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Automating Critical Thinking in Commercial Banking: AI-Augmented Consultancy for Sustainable Business Practices in First Bank Branches, Ibadan

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Abstract

Artificial Intelligence with human knowledge enhances consultancy in creating valid and balanced decision, since AI handles data crunching, patterns and humans bring content, ethics and experience. Analysis ensures context aware advice for financial resilience. This facilitates the possibility of data quality checks, algorithm auditing, human oversight, diverse perspectives and transparency to stop early warning signs before becoming crises. The purpose of the study is to examine automation for critical thinking and consultancy services to mitigate biasness in decision making process.The research method was survey using likers scale statements for quantitative analysis. Transformed data was used for Pearson Correlation and multiple regression analysis. The result revealed that automation significantly shift accountant's consultancy roles in commercial banks (R^2= 0.779, adjusted R^2 = 0.776 and the overall model was statistically significant (F = 324.5, P<0.001). AI with human judgment significantly improve financial risk assessment (R^2 = 0.657 and was statistically significant (F= 24.0, P<0.001). Automation related training significantly improves technical skills (R^2 = 0.674). Automation can significantly shift accountant roles and AI-driven insight with human analysis can give better risk assessment and decision making. Accounting firms and organizations should invest in advanced technological tools that support data analytics, automation, and AI-driven decision-making. Continuous professional training programs should be implemented to enhance accountants' technical, analytical, and strategic skills. AI systems used for financial decision-making should be designed to complement, rather than replace, human judgment. Professional accounting bodies should update curricula and certification requirements to reflect emerging technological competencies.

Keyword: Analysis, Automation, AI, Consultancy, Critical Thinking

I. Introduction

Critical thinking plays a vital role in identifying and mitigating biases, critical thinkers challenge underlying premises by helping uncover biases. Critical thinkers consider multiple perspectives and create evaluating reasoning that can help to spot flawed patterns that can lead to bias. Critical thinkers awareness of biases will aid in confirmation of bias by accessing data quality and strive to migrate bias interpretations (Tilak, Prashant, Rashini and Meenaks; 2022). Critical thinking strives for balance view points, asking question like, what data supports this. Or what's missing? They consider the impact of their decision on divers group (Ron, 2023). They breakdown components and draw a logical conclusions, judging credibility, assurance and act responsibility. Critical thinkers in banks are risk management, administrators, the innovators and technicians (Domillelo, 2024). Financial consultancy services play a vital role in helping organization mitigate biases that can impact decision making. This will improve efficiency, accuracy and costumer experience. Consultant brings specialized knowledge in identifying and addressing biases in financial process and decision. Financial consultant act as coaches helping bank customers recognize and manage psychological biases affecting their finances (Nadine Marcel, Valerio and Michael, 2024). Being objective, consultants employ data-driven approach that helps customers avoid falling prey to biases. Consultants help financial institution manage risk, meet regulations and build resilient finance functions.

The application of automation in financial consultant is important although the end costumer prefer combination of human and automated consult (Nadine, Marcel, Valerio & Michael, 2024). Robotic process automation streamlines repetitive tasks like data entry, compliance checks and report generation, freeing up consultant for strategic activities (Grant 2024). AI helps analyze vast financial data set for insight, for casting and risk assessments. Chat box and virtual assistants provide everyday

customer support, handling inquiries and basic transactions. Consultants benefit from automation and AI to monitor transactions in real-time to identify suspicious patterns and to prevent fraud (Chris,2024). Automation systems help ensure adherence to evolving financial regulations, simplifying monitoring and reporting (Halima and Manu, 2025). Consultancy balances technology with human touch for customer satisfaction. Professional officers manage business in banks and risk management specialist is consultants. AI-driven financial tools are autonomous account payable work flow with deep learning Zenskar, Tipalti and Monarch. Robo advisor and investment tools are betterment, wealth print and labs (Vadim, 2025). Compliance and risk management are mind bridge and blue dot. The financial consultants can up-skill for effective use of automation tools through several strategies which include: Upgrade financial systems to modern integrated technologies that support automation. Consultants identify repetitive tasks like data entry, invoicing and reconciliations for automation. Consultants understand how AI enhances fraud detection, risk management, and predictive analysis in finance (Sanya, 2025) and learn robotic process automation for rule based tasks like accounts payable, receivable and report generation (Shamboul, 2022). This will ensure data quality in effective automation and work with technology providers who specialize in financial automation. Areas for up-skilling are financial process automation, AI in financial process automation, AI in finance, low-code or no-code platforms and data analytics and insights (Bill, 2025). Bias in automation within a country can be data bias, algorithm bias, selection bias, confirmation bias and outcome bias. This can be reflected in credit scoring, fraud detection, financial forecasting and in auditing processes in accounting. This has negative consequences on the organization and therefore, mitigating strategies are the bank customers. Striving for representative data and testing for bias to understand AI decision paths, critical thinkers reviewing automated outcomes and checking for emergent biases. Technologies for mitigating bias include fairness-aware algorithm bias audit tools and AI practices by using a built-in solution in tackling AI bias proactively.

However, there are many empirical works on the subject. Gustafson and Jerkier (2021) researched on automation in accounting. The result showed that automated accounting may have impact as both the accounts practices and their professional roles. Also, RKeiu, Issa, Awada and Hejase (2020) worked on automation of the accounting profession as it affects employability. Findings revealed that respondents were aware of the fact that specific accountings jobs will disappear although new jobs may substitute then that necessitate skills such as critical thinking and consultancy. Gap was to generalize the needs for critical thinking and consultancy in digital world. Therefore, this study sought to examine automation for critical thinking and consultants in commercial banks. Since, automation technologies like AI, machine learning and robotic process are pivotal in helping banks achieve sustainable development goals in green finance, environmental, social and governance reporting, risk management and financial inclusion. The aim of the study is to examine automation for critical thinking and consultancy services to mitigate biasness in commercial banks. The aim was achieved based on the following objectives to:

i Mention automation skill sets required for accountants consultancy roles
ii State ways the integration of AI-driven insights with human judgment impact financial risk assessment and strategic decision making in financial sector.
iii Explain how automation training improve accountant technical skills in financial sector.

Research questions are:

i. How does automation change the skills sets required for accountants in consultancy role?
ii. How does the integration of AI-driven insights with human judgment impact financial risk assessment and strategic decision making in financial sector?
iii. Can training improve accountants' technical skills?

Research hypothesis are:

Ho Automation does not significantly shift accountants consultancy roles in commercial banks to mitigate biasness in decision making processes.

Ho AI-driven insight with human judgment cannot give better risk assessment and decision making in financial data interpretation.

Ho Accountants who undergo automation related training will not experience a significant improvement in their technical skills.

II. Methods

The research design provides answers to technique used for the data collection and analysis tools. The research method was survey using liker scale statements for quantitative analysis after data transformation. The study investigated automation for critical thinking and consultancy to mitigate biasness in commercial banks. Although all the staff of the First Bank PLC were eligible to fill the questionnaire, the sample size was determined using Taro Yamane formula which was 390 staff of the institution. Questionnaire was randomly distributed to the staff of the First Bank Nigeria PLC. The validity of the questionnaire was based on the content and construct validity to confirm complete and relevant information received from the respondents. In order to measure the reliability of the questionnaire, the information collected from the respondents was subjected to test-retest reliability assessment. The data collected was analyzed by using regression analysis by using SPSS version 25. The population of the study was 16000 staff of First Bank Ibadan. Eligible staff are department heads, IT professionals, customer service representatives, risk management and compliance officers in the institution. The sample size was determined by using Taro Yamane formulae

$$n = \frac{N}{1+N\,(e)^2}$$

where n = Sample size
N = Population size
e = Margin error (0.05)
if N = 16000
n = 390 sample size.

The sampling technique adopted for the study were survey sampling technique and simple random sampling to administer the questionnaire among the staff of the First Bank Nigeria PLC Ibadan. The data collection instrument are questionnaire and personal interview. To know the validity of the instrument used for the study, content validity and construct validity were carried out. The validity of questionnaire was based on the content and construct validity to ensure that the information received from the respondents cover all relevant areas in the objective of the study. In order to establish the validity of the instrument, SPSS was used concurrently on the responses from the questionnaire and comparison was made thereafter to determine the quality and accuracy of the instrument. Reliability has to do with consistency of the instrument. To test the consistency, test-retest reliability was carried out. There was pilot survey a month before main administration of the questionnaire. It was found out that information contained in the first set of questionnaire did not vary considerably with the information contained in the second set of questionnaire administration. To have a valid reliable data, the researcher ensured that questionnaire were clearly formulated which allowed error minimization.

The questionnaire used was capable of conveying information for the study adequately. The questionnaire was divided into two sections. The section A was on demographic data of the respondents and the section B was to answer the research questions. The sample size was 390 by using Taro Yamane's formula but only 374 questionnaires was collected back for analysis. In the descriptive statistics mean, median and mode for central tendency, standard deviation for dispersion was calculated. Also frequency distribution by counting of respondents per liker scale point (1-5): 1-5 strongly agree 2- Disagree 3- Neutral, 4- Agree and 5- strongly Agree. For hypothesis one, regression analysis and conceptual modeling was used to analyze the data. Critical thinking as dependent variable (Y) and New technical skills, financial data analysis, strategic advisory services and analytical thinking as variable x (x_1,x_2, x_3,and x_4). For hypothesis two, correlation analysis was used for AI, human and AI plus human judgment. Regression model predicts risk accuracy based on AI/ human inputs. The

dependent variable (Y) is financial risk assessment accuracy. Independent variable (X) are AI recommendation, human judgment and AI with human judgment input (x_1, x_2 and x_3) respectively. For hypothesis three, paired t-test and Wilcoxon sign rank correlation analysis was used to measure the effectiveness of automation related training in improving accounting technical skills by using SPSS version 25. Dependent variable (Y) is comparison of mean score of technical skills before and after training. Independent variables (X) are improved understanding of the technical skills, confidence and applications using SPSS version 25. The mean scores and standard deviations were calculated and determine significance level which is p-value to conclude the training effectiveness.

III. Result

This subsection presents the descriptive statistics for the variables used to test the three hypotheses.

A. Hypothesis One Variables

Table 1: Automation roles in shifting accountants focus

	Observation	Frequencies				
		SD	D	N	A	SA
i.	Critical thinking (y)	83	-	16	217	58
ii.	New technical skills (x_1)	52	31	18	201	72
iii.	Financial Data Analysis (x_2)	79	-	22	174	99
iv.	Strategic advisory services (x_3)	-	95	4	158	117
v.	Analytical thinking (x_4)	-	99	-	129	146

Hypothesis One examined whether automation and advanced technologies shift accountants' focus toward higher-order skills, particularly critical thinking. The mean score for critical thinking was 3.48, indicating a moderately high level of agreement that automation enhances accountants' critical thinking capabilities. The independent variables—use of new technologies (mean = 3.57), financial data analytics (mean = 3.55), strategic tasks (mean = 3.72), and analytical skills (mean = 3.82)—all recorded mean values above the neutral midpoint, suggesting that respondents generally perceive automation as promoting advanced professional competencies.

B. Hypothesis Two Variables

Table 2: AI, Human Judgement & Risk Assessment

S/N	Observation	Frequencies				
		SD	D	N	A	SA
i.	Financial Risk Assessment (y)	5	4	6	17	17
ii.	AI recommendations (x_1)	-	12	1	36	-
iii.	AI identify risk faster (x_2)	8	12	-	-	29
iv.	Human judgement reliable (x_3)	-	15	11	23	-
v.	AI with Human judgement (x_4)	9	6	-	34	-

Hypothesis Two focused on the role of AI, particularly when combined with human judgment, in improving financial risk assessment. The mean score for financial risk assessment was 3.61, reflecting a positive perception of AI-supported decision-making. AI-based recommendations (mean = 3.45), speed of AI processing (mean = 3.59), reliance on human expertise (mean = 3.12), and AI–human collaboration (mean = 3.27) all showed moderate agreement, indicating balanced views on the integration of AI and human judgment.

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C. Hypothesis Three Variables

Table 3: Effective Automation Related Training

S/N	Observation	Frequencies				
		SD	D	N	A	SA
i.(a)	Technical skill before? (y)	-	105	100	39	130
i.(b)	Technical skill now (y)	31	77	-	96	170
ii.	Improved Understanding (x_1)	59	46	-	269	-
iii.	Confidence (x_2)	-	104	-	60	210
iv.	Application (x_3)	44	61	-	189	80

Hypothesis Three assessed the effect of training on improving technical skills. The mean technical skill level before training was 3.46, which increased to 3.72 after training, indicating a noticeable improvement. Variables measuring improved understanding, confidence, and application of skills also recorded relatively high mean scores, suggesting that training programs positively influence technical competence.

D. Testing of Hypotheses

Hypothesis One

Research Question: Does automation shift accountants' focus toward higher-order skills such as critical thinking?

Null Hypothesis (H0): Automation has no significant effect on accountants' critical thinking skills.

Pearson correlation analysis revealed strong positive relationships between critical thinking and all explanatory variables: new technologies ($r = 0.80$), financial data analytics ($r = 0.82$), strategic tasks ($r = 0.74$), and analytical skills ($r = 0.78$). These results indicate that increased exposure to automation-related tools is associated with higher levels of critical thinking among accountants. Multiple linear regression analysis further supported this finding. The model explained approximately 77.9% of the variation in critical thinking ($R^2 = 0.779$; adjusted $R^2 = 0.776$). The overall model was statistically significant ($F = 324.5$, $p < 0.001$). All predictors were significant, with financial data analytics and new technologies exerting the strongest effects. Based on these results, the null hypothesis is rejected.

Hypothesis Two

Research Question: Does the combination of AI and human judgment improve financial risk assessment?

Null Hypothesis (H0): AI and human judgment do not significantly improve financial risk assessment.

Correlation results showed that financial risk assessment was strongly associated with AI-based recommendations ($r = 0.75$), AI processing speed ($r = 0.72$), and AI–human collaboration ($r = 0.77$), while reliance on human expertise alone showed a moderate association ($r = 0.57$).

The regression model explained 68.6% of the variance in financial risk assessment (adjusted $R^2 = 0.657$) and was statistically significant ($F = 24.0$, $p < 0.001$). AI-based recommendations and AI–human collaboration were significant predictors, while processing speed was marginally significant. These findings indicate that AI is most effective when complemented by human judgment. Consequently, the null hypothesis is rejected.

Hypothesis Three

Research Question: Does training significantly improve technical skills among accounting professionals?

Null Hypothesis (H0): Training does not significantly improve technical skills.

A paired sample t-test revealed a statistically significant increase in technical skills after training ($t = 4.97$, $p < 0.001$), with a mean improvement of 0.26. The Wilcoxon signed-rank test confirmed this

result ($p < 0.001$), indicating robustness to distributional assumptions. Correlation analysis showed strong positive relationships between post-training technical skills and improved understanding ($r = 0.74$), confidence ($r = 0.77$), and application of skills ($r = 0.76$). Regression analysis indicated that these factors jointly explained 67.7% of the variance in post-training technical skills (adjusted $R^2 = 0.674$), with all predictors being statistically significant. The null hypothesis is therefore rejected. The findings demonstrate that automation and AI are reshaping the accounting profession by shifting emphasis from routine tasks to higher-order cognitive skills such as critical thinking and strategic analysis. The strong influence of data analytics and advanced technologies suggests that accountants increasingly operate as strategic advisors rather than mere record keepers. The results also show that AI significantly enhances financial risk assessment when used in conjunction with human judgment. Rather than replacing professionals, AI serves as a decision-support tool that improves accuracy and efficiency. The study confirms that training plays a critical role in improving technical skills. Structured training programs enhance understanding, confidence, and practical application, thereby equipping accountants to adapt effectively to technological change. The findings revealed that automation significantly shifts accountants' focus toward higher-order skills, particularly critical thinking, strategic analysis, and advanced data analytics.

The study also established that AI enhances financial risk assessment most effectively when integrated with human judgment. Furthermore, empirical evidence confirmed that training programs significantly improve technical skills, leading to higher confidence, better understanding, and improved application of knowledge. The study concludes that technological advancement is fundamentally transforming the accounting profession. Automation and AI do not diminish the relevance of accountants; rather, they elevate the profession by enabling practitioners to focus on value-added, analytical, and strategic roles. However, the effectiveness of these technologies depends heavily on complementary human expertise and adequate training. Without appropriate training and organizational support, the benefits of automation and AI may not be fully realized. Therefore, the successful integration of technology in accounting requires a balanced approach that combines technological innovation with continuous human capacity development. Based on the findings of this study, the following recommendations are made:

1. Accounting firms and organizations should invest in advanced technological tools that support data analytics, automation, and AI-driven decision-making.
2. Continuous professional training programs should be implemented to enhance accountants' technical, analytical, and strategic skills.
3. AI systems used for financial decision-making should be designed to complement, rather than replace, human judgment.
4. Professional accounting bodies should update curricula and certification requirements to reflect emerging technological competencies.

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