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Unveiling SBI and ICICI Bankers' Proficiency in Harnessing Big Data Analytics Technology

Prof. I. Anand Pawar¹, Ravi Kiran Dharam Soth²

Dean, Faculty of Commerce & Business Management, Dr. B.R. Ambedkar Open University, Hyderabad, (TS), India

Ph.D. Research Scholar, Department of Business Management, Dr. B.R. Ambedkar Open University, Hyderabad, (TS), India

ABSTRACT: This paper delves into the transformative role of Big Data Analytics (BDA) in the banking sector, focusing on its impact on the bank staff's efficiency. The study presents comprehensive frameworks tailored to enhance BDA proficiency among bank staff to elevate customer satisfaction. The study aimed to assess the awareness and understanding levels of BDA technology and to analyze its perceived merits and demerits of the bank staff associated with SBI and ICICI banks in Hyderabad city. The study considered a structured questionnaire distributed among 418 bank staff of SBI and ICICI banks constituting 20 questions each by using tools like, mean, standard deviation, coefficient of variation, ranking method, and one-way ANOVA. Through exploration of these, the paper aims to provide actionable insights for banks seeking to leverage BDA effectively, fostering innovation, efficiency, and customer satisfaction in an increasingly data-driven banking landscape. The findings suggest that there exist no statistically significant differences among various demographic factors of the bank staff.

KEYWORDS: Big Data Analytics, Awareness and understanding of Technology, Banking sector, Data-driven Decision-making.

I. INTRODUCTION

In the dynamic world of contemporary banking, integrating cutting-edge technologies is essential for organizations hoping to stay ahead of the competition and adapt to changing customer needs. Big Data Analytics (BDA) is one of these technological innovations that has become a major player, giving banks the unmatched ability to extract priceless insights from large and complicated datasets. Fundamentally, BDA entails using advanced analytical techniques to analyze and interpret large amounts of data to uncover patterns and trends that are concealed from view by traditional analytical methods. Data collecting, storage, processing, analysis, visualization, and governance are all included in the broad scope of BDA. Banks can extract actionable knowledge in a variety of fields, including customer behavior, market dynamics, risk management, and operational efficiency, thanks to the complex interplay of different aspects. By using BDA's capabilities, banks can make data-driven choices, customize customer experiences, strengthen risk management frameworks, and promote an innovative culture while navigating the modern financial landscape with accuracy. The beginning of the digital era in the early 2000s, which was marked by the exponential growth of data, is inextricably tied to the historical trajectory of BDA within the banking sector.

At first, banks had a difficult time organizing and interpreting large datasets. However, because of revolutionary developments in distributed architectures, cloud computing, and machine learning paradigms, banks have overcome these early obstacles and are now fully utilizing BDA's disruptive potential. With the use of BDA, banks are now more equipped to handle the intricacies of the financial industry and make well-informed decisions that improve customer happiness and operational effectiveness. The progression of data management from its inception to its current state of sophistication highlights the vital role that BDA plays in the continuous advancement and novelty of the banking sector. This development emphasizes how important BDA is to contemporary banking since institutions constantly adjust to the quickly evolving economic and technological environment.

This study endeavors to embark upon a comprehensive exploration of the BDA paradigm and its intricate interplay within the precincts of the banking sector, with a discerning focus on the preeminent public and private banking entities in India. By scrutinizing the contours of bankers' cognizance and comprehension vis-à-vis BDA, our endeavor seeks to unearth nuanced insights capable of galvanizing strategic decision-making, augmenting operational efficiencies, and catalyzing innovation within the banking ecosystem. Grounded in empirical inquiry and fortified by rigorous analytical scrutiny, this study aspires to furnish a scholarly contribution to the burgeoning discourse surrounding BDA adoption in banking, engendering enlightenment for practitioners, policymakers, and scholars alike.



II. ROLE OF BDA IN BANKING

The evolution of BDA traces back to the confluence of several factors, including technological advancements, changing customer expectations, and the exponential growth of digital data. In the early 2000s, banks began to grapple with the proliferation of digital technologies, which led to a dramatic increase in the volume, velocity, and variety of data generated within their operations. This surge in data often referred to as "big data," presented both challenges and opportunities for banks that initially struggled to harness its potential due to limitations in data storage, processing power, and analytical capabilities. Traditional data management systems were ill-equipped to handle the scale and complexity of big data, leading to inefficiencies in data storage, retrieval, and analysis. Moreover, banks faced regulatory and compliance challenges in managing sensitive customer information, further complicating their efforts to leverage big data effectively.

Banks are now equipped to solve big data difficulties because of technological breakthroughs like cloud computing, distributed computing, and machine learning. With the help of these technologies, banks can now store, process, and analyze massive amounts of data in real-time, giving them important insights for innovative thinking, efficient operations, and strategic decision-making. Banks have used BDA more and more over time to obtain a competitive advantage. Real-time fraud detection, risk mitigation, personalization of services, and anticipating client wants are all made possible by predictive analytics. BDA has transformed wealth management, loan underwriting, and credit scoring while streamlining processes and improving client interactions. Banks have adopted BDA to promote growth, reduce risks, and enhance customer happiness in a digital, data-driven environment, starting with the early data management difficulties and continuing with today's predictive analytics.

The next section focuses on the recent developments and growth of eminent scholars, and academia in the forms of studies like journals, articles, books, websites, etc.

III. REVIEW OF LITERATURE

1. Alexander, S., Geyda. (2023), "Big Data Analytics for Anti-Money Laundering (AML) Compliance in Banking Industry." With an emphasis on trade-based money laundering, customer due diligence, and reporting suspicious activity, the authors investigated how BDA may improve AML protocols. The global financial system is at risk due to an increase in money laundering operations due to the growth of the digital economy and intricate financial transactions. BDA approaches provide precise and fast insights, streamline compliance procedures, and facilitate cross-border collaboration in financial firms, thereby considerably enhancing money laundering detection and prevention. Nonetheless, issues with data quality, security, privacy, and the requirement for constant updates to thwart changing money laundering strategies still exist. Overall, the report emphasizes how important BDA is to AML initiatives and how it can protect the integrity of the world financial system.
2. S, M, Nazmuz, Sakib. (2023). "Exploring the Role of Big Data Analytics in Finance." In this paper, the major connection between the market of finance and big data information technology is discussed in brief in the literature review section and future outcomes. It focuses on the impacts and risks of using BDA in finance and provides ways to deal with and overcome these risks. The results established a Connection between finance and BDA technology and the Future outcomes of the relationship along with the way it impacts the finance industry and future outcomes of big data and finance relationships.
3. Norzalita, Abd, Aziz., Fei, Long., Wan, Mohd, Hirwani, Wan, Hussain. (2023), "Examining the Effects of Big Data Analytics Capabilities on Firm Performance in the Malaysian Banking Sector." They examined the relationship between BDA capabilities and firms' performance in the Malaysian banking sector. It highlights the BDA's importance in understanding the market and finding business opportunities. BDA capabilities significantly influence the firms' performance in the banking sector. Financial organizations should leverage BDA to gain a competitive advantage by adopting Self-administered questionnaires and Partial least squares structural equation modeling (PLS-SEM). It provided practical implications for bank managers. The outcomes of BDA can help banks make better strategic decisions and its capabilities significantly influence the bank's performance. Financial organizations should leverage big data to gain a competitive advantage.
4. Md., Morshadul, Hasan., József, Popp., Judit, Oláh. (2020). "Current landscape and influence of big data on finance." The paper discusses the current landscape of finance dealing with BDA and its impact on various financial sectors. The objective of this paper show the current landscape of finance dealing and how it influences different financial sectors, more specifically, its impact on financial markets, financial institutions, and the relationship with internet finance, financial management, internet credit service companies, fraud detection, risk analysis, financial application management, etc using an exploratory literature review of secondary data sources. The findings suggested the current landscape of finance dealing with big data and its Influence of big data on different financial sectors



5. Morshadul, H. M., Popp, J., & Ol^oh, J. (2020). Current Landscape and Influence of Big Data on Finance. This paper provides an overview of the current landscape of finance about Big Data and its influence on financial sectors through an exploratory literature review of secondary data sources, by examining the impact of Big Data on financial markets, institutions, practices (internet finance, fraud detection, risk analysis, financial application management). By synthesizing existing research findings, it identifies emerging trends/challenges of Big Data in finance. It contributes to a deeper understanding of how it reshapes the financial industry and offers insights to practitioners, and researchers seeking to leverage data-driven approaches to financial decision-making.

IV. RESEARCH GAP

Despite extensive research on the application of Big Data Analytics (BDA), there is still much to learn about bank employees' awareness in the banking industry. The majority of research that is now available concentrates on the advantages, general effects, and technical use of BDA on financial operations and compliance. They do not, however, sufficiently address the degree to which bank employees are aware of and equipped to make use of these cutting-edge analytics tools. Ensuring successful integration and optimization of these technologies in bank operations requires the understanding and preparedness of bank staff to accept and use BDA. Future studies should therefore look into the degree of awareness and any obstacles to implementing BDA.

RESEARCH QUESTIONS

- RQ1. What is the level of knowledge among bankers at SBI and ICICI Bank about the concept and application of Big Data Analytics (BDA)?
- RQ2. What factors contribute to variations in the adoption and utilization of BDA technologies among bankers at SBI and ICICI Bank?
- RQ3. To what extent do bankers (SBI and ICICI Bank) understand the potential benefits and challenges associated with BDA implementation in the banking sector?
- RQ4. What are the perceptions of bankers at SBI and ICICI Bank regarding the impact of BDA on customer service, risk management, decision-making, and business performance?
- RQ5. How do organizational factors, like leadership support, technological infrastructure, and culture, influence BDA integration in banking operations at SBI and ICICI Bank?

RESEARCH OBJECTIVES

Given the above research questions, the following objectives were framed:

1. To assess the level of awareness and understanding of BDA technologies among bankers at SBI and ICICI Bank; and
2. To analyze the perceived benefits and challenges associated with the implementation of BDA in banking in Hyderabad, with special reference to SBI and ICICI Banks.

RESEARCH METHODOLOGY

In the field of academic inquiry and scientific research, research technique is crucial, as it forms the basis for a study's legitimacy and integrity, a methodical approach to maintaining strict standards and scholarly integrity. The study adopted a judgment sampling due to the dynamic nature of the technology being used in the banks, it is further descriptive, qualitative and catered on research questions on the knowledge and understanding, its adoption and utilization in the banking activities/operations, benefits of the BDA technology adoption in day-to-day activities, bank staff's perceptions and the BDA impact on customer service, risk management, decision-making, and business performance, and lastly its integration in the banking process.

Research Design and Sample: It included Staff, Management, and frontline staff, through a structured questionnaire via in-depth interviews with staff of SBI and ICICI Banks to collect quantitative data on their knowledge, comprehension, views, and experiences about BDA. Each bank provided an equal number of completed questionnaires, for a total of 209 respondents per bank. With an emphasis on demographic variables (gender, age, education, marital status, income, work experience, and designations) and their relationship to BDA knowledge and understanding, the data was analyzed to find themes, categories, and patterns. To evaluate the use of BDA technology, statistical analysis using One-Way ANOVA, mean, standard deviation, and coefficient of variation, are performed.



V. RESULTS AND DISCUSSION

The below sections discuss the primary observations and computed results of bank staff’s awareness and understanding levels staff on the implementation of the BDA technology in banking associated with the SBI and ICICI banks to their demographic factors gender, age, educational qualification, marital status, income levels, work experience, and staff designation

Awareness and Understanding Vs Gender: Gender analysis is crucial as it helps identify potential disparities and biases in understanding and utilization of Big Data Analytics (BDA) technologies. By examining gender differences, researchers can ensure inclusivity and develop targeted interventions to address any gender-based disparities, promoting equitable access and utilization of BDA tools and knowledge.

Table – 1 Awareness and Understanding Vs Gender

Description	Gender	N	Mean	S.D	C.V	Rank
Awareness and Understanding	Male	205	4.14	0.86	20.8	2
	Female	184	4.14	0.73	17.5	1
	Others	29	3.83	0.97	25.2	3
Total		418				

Source: Primary Data

S.D= standard deviation, C.V= coefficient of variation

The gender disparities in respondents' awareness and comprehension of BDA components mean scores of 4.14 for male and female responders are similar, suggesting equivalent levels of awareness. But compared to females (S.D. 0.726, C.V. 17.5%), males exhibit more variability (S.D. 0.860, C.V. 20.8%), and the "Others/undisclosed" category has lower mean scores (3.83) and more variability (C.V 25.22%). Although mean scores are similar, the variations in variability point to possible subtleties in the comprehension of BDA components.

H₀₁: There is no significant variation in means of Awareness and Understanding between various Genders of the bank staff of the SBI and ICICI banks.

Table – 2 Awareness and Understanding Vs Gender by using ANOVA

Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.658	2	1.329	2.02	0.13
Within Groups	273.362	415	0.659		
Total	276.019	417			

The null hypothesis (H₀₁) states that there is no significant variation in means of awareness and understanding between various genders of bank staff at SBI and ICICI banks. The observed F-statistic value is 2.02 with a corresponding p-value (Sig.) of 0.13. The F-statistic measures the ratio of variability between groups to variability within groups, and higher values suggest greater variability between the groups relative to within groups. However, the p-value is higher than the commonly used significance level of 0.05, thus, the null hypothesis is rejected and the alternate hypothesis is accepted.

Result: The observed variation in awareness and understanding scores between various genders is not statistically significant at the standard significance level (0.05), and hence, it is concluded that there exists no significant difference in the means of awareness and understanding between genders of bank staff at SBI and ICICI banks.

Awareness And Understanding Vs Age Group: Age analysis is important as it helps understand how individuals' experiences, perspectives, and behaviors may vary across different stages of life. By examining age differences, one can identify generational trends, preferences, and needs, enabling the development of tailored strategies and cater to diverse age groups. Additionally, it facilitates the identification of potential age-related barriers or opportunities in adopting new technologies/practices, such as BDA, allowing for more effective planning and implementation of initiatives that aim to benefit various age cohorts.



Table- 3 Awareness and Understanding Vs Age

Description	Age	N	Mean	S.D	C.V	Rank
Awareness and Understanding	18-25 Years	43	4.12	0.7	16.9	1
	25-35 Years	131	4.21	0.79	18.9	3
	35-45 Years	99	4.06	0.88	21.6	5
	45-55 Years	93	4.01	0.87	21.6	4
	Over 55 Years	52	4.19	0.72	17.1	2

Source: Primary Data

Table 3, it is evident that among the respondents, younger individuals aged 18-25 and older individuals over 55 exhibit the highest mean scores, indicating heightened awareness and understanding. Conversely, middle-aged groups (25-35, 35-45, and 45-55 years) demonstrate slightly lower mean scores. Variability within age groups, as measured by the SD, is notably lower in younger and older cohorts compared to middle-aged groups, suggesting more consistent levels of awareness and understanding. The C.V. corroborates this trend, with younger and older age groups displaying lower relative variability. Ranking based on mean scores further underscores the superior awareness and understanding among the youngest and oldest age brackets, with middle-aged groups ranking lower.

H₀₂: There is no significant variation in means of Awareness and Understanding between various age groups of the bank staff of the SBI and ICICI banks.

Table – 4 Awareness and Understanding Vs Age by using ANOVA

Source of Variance	A sum of Squares (SS)	df	Mean Square (MS)	F	Sig.
Between Groups	2.883	4	0.721	1.09	0.36
Within Groups	273.136	413	0.661		
Total	276.019	417			

df=degree of freedom

The observed SS value of 2.883 at 4 df, resulted in a MS value of 0.721. While, within-groups the SS in each age group is 273.136 at 413 df. The corresponding MS is 0.661. The computed F-statistic value is 1.09, with a corresponding p-value (Sig.) of 0.36. As the p-value is greater than the level of significance=0.05, the null hypothesis is rejected.

Result: From the computed values, it can be concluded that there is no significant difference in awareness and understanding scores across different age groups.

Awareness and Understanding Vs Educational Qualification: Educational background is important as it provides a variety of views, reveals the knowledge and abilities of respondents, influences decision-making, facilitates correlational analysis, helps create customized training, guarantees sample representativeness, and affects learning curves. This improves knowledge of the uptake and use of technology and enhances results and useful applications.

Table – 5 Awareness and Understanding and Highest Qualification

Description	Educational Qualification	N	Mean	S.D	C.V	Rank
Awareness and Understanding	Graduation	134	4.16	0.764	18.39	1
	Intermediate	123	4.01	0.864	21.55	4
	Post-Graduation	114	4.22	0.784	18.59	2
	Professional Degree	47	4.06	0.870	21.41	3

Source: Primary Data

The association between educational background and knowledge of BDA technology is shown in the table. With the highest mean score (4.22), post-graduates ranked second and demonstrated a solid command of BDA. With a mean score of 4.16, graduated respondents ranked first, closely behind. Inter and professionals scored lower with mean scores of 4.01 and 4.06, respectively, ranking fourth and third, although demonstrating impressive knowledge. The C.V. and S.D. indicate that variability is generally constant amongst educational groups.



H₀₃: There is no significant variation in means of Awareness and Understanding between various Educational Qualifications of the SBI and ICICI bank respondents.

Table – 6 ANOVA Test results

Source of Variance	A sum of Squares (SS)	df	Mean Square (MS)	F	Sig.
Between Groups	2.992	3	0.997	1.512	0.211
Within Groups	273.027	414	0.659		
Total	276.019	417			

The results of the ANOVA test for significant mean differences between groups are shown in the table. groups analysis yields a mean square (MS) of 0.997 and an SS of 2.992 with 3 df. After dividing the mean square between groups by the mean square within groups, the F-value is 1.512. Nonetheless, the corresponding significance value (Sig.) is 0.211. Group-wise, the SS is 273.027 with 414 df, resulting in a 0.659 mean square. The p-value shows that this difference is not statistically significant at conventional levels (e.g., $\alpha = 0.05$), despite the F-value suggesting possible differences in group means.

Result: The null hypothesis, which states that there are no appreciable differences between group means, cannot thus be disproved. It is inferred that there is no significant variation in means of awareness and understanding between various qualifications of bank employees.

Awareness And Understanding Vs Marital Status: Marital status is crucial in research due to its reflection of social norms, cultural influences, and its impact on psychological well-being, financial stability, health, lifestyle, consumer behavior, and policy implications. Understanding marital status provides insights into individuals' socioeconomic, psychological, and behavioral dynamics, and enriches research findings and interpretations.

Table – 7 Awareness and Understanding Vs Marital Status

Factors	Marital Status	N	Mean	S.D	C.V	Rank
Awareness and Understanding	Married	166	4.10	0.780	19.05	1
	Unmarried	144	4.17	0.872	20.89	3
	Divorced/Widowed/Separated	108	4.08	0.787	19.27	2

Source: Primary Data

The table presents marital status observations to the mean scores for awareness and understanding are 4.10 for married individuals, 4.17 for unmarried individuals, and 4.08 for divorced, widowed, or separated. S.D. indicates a spread of scores around the mean, with married respondents showing the lowest variability (0.780), followed by divorced/widowed/separated individuals (0.787) and unmarried individuals (0.872). C.V. suggests relatively similar levels of variability relative to the mean across marital status categories. Despite minor variations in mean scores, differences are not substantial. However, the ranking places unmarried individuals with the highest mean score in the third position, while married individuals rank first and those divorced, widowed, or separated rank second. This implies that while unmarried individuals have a slightly higher mean score, married individuals exhibit slightly lower variability in their responses, potentially indicating a more consistent level of awareness and understanding within this group.

H₀₄: There is no significant variation in means of Awareness and Understanding between various Marital Statuses of the SBI and ICICI bank staff respondents.

Table – 8 ANOVA Test results

Source of Variance	A sum of Squares (SS)	df	Mean Square (MS)	F	Sig.
Between Groups	0.652	2	0.326	0.491	0.612
Within Groups	275.368	415	0.664		
Total	276.019	417			

ANOVA test evaluates if there are statistically significant differences in means among groups and between-groups analysis shows a sum of squares (SS) of 0.652 with 2 df, resulting in an MS of 0.326. The F-value, calculated by dividing the mean square between groups by the mean square within groups, is 0.491. However, the associated significance value (Sig.) stands at 0.612, indicating that the difference is not statistically significant at conventional levels (e.g., $\alpha = 0.05$). Therefore, null hypothesis is rejected, which states that there are no significant differences between group means. The within-groups analysis displays a sum of squares of 275.368 with 415 df, yielding a mean square of 0.664. The total SS is 276.019 with 417 df.



Result: Overall, the analysis suggests that there are no significant differences in means among the groups based on the computed values, reinforcing the conclusion that the null hypothesis cannot be rejected.

Awareness And Understanding Vs Income Level: Income level status is pivotal in research as it affects purchasing power, lifestyle choices, and access to resources such as healthcare and education. Understanding income levels enables researchers to analyze disparities, consumer behavior patterns, and socioeconomic impacts, providing valuable insights for policy-making and addressing societal inequalities.

Table – 9 Awareness and Understanding Vs Income Level

Factors	Income Level (p.a)	N	Mean	S.D	C.V	Rank
Awareness and Understanding	Rs.4-8 Lakhs	102	4.14	0.771	18.64	1
	Rs. 8-12 Lakhs	93	4.11	0.814	19.81	3
	Rs. 12-16 Lakhs	84	4.12	0.798	19.37	2
	Rs. 16-20 Lakhs	77	4.16	0.859	20.68	4
	>Rs. 20 Lakhs	62	4.06	0.866	21.31	5

Source: Primary Data

The table presents data on awareness and understanding across various income levels. Mean scores range from 4.06 to 4.16, with respondents earning Rs. 16-20 Lakhs displaying the highest mean score, followed by Rs. 4-8 Lakhs and Rs. 12-16 Lakhs groups. Standard deviations (S.D) indicate variability around the mean, with the lowest variability observed in the Rs. 4-8 Lakhs income group (0.771) and the highest in the >Rs. 20 Lakhs group (0.866). Coefficients of variation (C.V) suggest consistent levels of variability relative to the mean across income levels. The ranking of income groups corroborates these observations, with Rs. 4-8 Lakhs earners ranking first, followed by Rs. 12-16 Lakhs earners, indicating a slightly more consistent level of awareness and understanding within these brackets, despite minor variations in mean scores.

H₀₅: There is no significant variation in means of Awareness and Understanding between various Income Levels of the SBI and ICICI bank staff respondents.

Table - 10 ANOVA Test results

Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.335	4	0.084	0.125	0.973
Within Groups	275.684	413	0.668		
Total	276.019	417			

The statistically significant differences in means among groups, and between between-groups show an SS of 0.335 with 4 df, resulting in an MS of 0.084. The F-value is 0.125. However, the associated significance value (Sig.) stands at 0.973, indicating that the difference is not statistically significant at conventional levels (e.g., $\alpha = 0.05$). Therefore, we fail to reject the null hypothesis, which states that there are no significant differences between group means. The within-groups analysis displays an SS of 275.684 with 413 df, yielding a mean square of 0.668. The total SS is 276.019 with 417 df. Thus, It is inferred that that exists no significant differences in means among the groups based on the computed values, of awareness and understanding of the income level of bank employees.

Awareness and Understanding Vs Work Experience: Work experience is vital in research as it reflects expertise, skillsets, and industry knowledge, influencing perceptions, decision-making, and behavior. Understanding experience aids in assessing professional backgrounds, expertise levels, and organizational dynamics, providing valuable insights into various aspects of the study, from consumer behavior to organizational performance.

Table – 11 Awareness and Understanding Vs Work Experience

Factors	Work Experience	N	Mean	S.D	C.V	Rank
Awareness and Understanding	3-8 Years	116	4.09	0.819	20.04	3
	9-14 Years	112	4.12	0.791	19.22	2
	15-20 Years	92	4.05	0.761	18.78	1
	Over 20 Years	98	4.22	0.880	20.82	4

Source: Primary Data

The table presents the mean scores that range from 4.05 to 4.22, with individuals having 15-20 years of experience displaying the highest mean score, followed by those with 9-14 years of experience. S.D. indicates variability around the mean, with the lowest variability observed in the 15-20 years experience group (0.761) and highest in the over 20 years experience group (0.880). C.V. suggests relatively consistent levels of variability relative to the mean across experience



groups. The ranking of experience groups aligns with mean scores, with individuals having 15-20 years of experience ranking first and those with over 20 years of experience ranking last.

Result: This indicates that while individuals with longer work experience exhibit higher mean scores, there is slightly higher variability in their responses compared to those with shorter tenures. Overall, the findings suggest that longer work experience may be associated with higher awareness and understanding, although the differences are not substantial.

H₀₆: There is no significant variation in means of Awareness and Understanding between various Work Experience groups of the SBI and ICICI bank staff respondents.

Table – 12 ANOVA Test results

Source of Variance	A sum of Squares (SS)	df	Mean Square (MS)	F	Sig.
Between Groups	1.601	3	0.534	0.805	0.492
Within Groups	274.418	414	0.663		
Total	276.019	417			

The results of the ANOVA test, assess if there are statistically significant differences in means among groups. The between-groups analysis shows an SS of 1.601 with 3 df, resulting in an MS of 0.534. The F-value, calculated by dividing the MS between groups by the MS within groups, is 0.805. However, the associated significance value stands at 0.492, indicating that the difference is not statistically significant at a significance value = 0.05. Therefore, reject the null hypothesis, implying no significant differences between group means. The within-groups analysis displays an SS of 274.418 with 414 df, yielding an MS of 0.663. total SS is 276.019 with 417 df. Overall, the analysis suggests that there are no significant differences in means among the groups based on the computed values, reinforcing the conclusion that the null hypothesis cannot be rejected.

Awareness and Understanding Vs Staff Designation: The designation of respondents is crucial in research as it indicates their roles, responsibilities, and authority levels within organizations. Understanding designations helps assess decision-making processes, organizational hierarchies, and perspectives on specific topics, providing insights into the dynamics of different organizational levels and their impact on research outcomes.

Table – 13 Awareness And Understanding Vs Designation

Factors	Designation	N	Mean	S.D	C.V	Rank
Awareness and Understanding	Personal Banker (PBs)	103	4.12	0.844	20.49	4
	Relationship Manager (RMs)	101	4.18	0.792	18.97	1
	Asst. Managers / Operations Manager	116	4.07	0.788	19.37	2
	Branch Manager	98	4.12	0.841	20.39	3

Source: Primary Data

The table presents data on awareness and understanding across different designations. Mean scores range from 4.07 to 4.18, with RMs exhibiting the highest mean score, followed by AMs/Operations Managers and BMs. PBs display the lowest mean score. S.D. indicates variability around the mean, with the lowest variability observed among the RMs (0.792) and the highest among PBs (0.844). The C.V. suggests relatively consistent levels of variability relative to the mean across designation groups. The ranking of designation groups aligns with mean scores, with RMs ranking first, followed by AMs/Operations Managers, BMs, and finally PBs.

Result: This indicates that RMs have the highest level of awareness and understanding, followed closely by AMs/Operations Managers and BMs, while PBs exhibit the lowest level. Despite minor variations in mean scores, the differences are not substantial. Overall, findings suggest that designation in the banking hierarchy may influence awareness and understanding, with RMs showing the highest level of comprehension.

H₀₇: There is no significant variation in means of Awareness and Understanding, between various Designations of the respondents of the SBI and ICICI bank staff.

Table – 14 ANOVA Test results

Source of Variance	A sum of Squares (SS)	df	Mean Square (MS)	F	Sig.
Between Groups	0.646	3	0.215	0.324	0.808
Within Groups	275.373	414	0.665		
Total	276.019	417			

The table presents the ANOVA test results, examining for any statistically significant differences in the means among the groups. Between groups show an SS of 0.646 with 3 df, resulting in an MS of 0.215. Obtained F-value by dividing the MS between groups by the MS within groups, is 0.324. However, the associated p-value of 0.808 at LOS=0.05,



indicates that the difference is not statistically significant. Therefore, the null hypothesis is rejected, suggesting no significant differences between group means. The within-groups analysis displays an SS of 275.373 with 414 df, yielding a mean square of 0.665. Total SS is 276.019 with 417 df.

Result: The above analysis, suggests that there are no significant differences in means among the groups based on the computed values, reinforcing the conclusion that the null hypothesis cannot be rejected. It is inferred that there is no significant variation in means of Awareness and Understanding between various designations of Bank Employees.

Table 15 Summary of Results

Component	Hypothesis	F-value	p-value	H ₀
Awareness and understanding of BDA Technology Implementation in Banks	There is no significant variation in means of Awareness and Understanding between various gender groups of SBI and ICICI bank staff.	2.02	0.13	Accepted
	There is no significant variation in means of Awareness and Understanding between various age groups of SBI and ICICI bank staff.	1.09	0.36	Accepted
	There is no significant variation in means of Awareness and Understanding between various qualifications of SBI and ICICI bank staff.	1.512	0.211	Accepted
	There is no significant variation in means of Awareness and Understanding between various Marital statuses of SBI and ICICI bank staff.	0.491	0.612	Accepted
	There is no significant variation in means of Awareness and Understanding between various Income levels of SBI and ICICI bank staff.	0.125	0.973	Accepted
	There is no significant variation in means of Awareness and Understanding between various work experiences of SBI and ICICI bank staff.	0.805	0.492	Accepted
	There is no significant variation in means of Awareness and Understanding between various designations of SBI and ICICI bank staff.	0.324	0.808	Accepted

H₀: Null Hypothesis

From the findings, it is evident that that exists no significant difference in the awareness level of the means between various genders, age groups, different qualifications, marital statuses, income levels, work experiences, and designations. This implies that awareness levels do not vary significantly based on gender, age, or educational attainment and that marital status, income, work experience, and designations influence awareness levels.

SUGGESTIONS

The following are a few suggestions that are made based on the above findings.

- It is suggested that all age groups and different genders be well aware of the BDA technology understand the allied technologies and get cross-skilled with adequate training programs albeit with variability within each age group.
- It is suggested to the bank staff of different income levels and marital status to keep abreast and cross-skill on all the latest banking-related technologies, especially BDA.
- It is also suggested to the bank staff of different work experiences and designations to upscale their know-how on the latest technological advancements like the BDA technology and their implementation and effective use in the contemporary banking digital era.

VI. CONCLUSION

In conclusion, the absence of statistically significant differences among demographic factors suggests that these variables do exert a discernible influence on awareness levels. This outcome may stem from various factors such as the homogeneous nature of the sample, the normal distribution of data, limitations in sample size, measurement precision, the multifaceted nature of awareness determinants, and the inherent randomness in statistical analysis. Overall, while demographic factors are commonly considered influential, their role in shaping awareness levels in this context appears to be negligible, highlighting the importance of considering broader and more nuanced determinants of awareness.

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REFERENCES

1. Md., Morshadul, Hasan., József, Popp., Judit, Oláh (2020). "Current landscape and influence of big data on finance." Journal of Big Data.
2. Yunchuan, Sun., Yufeng, Shi., Zhengjun, Zhang (2019). "Finance Big Data: Management, Analysis, Applications." International Journal of Electronic Commerce.
3. Morshadul, H. M., Popp, J., & Oláh, J. (2020). Current Landscape and Influence of Big Data on Finance. International Journal of Financial Management, 7(2), 89-104. This
4. Mashooque, Ahmed, Memon., Safeeullah, Soomro., Awais, Khan, Jumani., Muneer, A., Kartio (2017). "Big Data Analytics and Its Applications." arXiv: Computers and Society.
5. Stockinger, Kurt., Jonas, Heitz., Nils, Bundi., Wolfgang, Breyman (2018). "Large-Scale Data-Driven Financial Risk Modeling Using Big Data Technology.
6. Olyesia, Valerievna, Ivanchenko., Olga, Nikolaevna, Mirgorodskaya., E., V., Baraulya., T. I, Putilina (2019). "Marketing relations and communication infrastructure development in the banking sector based on big data mining." Journal of economics and business administration.
7. Norzalita, Abd, Aziz., Fei, Long., Wan, Mohd, Hirwani, Wan, Hussain(2023). "Examining the Effects of Big Data Analytics Capabilities on Firm Performance in the Malaysian Banking Sector." International Journal of Financial Studies.
8. Alexander, S., Geyda (2023). "Big Data Analytics for AML Compliance in the Banking Industry." Highlights in Science, Engineering, and Technology.
9. S, M, Nazmuz, Sakib (2023). "Exploring the Role of Big Data Analytics in Finance."
10. www.icicibank.com
11. www.sbi.co.in
12. www.rbi.org.in



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