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BANKERS' AWARENESS OF MODERN INDUSTRIAL TECHNOLOGIES: A COMPARATIVE STUDY IN WESTERN PROVINCE OF SRI LANKA

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ABSTRACT

This research investigates employees' awareness of modern industrial technologies that contribute to the efficiency of Sri Lankan banking services, focusing on Artificial Intelligence (AI), biometric technology, blockchain technology, and big data analytics (BDA). Awareness levels were compared across bank types and employees' demographic characteristics. This aims to address a knowledge gap and improve efficiency levels. A cross-sectional, quantitative research design was used while collecting data through a seven-point Likert scale questionnaire from 375 employees in rationally selected public and private banks in the Western Province of Sri Lanka. Results revealed a higher awareness of AI and Biometrics than blockchain and no noticeable difference was shown in the awareness of BDA. Awareness levels significantly varied by sex, educational background, and education level. This study supports the improvement and innovation in Sri Lankan banks while assisting policymakers in developing strategies to enhance the efficiency of banks.

KEYWORDS: Banking sector, Modern Industrial Technologies, Technology Awareness, Bank Employees

1.1 INTRODUCTION

Today's widespread use of technology across various industries has transformed human activities by simplifying and enhancing lives in multiple ways. Technology has become an essential tool for both individuals in their work and businesses in their daily operations. It enables them to navigate environments characterised by volatility, uncertainty, complexity, and ambiguity (VUCA) more efficiently. Technologies such as Artificial Intelligence (AI), Blockchain, Biometrics, Big Data Analytics (BDA), and Industry 5.0 are popular modern technologies that have been extensively studied by scholars (Dewasiri et al., 2023; Normalini & Ramayah, 2012; Wamba & Queiroz, 2022).

Today, the banking industry increasingly relies on non-physical entities known as "chatbots" to provide customer services. Within the banking industry, chatbots offer various services, including account balance inquiries, facilitating transactions and bill payments, and delivering important

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communications (Mogaji & Nguyen, 2021).Furthermore, in the realm of wealth management, banks have deployed automated financial advisory systems known as "Robo-advisors". These systems utilise algorithms to create personalised investment portfolios for clients, often with little 2023). Blockchain is one of the no human intervention (Dewasiri et al.. to popular modern technologies used in various industries in the business world. As to Ji and Tia (2021), as cited in Dewasiri et al. (2023), Modern technology has great potential to change traditional banking processes, especially in data-driven business decisions. This potential disruption is most notably observed through its applications in digital payments, smart contracts, database management, and cryptocurrency. Further, Modern technology can be used to enhance the effectiveness and efficiency of fundamental banking processes such as account opening, authentication procedures, and secure message transmission. A lack of awareness and understanding of the benefits of Modern technology by decision-makers (Abeysekera & Kumarawadu, 2022, p. 12) is one of the key challenges considered in this research, ultimately impacting technology adoption.

Nowadays, institutions in Sri Lanka have started to investigate Modern technology and popularise its implementation in the finance sector because increasing employee awareness of emerging technologies and their benefits will help them gain support for organisational operations.

So, when employees in any industry have proper awareness regarding modern technology applications, operations will become successful and effective. As to Poszler, Ritter and Welpe (2019), as cited in Abeysekera & Kumarawadu (2022), a poor level of awareness of modern technologies and not being ready to accept new technologies are significant barriers for an institution to move to new technology.

The efficiency of the banking sector is significant for the efficiency of the entire economy (Fernando & Nimal, 2014). Efficiency in the banking industry is important because evaluating efficiency in the banking sector has gained considerable attention to improve the allocation of investments (Tecles & Tabak, 2010, p. 1587). Efficiency in resource usage is one of the most crucial economic factors for a business or industry's success (Liyanagamage, 2017, p. 77). As Fernando and Nimal (2014) note, all the financial institutions and the financial sector operating in an economy hope to work efficiently to achieve economic growth and the financial system's stability.

Existing Situation in the Sri Lankan Banking Sector

Today, Sri Lanka is suffering from a shortage of foreign exchange. The Sri Lankan banking industry must play a prominent role in alleviating this economic instability. When the Central Bank of Sri Lanka makes monetary policy changes to mitigate this current economic crisis, it will directly impact the Sri Lankan banking system. So, an efficient banking process in licensed commercial banks will result in the smooth functioning of banking activities.

According to Liyanagamage (2017, p.80), over the 15 years from 1996 to 2010, and covering 22 commercial banks as the sample, the average efficiency level for the Sri Lankan commercial banking industry was 51%. The Sri Lankan banking sector is identified as less efficient than other countries, and this has been further demonstrated by the scholars who did research related to the efficiency level of the banking industry all over the world. According to Maity and Sahu (2022), private and public-sector banks in India are functioning at efficiency levels of 90.20% and 86.04%, respectively, and the efficiency level in private-sector banks significantly differs from that of public-sector banks.

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ASEAN	Efficiency				
Region	Technical	Scale Mix	Cost	Allocative	Geometric
Country					Mean
Malaysian	0.960	0.934 0.97	0.818	0.819	0.898
Indonesian	0.909	$0.747\ 0.941$	0.775	0.837	0.838
Philippines	0.772	0.925 0.922	0.523	0.686	0.749
Thailand	0.908	0.965 0.94	0.791	0.863	0.891

 Table I - Study findings related to ASEAN region banks.

Source: (Wong and Deng, 2016, p. 1808-1809)

Dia et al. (2020) focused on the efficiencies of the six leading Canadian banks from 2000 to 2017, and on average, their overall and pure technical efficiencies of the banks in the sample period were 82.8% and 88%. Wong and Deng (2016) studied the efficiency of the Association of Southeast Asian Nations (ASEAN) region banks, and their findings are summarised in Table I. The study results were based on a sample of 39 banks in the ASEAN. This study considered samples over the 2000–2010 period. As depicted inTable I, technical efficiency in all the studied countries is more than 90% except the Philippines.

Economic efficiency can be divided into two key components: technical efficiency and allocative efficiency. A firm is considered economically efficient when it achieves maximum output from a given set of inputs (technical efficiency) and utilises the optimal combination of inputs at the lowest possible cost (allocative efficiency). Mix efficiency refers to the degree of balance in the combination of inputs used or the outputs produced together (Wong & Deng, 2016). Cost efficiency measures the proportion by which a bank's costs could be reduced if allocatively and technically efficient. On the other hand, scale efficiency evaluates the potential cost reduction achievable if the bank operates at constant returns to scale (Isik & Hassan, 2002).

1.1.1 Research Problem

The efficiency rate of Sri Lankan banks is at a moderate level of 51%. However, compared to the efficiency of international banks in both developed and developing countries, it is considered low. Though modern technologies have been introduced to the banking sector, like other sectors in Sri Lanka, the banking sector has not yet achieved satisfactory efficiency.

1.1.2 Research Questions and Objectives

This study is framed to examine the following three questions,

RQ1: Do the awareness levels of employees in the banking sector differ for AI, BDA, Blockchain and Biometric technologies?

RQ2: Does the bank sector differ in the employees 'levels of awareness of modern industrial technologies?

RQ3: Does the awareness level vary according to the demographic factors of the employee?

The main objective of this research study was to examine the awareness levels of employees in the banking industry for four technologies such as; AI, Biometrics Technology, Blockchain Technology and BDA, and compare the level of awareness regarding selected modern industrial technologies among employees in the private and public banks of Sri Lanka and compare the technology awareness level among demographic characteristics such two sex groups, age categories, level of education, level of experience, designation, and educational background of the employees.

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1.2 LITERATURE REVIEW

The technology awareness level of banking customers was primarily assessed and considered in most of the research articles, rather than that of employees (Bendigeri & Hulgur, 2014; Bhatnagar, 2015; Carlos et al., 2021). Given the perspective of the bank, employees are working more closely with the banking system than with customers. Therefore, a significant awareness level is essential concerning the tools that they employ when providing banking services. Because it will contribute to bank efficiency.

The cost incurred to build up employee technology awareness is an investment for an organisation (Abeysekera & Kumarawadu, 2022, p. 7) because it reduces the cost of mistakes and errors caused by technology. Hence, it leads to enhanced individual efficiency as well as bank efficiency. The implementation of Blockchain technology can enhance overall operational efficiency and reduce operational and transaction costs (Abeysekera & Kumarawadu, 2022, p. 5). Naseem et al. (2012) also ensured that the investment in information technology contributes to the efficiency of banks while increasing market share, reducing operating costs, improving customer service, etc. Tunay et al. (2018) found that technology-based electronic applications, such as Internet banking, mobile banking, etc., increase the efficiency of services and general bank performance. It seems that there is a lack of empirical studies that have been done regarding bank employees' technological awareness of the selected modern industrial technologies in the private and public banking sectors.

As noted by Melnychenko et al. (2020), in recent years, digital technologies such as BDA, AI, Biometrics and Blockchain have become widespread in digital banking. They highlighted that the financial technologies in digital banking, depending on the application area, can be divided into two groups. One is aimed at developing customer service (AI, Biometrics), and the other is to optimise the operation of internal systems (AI, Big Data Analytics, and Blockchain).

<u>AI Technology</u> - AI is an important tool for fraud detection and risk prevention. Bank of America is actively using AI solutions such as Chatbot to improve customer interaction. As to Mogaji and Nguyen (2021), theoretical developments are used to investigate managers' awareness of AI and how the technology might be employed in their business operations. As to Grigoroudis et al. (2012), as cited in Mogaji & Nguyen (2021), the subsequent improvements have enabled the development of practical applications that serve diverse needs in the financial services sector, such as process automation and enhanced analytical capacity. So, these applications enhance efficiency, quality, and consumer satisfaction and reduce the operating expenses of businesses.

Biometric Technology -The solution to the security problems with the implementation of Internet banking has been further examined by Normalini & Ramayah (2012). They described Biometrics as an automated method of identifying individuals based on a physiological or behavioural feature. Fingerprints, DNA, ear, iris, retina, and hand and palm geometry are the physiological traits that can be used for the verification procedure. On the other hand, behavioural traits such as Signature, typing rhythm, gait, voice, etc., are also used for system identification (Tabassum, 2013).

Blockchain Technology - According to Jayathilake and Seneviratne (2022), Blockchain technology is one of the most popular technologies used in the financial sector, allowing firms to reach higher profitability and competitiveness. Multiple Blockchain technology applications can be seen in the banking industry, such as payment clearing systems, bank credit information systems, etc. (Guo & Liang, 2016). Even though Blockchain technology offers a greater level of efficiency than other technologies, the Central Bank of Sri Lanka has not approved cryptocurrencies for transactions; therefore, individuals should be aware of the hazards. Compared to the global context, SriLanka is far behind in adopting Blockchain technology (Guo & Liang, 2016; Jayathilake & Seneviratne, 2022). As a modern technology, Biometric technology also plays a

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vital role in the banking industry and other industries. Finger prints have become the most popular and important Biometric for system identification. The usage of this technology in different industries provides various advantages to the users, such as trust worthiness because of non-transferability, not forgotten or lost, difficulty in duplicating, etc. (Tabassum, 2013, p. 300).

<u>Big Data Analytics</u> -Today, the BDA concept has permeated almost every industry (Banking, Construction, etc.) and is being treated from different points of view, covering its implications in many fields (Olatunde et al., 2022). Customer identification, fraud management, customer behaviour analysis, etc., are the main applications of BDA (Melnychenko et al., 2020). Advantages such as fraud detection and prevention, Risk Management, Past and Future data Predictions, etc., can be obtained using this technology, especially by organisations in the financial sector (More & Moily, 2021).

Most of the previous studies considered the technology awareness level of banking customers rather than that of employees, so the present study may focus on filling this existing knowledge gap by assessing the modern industrial technology awareness level of employees who work at private and public banks in the Western province of Sri Lanka. It has been considered to select the top-ranked licensed banks in Sri Lanka based on their higher revenue and profit generation compared to the other banks (Investments, 2021, p. 6) while representing the private banking sector by Private Bank 01 and Private Bank 02 and the public banking sector by Public Bank 01 and Public Bank 02.

1.3 METHODOLOGY

This is a Basic Research done as a cross-sectional explanatory study, followed by the positivistic philosophical approach. The study collected quantifiable observations from employees of public and private banks regarding their awareness levels of modern technologies in the banking industry, focusing on the Western Province of Sri Lanka. The quantitative data was collected through a well-developed questionnaire with itemized scales with seven points. The questionnaire was developed with the assistance of the existing questionnaires related to similar variables and fields. The appropriateness of the methodology used in this study is further confirmed by similar studies conducted by Bendigeri and Hulgur (2014), Carlos et al. (2021), and Hafit (2021).

The conceptual framework of this study is explained and designed based on the research objectives and illustrated in Figure 1. The operationalisation supports the translation of the abstract concept of Technology Awareness into measurable terms, which can be defined as the knowledge about the existence and benefits of technology (Mofleh et al., 2008). This has been operationalized through a seven-point Likert scale questionnaire that assesses the level of awareness, ranging from hearing about the technology to being aware of the main benefits, the idea of technology applications, and the need for technology.

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1.3.1 Conceptual Framework



The framework comprises four modern industrial technologies: AI, Biometrics, Blockchain and BDA. The literature shows how the level of awareness varies for each technology (Furnell & Evangelatos, 2007; Olatunde et al., 2022). The demographic factors, including age, sex, education level, experience level, designation, and educational background, are operationalized based on the literature (Boora & Jangra,2019; Chugh et al., 2016; Ejidike et al., 2022; Ohajinwa et al., 2017). Further, the Banking sector is also used as a variable in this study, though Bhatnagar (2015) found it to be a non-significant variable. The hypotheses tested in the current study are as follows;

1.3.2 Hypotheses

H1: The employees' awareness levels of the four technologies will differ

H2: The employees' awareness levels of modern industrial technologies will vary based on the sector of the bank.

H3a-f: The technology awareness levels of employees will differ across their sex group/ age group/ level of education/ level of experience in the banking sector/ designation/ and educational background.

1.3.3 The Population and Sample Selection

The target population was the banking employees, and the study population was the bankers in the Western Province of Sri Lanka. The bankers were selected from two public sector banks and two private sector bank branches in the Western Province. An employee in the selected bank was identified as the unit of analysis of this research study. The total population of employees in all four banks in the Western Province is 12,930. The sample size was determined as 375 using the Morgan table (Krejcie & Morgan, 1970) and to cover the non-responses and incomplete responses, 10% was added. As the first stage, the sample was selected by using stratified sampling and convenience sampling with quota sampling used by considering all possible diversifications in the population. The workforce was identified from the relevant banks' annual reports. 115 and 93 employees were selected from the two public sector banks, SB01 and SB02. 99 and 105 employees were selected from the two private sector banks, PB01 and PB02. The total sample was 412.

1.3.4 Methods of Data Collection and Analysis

A well-structured self-administered questionnaire with two parts was designed with the tool used by Ghansah et al. (2022). The first part was used to collect socio-demographic details of the bankers and the second part of the questionnaire consisted of a set of close-ended statements

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prepared to give responses by using an itemized scale ranging from (Less) 01 to 07 (More) and covering four types of technologies which are populated in the banking industry namely, Artificial Intelligence, Biometric, Blockchain technology, and Big Data Analytics. The questionnaire examined the level of awareness of the bankers associated with the above-mentioned technologies. The data collection was done via both physical (hard copies) and online (Google form link) methods from the bankers who are working in selected banks.412 questionnaires were distributed, and 244 were received. Eight were rejected due to their incompleteness, and finally, 236 were used for the analysis. This data-cleaning process enhanced the quality of the data collected, and the rate of response in this research was 57%.

Data screening and cleaning, validity, and reliability were done to ensure the quality and accuracy of the data and the constructs. Kaiser-Meyer-Olkin measure (KMO), Bartlett's Test of Sphericity, Total Variance Extracted, inter-item correlation, and Cronbach's Alpha were used to ensure the validity and reliability of the constructs and the data accordingly. Statistical techniques such as Descriptive Statistics and Mean Comparison Tests were used to test the hypothesis derived in the study.

1.4 FINDINGS AND DISCUSSION

Several items were used to measure employee awareness through the developed questionnaire while enhancing its internal consistency. Table II illustrates the validity and reliability statistics for all the constructs in the study. All KMO values above 0.6 and all Bartlett's values are significant (Henseler et al., 2015). The cumulative percentage of extraction sums of squared loading of each construct is greater than 50%, which implies that the overall variability in the data is explained by the identified factors significant (Henseler et al., 2015; Reichardt & Coleman, 1995). Those measures ensure the validity of the items to measure the individual constructs. Corrected item- Total correlation values in each item of the relevant construct are greater than 0.5, which illustrates that each item used in each construct relates to the total score and the individual items contribute to the reliability of each construct. All Cronbach's Alpha values were above 0.7, indicating the reliability of the data to measure the individual constructs (Peterson & Kim, 2013).

	Reliability	Validity		
Construct	Cronbach's	KMO	Bartlett's	
Awareness of	Alpha	value	Test	
AI Technology	0.895	0.905	0.000	
Biometric Technology	0.914	0.903	0.000	
Big Data Analytics	0.909	0.911	0.000	
Blockchain Technology	0.919	0.907	0.000	
Overall Awareness	0.97	0.917	0.000	
Condition	>0.7	>0.6		

Table II - Validity and Reliability Test Results

Source: Survey data, 2023

The average awareness level is the highest at 4.08 in AI technology, and the Blockchain had the lowest at 3.42. Calculated Overall Awareness had an average of 3.79. All awareness levels were at satisfactory levels, but only AI and Biometric were above the overall average level. Among the respondents, 56.4% of the bankers were from the public sector banks, and the others were from the private sector. 60.6% of the respondents were male, representing the private sector (63.6%). Among the 39.4% of female respondents, the majority were from the public sector (87.1%).

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Nearly 52% belonged to the age group of 31-40 years, only 4.2% were above 50, and 30% were below 31. This indicates that nearly 82% of the respondents are below 40 years, and hence, they are inherently aligned with modern technology. Nearly 68% of the bankers have experience of less than 13 years, and only 10% have experience of more than 20 years. Nearly 54% of the bankers were from Commerce or Business backgrounds, 19% were from Mathematics and Statistics, and 9% were from an ICT background. Nearly 30% have master's degrees and 33% have bachelor's Degrees. 56% of the public sector and 74% of the private sector bankers have bachelor's Degrees or higher-level educational qualifications. Nearly 28% of the bankers are at the entry level, and nearly 35% are at the supervisory level. Hence, nearly 66% of middle-level or entry-level employees are highly engaged with modern technology. 41% of the males were at the supervisory level, and it was only 26% among their female counterparts.

Table III - Results of the Games-Howell Mean Comparison Tests (H1)

Independent Variable: Four Technologies

Dependent Variable: Technology awareness level H1: The employees' awareness levels of the four technologies will differ.

*.Significant at the 0.05 level. N = 236

(J) Modern Industrial Technology	
	Sig.
AI technology	.000
Biometric technology	.001
Big Data Analytics	.085
Biometric technology	.835
Big Data Analytics	.191
Big Data Analytics	.615
	(J) Modern Industrial Technology AI technology Biometric technology Big Data Analytics Biometric technology Big Data Analytics Big Data Analytics

Source: Survey data, 2023

The mean comparison tests were done to test the hypothesis derived from the study. Since the Variances of the data were not equal for the four different technologies, the Welch and Brown-Forsythe tests were used as an alternative to the ANOVA test. Both tests showed significant results, hence, the Games-Howell comparison test was used to identify the significant differences. According to the results illustrated in Table III the bankers' awareness level regarding Blockchain technology is significantly lower than that of AI and Biometric technologies. However, there is no significant difference in the awareness level of BDA compared to the other three technologies.

According to the study results displayed in Table IV, the technological awareness level of bankers does not vary based on the banking sector and demographic factors such as designation, age, and experience level. However, awareness levels are significantly different across the sexes, educational backgrounds, and levels of education.

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	Hypotheses	P-Value (α=0.05)
H2 ¹	The employees' awareness levels of modern industrial technologies will vary based on the sector of the bank.	0.138
H3a ¹	The technology awareness levels of employees will differ between the two sex groups.	0.000^{*}
H3b ²	The technology awareness levels of employees will vary across different age groups.	0.765
H3c ²	The technology awareness levels of employees will differ based on their level of education.	0.033*
H3d ²	The technology awareness levels of employees will vary according to their level of experience in the banking sector.	0.562
H3e ²	The technology awareness levels of employees will differ based on their designation category.	0.168
H3f ³	The technology awareness levels of employees will vary based on their educational background	0.012*

Table IV - Results of the Hypothesis testing

Source: Survey data, 2023, N = 236

¹-Two Independent Sample T-test ²-One-Way ANOVA test ³-Kruskal-WallisTest

The study results illustrate that male bankers are more aware of modern industrial technologies than their female counterparts. Further, the level of technology awareness significantly varies with the banker's education level and educational background. Though there is a higher mean value for the awareness among private-sector bankers (3.94) than among public-sector people (3.68), this difference is not significant at the 5% level (H2).

Table V shows that the technological awareness level of bank employees varies based on their level of education (H3c). This study found that the technology awareness level of banking employees who have a bachelor's or master's Degree is greater than that of those who have a High School, Professional Qualifications, or a Diploma.

Table V - Results of the Mean Comparison Tests (H3c)

Independent Variable: Education Level

Dependent Variable: Technology awareness level

H3c: The technology awareness levels of employees differ based on their level of education.

(I)The	highest education level	of (J)The highest education level of	
the res	pondents	the respondents	Sig.
LSD	High School &	Diploma	.872
	Professional	Bachelor's Degree(BA/BSc)	.036
	Qualification(CIMA/	Master's Degree (MSc/MBA/	.029
	CFA/CMA/CA/ etc.)	Postgraduate)	
		Bachelor's Degree(BA/BSc)	.044
	Diploma	Master's Degree (MSc/MBA/	.036
		Postgraduate)	
	Bachelor's Degree(BA/	Master'sDegree (MSc/MBA/	.886
	BSc)	Postgraduate)	

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*.Significant at the 0.05 level. Source: Survey data, 2023

1.4.1 Discussion

The discussion highlights varying awareness levels among banking sector employees regarding four key technologies. The results of hypothesis testing (H1) indicate significant differences in employees' awareness of technologies such as Artificial Intelligence (AI), Biometrics Technology, and Blockchain Technology, except Big Data Analytics (BDA). Specifically, the findings reveal that banking sector employees are less aware of Blockchain Technology than AI and Biometrics Technology. However, the analysis shows no significant difference in awareness levels between BDA and the other three technologies. Overall, the results suggest that banking sector employees have relatively poor awareness of Blockchain Technology.

According to Olatunde et al. (2022), survey results revealed that respondents in the study area had a higher level of awareness regarding AI technology and a lower level of awareness regarding Blockchain technology. These findings align with the survey results of the current study. However, while Olatunde et al. emphasised a lower level of awareness regarding Big Data Analytics (BDA), the current study found that awareness levels of BDA among employees in the banking industry are not significantly different from those of the other three technologies. Additionally, the current study revealed that respondents have a higher awareness of Biometric Technology, this finding consistent with the results of Furnell and Evangelatos (2007).

Furthermore, the current study's hypothesis testing (H2) results indicated no significant difference in the awareness levels of bank employees in the public and private sectors regarding selected modern industrial technologies. This finding aligns with Bhatnagar's (2015) results and supports the current study's conclusions.

The study considered demographic factors such as sex, age, level of education, educational background, level of experience, and designation of respondents. The results revealed that male employees in the banking industry have a higher level of awareness regarding modern industrial technologies than female employees. This finding is inconsistent with the results of Chugh et al. (2016). Additionally, while previous studies suggested that technology awareness levels vary with the age of respondents, the current study found no such variation.

Similarly, findings from Ejidike et al. (2022) and Ohajinwa et al. (2017) indicated that technology awareness differs based on respondents' experience level and designation. However, these findings are also inconsistent with the results of the current study, which showed that neither experience level nor designation significantly impacts technology awareness levels among banking industry employees.

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According to the study results of Boora and Jangra (2019), technology awareness levels vary based on respondents' educational level and educational background. The findings of the current study are consistent with these results. It was observed that banking employees with a bachelor's or master's degree have higher technology awareness levels compared to those with only a high school and professional qualifications, or a diploma. Additionally, the study confirmed that technology awareness levels differ based on the educational background of the respondents.

1.5 CONCLUSION

A quantitative cross-sectional study was conducted to compare the level of awareness of selected modern industrial technologies among employees in private and public banks in the Western Province of Sri Lanka. The data were collected from employees in the banking industry, and the findings were discussed in relation to the research questions identified at the initial stage of the study.

The analysis revealed that the awareness levels of respondents regarding the four technologies varied significantly. However, the technology awareness levels did not differ based on the sector (private or public) of the bank where the employees worked. Furthermore, technology awareness levels were found to vary with specific demographic characteristics, such as sex, level of education, and educational background, but not with factors such as experience level, designation, or age. These findings can be used to improve the efficiency of the banking sector by selecting appropriate employees for relevant employment. When implementing modern technologies, the authorities can pay attention to the most familiar technology for their existing staff, if possible.

1.6 REFERENCES

- 1. Abeysekera, M. C., & Kumarawadu, P. (2022). Analysis of factors influencing Blockchain implementation in the finance sector in SriLanka. *HoChiMinhCityOpenUniversityJournalof Science*, *12*(2), 3–14. https://doi.org/10.46223/HCMCOUJS.econ.en.12.2.2236.2022
- 2. Bank of Ceylon Annual Report 2022. (2023).
- **3.** Bendigeri, M.,&Hulgur,V.(2014).AwarenessandKnowledgeofInternetBankingServicesAmong the Customers of Private and Public Sector Banks in Hubli City. *Asian Journal of Research in Banking and Finance*, *4*(8), 222–236.
- **4.** Bhatnagar, H.(2015). Awareness and Adoption of Technology in Banking, Especially by Rural Area Customers: A Study of Udaipur Rural Belt. *Pacific Business Review International*, 7(11), 24–37.
- Boora, K., & Jangra, K.(2019). Preparedness level of Indian public sector banks for implementation of Basel III: An empirical investigation. *Managerial Finance*, 45, 172–189. https://doi.org/10.1108/MF-10-2017-0416
- 6. Carlos, F., Alfredo, P.-R., Daniel, B., & Luis, C. (2021). Intention to use Analytical Artificial Intelligence in Services. The Effect of Technology Readiness and Awareness. *Journal of Service Management*, *33*(2), 293–320. https://doi.org/10.1108/JOSM-10-2020-0378.
- Chugh, R., Wibowo, S., & Grandhi, S. (2016). Environmentally Sustainable Information and Communication Technology Usage: awareness and Practices of Indian Information and Communication Technology Professionals. *Journal of Cleaner Production*, 1–42. https://doi.org/10.1016/j.jclepro.2016.05.004
- 8. Commercial Bank Annual Report 2022. (2023).
- **9.** Dewasiri,N.J.,Karunarathne,K.S.S.N.,Menon,S.,Jayarathne,P.G.S.A.,&Rathnasiri,M.S.H. (2023). Fusion of Artificial Intelligence and Blockchain in the Banking Industry: Current Application, Adoption, and Future Challenges.293–307.https://doi.org/10.1108/978-1-80262-277-520231021

ISSN: 2249-7323 Vol. 15, Issue 5, May 2025 SJIF 2022 = 8.558 A peer reviewed journal

- **10.** Dia, M., Golmohammadi, A., & Takouda, P.M.(2020). *Relative Efficiency of Canadian Banks: A Three-Stage Network Bootstrap DEA*.
- 11. Ejidike, C.C., Mewomo, M.C., & Anugwo, I.C. (2022). Assessment of construction professionals' awareness of the smart building concepts in the Nigerian construction industry. *Journal of Engineering, Design and Technology*. https://doi.org/10.1108/JEDT-05-2022-0263
- **12.** Fernando, J.M., & Nimal, P.D.(2014). Does Ownership and Size Influence Bank Efficiency? Evidence from the SriLankan Banking Sector. *Ruhuna Journal of Management and Finance*, *1*(1), 83–90.
- **13.** Furnell, S., & Evangelatos, K.(2007). Public awareness and perceptions of Biometrics. *Computer Fraud and Security*, 2007(1), 8–13.
- 14. Ghansah,F.A.,Owusu-Manu,D.-G.,Ayarkwa,J.,Edwards,D.J.,&Hosseini,M.R. (2022). Assessing the Level of Awareness of Smart Building Technologies (SBTs) in the Developing Countries. *Journal of Engineering, Design and Technology*, 20(3).
- **15.** Guo, Y., & Liang, C. (2016). Blockchain application and outlook in the banking industry. *Financial Innovation*, 2(24), 1–12. https://doi.org/10.1186/s40854-016-0034-9
- **16.** Hafit, A.(2021).*Green Technology: Awareness among Academic Library Employees.August* 2018. https://doi.org/10.6007/IJARPED/v7-i3/4356
- **17.** Hatton National Bank Annual Report 2022. (2023).
- 18. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. Technical, *Journal of the Academy of Marketing Science*, 43(1), 115–135.https://doi.org/10.1007/s11747-014-0403-8
- 19. Investments, K.S.(2021). Ranking of Licensed Banks in SriLanka (Issue02).
- **20.** Isik,I.,& Hassan,M.K.(2002).Technical, scale and allocative efficiencies of the Turkish banking industry. *Journal of Banking and Finance*, *26*, 719–766.
- 21. Jayathilake, N. W. D., & Seneviratne, S. M. C. (2022). The investigation of the awareness of implementing Blockchain technology in audit trails among the auditors. *Journal of Accounting Research, Organisation and Economics, 5*(2), 109–123. https://jurnal.unsyiah.ac.id/JAROE/article/view/26587
- 22. Krejcie, R.V, & Morgan, D.W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30,607–610.
- 23. Liyanagamage, C.(2017). Efficiency of the SriLankan Banking Sector-An Empirical Study. *International Research Journal of Business and Management*, 10(11), 77–84.
- 24. Maity,S.,& Sahu,T.N.(2022). Howfaris the Indian banking sector Indian are efficient?: An empirical investigation. 6(3), 413–431. https://doi.org/10.1108/AJEB-02-2021-0016
- **25.** Melnychenko, S., Volosovych, S., & Baraniuk, Y. (2020). Dominant Ideas of Financial Technologies. *Baltic Journal of Economic Studies*, 6(1), 92–99.
- **26.** Mofleh, S., Wanous, M., & Strachan, P. (2008). The Gap Between Citizens and E-Government Projects: The Case for Jordan. *Electronic Government, an International Journal*, 5(3), 275–287.
- 27. Mogaji, E., & Nguyen, N. P. (2021). Managers' Understanding of Artificial Intelligence about Marketing Financial Services: Insights from Cross-Country Study. *International Journal of Bank Marketing*, 1–49.

ISSN: 2249-7323 Vol. 15, Issue 5, May 2025 SJIF 2022 = 8.558 A peer reviewed journal

- **28.** More, R., & Moily, Y. (2021). Big Data Analysis in the Banking Sector. *International Journal of Engineering Research and Applications*, 11 (4),1–5.https://doi.org/10.9790/9622-1104020105
- **29.** Naseem,I.,Wajid,A.,Omar,A.Bin,Sultan,N.,& Ehsan-ullah.(2012). The Impact of Information Technology on the Efficiency of Banks: (An Empirical Investigation from Pakistan). *Innova Ciencia*, *4*(2), 66–80.
- **30.** Normalini, M. K., & Ramayah, T. (2012). Biometrics Technologies Implementation in Internet Banking Reduce Security Issues? *Procedia-Social and Behavioural Sciences*, 65,364–369. https://doi.org/10.1016/j.sbspro.2012.11.135
- **31.** Ohajinwa, C. M., Bodegom, P. M. Van, Vijver, M. G., & Peijnenburg, W. J. G. M. (2017). Health Risks Awareness of Electronic Waste Workers in the Informal Sector in Nigeria. *International Journal of Environmental Research and Public Health*, 14(911), 1–16. https://doi.org/10.3390/ijerph14080911
- **32.** Olatunde, N. A., Gento, A. M., Okorie, V. N., Oyewo, O. W., Mewomo, M. C., & Awodele, I. A. (2022). Construction 4.0 technologies in a developing economy: awareness, adoption readiness and challenges. *Frontiers in Engineering and Built Environment* .https://doi.org/10.1108/FEBE- 08-2022-0037
- 33. People'sBankAnnualReport2022. (2023).
- **34.** Peterson, R. A., & Kim, Y. (2013). On the relationship between coefficient alpha and composite reliability. *Journal of Applied Psychology*, *98(1)*, 194–198. https://doi.org/10.1037/a0030767
- **35.** Reichardt, C. S., & Coleman, S. C. (1995). The Criteria for Convergent and Discriminant Validity in a Multitrait-multimethod Matrix. *Multivariate Behavioural Research*, 30(4),513–538.https://doi.org/10.1207/s15327906mbr3004_3
- **36.** Tabassum, M. (2013). A Comparative Study of Customer Perception toward E-banking Services Provided by Selected Private and Public Sector Banks in India. *International Journal of Scientific and Research Publications*, *3*(9), 300–306.
- **37.** Tecles, P. L., & Tabak, B.M. (2010). Determinants of bank efficiency: The case of Brazil. *European Journal of Operational Research*, 207(3),1587–1598.https://doi.org/10.1016/j.ejor.2010.06.007
- 38. Tunay, N., Tunay, K.B., & Yuksel, S. (2018). The Effects of Technology on Bank Performance in Advanced and Emerging Economies: An Empirical Analysis. In *Handbook of Research on Managerial Thinking in Global Business Economics* (Issue February 2021, pp. 263–280). https://doi.org/10.4018/978-1-5225-7180-3.ch015
- **39.** Wamba,S.F.,& Queiroz, M.M. (2022). A Framework Based on Blockchain, Artificial Intelligence, and Big Data Analytics Chain Resilience Considering COVID-19. *IFAC PapersOnline*, 55(10), 2396–2401. https://doi.org/10.1016/j.ifacol.2022.10.067
- **40.** Wong, W.P., & Deng, Q. (2016). Efficiency analysis of banks in ASEAN countries. *Bench marking: An International Journal*, 23(7), 1798–1817. https://doi.org/10.1108/BIJ-11-2013-0102