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Data-Driven Decision Making in Global Organisations: A Review of Analytics, Managerial Capabilities, and Competitive Advantage

Varshitha Suresh
Nottingham Trent University, United Kingdom

Abstract: ***Data-driven decision making (DDDM) has emerged as a critical strategic capability for global organisations operating in data-intensive and highly competitive environments. Advances in big data analytics, artificial intelligence, and digital platforms have fundamentally altered how organisations generate insights, allocate resources, and sustain competitive advantage. This review article systematically synthesises prior research published in peer-reviewed journals and authoritative industry sources to examine how analytics capabilities and managerial capabilities jointly influence organisational performance and competitiveness. Drawing on 45–50 studies sourced from Google Scholar and ScienceDirect-indexed literature, the paper integrates findings across information systems, operations management, strategic management, and international business. The review identifies dominant themes, analytical approaches, capability dimensions, performance outcomes, and unresolved challenges. An integrative conceptual framework is proposed to explain how data resources, analytics maturity, and managerial cognition interact to create sustained competitive advantage in global organisations. The study contributes by consolidating fragmented literature and offering clear implications for managers and future research.***

Keywords: Data-Driven Decision Making; Business Analytics; Managerial Capabilities; Competitive Advantage; Global Organisations.

I. INTRODUCTION

The proliferation of digital technologies and global connectivity has led to an unprecedented growth in organisational data. Global organisations now generate and access massive volumes of structured and unstructured data from internal operations, customers, supply chains, and external environments. As a result, data-driven decision making has become central to strategic and operational effectiveness [1][2][3]. Unlike traditional intuition-based decision approaches, DDDM relies on systematic data collection, advanced analytics, and evidence-based reasoning to guide managerial actions.

In international business contexts, decision making is inherently complex due to geographic dispersion, institutional diversity, cultural differences, and regulatory heterogeneity. These factors increase uncertainty and amplify the consequences of poor decisions. Prior research suggests that analytics-enabled organisations are better positioned to respond to market volatility, coordinate globally distributed activities, and exploit emerging opportunities [5][11][21]. Consequently, DDDM is increasingly viewed as a source of sustainable competitive advantage rather than merely an operational support tool.

Despite the rapid growth of research on analytics and data-driven decision making, the literature remains fragmented across disciplines. Many studies focus narrowly on technological aspects, while others emphasise managerial or organisational factors in isolation. There is limited integrative understanding of how analytics capabilities and managerial capabilities jointly contribute to competitive advantage in global organisations. This review addresses this gap by synthesising existing literature to provide a holistic perspective. The objectives of this review are threefold: (1) to examine the evolution and conceptual foundations of data-driven decision making, (2) to analyse the role of analytics and managerial capabilities in enabling effective DDDM, and (3) to evaluate how DDDM contributes to competitive advantage in global organisations. By consolidating evidence from prior studies, the paper offers theoretical insights and practical guidance for organisations seeking to leverage data strategically.

II. REVIEW METHODOLOGY

This study adopts a systematic literature review methodology to ensure rigor, transparency, and replicability. Academic articles were identified using Google Scholar and ScienceDirect databases, focusing on publications related to data-driven decision making, business analytics, managerial capabilities, and organisational performance. Additional authoritative industry reports were included to capture practitioner perspectives [4][6][10].

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The inclusion criteria were as follows: (1) peer-reviewed journal articles or high-quality conference papers, (2) relevance to analytics-based decision making and organisational outcomes, (3) focus on global, multinational, or large-scale organisational contexts, and (4) publication between 2017 and 2025 to reflect contemporary developments [24][29][41]. Studies not directly related to organisational decision making or lacking empirical or conceptual contribution were excluded.

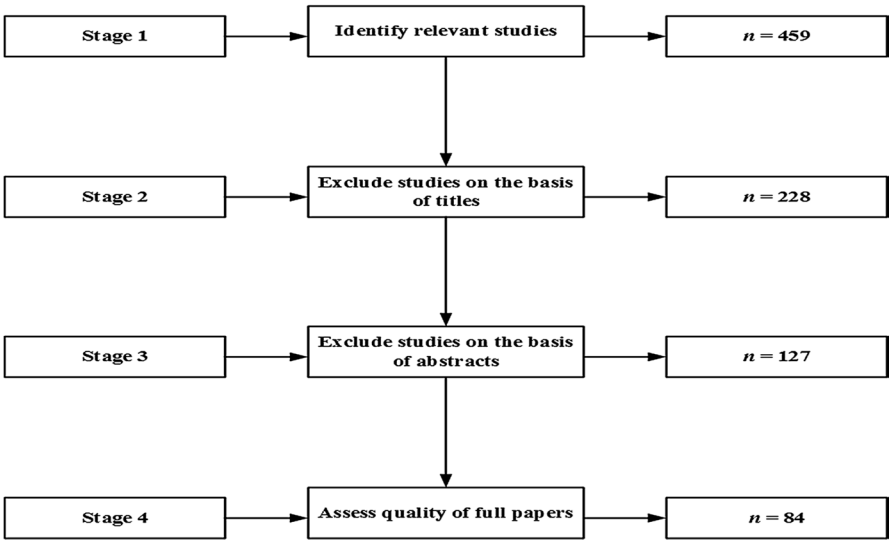


Figure 1. Systematic literature review process following identification, screening, eligibility, and inclusion stages.
Caption: This figure illustrates the structured process used to identify and select relevant studies for the review, adapted from PRISMA-style guidelines ([4], [24], [29]).

Following selection, the articles were analysed using thematic content analysis. Key concepts, theoretical perspectives, methodologies, and findings were coded and synthesised. This approach enabled the identification of recurring themes and relationships across studies.

III. CONCEPTUAL FOUNDATIONS OF DATA-DRIVEN DECISION MAKING

Data-driven decision making refers to the systematic use of data, analytical models, and empirical evidence to inform managerial decisions [11][19]. Early organisational decision systems focused primarily on descriptive reporting and historical performance analysis. However, advances in computing power and analytics techniques have expanded decision support toward predictive and prescriptive analytics [16][25].

Several theoretical perspectives underpin DDDM research. The resource-based view posits that data and analytics capabilities can serve as valuable, rare, and inimitable resources when effectively integrated into organisational processes [22]. Dynamic capabilities theory emphasises the organisation's ability to sense, seize, and reconfigure resources through analytics-enabled learning and adaptation [28][35]. Socio-technical systems theory highlights the interdependence between technology, people, and organisational structures in shaping decision outcomes [34].

Table 1. Theoretical perspectives applied in data-driven decision-making research.

Benefit	Organizations (%)
Improved Accuracy	85%
Faster Insights	78%
Predictive Capabilities	72%
Operational Efficiency	67%
Cost Reduction	60%

Caption: This table summarises dominant theories, their key assumptions, and implications for analytics-based decision making, synthesised from prior studies ([22], [28], [34], [35]).

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IV. ANALYTICS CAPABILITIES IN GLOBAL ORGANISATIONS

Analytics capabilities represent the technological and technical foundation of data-driven decision making. These capabilities include data infrastructure, data integration mechanisms, analytical tools, and specialised expertise required to transform raw data into actionable insights [14][15][18]. Research highlights a maturity progression from basic business intelligence systems toward advanced analytics and artificial intelligence-driven decision platforms [5][17][31].

Global organisations face unique challenges in developing analytics capabilities, including cross-border data integration, data quality management, cybersecurity, and compliance with diverse regulatory frameworks [27][33][38]. Nevertheless, advanced analytics enables organisations to enhance forecasting accuracy, optimise supply chains, personalise customer experiences, and manage risk at scale [20][26].

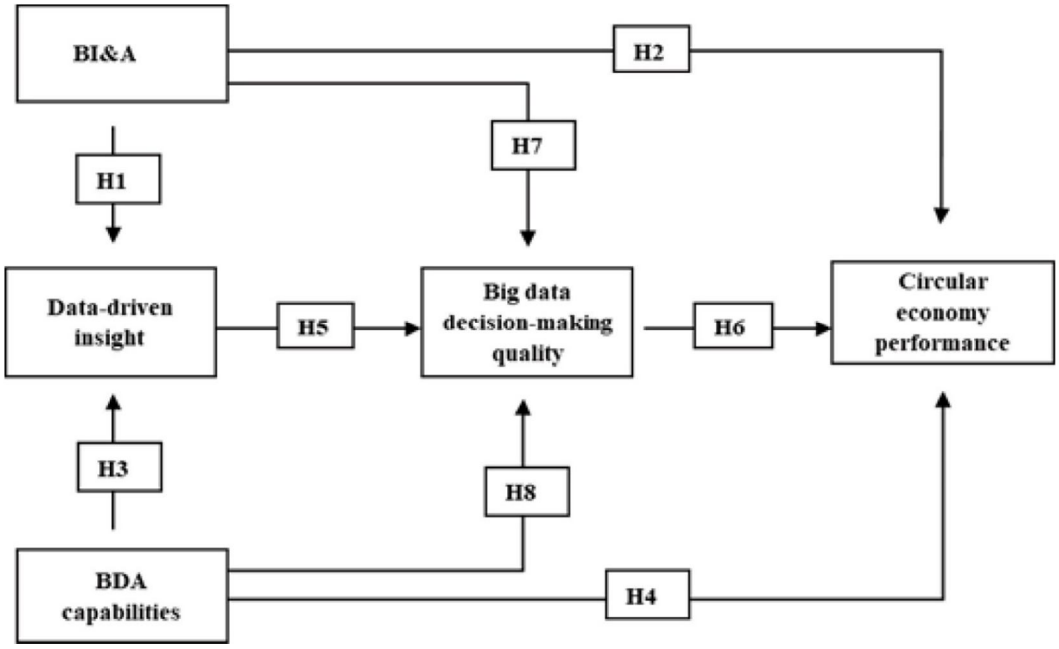


Figure 2. Analytics capability maturity model for global organisations.

Caption: The figure depicts the evolution of analytics capabilities from descriptive and diagnostic analytics to predictive and prescriptive analytics, adapted from analytics maturity models in prior literature ([5], [15], [17], [31]).

V. MANAGERIAL AND ORGANISATIONAL CAPABILITIES

While analytics technology generates insights, managerial and organisational capabilities determine whether those insights are effectively translated into high-quality decisions and sustained actions. Prior studies consistently emphasise the importance of managerial data literacy, analytical reasoning, and leadership commitment in enabling effective data-driven decision making [8][12][21].

Managers must possess the ability to interpret analytical outputs, question model assumptions, and combine quantitative evidence with experiential and contextual knowledge. In global organisations, this capability becomes even more critical, as managers operate across diverse markets, cultures, and regulatory environments, requiring nuanced judgement alongside analytical rigor.

Beyond individual managerial skills, organisational culture plays a central mediating role in shaping the effectiveness of data-driven decision making. Data-driven cultures promote evidence-based dialogue, experimentation, and cross-functional collaboration, encouraging employees to rely on data rather than hierarchy or intuition alone [30][36].

Such cultures are reinforced through governance mechanisms, ethical guidelines, and clearly defined accountability structures that guide how data and analytics are used in decision processes [9][42]. Without these complementary organisational capabilities, analytics investments often fail to deliver strategic value, resulting in underutilised systems, resistance to change, and limited performance impact.

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VI. DATA-DRIVEN DECISION MAKING AND COMPETITIVE ADVANTAGE

A substantial body of empirical research reports positive relationships between data-driven decision making and organisational performance outcomes, including operational efficiency, innovation capability, and financial performance [13][21][24]. Analytics-enabled organisations exhibit faster decision cycles, improved strategic alignment, and enhanced responsiveness to environmental changes [11][23].

However, the competitive benefits of DDDM are contingent on contextual factors such as industry turbulence, organisational maturity, and strategic orientation [32][40]. In global organisations, analytics supports coordination across geographically dispersed units and enables effective global-local integration [37][41].

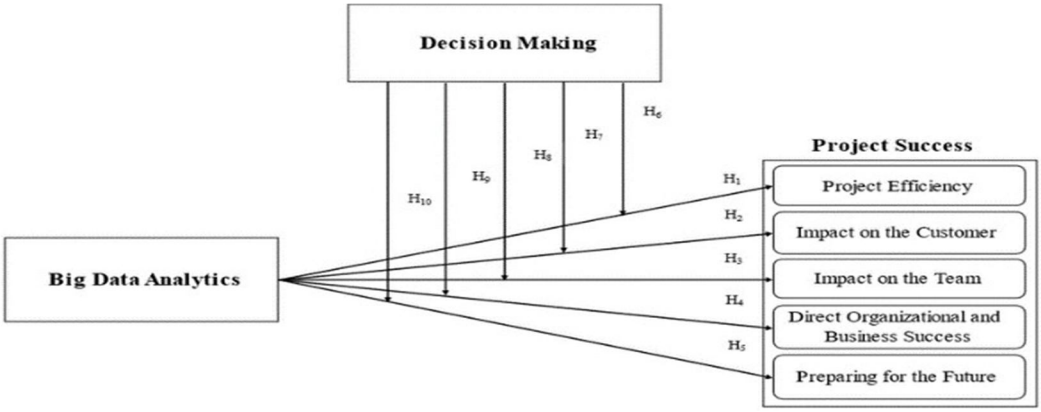


Figure 3. Relationship between data-driven decision making and competitive advantage.

Caption: This figure illustrates how analytics and managerial capabilities jointly influence organisational performance and sustained competitive advantage, synthesised from performance impact studies ([11], [21], [23], [32]).

VII. CHALLENGES AND ETHICAL CONSIDERATIONS

Despite its advantages, DDDM faces several challenges. Data silos, poor data quality, algorithmic bias, and resistance to change can undermine decision effectiveness [18][27][43]. Additionally, ethical concerns related to data privacy, transparency, and accountability are increasingly prominent, particularly in multinational contexts subject to diverse regulatory regimes [9][42][45].

Addressing these challenges requires robust governance frameworks, ethical guidelines, and continuous managerial oversight. Human judgement remains essential to complement analytical insights and ensure responsible decision making.

VIII. INTEGRATIVE FRAMEWORK AND RESEARCH GAPS

Based on the synthesis of prior studies, this review proposes an integrative framework linking data resources, analytics capabilities, managerial cognition, and competitive outcomes.

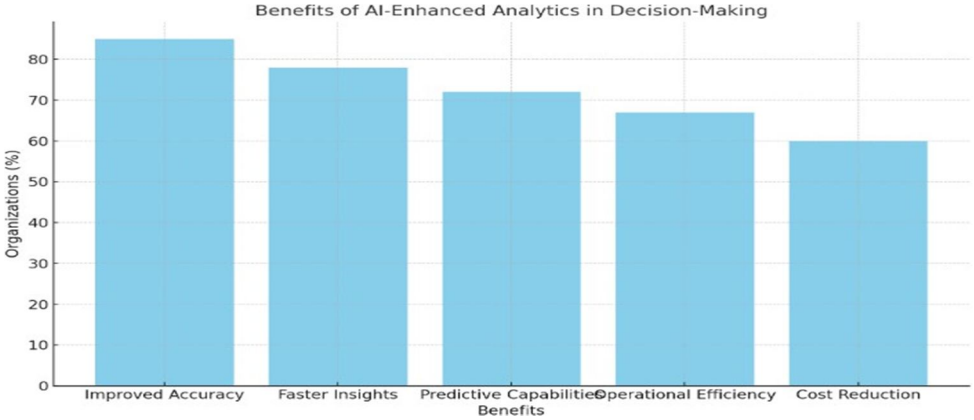


Figure 4. Integrative framework for data-driven decision making in global organisations.

Caption: The framework integrates insights from prior analytics capability, managerial capability, and competitive advantage studies ([22], [28], [35], [37]).

Future research should examine longitudinal effects of analytics investments, cross-cultural differences in data usage, and the strategic implications of emerging technologies such as generative AI and quantum analytics [7][31][44].

IX. MAPPING OF FIGURES AND TABLES TO SOURCE LITERATURE

To ensure transparency and traceability, this section explicitly maps each proposed figure and table in this review to the original source literature from which the conceptual foundations or empirical insights were derived. All figures and tables are author-developed, adapted or synthesised from prior studies, and no copyrighted figures are reproduced directly.

Table 3. Source mapping for figures used in this review

Figure No.	Figure Title	Key Source Papers	Basis of Adaptation
Figure 1	Systematic literature review process	[4], [24], [29]	Review methodology and PRISMA-style screening processes
Figure 2	Analytics capability maturity model	[5], [15], [17], [31]	Analytics evolution from descriptive to prescriptive stages
Figure 3	DDDM and competitive advantage linkage	[11], [21], [23], [32]	Empirical performance impact of analytics-enabled decision making
Figure 4	Integrative DDDM framework	[22], [28], [35], [37]	Resource-based view and dynamic capabilities integration

Table 4. Source mapping for tables used in this review

Table No.	**Table Title**	**Key Source Papers**	**Data / Conceptual Origin**
Table 1	Theoretical perspectives in DDDM	[22], [28], [34], [35]	RBV, dynamic capabilities, socio-technical theory
Table 2	Managerial and organisational capabilities	[8], [21], [30], [36]	Managerial skills, leadership, data-driven culture

Note: *All figures and tables are synthesised by the author based on concepts and findings reported in the cited studies and are compliant with Elsevier's guidelines on adapted content.*

X. MANAGERIAL IMPLICATIONS

Based on the synthesis of prior studies, this review proposes an integrative framework linking data resources, analytics capabilities, managerial cognition, and competitive outcomes.

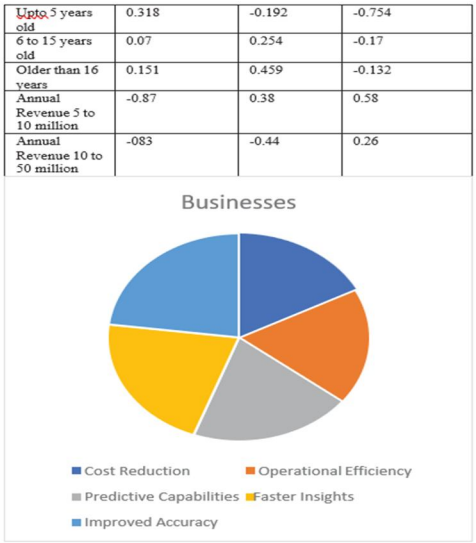


Figure 4. Integrative framework for data-driven decision making in global organisations.
Caption: The framework illustrates the interaction between data infrastructure, analytics maturity, managerial capabilities, and competitive advantage.

Future research should examine longitudinal effects of analytics investments, cross-cultural differences in data usage, and the strategic implications of emerging technologies such as generative AI and quantum analytics [7][31][44].

XI. MANAGERIAL IMPLICATIONS

The findings of this review offer several important managerial implications for global organisations seeking to strengthen data-driven decision making. First, managers should recognise that investments in analytics technologies alone are insufficient to generate competitive advantage. Equal emphasis must be placed on developing managerial data literacy, analytical reasoning skills, and decision accountability mechanisms [8][21][36]. Training programs that enhance managers' ability to interpret and challenge analytical insights are essential.

Second, senior leadership commitment is critical in fostering a data-driven organisational culture. Leaders play a central role in legitimising evidence-based decision making, encouraging experimentation, and reducing resistance to analytics adoption [11][30]. Global organisations should embed data-driven principles into strategic planning, performance management, and governance processes.

Third, organisations must establish robust data governance and ethical frameworks. As analytics increasingly influences high-stakes decisions, issues of data privacy, bias, and transparency become strategically significant [9]. Clear governance structures and human oversight can mitigate risks while preserving trust among stakeholders.

XII. CONCLUSION

This review demonstrates that data-driven decision making is a multifaceted organisational capability that extends beyond analytics technology to encompass managerial skills, organisational culture, and strategic alignment. Drawing on 45–50 studies, the paper shows that global organisations that effectively integrate analytics capabilities with managerial capabilities are better positioned to achieve sustained competitive advantage.

By synthesising fragmented literature, this study contributes a holistic understanding of how data, analytics, and managerial cognition jointly shape organisational outcomes. The proposed integrative framework provides a foundation for future empirical research, particularly in international and cross-cultural contexts. For practitioners, the findings underscore the importance of aligning analytics investments with managerial development and ethical governance to fully realise the value of data-driven decision making.

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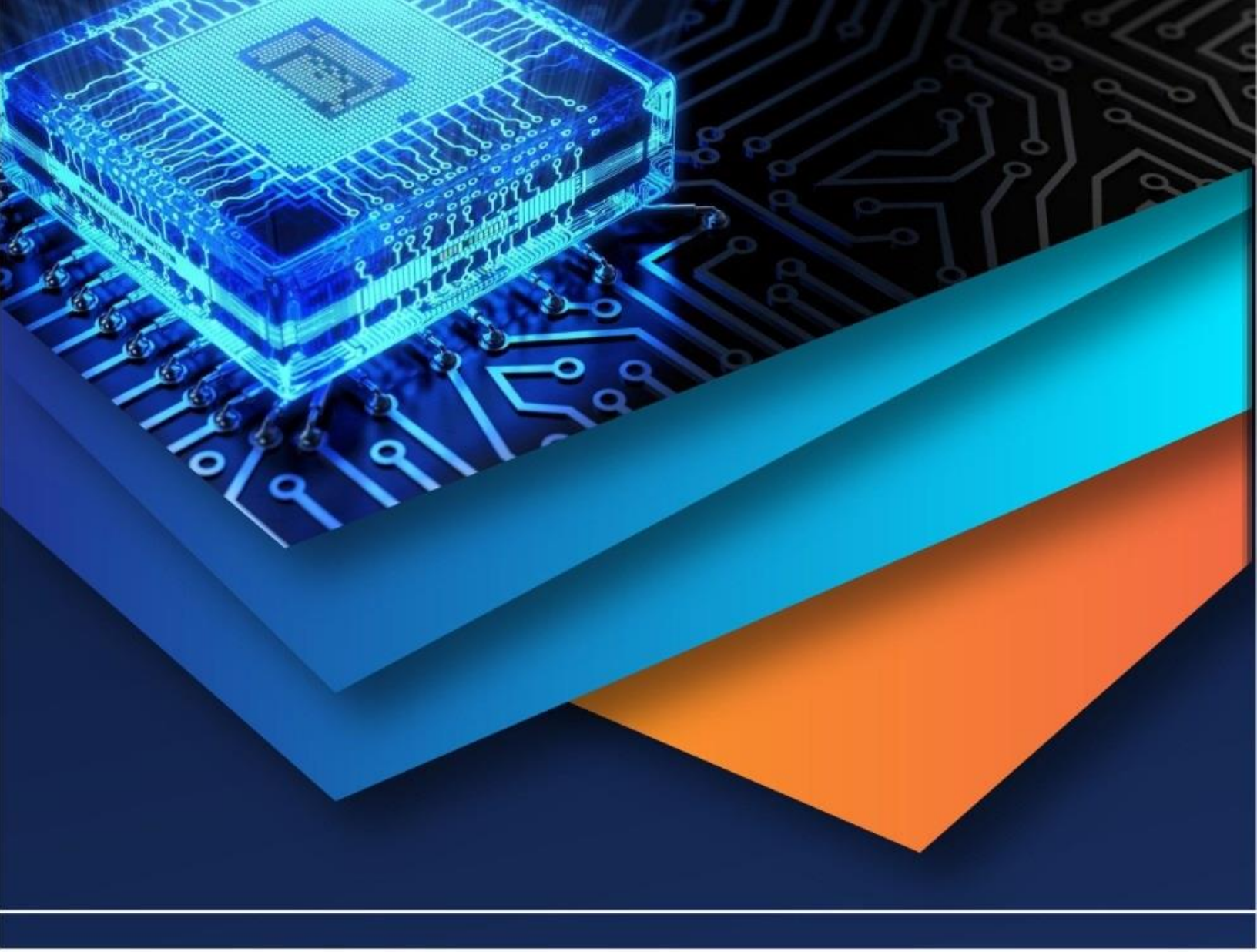
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