, customer characteristics, and sales channel interactions, companies can build more accurate predictive models to optimize pricing. Sophisticated pricing algorithms can process large amounts of data in real-time and provide optimal price recommendations based on various factors, such as market demand, supply, and competitor behavior. Digital technology also enables the implementation of more sophisticated dynamic pricing strategies. Dynamic pricing involves real-time price adjustments based on changing market conditions and individual customer characteristics (den Boer, 2015). By leveraging data analytics, companies can adjust prices automatically to maximize revenue and profitability. For example, pricing algorithms can consider factors such as historical demand patterns, price elasticity, inventory levels, and customer behavior to determine the optimal price at a given time.

In addition, digital technology makes it possible to implement pricing strategies that are more personalized and relevant to each customer. By analyzing customer purchasing history data, preferences and online behavior, companies can offer personalized prices and promotions (Krämer et al., 2017). This approach not only increases the relevance of the offer for customers, but also helps maximize revenue by offering the most suitable prices for each individual. Price personalization can be implemented through a variety of channels, such as websites, mobile apps, or even in brick-and-mortar stores using technologies such as beacons and facial recognition. Advances in data analytics also allow companies to conduct real-time price experiments and test price elasticity in the market (Njissen et al., 2016). By running A/B tests or multivariate pricing experiments, companies can evaluate customer response to various price levels and determine optimal prices to maximize revenue. These experiments provide valuable insight into price sensitivity and allow companies to adjust their pricing strategies more quickly and accurately. However, the application of digital technology in pricing also brings challenges and ethical considerations. Companies must ensure transparency, fairness and protection of customer data in dynamic pricing practices (Seele et al., 2019). Consumers may feel disadvantaged if they learn that they are paying a higher price than other customers for the same product or service. Therefore, companies must develop clear ethical guidelines and communicate their pricing practices transparently to customers. The balance between personalization and privacy and between revenue optimization and customer trust is an important consideration in the digital era.

Additionally, companies must also invest in the technological infrastructure and human resources necessary to effectively implement data analytics and dynamic pricing (Keller et al., 2017). This involves developing robust IT systems, integrating data from multiple sources, and recruiting talent with expertise in data analytics and data science. Companies also need to build a data-driven culture, where analytical insights are used to guide decision-making across the organization. Despite the challenges, advances in digital technology and data analytics provide tremendous opportunities for companies to optimize their pricing strategies. By harnessing the power of data and analytics, companies can develop smarter, dynamic and personalized pricing approaches. This can ultimately lead to increased revenue, profitability and customer satisfaction in the long term. However, it is important for companies to implement this technology responsibly and consider its ethical and social implications.

4. CONCLUSION

This systematic literature review explores pricing strategies and adaptation in the context of modern marketing management. With the development of digital technology and the rapidly changing business landscape, companies are facing new challenges and opportunities in designing and implementing effective pricing strategies. This review highlights the importance of a value-based pricing approach, which focuses on a deep understanding of customer value perceptions and willingness to pay. Understanding market dynamics, level of competition and customer behavior is a key factor in developing an adaptive and responsive pricing strategy. Companies must adopt a holistic approach that aligns pricing with brand positioning, segmentation strategy and product life cycle. Advances in digital technology and data analytics have revolutionized pricing practices, enabling companies to optimize prices dynamically and personally based on real-time data and customer insights. However, implementing this technology also brings ethical and operational challenges that need to be handled carefully. Companies must ensure transparency, fairness, and protection of customer data while leveraging the power of analytics for pricing decisions. The review also emphasizes the importance of cross-functional collaboration and developing pricing capabilities within the organization. Aligning marketing, sales, finance and operations teams and investing in technology infrastructure and human resources are critical factors for successful implementation of a pricing strategy. Although this review provides valuable insights, opportunities remain for further research. Future research could explore the application of emerging technologies such as artificial intelligence and blockchain in pricing, as well as investigate the long-term implications of dynamic and personalized pricing strategies on customer loyalty and brand equity. Empirical studies investigating the effectiveness of pricing strategies across different industries and markets would also be useful. In an increasingly digital and competitive world, the ability to design and implement effective pricing strategies is becoming a vital source of competitive advantage. By understanding and leveraging the principles, approaches, and technologies discussed in this review, companies can optimize revenue, increase profitability, and deliver greater value to customers. Balancing art and science in pricing will be the key to success in the ever-evolving digital era.

RECOMMENDATIONS

In modern marketing management, an effective pricing strategy is key to a company's success. One of the main approaches is value-based pricing, where prices are set based on the customer's perceived value, rather than just the cost of production. For this, companies need to conduct market research to understand customer preferences and set prices that reflect product benefits. In addition, dynamic pricing is increasingly relevant with the development of technology. By leveraging big data and artificial intelligence, companies can adjust prices in real-time based on demand, customer behaviour and market conditions. This model has been applied in various industries, such as e-commerce and online transport, to improve efficiency and profitability. The success of a pricing strategy also depends on external factors such as regulations, economic trends and competition. Therefore, companies need to conduct regular market monitoring in order to adapt to changes in the business environment. The strategy should also be aligned with brand positioning, customer segmentation, and product lifecycle stage to create a consistent image and increase appeal in the market. In the digital age, the transparency and ethical aspects of pricing have become increasingly important. Dynamic pricing must be applied fairly so as not to harm customers and create distrust. Clear price communication and transparent policies can increase customer loyalty. Finally, cross-functional collaboration within the organisation-including marketing, sales and finance teams-is required for pricing strategies to be implemented effectively. With an optimised pricing strategy, companies can improve their competitiveness, profitability and customer satisfaction in the long run.

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AUTHOR'S CONTRIBUTIONS

Ulfah Yuziyah Hasanah contributed to the design of the research concept, data collection, preliminary analysis, and preparation of the first draft of the manuscript. Rino provided guidance in methodology development, critical review of data analysis and interpretation, and refined the manuscript until it was ready for publication. Both collaborated in scientific discussions to ensure the accuracy and relevance of the research results.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest in the research and writing of this manuscript.

REFERENCES

- Akter, S., & Wamba, S. F. (2016). Big data analytics in E-commerce: a systematic review and agenda for future research. *Electronic Markets*, 26(2), 173–194. <https://doi.org/10.1007/s12525-016-0219-0>

- Amaral, J. V., & Guerreiro, R. (2019). Factors explaining a cost-based pricing essence. *Journal of Business & Industrial Marketing*, 34(8), 1850–1865. <https://doi.org/10.1108/JBIM-12-2018-0373>
- Den Boer, A. V. (2015). Dynamic pricing and learning: Historical origins, current research, and new directions. *Surveys in Operations Research and Management Science*, 20(1), 1–18. <https://doi.org/10.1016/j.sorms.2015.03.001>
- Grewal, D., Ailawadi, K. L., Gauri, D., Hall, K., Kopalle, P., & Robertson, J. R. (2011). Innovations in retail pricing and promotions. *Journal of Retailing*, 87, S43–S52. <https://doi.org/10.1016/j.jretai.2011.04.008>
- Grewal, D., Roggeveen, A. L., & Nordfält, J. (2016). Roles of retailer tactics and customer-specific factors in shopper marketing: Substantive, methodological, and conceptual issues. *Journal of Business Research*, 69(3), 1009–1013. <https://doi.org/10.1016/j.jbusres.2015.08.012>
- Herhausen, D., Binder, J., Schoegel, M., & Herrmann, A. (2015). Integrating Bricks with Clicks: Retailer-Level and Channel-Level Outcomes of Online-Offline Channel Integration. *Journal of Retailing*, 91(2), 309–325. <https://doi.org/10.1016/j.jretai.2014.12.009>
- Hinterhuber, A. (2015). Violations of rational choice principles in pricing decisions. *Industrial Marketing Management*, 47, 65–74. <https://doi.org/10.1016/j.indmarman.2015.02.006>
- Hinterhuber, A., & Liozu, S. M. (2014). Is innovation in pricing your next source of competitive advantage? *Business Horizons*, 57(3), 413–423. <https://doi.org/10.1016/j.bushor.2014.01.002>
- Hinterhuber, A., & Liozu, S. M. (2019). Pricing Strategy Implementation Translating Pricing Strategy into Results.
- Hou, L., Nie, T., & Zhang, J. (2024). Pricing and inventory strategies for perishable products in a competitive market considering strategic consumers. *Transportation Research Part E: Logistics and Transportation Review*, 184, 103478. <https://doi.org/https://doi.org/10.1016/j.tre.2024.103478>
- Ingenbleek, P. T. M., & van der Lans, I. A. (2013). Relating price strategies and price-setting practices. *European Journal of Marketing*, 47(1/2), 27–48. <https://doi.org/10.1108/03090561311285448>
- Iyer, G. R., Xiao, S. H., Sharma, A., & Nicholson, M. (2015). Behavioral issues in price setting in business-to-business marketing: A framework for analysis. *Industrial Marketing Management*, 47, 6–16. <https://doi.org/10.1016/j.indmarman.2015.02.001>
- Keller, C., Markert, F., & Bucher, T. (2017). Pricing for the digital economy. *Journal of Business Strategy*, 38(5), 19–26. <https://doi.org/10.1108/JBS-07-2016-0075>
- Kienzler, M., & Kowalkowski, C. (2017). Pricing strategy: A review of 22 years of marketing research. *Journal of Business Research*, 78, 101–110. <https://doi.org/10.1016/j.jbusres.2017.05.005>
- Kotler, P., & Armstrong, G. (2016). *Principles of Marketing* (17th ed.).
- Krämer, A., Tachilzik, T., & Bongaerts, R. (2017). Technology and Disruption: How the New Customer Relationship Influences the Corporate Strategy. In A. Khare, B. Stewart, & R. Schatz (Eds.), *Phantom Ex Machina: Digital Disruption's Role in Business Model Transformation* (pp. 53–70). Springer International Publishing. https://doi.org/10.1007/978-3-319-44468-0_4
- Liozu, S. M., & Hinterhuber, A. (2013). Pricing orientation, pricing capabilities, and firm performance. *Management Decision*, 51(3), 594–614. <https://doi.org/10.1108/00251741311309670>
- Nagle, T. T., & M. G. (2016). *The Strategy and Tactics of Pricing: A Guide to Growing More*
- Nijssen, E. J., Hillebrand, B., de Jong, J. P. J., & Kemp, R. G. M. (2016). Strategic value assessment and explorative learning opportunities with customers. *Journal of Product Innovation Management*, 33(S1), 16–28. <https://doi.org/10.1111/jpim.12325>
- Seele, P., Dierksmeier, C., Hofstetter, R., & Schultz, M. D. (2019). Mapping the Ethicality of Algorithmic Pricing: A Review of Dynamic and Personalized Pricing. *Journal of Business Ethics*. <https://doi.org/10.1007/s10551-019-04371-w>
- Simon, H. (2015). *Confessions of the Pricing Man: How Price Affects Everything*.
- Somervuori, O. (2014). Profiling behavioral pricing research in marketing. *Journal of Product & Brand Management*, 23(6), 462–474. <https://doi.org/10.1108/JPBM-06-2014-0653>
- Töytäri, P., Rajala, R., & Alejandro, T. B. (2015). Organizational and institutional barriers to value-based pricing in industrial relationships. *Industrial Marketing Management*, 47, 53–64. <https://doi.org/10.1016/j.indmarman.2015.02.005>
- Völckner, F., & Hofmann, J. (2007). The price-perceived quality relationship: A meta-analytic review and assessment of its determinants. *Marketing Letters*, 18(3), 181–196. <https://doi.org/10.1007/s11002-007-9013-2>