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STRATEGIZING IN BUSINESS FORMULATION: INVESTIGATING FACTORS INFLUENCING ARTIFICIAL INTELLIGENCE IN BUSINESS STRATEGIES

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Abstract: A huge advance has been made by Artificial Intelligence (AI) in the digitalized era, particularly in the areas of business strategies. The growing use of AI in the business landscape has been explored by the integration of AI in the strategy formulation of business. AI has accomplished enormous popularity among practitioners and business consultants in the field of digitized business management. AI has remained relatively less explored even though the integration of AI is popular. But, academic researchers have not subjected AI to scrutiny. Thus, the study analyzes the integration of AI in the formulation of business strategies and examines the influencing factor of AI in strategy formulation. Data has been gathered from 321 employees from various metro cities in India by using a convenient sampling technique. By using One-way ANOVA, the integration of AI and the experience level is tested. As per the study, the integration of AI is identified much in "smarter homes" and "increased efficiency". The ANOVA test indicates that there is a considerable difference in the means for numerous reasons as per the experience level. In addition, during the integration of AI, the employees face major challenges like "end-user misalignment", "low AI knowledge", "lack of use-case definition", and "missing appropriate data".

Keywords: AI, Business strategy, AI implementation, Role of AI, Benefits and Challenges.

1. INTRODUCTION

Society and economy inevitably lead to effective changes in the system of organization management in today's digitalized age. Businesses have always been advised to develop a strategy in a competitive world [1]. Thus, numerous organizations have adopted emerging technologies to attain higher performance as well as competitive advantage. AI has held an inevitable position among these technologies in this dynamic evolving landscape. It drives predictive analytics, personalization, and consumer targeting efforts more effectively than ever before. A machine's capability to learn from experience, adjust to new inputs, and also implement human-like tasks is termed the integration of AI [2, 3]. Hence, tremendous opportunities are created by AI usage for the business strategic formulation of organizations [4, 5]. Every strategic and functional dimension of business is covered by the integration of AI. Problems like market development, consumer behavior, product development, information systems, supply chain, and many other business strategies are closely related to AI instruments and outcomes [6, 7, and 8]. AI can help businesses make more informed decisions along with develop organizational performance by analyzing huge data and identifying business patterns as well as trends [9]. In Figure 1, the diagrammatic representation of the integration of AI in business strategy is revealed.

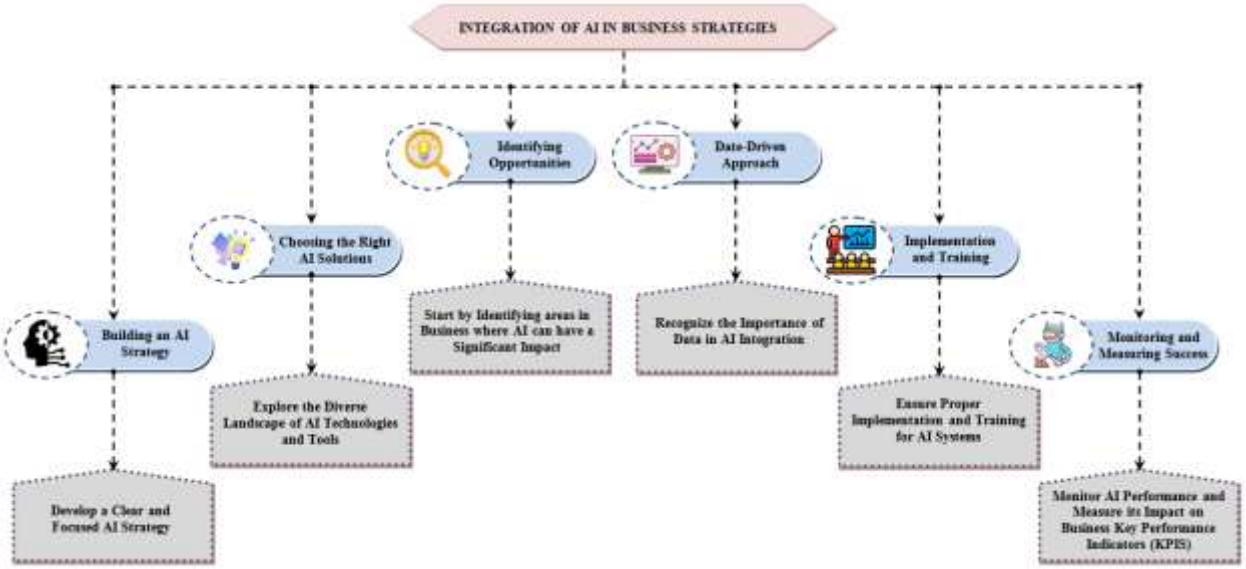

Figure 1: ai integration strategies

Hence, one of the most massive modifications is the use of the integration of AI to improve business strategies and operational efficiencies as well as effectiveness by autonomous algorithms or else networks. AI is tedious to deploy technically despite the potential advantages for businesses [10]. Organizations faced various challenges in the formulation of strategies for effective organizational performance in the recent decades of the digitized world. While some studies have addressed the factors influencing AI in business strategies, there remains a noticeable gap in research concerning the integration of AI into business strategy formulation. The business strategies in the digital era have been understood only by limited studies. Thus, this research investigates the integration of AI in business strategy formulation and business growth to fulfill this research gap. The main objective of this paper is twofold:

(i) To scrutinize the factors influencing as well as level of experience in AI integration in effective business strategies.

(ii) To explore the barriers and challenges in the implementation of AI in strategy formulation of business.

The remaining part is structured as: the article begins with a brief review of the literature on the integration of AI in business strategy in section 2; in section 3, the methodology characteristics, sample selection, and analysis are explained; in section 4, results are described; in Section 5, the research article ends with overall findings and offers insights and recommendations for future research.

2. RELATED LITERATURE REVIEW

Sulaiman Abdallah Alsheibani *et al.* [11] envisioned to evaluate the strategic management of AI and also explored the challenges faced by business leaders with the implementation of AI. Data was gathered from several sources within the application of AI. Then, through content analysis, the collected data has been analyzed. As per the outcome, the innovation strategy of AI develops the organizational competencies to enable them to rethink their current innovation strategy of AI. However, with the implementation of AI, there was a limited focus on identifying the strategic and business leader challenges.

Gonesh Chandra Saha *et al.* [12] intended to discover AI effectiveness in business strategy and decision-making processes. Data was considered from the AI implementation and adoption sourced reports. Via correlation analysis, the relationship between the variables was analyzed. As per the result, effectiveness, efficiency, and innovation were enhanced as the decision-making processes and business strategies were revolutionized by AI. But, in this study, the challenges associated with data privacy, ethical considerations, along with the necessity for human oversight were limited.

Filip Drmac [13] examined the organizational and managerial barriers with the association of AI and explored some of the challenges faced throughout various phases of the implementation process. By using a thematic analysis, the study data was gathered based on 17 interviews. The study findings depicted that there were a total of four barriers from the AI phases of pre-implementation, implementation, and post-implementation, such as low acknowledgment, end-user misalignment, use-case definition, and missing appropriate data. However, there were a few limitations occurred in this study; the study was based on a qualitative study, which was prone to inconsistencies or a lack of coherence, and the study collected limited data in various industries based on time and resource constraints.

Theresa Eriksson *et al.* [14] recognized the AI role in the formulation of marketing strategy. A study sample was gathered from a total of 13 experts who were working with AI tools in Italy centered on exploratory in-depth interviews. Moreover, via qualitative research-based methods, the collected samples were analyzed. Ultimately, the key themes of “role of AI in strategic decision management”, “impact of AI on the business’ organizational model”, “presence of AI in strategic decision management”, “the importance of business culture for

the use of AI", as well as "the importance of AI in strategic marketing decision management" depicted that AI usage was not only rational but also for creative thinking purposes.

Kwabena Abrokwah-Larbi and Yaw Awuku-Larbi [15] aimed at the efficacy of AI in marketing business organizations' performance. From SMEs in the Eastern region of Ghana, a questionnaire sample of data was taken from a target population of 225 respondents. As per the outcome, the AIM has a considerable effect on the internal business performance, customer performance, financial performance, and learning as well as growth performance in SMEs. Yet, the sample of the study was very small and the study was also limited to the geographical context of Ghana, thereby limiting the generalizability of the findings to other regions.

Stevany Edilia and Novia Diah Larasati [16] analyzed innovative methods in strategies of business development via the technology of AI. A sample of a study was generated based on a multifaceted research methodology of quantitative and qualitative research design. As per the outcome, several existing operations were developed by the integration of AI into the business strategy. Furthermore, AI integration developed the catalyst for sophisticated data analytics that improve decision-making processes and personalized customer experiences. But, the social and ethical impacts of AI implementation in business were not completely addressed by the study.

Mariana Catarino Resio [17] analyzed the use of AI in strategic business management in the case of auditing. From the Portuguese companies, a total of 135 employees were selected. The result of the study was analyzed by utilizing statistical methodology. Even though the respective companies seem to be reluctant to take AI, the employees seem to be auspicious with the implementation of AI. Nevertheless, in terms of the target population, the small size of the sample turned out to be a little diversified. The study was conducted in the Portuguese market, but it wasn't praised for extrapolating the data into a global analysis.

3. RESEARCH METHODOLOGY

This study examined the integration of AI in business strategy formulation. The influencing factor of AI in effective business strategies and their experience level was analyzed. Moreover, the study investigates the barriers and challenges in AI implementation in the strategy formulation of business. For the research evaluation, a quantitative descriptive method technique has been designed due to the study's nature. For the study, the primary and secondary sources of data have been gathered. Grounded on well-structured questionnaires, primary data has been collected through in-depth personal interviews. From several articles, journals, magazines, newspapers, books, etc, data's secondary sources have been taken. For addressing the objectives, the survey or else questionnaire design is structured. A questionnaire was adapted, and it consists of several rating scales. To ensure the respondents read the research instrument carefully to respond, both the adverse questions and constructive questions were included in the research instrument.

3.1. Data collection and sample size

By surveying about 370 employees who have knowledge about the integration of AI from various organizations in different metro cities of Chennai, Bangalore, and Hyderabad in India, data was gathered. A total of 321 student surveys were filled and returned in the process of data collection. The missing values and the outliers were removed after evaluating the collected data; in addition, valid responses were considered for satisfactory research. The questionnaires, which were sent via E-mail, were designed to collect the relevant data, and an open-ended questionnaire lasted about approximately 45 to 60 minutes. The questionnaire is designed in English. During the period of 3 months from November 2023 to January 2024, the survey was conducted.

3.2. Data Analysis

A convenient sampling methodology, which is a part of the sampling procedure that depicts total population's unbiased representation, was adopted by the study to gather information from individuals. A questionnaire is designed on how AI makes effective business development and organizations' performance grounded on the determination of the influencing factor of AI in business strategies. By using the 5-point Likert scale, the questionnaire was prepared. Besides, for the evaluation, the descriptive statistics tools have been implemented. Statistical tests are wielded for testing the significance of the variables in addition to the descriptive statistics like mean and standard deviation. The significance of the variables has been tested by using One-way ANOVA.

3.3. Demographic profile of the respondents

This study was conducted aiming at the target population over 18 years old, which includes both male and female employees from various organizations in metro cities in India. Most of the employees were male out of 321 respondents. Hence, the obtained percentage of male and female employees were 62% and 38%, respectively. The majority of the respondents were Bachelor's degree holders (68%) followed by Master's degree holders (25%), and others (7%). In the integration of AI strategies, the employees have different income levels with different working experiences.

4. RESULT AND DISCUSSION

The attained outcomes are explained elaborately in this section. The variables' descriptive statistics were analyzed. Moreover, to find out the significant differences among the variables, the one-way ANOVA and Chi-square tests have been used. Also, the barriers and challenges in the integration of AI were examined by descriptive statistics.

4.1. Factors influencing AI in business strategy formulation

Owing to the impact created by AI in business and society, AI adoption in business organizations is getting more popular. In Table 1(a) [18], some of the influencing factors of AI in strategy formulation are shown.

table 1(a): AI influencing factor in business strategy

Variables	Mean (M)	Standard deviation (SD)	Mean rank	
Smarter homes	3.21	1.333	5.99	I
Increased Efficiency	3.24	1.481	5.81	II
Voice assistants	3.48	1.385	5.63	III
Personalized Experiences	3.20	1.344	5.54	IV
Job Displacement	3.39	1.359	5.47	V
Fraud detection	3.28	1.367	5.16	VI
Improved language translation	3.37	1.392	5.13	VII

From the above table, it was found that the integration of AI was recognized as higher in "smarter homes" (5.99), followed by the variables of "Increased Efficiency" (5.81) and "Voice assistants" (5.63); whereas, the lowest mean rank value of 5.13 was attained by the "improved language translation". In Figure 2, the graphical representation of the M and SD values of selected variables is shown.

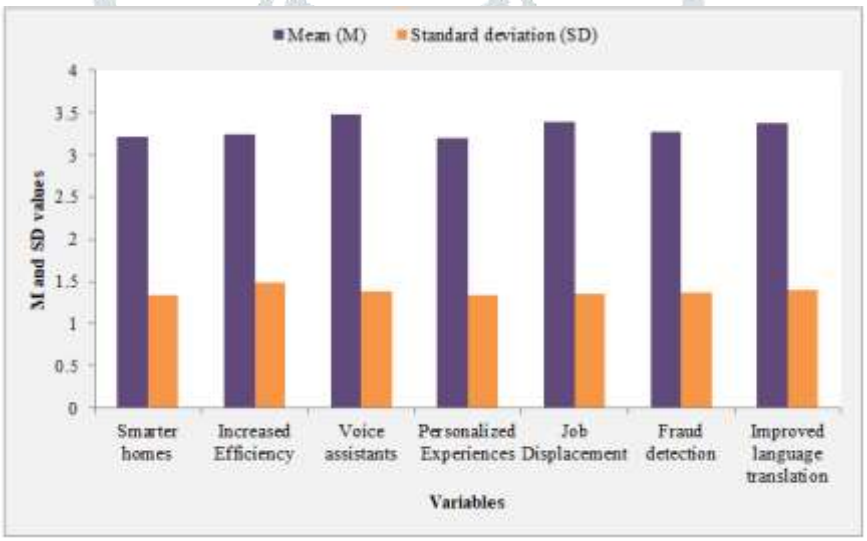

figure 2: graphical representation of M and SD values

Table 1(b) depicts the the significance of integration of the influencing factor of AI that was analyzed with Kendall's coefficient.

table 1(b): Kendall's coefficient

N	321
Kendall's W	0.007
Chi-Square	6.023
df	16
Asymp. Sig.	0.667

The finding of Kendall's W-test depicts that the estimated value of Chi-square (6.023) for the degree of freedom (df) (16) is detected to be insignificant (p-0.667). Nevertheless, when analogized to other areas, the "Smart homes" are found to be higher, whilst the difference in the mean rank across different variables is not significantly varied.

4.2. Experience level of AI

The ability to automate tasks and processes, leading to emerging efficiency as well as productivity is the primary benefit of AI in business strategies. In Table 2, the experience and role of AI in business strategy analysis are shown.

table 2: anova test

Reasons	Experience level	N	M	SD	F	Sig.
Enhanced customer experience	Low	61	2.63	1.09	0.267	0.975
	Moderate	161	2.68	1.06		
	High	100	2.57	1.12		
Increased Innovation	Low	61	2.45	1.21	0.293	0.744
	Moderate	161	2.97	1.24		
	High	100	2.66	1.26		
Data-driven strategy formulation and decision-making	Low	61	2.36	1.83	0.403	0.683
	Moderate	161	2.69	1.23		
	High	100	2.55	1.04		
Automation of Repetitive Tasks	Low	61	2.36	1.17	0556	0.613
	Moderate	161	2.53	1.16		
	High	100	2.60	1.17		

When compared to all the reasons of variables the highest experience of 2.66 was attained by the variable of "Increased Innovation", followed by "Data-driven strategy formulation and decision making", (2.69), and "Automation of Repetitive Tasks" (2.36). As per the experience level of the respondents, the f-value from the ANOVA test indicates that there is a considerable difference in the means for several reasons.

4.3. Barriers and Challenges in the Integration of AI

Several barriers and challenges were faced by employees in business strategy formulation during the integration of AI. The "end-user misalignment", "low AI knowledge", "lack of use-case definition", and "missing appropriate data" are the four major barriers to the integration of AI [13]. The major challenges and barriers to the integration of AI are analyzed in Table 3.

table 3: barriers and challenges

Barriers and Challenges	Percentage (%)
End-user misalignment	
Not-optimized correct model	67%
Does not follow new routines	56%
Low AI knowledge	
Inefficient training	88%
Low understanding of results	75%

Lack of use-case definition	
Processes not accessed	55%
Instead of a solution focused on technology	47%
Missing appropriate data	
Low data quality	69%
Low data availability	53%

As per the findings, 88% of employees faced "inefficient training" in the integration of AI. "Low understanding of results", "Low data quality", and "Instead of solution focused on technology" acquired 75%, 69%, and 47%, respectively.

5. CONCLUSION

The integration of AI in business strategy formulation has been explored by this study; in addition, identified the barriers and challenges faced by employees during the integration of AI. Study data has been collected and analyzed by applying the convenience sampling technique. Next, a One-way ANOVA has been applied to find out the significance of the variables. As per the study, the highest mean rank values of 5.99 and 5.81 were attained by the influencing factors of "smarter homes" and "increased efficiency", respectively. Further, according to the ANOVA test, there was a significant difference in the means for various reasons. Moreover, during the integration of AI in business strategy formulation, the employees highly faced "inefficient training" (88%) and "Low understanding of results" (75%). Hence, it depicted that the integration variables of AI are positively and significantly associated with business achievements and organizational performance. But, in metro cities with limited influencing variables, the study was limited to geographical contexts. Moreover, the barriers to pre-integration and post-integration of AI were not included. In the future, research will gather a greater number of samples from diverse cities in India and will also incorporate additional variables that could engage employees in formulating effective strategies to foster organizational performance growth.

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