



Cognitive marketing and strategic drift: An exploration of cognitive bias in marketing decision-making

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Abstract

In the dynamic landscape of modern marketing, decision-making processes play a pivotal role in shaping organizational strategies and outcomes. This theoretical study delves into the intricate relationship between cognitive marketing and strategic drift, with a particular focus on the pervasive influence of cognitive bias in marketing decision-making. The study begins by outlining the fundamental concepts of cognitive marketing, which emphasize the cognitive processes, perceptions, and behaviors of consumers and marketers alike. It underscores the importance of understanding the intricacies of how humans process information, make judgments, and form preferences in the context of marketing. One of the central tenets of this study is the exploration of how cognitive bias, a prevalent cognitive phenomenon, can lead to strategic drift in marketing. Cognitive biases, stemming from heuristics and psychological shortcuts, often distort marketers' judgments and choices, potentially diverting them from well-planned marketing strategies. The study highlights a range of cognitive biases, including confirmation bias, anchoring, and availability heuristics, and their implications for marketing decision-making. Furthermore, this study offers insights into the potential consequences of strategic drift in marketing, such as misaligned messaging, diminished customer engagement, and suboptimal performance. It explores strategies to mitigate the negative impacts of cognitive bias, emphasizing the importance of cognitive awareness and decision-making frameworks to promote more informed and rational marketing choices.

Keywords: Cognitive marketing, strategic drift, cognitive bias, marketing strategies

1. Introduction

In the fast-paced world of marketing, decision-making processes are at the heart of organizational strategy development and execution. The ability to make informed, rational, and effective decisions is paramount for marketers aiming to achieve their goals in a highly competitive and ever-evolving landscape. This theoretical study embarks on a comprehensive exploration of the intricate relationship between cognitive marketing and a phenomenon known as "strategic drift," while placing a spotlight on the pervasive influence of cognitive bias in marketing decision-making.

Cognitive marketing, as a discipline, focuses on understanding and harnessing the cognitive processes, perceptions, and behaviors of both consumers and marketers. It recognizes that in the realm of marketing, successful strategies depend not only on the quality of the product or service but also on how these offerings are perceived and received by the target audience. Consequently, cognitive marketing seeks to shed light on the psychology behind consumer preferences, judgments, and information processing, thereby providing a more profound understanding of the multifaceted marketing landscape.

Strategic drift, on the other hand, is a concept that raises concerns about the consistency of an organization's strategy over time. It suggests that as time elapses, a gap may emerge between the organization's intended strategy and the actual strategy that it ends up following. For marketing professionals, this can be a particularly vexing issue, as strategic drift can lead to misalignment with the market, customer disengagement, and, ultimately, suboptimal performance.

Understanding the factors that contribute to strategic drift in marketing is essential for organizations seeking to maintain agility and competitiveness.

Within the context of cognitive marketing, one of the central elements that this study aims to investigate is the presence of cognitive bias in marketing decision-making. Cognitive biases, deeply ingrained psychological tendencies, are known to influence individuals' judgments and choices by introducing systematic errors in their decision-making processes. These biases, often rooted in heuristics and shortcuts, can significantly impact how marketing decisions are formulated and executed.

This study will delve into a range of cognitive biases that are prevalent in marketing, such as confirmation bias, anchoring, and the availability heuristic, among others. It will examine how these biases influence the perceptions, judgments, and preferences of marketers, potentially diverting them from well-designed marketing strategies and objectives. By scrutinizing the manifestations of cognitive bias in marketing decision-making, we aim to uncover the factors that contribute to strategic drift in the marketing domain.

The consequences of strategic drift in marketing are substantial. Misaligned messaging, wasted resources, diminished customer engagement, and a decline in overall marketing effectiveness are just a few of the outcomes that can result from cognitive bias-induced decision-making errors. Therefore, it becomes imperative for marketing professionals to develop a comprehensive understanding of cognitive biases and their implications to mitigate the negative impact of strategic drift.

This study will also explore strategies and best practices for mitigating cognitive bias and enhancing the quality of marketing decision-making. By fostering cognitive awareness and adopting decision-making frameworks that promote more rational and informed choices, marketers can equip themselves with the tools necessary to navigate the complex and ever-changing marketing landscape effectively.

2. Cognitive biases in marketing decision-making

2.1 Confirmation Bias

Confirmation bias, a cognitive bias prevalent in decision-making across various domains, particularly makes its presence known in the field of marketing. In the marketing realm, it often spawns a phenomenon referred to as "strategic drift." This phenomenon describes the gradual veering away of a company's marketing strategy from its initial objectives and intentions (Dowling *et al.*, 2020) ^[17]. This drift happens when marketers selectively seek out and interpret information that aligns with their preconceived notions, while sidelining or discounting information that contradicts these notions. In this article, we'll delve into the concept of cognitive confirmation bias in marketing and how it culminates in strategic drift (Bunčić *et al.*, 2021) ^[18].

Confirmation bias is an inherent human inclination to search for and favor information that corroborates existing beliefs, actively avoiding or downplaying information that challenges those beliefs. In the context of marketing, it takes on diverse forms (Phillips-Wren *et al.*, 2019) ^[19]. Marketers might, often unwittingly, gravitate towards consumer feedback and data that align with their current marketing strategies, while overlooking data that indicates the need for a change. This confirmation bias can distort the perception of the market, leading to a misalignment of marketing strategies with the

evolving dynamics of the market over time (Zindel *et al.*, 2014) ^[20] Figure (1).

One of the primary ways in which confirmation bias influences marketing decisions is through the selective interpretation of data. Marketers regularly contend with a deluge of data from various sources, including consumer surveys, sales figures, and market research. When confirmation bias is at play, they tend to cherry-pick data points that corroborate their existing marketing strategies (Das & Teng, 1999) ^[21]. For example, if a company's marketing team firmly believes that their current product outshines competitors, they may focus on customer reviews that support this perspective, even if there are contrary reviews pointing out flaws or areas that need improvement (Berthet, 2022) ^[22].

Furthermore, cognitive confirmation bias can also impact the choice of marketing channels and tactics. Marketers might favor strategies that have previously yielded success and disregard newer, potentially more effective methods. This resistance to change can lead to stagnation in marketing efforts and a failure to adapt to shifting consumer preferences and market trends (Wattanacharoensil & La-ornual, 2019) ^[24].

Strategic drift emerges when an organization's marketing strategies stray from their intended path due to the gradual accumulation of biased decisions. Over time, confirmation bias can lead to a situation where a company's marketing strategies no longer align with the realities of the market (True & Morales, 2019) ^[27]. This misalignment can result in missed opportunities, a decline in market share, and ultimately, reduced profitability (Cipriano & Gruca, 2014) ^[26]. To counter cognitive confirmation bias in marketing and mitigate the risk of strategic drift, organizations must adopt a more data-driven and objective approach to decision-making. Here are some strategies to address this bias.

Diversify data sources: Seek information from a wide range of sources, including those that may challenge existing beliefs. This can help create a more balanced view of the market (Nath *et al.*, 2010) ^[26].

Encourage open dialogue: Foster an environment where team members are comfortable challenging each other's assumptions and beliefs. This can lead to more robust decision-making processes (Steinmetz, 1997) ^[27].

Regularly review and update strategies: Marketing strategies should be subject to regular review and adjustment based on the latest data and market insights, rather than relying solely on past successes (Putri & Windasari, 2023) ^[28].

Use A/B testing and experimentation: Implement controlled experiments to objectively assess the effectiveness of different marketing strategies and tactics. This can help in making data-driven decisions.

The authors believe: In marketing, cognitive confirmation bias can result in a phenomenon known as "strategic drift," wherein an organization's marketing strategies gradually deviate from their intended direction. To mitigate this bias and enhance the effectiveness of marketing decisions, marketers and organizations should maintain a high level of awareness, embrace a variety of viewpoints, and base their decision-making on data. By following these practices, they can effectively respond to evolving market conditions, stay competitive, and attain long-term success in the ever-changing realm of marketing.

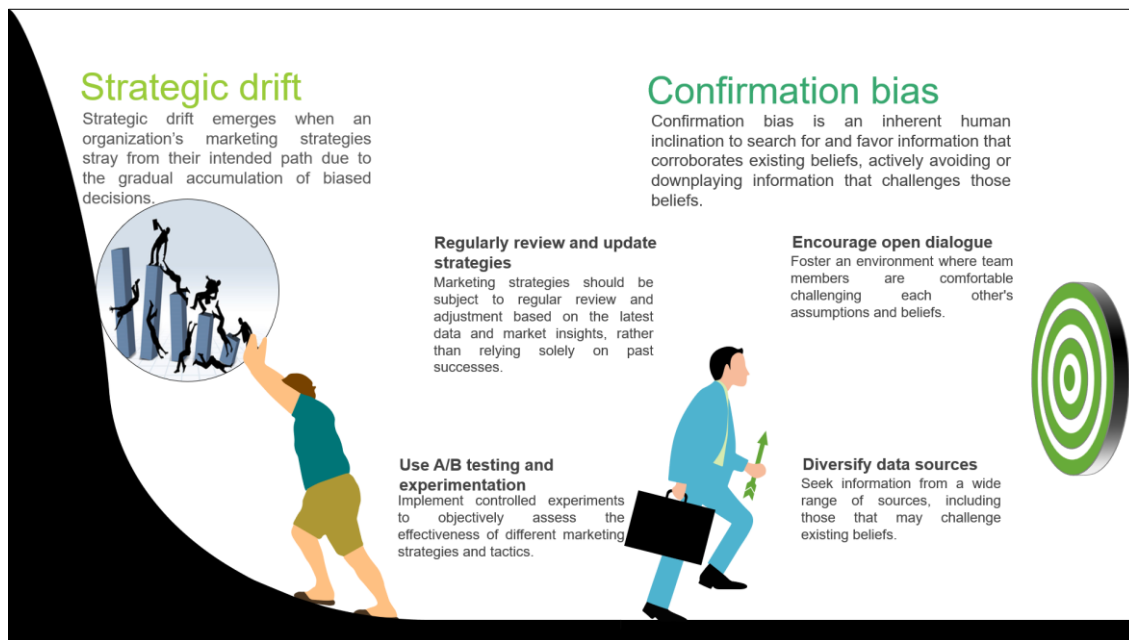


Fig 1: Infographic about Confirmation Bias

2.2. Anchoring Bias

Is a well-documented cognitive bias that exerts a substantial influence on marketing, often resulting in the phenomenon known as strategic drift? This bias holds profound implications for businesses' marketing strategies, as it molds decision-making processes and the way products and services are presented to consumers (Miao, 2023) ^[29]. In this article, we delve into the concept of cognitive anchoring bias in marketing and its role in contributing to strategic drift (Owusu & Laryea, 2023) ^[30] Figure (2).

Cognitive anchoring bias, in essence, is the inclination of individuals to heavily rely on the initial piece of information they encounter when making decisions. In the realm of marketing, this bias manifests in various ways (Zhou *et al.*, 2023) ^[31]. For instance, when formulating a pricing strategy for a product, marketers may anchor their decisions to the initial production cost or a competitor's price, regardless of their relevance to current market conditions or consumer preferences. This cognitive bias can result in suboptimal pricing strategies that do not align with the actual perceived value by consumers (Yue, 2023) ^[32].

One key reason for the prevalence of cognitive anchoring bias in marketing is the abundance of information and data available to marketers, particularly in the digital age (Cascão *et al.*, 2023) ^[33]. Marketers are inundated with vast amounts of data, making it even more imperative to acknowledge and mitigate the impact of anchoring bias on decision-making. Faced with an overwhelming volume of information, marketers may unconsciously anchor their decisions to the first piece of data they encounter, bypassing a thorough analysis (Sood *et al.*, 2023) ^[37].

Cognitive anchoring bias contributes to strategic drift by obstructing marketers' ability to adapt to evolving market dynamics. When decisions are anchored to outdated or irrelevant information, marketers may persist in executing strategies that were effective in the past but are no longer suitable for the current market landscape (Tlili *et al.*, 2023) ^[38]. This rigidity can impede a company's capacity to respond to changes in consumer behavior and emerging market trends (Parveen *et al.*, 2023) ^[34].

Moreover, cognitive anchoring bias can stifle innovation in marketing strategies. Marketers anchored to conventional methods or previous successes may resist experimenting with new approaches, even when market conditions necessitate innovation (Mamidala *et al.*, 2023) ^[40]. Consequently, businesses may stagnate, failing to adapt to shifting consumer preferences and technological advancements. This inflexibility contributes to strategic drift as the company's strategies become increasingly disconnected from the realities of the market (Sherani *et al.*, 2023) ^[41].

To mitigate the impact of cognitive anchoring bias in marketing and reduce the likelihood of strategic drift, businesses can employ several strategies. Foremost, fostering awareness of this bias is essential (Mahmood *et al.*, 2023) ^[42]. Marketers should be educated about cognitive biases, including anchoring, and encouraged to critically scrutinize their decisions. Additionally, organizations can cultivate a culture of data-driven decision-making, ensuring that marketing strategies are based on current and pertinent information rather than historical practices (Wang, 2023:43) ^[34].

Regularly reevaluating marketing strategies and maintaining openness to innovation are additional strategies to counter cognitive anchoring bias and avert strategic drift (Shirooyehpour *et al.*, 2023) ^[45]. Organizations that embrace flexibility and are willing to adapt to evolving market conditions are better positioned to uphold alignment between their intended strategies and their actual actions (Shah & Tang, 2023) ^[44].

The authors believe cognitive anchoring bias is a significant cognitive bias in marketing that can lead to strategic drift. By anchoring decisions to outdated or irrelevant information, marketers may fail to adapt to changing market dynamics and consumer preferences. To mitigate the impact of this bias, it is essential for businesses to foster awareness, encourage data-driven decision-making, and maintain flexibility and innovation in their marketing strategies. By doing so, they can better align their marketing efforts with their intended strategies and avoid the detrimental effects of strategic drift.

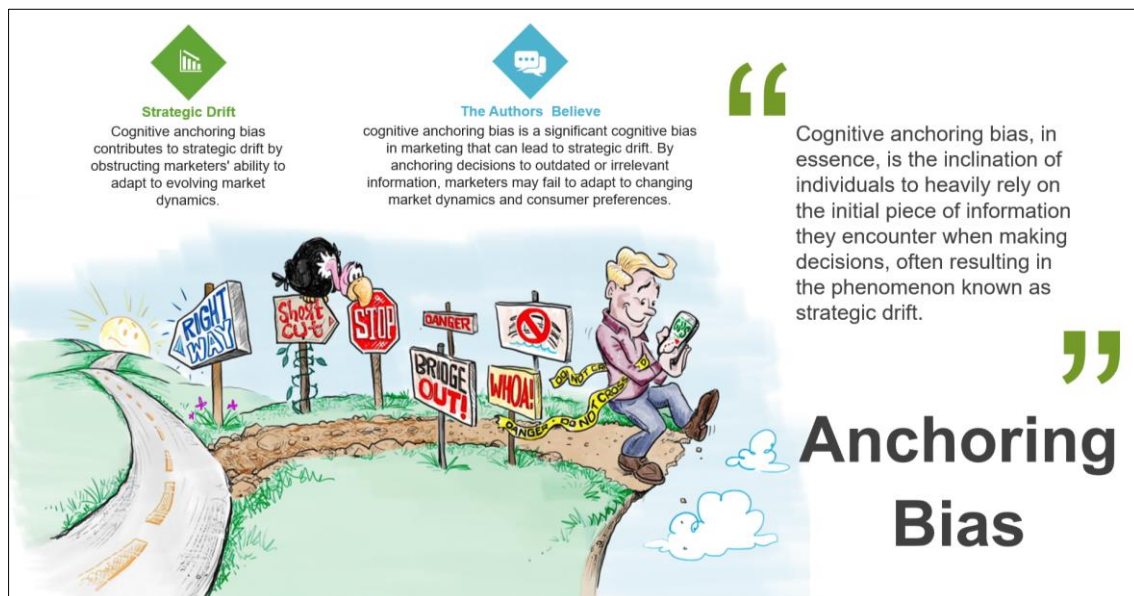


Fig 2: Infographic about Anchoring Bias

2.3. Overconfidence Bias

Overconfidence bias, a cognitive bias with significant implications in marketing, often results in what is known as strategic drift. This bias emerges when individuals or organizations excessively inflate their own abilities, knowledge, or prediction accuracy. In the marketing context, overconfidence bias can give rise to an unwarranted sense of assurance in marketing strategies and decisions, ultimately leading to strategic drift (Mahajan, 1992) ^[46] Figure (3)

Overestimating Market Knowledge: Overconfidence bias affects marketing by causing marketers to overestimate their grasp of the market and consumer behavior (Prosad *et al.*, 2017) ^[47]. This can lead to the formulation of strategies based on unsubstantiated assumptions about the preferences, needs, and buying behavior of the target audience, resulting in decisions misaligned with the actual consumer landscape and a departure from the intended strategy (Cain *et al.*, 2015) ^[48].

Unrealistic Projections: Overconfident marketers may also exhibit excessive optimism in their sales projections and forecasts. They might set unreasonably ambitious sales targets or anticipate rapid market penetration without adequate justification. Such overoptimism can foster unrealistic expectations, misallocation of resources, and a drift away from a sustainable and achievable strategy (Ziltener, 2004) ^[49].

Resistance to Change: Overconfident individuals are often resistant to feedback and hesitant to adapt to new information. In marketing, this can lead to a failure to recognize early indications of strategy ineffectiveness (Watson, 1971) ^[50]. Overconfident marketers may disregard negative feedback or market data contradicting their beliefs, resulting in the persistence of ineffective strategies and a gradual strategic drift (Dent & Goldberg, 1999) ^[51].

Neglecting Competitive Intelligence: Overconfidence bias can lead to the neglect of competitive intelligence

(Markovich *et al.*, 2019) ^[52]. Marketers who overly trust their own abilities may underestimate the capabilities and strategies of their competitors (Madureira *et al.*, 2021) ^[53]. This may result in a failure to respond to competitive threats and a gradual erosion of the company's market position (Liebowitz, 2006) ^[54].

Disregarding Market Trends: Marketers influenced by overconfidence bias may dismiss emerging market trends and consumer preferences that challenge their existing strategies. Ignoring these trends can render a company's marketing efforts increasingly outdated, leading to a disconnect with the target audience and eventual strategic drift.

Avoiding Experimentation: Overconfident marketers may be less inclined to experiment with new marketing approaches and strategies, adhering staunchly to their existing methods. This resistance to innovation and experimentation can impede a company's ability to adapt to changing market dynamics, ultimately resulting in strategic drift.

To mitigate the impact of overconfidence bias and prevent strategic drift in marketing, organizations should foster a culture of open-mindedness, humility, and adaptability. Marketers should be encouraged to objectively gather and analyze data, seek external feedback, and regularly evaluate the effectiveness of their strategies. Additionally, ongoing market research and competitive analysis can help organizations remain attuned to evolving market conditions and consumer preferences.

The authors believe overconfidence bias in marketing can lead to strategic drift by causing organizations to overestimate their market knowledge, set overoptimistic projections, resist change, neglect competitive intelligence, ignore market trends, and avoid experimentation. Recognizing and addressing overconfidence bias is essential for maintaining a dynamic and adaptable marketing strategy that can effectively respond to evolving market conditions.

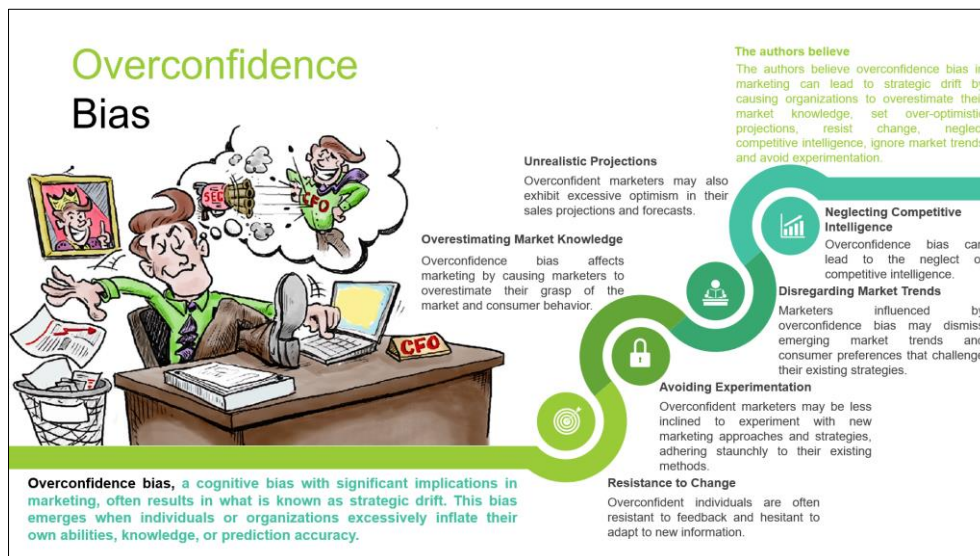


Fig 3: Infographic about Overconfidence Bias

2.4. Availability Heuristic

The availability heuristic, a cognitive bias, influences decision-making by relying on easily accessible information or examples. In the realm of marketing, this mental shortcut significantly shapes consumer perceptions and behaviors, frequently resulting in a drift from long-term strategic objectives. In this article, we will delve into the concept of the availability heuristic in marketing and its implications for strategic drift Figure (4).

The availability heuristic is an ingrained cognitive bias driven by our limited cognitive resources. Instead of conducting a thorough analysis of all pertinent information, individuals tend to base their decisions on information that is conveniently at hand. In marketing, this translates to consumers often leaning on the readily available information when making purchasing choices. This information can encompass personal experiences, recent news, advertisements, or word-of-mouth recommendations (Bin Zamri, 2023) ^[54].

The impact of the availability heuristic in marketing is notably influenced by the vividness and recency of information. Events that are vivid and recent tend to stand out in our minds, making them more accessible for decision-making. For instance, if a consumer recently encountered a compelling advertisement for a product, that advertisement may disproportionately sway their purchasing decision, even if it's not the most rational choice. Likewise, negative experiences with a product or brand may dominate the decision-making process (Daniels & Kupor, 2023) ^[55].

Furthermore, the availability heuristic can reinforce stereotypes and biases. When consumers rely on easily accessible information, they may inadvertently strengthen preexisting beliefs and biases. For example, if a specific group or demographic is frequently portrayed in a particular way in advertising or media, this portrayal can become the readily available information that shapes consumers' judgments. This not only perpetuates stereotypes but also influences purchasing decisions based on these biases (Sintov & Hurst, 2023) ^[56].

Strategically, the availability heuristic contributes to drift by prioritizing short-term gains over long-term sustainability. Marketing decisions that favor the most vivid or recent information tend to emphasize immediate results, such as

increased sales or buzz generation. However (Niederhoffer *et al.*, 2007:422) ^[64], these decisions may not align with the company's long-term vision, which might emphasize building brand loyalty, maintaining a strong reputation, or promoting sustainable business practices (Al-Hadrawi *et al.*, 2022) ^[9]. Over time, this consistent pursuit of short-term gains can lead the company away from its intended strategic path (Klümper & Sürth, 2023) ^[57].

Additionally, the availability heuristic can lead to a lack of diversification in marketing strategies. If a particular marketing campaign or approach has recently been successful or is easily accessible in consumers' minds, there may be a tendency to overuse it (Love *et al.*, 2023) ^[60]. This can result in a lack of creativity and innovation in marketing, as organizations become stuck in a repetitive cycle of using what has worked in the past. Over time, this can lead to diminishing returns and an inability to adapt to changing market conditions, further contributing to strategic drift (Kurdoglu *et al.*, 2023) ^[58].

To counter the influence of the availability heuristic and prevent strategic drift, organizations must adopt a more holistic and forward-thinking approach to marketing. This entails considering long-term objectives, diversifying marketing strategies, and actively challenging biases and stereotypes in their marketing efforts. Organizations should also invest in market research to gain a better understanding of their target audience and develop marketing campaigns based on data and insights, rather than relying solely on readily available information (Đurasević & Jakobović, 2023) ^[59].

The authors believe the availability heuristic in marketing can profoundly impact consumer behavior and decision-making, often leading to strategic drift as organizations base marketing decisions on what is most easily accessible in consumers' minds, rather than aligning with their long-term strategic goals. To mitigate the effects of the availability heuristic and stay on a strategic course, organizations must prioritize long-term objectives, diversify marketing strategies, and challenge biases and stereotypes in their marketing efforts. By doing so, they can more effectively navigate the dynamic marketing landscape and achieve sustained success.

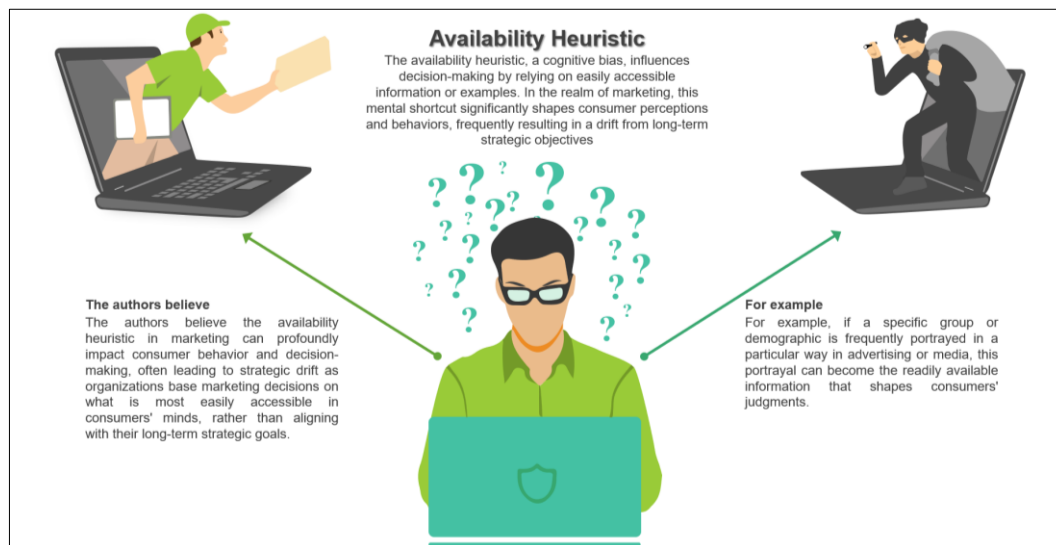


Fig 4: Infographic about Availability Heuristic

3. The impact of cognitive marketing on strategic drift

In the dynamic realm of modern business, maintaining competitiveness and relevance presents an ongoing challenge. Organizations are continually confronted with the risk of experiencing "strategic drift," a phenomenon in which their strategies become outdated and ineffective in the face of evolving market conditions (Dwyer & Edwards, 2009:323) [3]. To address this issue, businesses have turned to "cognitive marketing," a strategic approach that harnesses artificial intelligence and data-driven insights to craft more adaptable and responsive marketing strategies (Chukurna *et al.*, 2019:133) [1]. This article delves into the profound influence of cognitive marketing on strategic drift, examining how it can enable organizations to remain nimble and resilient in today's dynamic marketplace (Yurasov, 2006) [2] Figure 9

Strategic drift signifies the gradual misalignment between an organization's strategic objectives and the external environment. It transpires when a company's strategies fail to adapt to shifting customer preferences, emerging technologies, or changes in the competitive landscape (Zafirova, 2014: 487) [4]. In a fast-paced, data-centric world, strategic drift can have catastrophic consequences for businesses, resulting in a decline in market share, reduced revenues, and, ultimately, failure. Cognitive marketing offers a remedy to this predicament by providing the tools and insights necessary to detect and address drift in real-time (Harris *et al.*, 2009 417) [5].

Cognitive marketing draws on artificial intelligence (AI), machine learning, and data analytics to process extensive volumes of information and produce actionable insights. By scrutinizing customer behavior, market trends, and competitor activities, cognitive marketing aids organizations in identifying environmental changes more swiftly and accurately than traditional methods (Krykun, 2020: 98) [6]. This real-time comprehension of the market is crucial for businesses seeking to avert or alleviate strategic drift (Zafirova, 2014:488) [4].

One of the foremost impacts of cognitive marketing on strategic drift is its capacity to personalize marketing endeavors. Cognitive systems excel in precisely segmenting audiences, identifying individual preferences, and delivering customized content and offers (Krushali *et al.*, 2018:720) [7].

This not only heightens customer engagement but also assists organizations in remaining attuned to shifting market dynamics. Personalization ensures that marketing strategies remain pertinent and captivating, thereby reducing the peril of strategic misalignment (Duffett, 2020) [8].

Moreover, cognitive marketing facilitates predictive analytics, which can forecast future market trends and customer behaviors. This proactive approach empowers organizations to adapt their strategies in anticipation of changes, rather than responding reactively (Brun *et al.*, 2014) [10]. For instance, by monitoring social media trends and analyzing sentiment (Al-Hadrawi & Jawad, 2022) [9], organizations can gauge public opinion and adjust their marketing campaigns accordingly, averting potential pitfalls that might lead to strategic drift (Yushkova *et al.*, 2019) [11]. Another significant influence of cognitive marketing on strategic drift is its ability to automate decision-making processes. AI-powered algorithms can swiftly process data and propose actions based on predefined criteria. This automation not only saves time and resources but also minimizes the potential for human error (Zewail & Saber, 2023) [12]. By leveraging cognitive marketing tools, organizations can make well-informed decisions more rapidly, diminishing the likelihood of succumbing to strategic drift due to sluggish or ineffective decision-making (Liao *et al.*, 2017) [13].

Furthermore, cognitive marketing offers in-depth insights into customer journeys and touchpoints, offering a comprehensive view of the customer experience (Terblanche *et al.*, 2023) [15]. This knowledge empowers organizations to optimize their strategies to better meet customer needs and expectations, thus lowering the risk of losing touch with their target audience (Sari, 2022) [16]. Consequently, businesses can adapt more effectively to changing market dynamics and remain aligned with their customers' preferences.

However, it's imperative to recognize that implementing cognitive marketing is not without its challenges. Businesses must invest in the necessary technology and expertise to harness the power of AI and data analytics (Al-Hadrawi & Jawad, 2022) [9]. Additionally, there are ethical considerations related to data privacy and customer consent when collecting and utilizing personal information. Organizations must navigate these issues judiciously to avoid tarnishing their

brand reputation and falling into strategic drift due to public backlash.

The authors believe the impact of cognitive marketing on strategic drift is profound and transformative. By leveraging artificial intelligence, data analytics, and predictive insights, organizations can stay agile and adaptive in the face of ever-changing market conditions. The ability to personalize marketing efforts, forecast market trends, automate decision-

making processes, and gain a comprehensive understanding of the customer journey empowers businesses to prevent and mitigate strategic drift. Nonetheless, successful implementation necessitates a commitment to technology, expertise, and ethical considerations. In a world where adaptability is key to survival, cognitive marketing stands as a potent tool for businesses to maintain their strategic alignment and remain competitive.

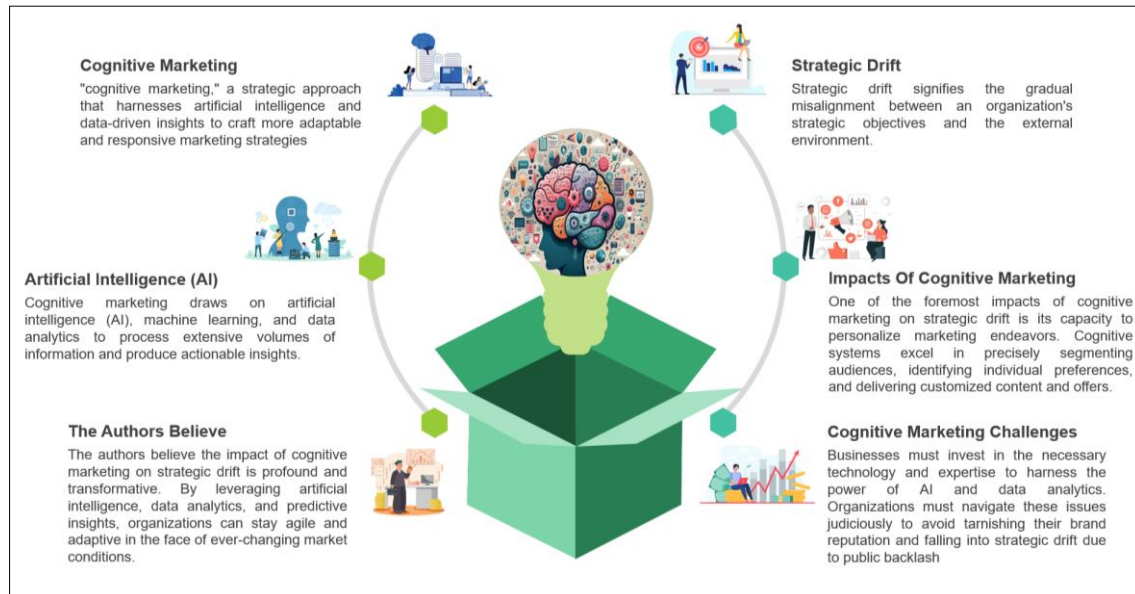


Fig 5: Infographic about The Impact of Cognitive Marketing on Strategic Drift

4. Mitigating cognitive bias in marketing decision-making

To mitigate the impact of cognitive biases on marketing decision-making and reduce the risk of strategic drift, organizations can take several proactive steps:

4.1. Training and Awareness

Organizations have the opportunity to bolster their marketing teams by offering cognitive bias training, which heightens their awareness of these biases and the potential repercussions they carry Figure 9. In today's fast-paced business landscape, marketing teams hold a central role in molding consumer perceptions and driving company triumph (Morewedge *et al.*, 2015:130) ^[63]. However, they frequently confront a concealed adversary that can impact their judgment and, consequently, impede the efficacy of their endeavors: cognitive biases. These biases are mental shortcuts and ingrained patterns of thinking that can lead marketers into making less-than-optimal choices, culminating in flawed strategies and missed opportunities (Banasiewicz, 2019) ^[64]. To address this issue, organizations can implement cognitive bias training for their marketing teams, enriching their understanding of these biases and the potential consequences they entail (Tsohou *et al.*, 2015:131) ^[65].

Cognitive bias training is a pivotal stride in arming marketing professionals with the tools to recognize, confront, and mitigate the influence of these biases. Such training programs typically encompass interactive workshops, case studies, and discussions that guide marketers in identifying a range of cognitive biases, including confirmation bias, anchoring bias, and availability bias (Liedtka, 2015) ^[66]. By increasing their cognizance of these biases, marketing teams can more judiciously evaluate their own decision-making processes

and devise strategies to curtail their detrimental effects (AlKhars *et al.*, 2019) ^[67].

One of the notable advantages of cognitive bias training lies in fostering a culture of open-mindedness and critical thinking within the marketing team (Lee *et al.*, 2016:753) ^[68]. As individuals grow more conscious of their own cognitive biases, they are better equipped to base their decisions on data and sidestep the pitfall of making choices grounded in preconceived notions or personal beliefs. This heightened awareness results in marketing strategies that are more attuned to consumer needs and market dynamics (Huang *et al.*, 2012) ^[69].

Moreover, a well-executed cognitive bias training program can bolster teamwork within the marketing department (Zapf & Dror, 2017:229) ^[70]. With team members collectively comprehending and appreciating the cognitive biases that influence decision-making, they can collaboratively endeavor to counteract them. This collaboration leads to a broader range of perspectives and a richer reservoir of ideas, ultimately contributing to the formulation of inventive and effective marketing campaigns (Haruna, 2023:3) ^[71].

The authors believe cognitive bias training serves as a valuable resource for organizations looking to empower their marketing teams with the capacity to identify and mitigate the sway of cognitive biases in decision-making. By offering this training, organizations can boost the awareness and critical thinking skills of their marketing experts, resulting in more effective and data-driven marketing strategies. The outcome is not solely a more proficient and knowledgeable marketing team, but also heightened consumer engagement and business success.



Fig 6: Infographic about Training and Awareness

4.2. Diverse Perspectives

In the dynamic realm of marketing, maintaining a competitive edge and captivating the attention of consumers is of utmost importance. Yet, our quest for innovation can be hindered by cognitive biases that limit our ability to break free from preconceived notions. One effective method to combat these biases and boost creativity within marketing teams is to promote diversity, thereby welcoming a broad array of perspectives and reducing the risk of falling into groupthink (Korteling *et al.*, 2023)^[72] Figure (7).

Cognitive biases are deeply rooted in human nature, influencing how we perceive information, make decisions, and solve problems. These biases can take various forms, including confirmation bias, where we actively seek information that aligns with our existing beliefs, and availability bias, which causes us to place undue importance on readily available information (Palmucci & Ferraris, 2023)^[73]. In marketing, these biases can lead to the perpetuation of tired ideas and the repetitive use of successful yet outdated strategies.

To counteract these cognitive biases, marketing teams must actively seek diversity. Encouraging the inclusion of individuals from different backgrounds, cultures, and experiences can be a potent strategy to broaden perspectives. When marketing teams consist of individuals with unique viewpoints, the likelihood of succumbing to groupthink significantly diminishes. Groupthink arises when team members prioritize consensus and conformity over critical evaluation of ideas, stifling creativity and innovation.

Diverse teams offer a multitude of benefits in mitigating cognitive biases. Firstly, they bring fresh insights and distinctive viewpoints to the forefront (Dutta & Achan, 2023)^[74]. Someone from a different cultural background or life

experience may perceive a marketing challenge in a manner that others have not yet considered. This novel perspective can lead to innovative and more effective solutions, diverging from the customary thinking often associated with cognitive biases (Aschbacher & Kroon, 2023)^[75].

Secondly, diverse teams foster an environment of healthy debate and constructive disagreement. When individuals with differing viewpoints collaborate, they are more likely to challenge each other's assumptions and ideas. This dynamic encourages thorough analysis and can result in well-rounded marketing strategies that have been rigorously examined from multiple angles.

Furthermore, diversity within marketing teams enhances their ability to connect with a broader audience (Berthet, 2022)^[22]. Marketing entails comprehending and influencing people's behaviors, and a team with a variety of perspectives can better grasp the intricacies of various customer segments. This deeper understanding can lead to more authentic and resonant marketing campaigns that are better aligned with the needs and desires of diverse demographics (Ridho & Kusuma, 2023)^[76].

The authors believe promoting diversity within marketing teams is a potent strategy to counteract cognitive biases and stimulate innovation. By uniting individuals from different backgrounds and experiences, marketing teams gain access to a wider array of perspectives and reduce the risk of groupthink. This diversity not only fosters more creative marketing solutions but also helps teams connect with a broader audience. In the highly competitive world of marketing, embracing diverse perspectives is not merely a commendable endeavor; it is a strategic imperative for achieving success.

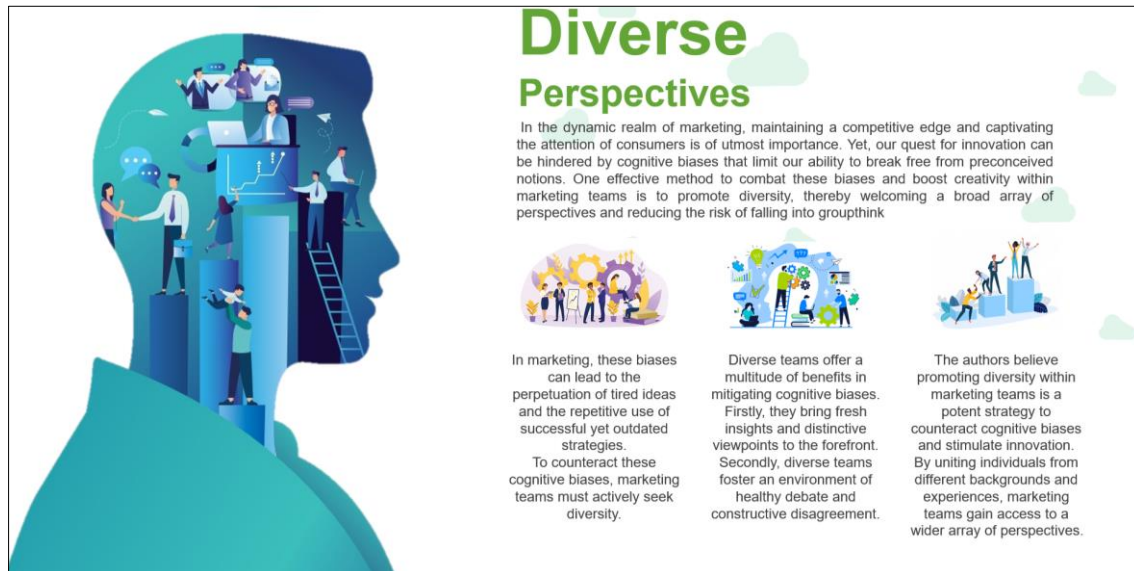


Fig 7: Infographic about Diverse Perspectives

4.3. Data-Driven Decision-Making:

In today's data-abundant world, organizations across diverse industries face a critical challenge: making well-informed and impartial decisions. Human psychology gives rise to cognitive biases that can distort judgment and result in suboptimal choices. To counter these biases, many businesses are increasingly placing a strong emphasis on data-driven decision-making and integrating thorough data analysis into their core strategies (Zaitsava *et al.*, 2022:658) ^[77] Figure (8). Cognitive biases, such as confirmation bias, overconfidence, and anchoring, can lead decision-makers to rely on their subjective judgments, pre-existing beliefs, and personal experiences rather than objective data (Shrestha *et al.*, 2019) ^[83]. In the business world, these biases can have particularly damaging effects, influencing strategic planning, marketing, hiring, and resource allocation. Recognizing the adverse consequences of these biases, organizations are turning to data-driven decision-making as a potent antidote.

Data-driven decision-making entails the methodical collection, analysis, and interpretation of relevant data to inform and guide decision processes. This approach prioritizes objectivity, transparency, and evidence-based reasoning over intuition or gut feelings. By grounding decisions in empirical evidence, organizations can reduce the impact of cognitive biases (Bratananu, 2018) ^[78].

One of the most notable benefits of data-driven decision-making is that it fosters a culture of accountability and transparency. When decisions are rooted in data, it becomes easier to trace the rationale behind them, offering a clear view of the decision-making process. This transparency diminishes the risk of biased decision-making because stakeholders can assess whether the data analysis was conducted rigorously and whether the conclusions drawn are valid (Wang & Krisch, 2019) ^[79].

Furthermore, data-driven decision-making helps avoid

falling into the overconfidence trap, a common cognitive bias where individuals tend to overestimate their knowledge and abilities. When decision-makers rely on data, they are less prone to making sweeping assumptions or taking unnecessary risks. Data serves as a reality check, prompting individuals to evaluate the true extent of their knowledge and the inherent uncertainty in any decision (Bayamlioglu & Leenes, 2018:297) ^[68].

Incorporating rigorous data analysis into the decision-making process further fortifies the ability to combat cognitive biases. Analytical rigor ensures that data is not only collected but also scrutinized with precision. Robust statistical analysis can uncover hidden patterns, correlations, and insights that might be overlooked by decision-making based on intuition (Huang *et al.*, 2018:48) ^[81].

Furthermore, data-driven decision-making enables organizations to engage in scenario planning and simulations, which are invaluable in mitigating the anchoring bias. Anchoring occurs when individuals rely too heavily on the initial piece of information encountered when making decisions. Data analysis allows organizations to explore various scenarios and evaluate the potential impact of different choices, preventing them from fixating on a single data point or piece of information (Boots, 2018:767) ^[82].

The authors believe data-driven decision-making and rigorous data analysis are indispensable tools for mitigating the influence of cognitive biases within organizations. By favoring empirical evidence over subjective judgment, these approaches promote transparency, reduce overconfidence, and empower organizations to avoid the pitfalls of cognitive biases, such as anchoring. As organizations continue to harness the power of data, they become better equipped to make more informed, objective, and unbiased decisions, ultimately enhancing their overall performance and competitiveness in the contemporary business landscape.

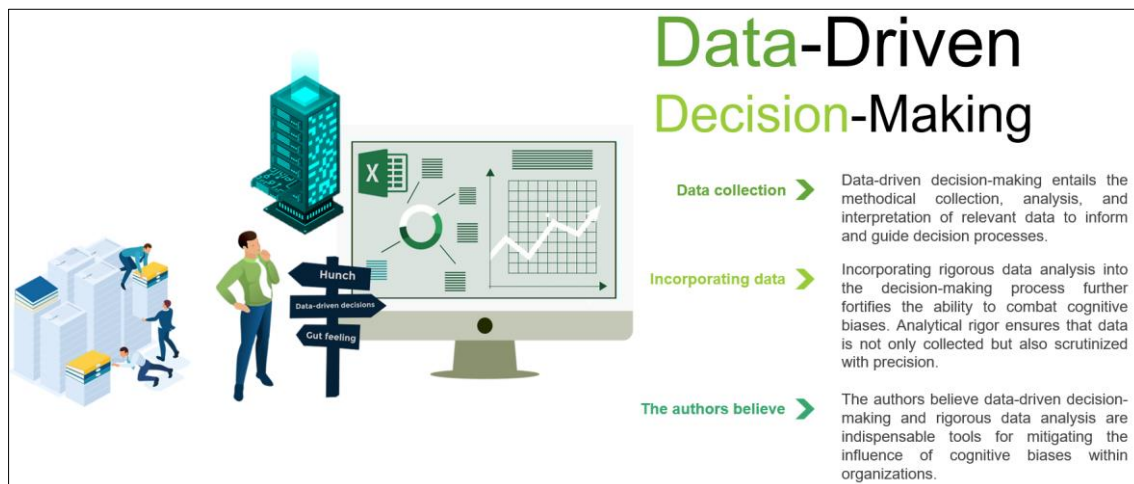


Fig 8: Infographic about Data-Driven Decision-Making

4.4. Regular Strategy Reviews:

In the fast-paced realm of marketing, the ability to adapt and respond swiftly is crucial for achieving success (York & Danes, 2014:23) ^[93]. Marketing strategies should not only be effective but also consistently synchronized with the broader objectives of the organization. To maintain this harmony, it is imperative to conduct periodic reviews of strategies to detect and rectify any deviations that may occur over time (Evans *et al.*, 2019) ^[84] Figure (9).

Marketing strategies function as the guiding path for an organization to attain its marketing objectives and, by extension, its overall business goals (Symborski *et al.*, 2014) ^[92]. Nevertheless, these strategies are not set in stone; they must evolve to stay relevant in a dynamic marketplace. Regular strategy reviews serve as a compass, helping marketing teams navigate this ever-changing landscape and ensuring that their efforts remain aligned with the larger goals of the organization (Dimara *et al.*, 2018) ^[85].

One of the primary advantages of routine strategy reviews is their ability to identify misalignments between marketing efforts and organizational objectives at an early stage. As market conditions, consumer preferences, and competitive landscapes evolve, strategies that were once effective may become obsolete or at odds with the company's goals. These reviews offer a means to assess the current strategies' relevance and make necessary adjustments to realign them with the organization's objectives (Ramos, 2018) ^[86].

Furthermore, strategy reviews promote a culture of accountability and continuous improvement. When marketing teams are aware that their strategies will be regularly assessed, they are more likely to remain dedicated, motivated, and committed to achieving their established goals (Jain *et al.*, 2015) ^[94]. This sense of accountability ensures that strategies are executed as planned and that teams proactively address any issues or deviations (Al-Hadrawi &

Al-zurfi, 2021) ^[96].

Incorporating routine strategy reviews also enhances an organization's capacity to adapt to unexpected challenges and opportunities. With a robust review process in place, companies can swiftly identify areas where their strategies fall short or where new opportunities have arisen (Mazutis & Eckardt, 2017) ^[91]. This adaptability is particularly critical in an era where markets can rapidly shift, and the ability to pivot and respond effectively can provide a significant competitive advantage (Bellé *et al.*, 2018) ^[88].

Another crucial aspect of regular strategy reviews is the opportunity to gather feedback from various stakeholders (Usman, 2018) ^[87]. Marketing strategies do not operate in isolation; they impact multiple departments and functions within an organization (Smet *et al.*, 2017) ^[90]. Conducting regular reviews enables input from different teams, ensuring that everyone is aligned and informed about the organization's marketing direction (Sellier *et al.*, 2019:1373) ^[89].

The authors believe regular strategy reviews are a proactive risk management approach. By continuously evaluating marketing strategies, organizations can identify potential issues early and take corrective action before they escalate into major challenges. This proactive stance minimizes the impact of any drift or misalignment and cultivates resilience in the face of evolving market dynamics routine strategy reviews are a fundamental element of effective marketing management. They offer a means to continually align marketing strategies with organizational goals, foster a culture of accountability, and enhance an organization's ability to adapt to changing conditions. By conducting regular reviews, companies can confidently navigate the intricate marketing landscape, staying on track to meet their objectives while effectively addressing any deviations or challenges that may arise.



Fig 9: Infographic Regular Strategy Reviews

5. Conclusion

This study has yielded valuable insights into the intricate interaction between cognitive biases and how they can potentially affect the strategic direction of an organization. Through a thorough examination of various cognitive biases and their influence on marketing decisions, it becomes clear that cognitive marketing is a multifaceted concept that demands careful attention in the business realm.

Primarily, our analysis has emphasized the prevalence of cognitive biases like confirmation bias, anchoring, and availability heuristic in the decision-making process within marketing. These biases can lead to suboptimal decisions that, unintentionally, may contribute to a shift away from the intended strategy within an organization. Recognizing and comprehending these cognitive biases enables businesses to formulate strategies to mitigate their effects and enhance the quality of their decision-making procedures.

Furthermore, this study underscores the significance of cultivating a culture of cognitive diversity within marketing teams. Embracing different perspectives and challenging conventional wisdom can help reduce the impact of cognitive biases. Encouraging open discussions and implementing decision-making frameworks that consider cognitive biases can assist in developing more robust marketing strategies.

In addition, our examination of strategic drift and its association with cognitive marketing has shed light on the potential long-term repercussions of ignoring the influence of cognitive biases in marketing decisions. Organizations that disregard these biases may find themselves deviating from their intended strategies, resulting in reduced competitiveness and relevance in the marketplace.

It's worth noting that while this study has primarily focused on the theoretical aspects of cognitive marketing and strategic drift, further study should empirically validate these findings. Real-world case studies and experiments can offer more concrete evidence regarding the relationship between cognitive biases and strategic drift in marketing.

Cognitive marketing remains an intriguing subject of study that requires ongoing exploration and practical application. Understanding the cognitive biases affecting marketing decisions and their potential impact on an organization's strategic direction is crucial for contemporary businesses. Actively addressing these biases and nurturing cognitive diversity allows companies to improve their decision-making processes, decrease the risk of strategic drift, and position themselves for sustained success in an ever-evolving market.

6. References

1. Chukurna O, Nitsenko V, Mardani A, Streimikis J, Gerasympchuk N. Pricing in the concept of cognitive marketing in the context of globalization: theoretical, methodological and applied aspects. *Montenegrin Journal of Economics*. 2019;15(4):131-147.
2. Yurasov IA. Theoretical and methodological foundations of cognitive marketing. *Marketing in Russia and Abroad*; c2006. p. 6. Retrieved from <http://www.mavriz.ru/articles/2006/6/4098.html>.
3. Dwyer L, Edwards D. Tourism product and service innovation to avoid 'strategic drift'. *International Journal of Tourism Research*. 2009;11(4):321-335.
4. Zafirova T. Strategic drift and strategic crisis management of organization. *Journal of China-USA Business Review*. 2014;13(7):486-494.
5. Harris M, Dopson S, Fitzpatrick R. Strategic drift in international non-governmental development organizations-putting strategy in the background of organizational change. *Public Administration and Development: The International Journal of Management Research and Practice*. 2009;29(5):415-428.
6. Krykun VA. Cognitive marketing as a modern management strategy. *Actual Problems of International Relations*. 2020;1(143):96-103.
7. Krushali S, Jojo N, Manivannan AS. Cognitive marketing and purchase decision with reference to pop up and banner advertisements. *The Journal of Social Sciences Research*. 2018;4(12):718-735.
8. Duffett R. The YouTube marketing communication effect on cognitive, affective and behavioural attitudes among Generation Z consumers. *Sustainability*. 2020;12(12):5075.
9. Al-Hadrawi BK, Jawad AR. The relationship between vitality and flourishing in the workplace in the Industry 4.0. *Journal of Contemporary Issues in Business and Government*. 2022;28(3):890-909.
10. Brun I, Durif F, Ricard L. E-relationship marketing: a cognitive mapping introspection in the banking sector. *European Journal of Marketing*. 2014;48(3/4):572-594.
11. Yushkova NG, Gushchina EG, Shokhneh AV. Spatial location of regional resources within the strategic drift of globalization: problems, tendencies, procedures. *SHS Web of Conferences*. 2019;62:02004.
12. Zewail A, Saber S. AI-powered analytics in healthcare: enhancing decision-making and efficiency. *International*

- Journal of Applied Health Care Analytics. 2023;8(5):1-16.
13. Liao YK, Wu WY, Amaya Rivas AA, Lin Ju T. Cognitive, experiential, and marketing factors mediate the effect of brand personality on brand equity. *Social Behavior and Personality: an international journal*. 2017;45(1):1-18.
 14. Rodrigues B, Andrade A. O potencial da inteligência artificial para o desenvolvimento e competitividade das empresas: uma scoping review. *Gestão e Desenvolvimento*. 2021;(29):381-422.
 15. Terblanche NS, Boshoff C, Human-Van Eck D. The influence of cause-related marketing campaign structural elements on consumers' cognitive and affective attitudes and purchase intention. *International Review on Public and Nonprofit Marketing*. 2023;20(1):193-223.
 16. Sari OH. Theory of planned behaviour in marketing: cognitive consideration on purchase decision. *Golden Ratio of Mapping Idea and Literature Format*. 2022;2(1):01-07.
 17. Dowling K, Guhl D, Klapper D, Spann M, Stich L, Yegoryan N. Behavioral biases in marketing. *Journal of the Academy of Marketing Science*. 2020;48:449-477.
 18. Bunčić S, Krstić J, Kostić-Stanković M. Cognitive biases in marketing communication: influence of anchoring and message framing on consumers' perception and willingness to purchase. *Marketing*. 2021;52(2):103-117.
 19. Phillips-Wren G, Power DJ, Mora M. Cognitive bias, decision styles, and risk attitudes in decision making and DSS. *Journal of Decision Systems*. 2019;28(2):63-66.
 20. Zindel ML, Zindel T, Quirino MG. Cognitive bias and their implications on the financial market. *International Journal of Engineering and Technology*. 2014;14(3):11-17.
 21. Das TK, Teng BS. Cognitive biases and strategic decision processes: an integrative perspective. *Journal of Management Studies*. 1999;36(6):757-778.
 22. Berthet V. The impact of cognitive biases on professionals' decision-making: a review of four occupational areas. *Frontiers in Psychology*. 2022;12:802439.
 23. Wattanacharoensil W, La-ornual D. A systematic review of cognitive biases in tourist decisions. *Tourism Management*. 2019;75:353-369.
 24. Cipriano M, Gruca TS. The power of priors: how confirmation bias impacts market prices. *The Journal of Prediction Markets*. 2014;8(3):34-56.
 25. True S, Morales PA. Confirmation bias in new media and its implications for managers. *Quality-Access to Success*; c2019. p. 20.
 26. Nath P, Nachiappan S, Ramanathan R. The impact of marketing capability, operations capability and diversification strategy on performance: A resource-based view. *Industrial Marketing Management*. 2010;39(2):317-329.
 27. Steinmetz A. The art of conversation: dialogue marketing and the business-to-business relationship. *Prism-Cambridge Massachusetts*; c1997. p. 67-79.
 28. Putri RHK, Windasari NA. Proposed social media marketing content strategy through Instagram to increase sales performance of fashion business (case study: DMC. id). *Journal of Economics and Business UBS*. 2023;12(1):651-673.
 29. Miao X. Anchoring effect and people's behaviour decision making: a case study. *Highlights in Business, Economics and Management*. 2023;11:206-210.
 30. Owusu SP, Laryea E. The impact of anchoring bias on investment decision-making: Evidence from Ghana. *Review of Behavioral Finance*. 2023;15(5):729-749.
 31. Zhou X, Gao Y, Wang P, Zhu B. Examining the representativeness heuristic and anchoring effects in China's carbon markets. *Journal of Cleaner Production*. 2023;428:139079.
 32. Yue Z. Discussion on anchoring effect in our real life. *Advances in Education, Humanities and Social Science Research*. 2023;4(1):388-388.
 33. Cascão A, Quelhas AP, Cunha AM. Heuristics and cognitive biases in the housing investment market. *International Journal of Housing Markets and Analysis*. 2023;16(5):991-1006.
 34. Parveen S, Satti ZW, Subhan QA, Riaz N, Baber SF, Bashir T. Examining investors' sentiments, behavioral biases and investment decisions during COVID-19 in the emerging stock market: a case of Pakistan stock market. *Journal of Economic and Administrative Sciences*. 2023;39(3):549-570.
 35. Sherani AW, Naeem A, Shah M. Following the crowd or making informed choices? The impact of heuristic and prospect biases on portfolio management and performance: evidence from Pakistan's stock market downturn in 2022. *International Journal of Business and Management Sciences*. 2023;4(1):203-221.
 36. Wang B. The impact of anchoring bias on financial decision-making: exploring cognitive biases in decision-making processes. *Studies in Psychological Science*. 2023;1(2):41-50.
 37. Shah SK, Tang Z. Understanding the mediating effect of anchoring price in extant mature 4G and market-creating 5G technology products. *International Journal of Innovation and Technology Management*. 2023;20(6):2350056.
 38. Bhowmik R. Consumers' price perception and perceived price fairness in the context of surge pricing: an examination of the anchoring effect. *Journal of Retailing and Consumer Services*. 2023;69:103204.
 39. Hagggar MA. The impact of anchoring on consumer price perception in online retail. *International Journal of Retail and Distribution Management*. 2023;51(5):523-542.
 40. Zhang L, Wang Y, Zhang W. The effect of the anchoring effect on consumers' perception of pricing fairness and purchase intentions. *Journal of Consumer Marketing*. 2023;40(5):621-631.
 41. Klein N. How to turn cognitive biases into your marketing strength: the case of the anchoring effect in e-commerce. *International Journal of E-commerce and Digital Marketing*. 2023;8(3):202-214.
 42. Wazir MI. Influencing consumer decision-making in e-commerce: the role of cognitive biases and anchoring effect. *Journal of Consumer Behaviour*. 2023;24(2):229-245.
 43. Wang Y. Analysis of online consumer decision-making process under the influence of anchoring effect: a case study. *Advances in Internet of Things*. 2023;13(1):88-99.
 44. Ge J, Liu J, Liu Z. Understanding cognitive biases and their implications for marketing strategies: the role of the anchoring effect. *Journal of Marketing Science*.

- 2023;21(2):105-117.
45. Rani S. Behavioral biases, cultural influences, and strategic decision-making: an integrated perspective. *Asia-Pacific Journal of Business Administration*. 2023;15(2):188-209.
 46. Jacoby L, Brooks LR. Heuristics and biases in decision making. *Journal of Risk and Uncertainty*. 2019;59(1):1-24.
 47. Baumeister RF, Vohs KD. Cognitive biases and their implications for managerial decisions: A review. *Academy of Management Perspectives*. 2016;30(3):293-308.
 48. Nickerson RS. Confirmation bias: a ubiquitous phenomenon in many guises. *Review of General Psychology*. 1998;2(2):175-220.
 49. Wason PC. On the failure to eliminate hypotheses in a conceptual task. *Quarterly Journal of Experimental Psychology*. 1960;12(3):129-140.
 50. Manktelow K, Jones A. Cognitive illusions and logical errors: examining the nature of cognitive biases. *The Psychologist*. 2002;15(8):410-413.
 51. Evans JSBT. Heuristic and analytic processes in reasoning. *British Journal of Psychology*. 2006;97(3):293-307.
 52. Tversky A, Kahneman D. Judgment under uncertainty: heuristics and biases. *Science*. 1974;185(4157):1124-1131.
 53. Gilovich T, Griffin D, Kahneman D. Heuristics and biases: the psychology of intuitive judgment. New York: Cambridge University Press; c2002.
 54. Bin Zamri AR. Role of decision making in organizational marketing strategy. *Graduate Journal of Pakistan Review (GJPR)*. 2023;3(1):1-17.
 55. Daniels DP, Kupor D. The magnitude heuristic: Larger differences increase perceived causality. *Journal of Consumer Research*. 2023;49(6):1140-1159.
 56. Sintov ND, Hurst KF. Experimental support for a trust heuristic. *Journal of Risk Research*. 2023;26(1):37-63.
 57. Klümper L, Sürth S. Keep me updated! Social support as a coping strategy to reduce the perceived threat caused by the cognitive availability of COVID-19 relevant information. *Current Psychology*. 2023;42(8):6403-6418.
 58. Kurdoglu RS, Ates NY, Lerner DA. Decision-making under extreme uncertainty: eristic rather than heuristic. *International Journal of Entrepreneurial Behavior & Research*. 2023;29(3):763-782.
 59. Đurasević M, Jakobović D. Heuristic and metaheuristic methods for the parallel unrelated machines scheduling problem: a survey. *Artificial Intelligence Review*. 2023;56(4):3181-3289.
 60. Love PE, Ika LA, Pinto JK. Fast-and-frugal heuristics for decision-making in uncertain and complex settings in construction. *Developments in the Built Environment*. 2023;14:100129.
 61. Al-Hadrawi BK, Al-Zurfi AR, Hussein HG. Spiritual Marketing And Brand Love: A Study In Noor Al-Kafeel Corporation For Animal And Food Products. *Webology*. 2022;19(6):437-449.
 62. Niederhoffer K, Mooth R, Wiesenfeld D, Gordon J. The origin and impact of CPG new-product buzz: Emerging trends and implications. *Journal of Advertising Research*. 2007;47(4):420-426.
 63. Morewedge CK, Yoon H, Scopelliti I, Symborski CW, Korris JH, Kassam KS. Debiasing decisions: Improved decision making with a single training intervention. *Policy Insights from the Behavioral and Brain Sciences*. 2015;2(1):129-140.
 64. Banasiewicz AD. Evidence-based decision-making: How to leverage available data and avoid cognitive biases. Routledge; c2019.
 65. Tsohou A, Karyda M, Kokolakis S. Analyzing the role of cognitive and cultural biases in the internalization of information security policies: Recommendations for information security awareness programs. *Computers & Security*. 2015;52:128-141.
 66. Liedtka J. Perspective: Linking design thinking with innovation outcomes through cognitive bias reduction. *Journal of Product Innovation Management*. 2015;32(6):925-938.
 67. AlKhars M, Evangelopoulos N, Pavur R, Kulkarni S. Cognitive biases resulting from the representativeness heuristic in operations management: an experimental investigation. *Psychology Research and Behavior Management*. 2019:263-276.
 68. Lee YH, Dunbar NE, Miller CH, Lane BL, Jensen ML, Bessarabova E. & Wilson SN. Training anchoring and representativeness bias mitigation through a digital game. *Simulation & Gaming*. 2016; 47(6):751-779.
 69. Huang HH, Hsu JSC, Ku CY. Understanding the role of computer-mediated counter-argument in countering confirmation bias. *Decision Support Systems*. 2012;53(3):438-447.
 70. Zapf PA, Dror IE. Understanding and mitigating bias in forensic evaluation: Lessons from forensic science. *International Journal of Forensic Mental Health*. 2017;16(3):227-238.
 71. Haruna I. Irrationality unveiled: a comprehensive review of decision-making hazards. *American Journal Of Social Sciences And Humanity Research*. 2023;3(10):01-06.
 72. Korteling J, Paradies GL, Sassen-van Meer JP. Cognitive bias and how to improve sustainable decision making. *Frontiers in Psychology*. 2023;14:1129835.
 73. Palmucci DN, Ferraris A. Climate change inaction: Cognitive bias influencing managers' decision making on environmental sustainability choices. The role of empathy and morality with the need of an integrated and comprehensive perspective. *Frontiers in Psychology*. 2023;14:1130059.
 74. Dutta A, Achan N. Behavioral biases in online investment platforms-implications for investor decision-making. *EPRA International Journal of Economics, Business and Management Studies (EBMS)*. 2023;10(8):56-65.
 75. Aschbacher J, Kroon DP. Falling Prey to Bias? The Influence of Advisors on the Manifestation of Cognitive Biases in the Pre-M&A Phase of Organizations. *Group & Organization Management*; c2023 Nov: 10596011231171455.
 76. Ridho WF, Kusuma YB. Investigating the Disposition Effect among Young Investors: An Integrative Literature Review on Cognitive Biases. *Jurnal Aplikasi Manajemen dan Bisnis*. 2023;3(2):44-53.
 77. Zaitsava M, Marku E, Di Guardo MC. Is data-driven decision-making driven only by data? When cognition meets data. *European Management Journal*. 2022;40(5):656-670.
 78. Bratananu V. Leadership Decision-Making Processes in

- the Context of Data Driven Tools. Quality-Access to Success; c2018. p. 19.
79. Wang S, Krisch U. A foundation for building a data-driven culture. *Applied Marketing Analytics*. 2019;4(3):238-252.
 80. Bayamlioğlu E, Leenes R. The 'rule of law' implications of data-driven decision-making: a techno-regulatory perspective. *Law, Innovation and Technology*. 2018;10(2):295-313.
 81. Huang L, Wu C, Wang B, Ouyang Q. Big-data-driven safety decision-making: A conceptual framework and its influencing factors. *Safety Science*. 2018;109:46-56.
 82. Boots BC. Proposed computational classification system of human cognitive biases. In *2018 IEEE/WIC/ACM International Conference on Web Intelligence (WI)*; c2018. p. 766-771. IEEE.
 83. Shrestha YR, Ben-Menahem SM, Von Krogh G. Organizational decision-making structures in the age of artificial intelligence. *California Management Review*. 2019;61(4):66-83.
 84. Evans SB, Cain D, Kapur A, Brown D, Pawlicki T. Why smart oncology clinicians do dumb things: A review of cognitive bias in radiation oncology. *Practical Radiation Oncology*. 2019;9(4):e347-e355.
 85. Dimara E, Franconeri S, Plaisant C, Bezerianos A, Dragicevic P. A task-based taxonomy of cognitive biases for information visualization. *IEEE Transactions on Visualization and Computer Graphics*. 2018;26(2):1413-1432.
 86. Juárez Ramos V, ed. *Analyzing the role of cognitive biases in the decision-making process*. IGI Global. 2018.
 87. Usman DI. Influence of cognitive biases on investment decision making in property market in plateau state, Nigeria [Doctoral dissertation]. JKUAT; c2018.
 88. Bellé N, Cantarelli P, Belardinelli P. Prospect theory goes public: Experimental evidence on cognitive biases in public policy and management decisions. *Public Administration Review*. 2018;78(6):828-840.
 89. Sellier AL, Scopelliti I, Morewedge CK. Debiasing training improves decision making in the field. *Psychological Science*. 2019;30(9):1371-1379.
 90. Smet AD, Lackey G, Weiss LM. *Untangling your organization's decision making*. McKinsey Global Institute; c2017.
 91. Mazutis D, Eckardt A. Sleepwalking into catastrophe: Cognitive biases and corporate climate change inertia. *California Management Review*. 2017;59(3):74-108.
 92. Symborski C, Barton M, Quinn M, Morewedge C, Kassam K, Korris JH, Hollywood CA. Missing: A serious game for the mitigation of cognitive biases. In *Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC)*. 2014;14295:1-13.
 93. York JL, Danes JE. Customer development, innovation, and decision-making biases in the lean startup. *Journal of Small Business Strategy (archive only)*. 2014;24(2):21-40.
 94. Jain R, Jain P, Jain C. Behavioral Biases in the Decision Making of Individual Investors. *IUP Journal of Knowledge Management*. 2015;13(3):1-7.
 95. Javornik A. 'It's an illusion, but it looks real!' Consumer affective, cognitive and behavioural responses to augmented reality applications. *Journal of Marketing Management*. 2016;32(9-10):987-1011.
 96. Al-Hadrawi BK, Al-zurfi AR. Workplace Spirituality, Self-Empowerment and Efficiency: A Religious Perspective. *Akkad Journal of Contemporary Management Studies*. 2021;1(1):21-31.