

# Existing and Prospective Artificial Intelligence Initiatives within the Business Contexts of a Developing Country - Empirical Study based on Content Analysis of Sri Lankan Public Listed Companies' Annual Reports

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DOI: <https://doi.org/10.51583/IJLTEMAS.2025.140400082>

Received: 28 April 2025; Accepted: 02 May 2025; Published: 16 May 2025

**Abstract:** Artificial Intelligence (AI) is considered as one of evolutionary technologies, which enhances the efficient management of different business and industrial contexts, while having its own risks and limitations as well. Even though the developed countries are significantly utilizing AI technologies, practical usage of AI applications within developing countries including Sri Lanka is considerably lower. With the context of Sri Lanka holds a significantly lower rank in most of AI based global rankings indices and contains considerably lower amount of AI based research, this study is aiming to identify the existing and prospective AI applications within Sri Lankan businesses. Annual reports of 279 public listed companies which belongs to 20 industry groups have been studied to identify the reported contents relevant to existing and prospective AI usage, among which only 26 companies contained the relevant content. Through the content analysis, current and prospective AI usage within different industry groups in Sri Lanka have been identified and elaborated within this report.

**Key Words** - Artificial Intelligence, Business Innovation, Business Management, Practical Usage of AI, Automation

## I. Introduction

According to the Artificial Intelligence Preparedness Index (AIPI), which has been analysed and published by the International Monetary Fund (IMF) in year 2023, Sri Lanka has obtained the 92<sup>nd</sup> rank among 174 total countries. It indicates relatively a lower level of AI Preparedness of the country. (International Monetary Fund, 2023). AIPI has been measured based on critical criteria such as digital infrastructure enabled with secured internet access and e-commerce platforms, digital skills of labour market, research and development on AI based innovations and regulatory frameworks and enhancement mechanisms. (International Monetary Fund, 2023)

Moreover, as per the Tortoise Media Global Index (GAII), Sri Lanka has been ranked in 82<sup>nd</sup> place, among 83 countries. It suggests that Sri Lanka has to come up with significant improvements in skilled practitioners, supercomputing capabilities, research and development and government and business level initiatives. (Tortoise Media Global AI Index, 2024). Furthermore, according to the Oxford insight government AI readiness index, Sri Lanka has secured 85<sup>th</sup> rank among 188 countries. It indicates a limitation of AI development and engineering skills and also a lack of strategic innovativeness to embed AI based solutions to business environment (Oxfordinsights.com, 2024). In addition to the global level indices, as elaborated in the White Paper developed by the Committee on Formulating a Strategy for Artificial Intelligence (CFSAI), Sri Lanka is facing a significant deficiency in the expertise to develop AI in business context. (Ministry of Digital Economy, Sri Lanka, 2024)

## Statement of the Research Problem

According to the global level indices and the government studies, it is evident that the Sri Lanka should be more equipped with the skill and business initiatives to use AI and modern technologies for the economic development and the betterment. Even though the current AI based initiatives are not in a sufficient level, Sri Lankan companies have gradually come up with some AI based solutions in their respective business fields. However, there are no sufficient research have been conducted to identify the current AI practices which are been executed within Sri Lankan context. Without proper study, there are no/limited abilities for the business entities to appropriately identify the possible ways of utilizing AI applications, within their own business context. This study has been conducted to address the lack of studies and to fill the gap of knowledge regarding the practical AI initiatives which are being currently used or/and discussed within the corporate reports of the business entities in Sri Lanka.

**Research Objective:** As a developing country, which is having a significantly lower usage of AI, the objective of this study is to identify whether and how the public listed companies of Sri Lanka have reported about the existing and prospective usage of AI within their business contexts.

## Research Questions

As per the research gap identified after the comprehensive literature review, below research questions has been developed.

Whether the Sri Lankan public listed companies have reported regarding existing and prospective usage of AI through the annual reports and if so, which industry groups companies have contributed to the discussion?

What are the existing and prospective AI initiatives which have been reported within the different industry group's public listed companies?

## **Literature Review**

### **Importance of Practically Applying Artificial Intelligence within the Business Contexts**

Artificial Intelligence has been improved in a significant way within the recent years, which is providing a considerable contribution to the developments of different businesses, while having numerous amounts of backdrops and limitations as well (Kresimir Buntak, 2021). Artificial Intelligence is practically being used in most of the business contexts such as retail and online shopping, food science, financial and banking services, transportation and logistics, travel, property management, production, automotive, power generation are few instances where the AI is employed mainly. (Jasmin Praful Bharadiya, 2023)

(S.A. Alsheibani, 2020) have suggested that business leaders should follow few important rules to get the best use of artificial intelligence and advanced technologies. According to the authors, it is required to determine the strategic usage of AI while deciding in which ways AI has to be used for value creation. Following it, it is important to identify and enhance the organisational capabilities for AI deployment which would help to choosing appropriate technologies while concentrating on AI ethics and transparency.

As (Kaushik, 2022) emphasized, using AI practically within businesses might make the less cost and accurate business models while helping the entrepreneurs with enhanced customer responses which help to avoid competitive pressures. In addition, complicated tasks could be conveniently achieved while the AI model could provide accurate predictions. However, there are some negative aspects which should be concentrated by the management, when applying AI into the business context. Cyber security, privacy breaches, impractical solutions are few of those aspects.

Artificial intelligence applications could be used to automate repetitive tasks, scheduling the tasks and maintenance requirements. However, when AI is being practically used within organisations, it is important to acquire data science skills, if it is difficult to develop internal talents (Tarafdar, 2019). Furthermore, AI would help the business organisations to achieve higher efficiency and higher profitability through reducing the labour requirements for follow-up calls which have been automated. There is a possibility of extracting and interpretation documentations in an automated way, which would lead to time saving and effectiveness. (J.T. Santoso, 2024)

### **Impact of different Policies on the Usage of Artificial Intelligence**

Privacy policies are one of the major concerns related to usage of AI, as AI could be intentionally or unintentionally could be used for different purposes other than the original purposes, while the data could be collected and used without the consent of relevant parties. (Tucker, 2019) Due to the privacy policies and concerns, AI usage has been restricted in many business contexts, despite of the rapid developments.

As suggested by (Avi Goldfarb, 2019) usage of AI within the industries are being affected by trade policy element such as tariffs and trade barriers, while the current trends towards open trade policies have enhanced the abilities of AI usage. It is evident that the AI usage is restricted by some countries due to the trade and economy related concerns such as job displacements. (M.F. Aslam, 2024)

Educational Policies could be considered as another major area which restricts and formulate the AI usage. Through the current education policies, ethical usage of AI is being encouraged while the AI is integrated into the curriculum as well. Research and higher study programs relevant to the artificial intelligence have been improved which would cause increased and ethical usage of AI in upcoming years. (Aslam, 2024)

### **Factors which limit the adoption of Artificial Intelligence**

According to the (S. Alsheibani, 2019), factors such as security concerns relevant to AI adoption, fear of employees to the changes, lack of funding and technology capabilities, lack of organisational skills to develop and execute AI solutions, regulatory compliance barriers and lack of leadership assistance have been identified as major factors which limit the adoption of AI solutions within organizations.

In addition, organisational context factors such as readiness to adapt new technologies, organisational size, managerial support, capabilities, External factors such as involvement of the government, uncertainty, pressure due to the competitiveness, vendor partnerships, Technological factors such as complexity and compatibility have been identified as major factors which affect the adoption level of AI (T.H. Nguyen, 2022)

According to the study conducted by (K. Khalifa, 2023), one of the major limitations to adopt to the AI technology is lack of infrastructure and specialised skills. In order to properly adopt and execute the AI based solutions, it is important to acquire,

maintain and develop skills such as machine learning and modelling skills, knowledge regarding robotic and automation processes, cloud computing skills, management of big data and programming skills.

### **Risks Relevant to Practical Usage of Artificial Intelligence within Business Contexts**

Even though the AI has been identified as a trend setting technology which enhance the business performance in an impressive way, there are some significant issues also comes along with it. According to the studies, there is a huge risk of spreading confidential information due to the automated data handling, as proper human handling is lacked in the process. (Olajide Ore, 2021)

In addition to the privacy issues, there could be significant technological barriers as well. Case studies have shown that, companies have faced massive losses due to the inability of automated technologies to identify and predict accordingly to the unexpected business circumstances. (Slattery, 2024)

Research conducted by (Benjamin Cheatham, 2019) has suggested controlling measures to the possible risks of AI usage. Mentioned study suggests real time monitoring to prevent unethical usages of AI. Furthermore, data quality metrics should be employed along with the assurance measures to prevent AI model from utilizing incomplete or accurate data. In addition, the study suggests that there should be model testing and validation to prevent biased or discriminatory outcomes. Moreover, proper access management should be developed to reduce the risk of cybersecurity threats.

### **Usage of Artificial Intelligence in Different Countries**

As per the study conducted by (Johnson, 2019), United States (US) has been established AI based research institutions while assisting the business which innovates AI products. In addition to that, US is making initiatives to collaborate government agencies along with private sector sectors and academic professionals to develop AI technologies and practical applications.

Further studies have identified that, developed countries such as Canada, is using AI to make solutions for the challenges and difficulties faced by different industries such as transportation and healthcare (Escobar S, 2022). In addition, United Kingdom (UK) also has come up with AI based initiatives such as establishing institutions for developing AI related human skills and establishing an advisory council to make sure the ethical usage of AI. (Clea, 2019)

As emphasized by (Mayumi, 2018) Japan has initiated the concept of Society 5.0, which would enhance the ability of using AI and other advanced technologies to improve the growth of economy and the development of the society as a whole. Moreover, United Arab Emirates (UAE) also have taken initiatives to obtain the service of advanced technological companies to innovate healthcare applications which is powered by AI, while the education sector also being researched to use AI practically. (P.Bhattacharya, 2019)

Even though the developed countries are using AI technologies in a significant way, developing countries are still not have properly implemented AI due the lack of technological capabilities, non-availability of funding, and deficiency of skilled labour force with AI expertise (Manu Sharma, 2022). However, countries such as India, South Africa and Mexico have currently come up with national strategies for the development and execution of AI. Those strategies are focusing on utilising AI for the development of industries such as education, healthcare and agriculture. (S.Chatterjee, 2020)

As per the report which was published by the (Ministry of Communications and Innovation Technology (Egypt) , 2021), Egypt, Tunisia and Jordan countries have agreed upon few strategies such as developing human expertise and awareness regarding AI, contributing and participating academic level conferences regarding AI, utilizing AI practically in industries while planning and executing higher educational courses and qualifications relevant to AI.

### **Summary of Literature Review**

Artificial Intelligence is a trend setting technology which has been developed over time and gained a higher fame within recent years. Current AI applications are being practically used in different business contexts and industries. AI technologies have contributed for significant advantages such as cost cutting, enhancing efficiency of the activities while there are considerable issues such as privacy risks and technological barriers. Any country or organisation would have to adhere to different trade policies, privacy policies and education policies while practically using AI within their contexts. In addition to that, there are significant amount of organizational, external, technological, compliance factors and also possible risks which limits the practical usage of AI.

As discussed in the last part of the literature review, most of the developed countries have already established and executed practical usage of AI based solutions while developing countries are still in the initial stages of planning and initiating AI within their business contexts due to limited resources, skills, technologies and funding.

As per the comprehensive literature review conducted, author has identified that there is no proper study conducted regarding the practical usage of AI within the Sri Lankan context. This study is expecting to fill this gap through conducting an extensive content analysis of annual reports of public listed companies of Sri Lanka to identify existing and prospective AI usages within the business and industry contexts.

## II. Methodology

### Research Design

As the usage level of AI is still an emerging concept, specially within a developing country like Sri Lanka, constructivism which considers data's nature of subjectivity has been used within this study as the ontological pathway (G.Cupchik, 2001). Interpretivism has been used as the epistemology pathway, as the study is focusing to understand the social reality of AI usage, based on the real business context. (M.Bevir, 2012) As the study would gather data, identifies pattern and then develop the explanations on the major usage of AI, inductive approach would be utilized which executed through content analysis of qualitative methods. (L.Gillam, 2022)

### Sampling Process, Data Collection Method and Data Analysis Method

As the study is intended to identify the AI usage within business context of Sri Lanka, all the business entities have been considered as the population. However, as there is a difficulty of obtaining annual reports of other business entities, public listed companies have been selected as the initial sample, considering the convenience of data collection. According to the research studies such as (I. Etikan, 2015) importance of convenience sampling specially when the population is larger, and the randomization is difficult, have been emphasised.

Data has been collected from the most recent annual reports of public listed companies which are listed under the Colombo Stock Exchange (CSE) in Sri Lanka. Annual reports of all 279 companies which belongs to 20 industry groups as per the Global Industry Group Classification, have been studied to identify the contents relevant to the study. After the content searching, only 26 companies' annual reports have been identified as the reports which contain the relevant information. Content analysis method would be utilized to systematically arrange, categorise and present the contents of annual reports regarding the practical usage of AI within business contexts. Many studies including (P.Srinivasan, 2015), (Uyar, 2019) have identified the content analysis of annual reports as a strong research method.

### Sample profile and Preparation of Data Base

279 public listed companies which belongs to 20 industry groups, which are listed in the Colombo Stock Exchange have been selected as the sample as elaborated in the methodology chapter as well.

Below table presents the number of companies which represents each industry groups, whether the annual reports within that industry group's companies contains the intended content and if so, how many companies contributed the discussion.

Table 1: Sample Profiling and Level of reporting AI usage within each industry (Prepared by Author, based on the data obtained from cse.lk and analysis of annual reports)

| Industry Group                       | Total number of Companies | Number of companies of which annual reports contain content about AI |
|--------------------------------------|---------------------------|----------------------------------------------------------------------|
| Energy                               | 3                         | 0                                                                    |
| Materials                            | 22                        | 1                                                                    |
| Capital Goods                        | 28                        | 2                                                                    |
| Commercial and Professional Services | 5                         | 0                                                                    |
| Transportation                       | 2                         | 0                                                                    |
| Automobiles and Components           | 1                         | 0                                                                    |
| Consumer Durables and Apparels       | 11                        | 2                                                                    |
| Consumer Services                    | 37                        | 7                                                                    |
| Retailing                            | 13                        | 1                                                                    |
| Foods and Staples Retailing          | 4                         | 0                                                                    |
| Food, Beverage and Tobacco           | 47                        | 3                                                                    |
| Household and Personal Products      | 2                         | 0                                                                    |
| Healthcare Equipment and Services    | 9                         | 1                                                                    |

|                                        |     |    |
|----------------------------------------|-----|----|
| Banks                                  | 16  | 2  |
| Diversified Financial                  | 38  | 2  |
| Insurance                              | 11  | 3  |
| Telecommunication Services             | 2   | 2  |
| Utilities                              | 10  | 0  |
| Real Estate Management and Development | 18  | 0  |
|                                        | 279 | 26 |

According to the initial content search conducted, major industries of which, the company annual reports contain contents regarding existing and prospective AI usage, have been identified. Table 2 has summarized it along with the relevant public listed company names.

Table 2: Companies which contains AI Related contents in Annual Reports (Prepared by Author, based on the content analysis of annual reports)

| Industry Groups                   | No.of Companies with AI related content | Relevant Companies                                                                                                                                                                      |
|-----------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Materials                         | 1                                       | Chevron Lubricants Lanka PLC                                                                                                                                                            |
| Capital Goods                     | 2                                       | John Keels Holdings Plc, Aitken Spence Plc                                                                                                                                              |
| Consumer Durables and Apparels    | 2                                       | Teejay Lanka Plc, Hayleys Fabric Plc                                                                                                                                                    |
| Consumer Services                 | 7                                       | Serendib Hotels Plc, Waskaduwa Beach Resort Plc, Hotel Sigiriya Plc, Aitken Spence Hotel Holdings Plc, Eden Hotel Lanka Plc, The Nuwara Eliya Hotels Company Plc, Trans Asia Hotels Plc |
| Retailing                         | 1                                       | Singer (Sri Lanka) Plc                                                                                                                                                                  |
| Food, Beverage and Tobacco        | 3                                       | Kelani Valley Plantations Plc, Sunshine Holdings Plc, Talawakelle Tea Estates Plc                                                                                                       |
| Healthcare Equipment and Services | 1                                       | Nawaloka Hospitals Plc                                                                                                                                                                  |
| Banks                             | 2                                       | Commercial Bank, Sampath Bank                                                                                                                                                           |
| Diversified Financial             | 2                                       | Lolc Financ, CDB                                                                                                                                                                        |
| Insurance                         | 3                                       | Softlogic Life Insurance Plc, HNB Assurance Plc, Union Assurance Plc                                                                                                                    |
| Telecommunication Services        | 2                                       | Dialog Axiata Plc, Sri Lanka Telecom Plc                                                                                                                                                |

### III. Results and Discussion of Key Findings

Through this chapter, existing and prospective AI usage of Sri Lankan business contexts would be systematically arranged and categorized based on different industrial categories and be presented, as the main output of content analysis conducted by the author.

#### Existing and prospective usage of AI, Reported in Banking and Diversified Finance Industries in Sri Lanka

Few banks have reported through their annual reports that, they have initiated digital marketing campaigns powered by generative artificial intelligence to promote the youth accounts of the banks. Furthermore, banks have used AI based cover visuals, section breaker artwork and infographics of the annual reports. Mentioned new technology could translate the ideas and insights of employees into impressive visual designs and it has helped to enhance the reporting quality.

Chatbots has been introduced to better serve the customers while improving productivity and serving as a comprehensive information service hub. It allows the customers to communicate and obtain personalized service inquiries directly without any interaction with staff. This enhanced the end-user experience while facilitating the user with self-serving options on their queries.

Banks and finance institutions has enrolled with cloud service providers to provide cloud native latest technology which is being used to enhance the cyber security. Furthermore, banking industry is using autonomous data warehouse for reporting, analytics data repository and oracle data bases for effective banking solutions.

In addition to the above initiatives, few banks have introduced the AI powered digital banking platform which is embedded with wallet and QR based entry. Further, online self-serving top-up options for gold loan disbursements have been introduced with the purpose of bringing a higher convenience to customers.

(Source of Data: Content analysis of 2024 annual reports of Commercial Bank, Sampath Bank, LOLC Finance & CDB)

### **Existing and prospective usage of AI Reported in Insurance Industry in Sri Lanka**

AI driven digital annual report is introduced with the purpose of ensuring effortless adoption and access by any user by the Insurance industry companies as well. For some companies, AI is inbuilt in processes for claim processing. Dedicated divisions to focus on big data and AI, have been introduced in few companies while robotic process automation is expected to be used for backend processes.

In addition, insurance companies have initiated marketing Initiatives which are built on an AI platform. Deep Fake options of AI have been used to create advertisements on the importance of insurance, which generated a significant impression on viewers. AI has been utilized to strengthen the underwriting process by integrating the data analytics for a better risk assessment. AI is also being used for bill predictions which is followed by enhanced process of hospital discharges.

Insurance industry companies are expecting to employ machine learning algorithms and AI technology to analyse data to identify patterns, predict trends and possible risks. Currently, chatbots and virtual assistants are being utilized to enhance the customer interactions while supporting instant assistance, providing personalised recommendations for choosing appropriate insurance policies and claiming procedures.

Big data analytical tools are being used to gain accurate insights regarding the client's behaviour, individual preferences, demographic characteristics. Based on the predictive and data driven models, insurers could customize the policies and adopt effective pricing and marketing strategies conveniently.

Moreover, Insurance industry is moving towards digital customer and digital agent concepts through establishing business process re-engineering units, creating R&D units and appointing digital transformation officers. In addition to that, most of insurance companies are currently setting up digital centre of excellence, advanced management information systems, visualisation tools and digital Power BI dashboards to enhance the overall service from reducing the time of data analysis.

However, annual reports are indicating the importance of data privacy within the insurance industry. Concerns on cyber-security and need of complying with regulatory requirements should be highly prioritized when using AI and big data analytical tools into insurance industry.

(Source of Data: Content analysis of 2024 recent annual reports of Softlogic Life Insurance Plc, HNB Assurance Plc, Union Assurance Plc)

### **Existing and prospective usage of AI Reported in Telecommunication Industry in Sri Lanka**

Telecommunication industry companies in Sri Lanka was focusing on conducting global level conferences with a special focus on AI, while attracting considerably higher virtual attendees. Further, telecommunication companies have taken initiatives of metaverse concerts and digital art exhibitions with the purpose of increasing the user engagement in digital enhancements.

In addition, the industry has introduced automated voice command support, smart home ecosystem capabilities and highly advanced wi-fi technology as well. Leading companies in the industry has established 5G future zones at universities and research institutions.

Major telecommunication companies in Sri Lanka have launched innovation challenges / competitions which encourages the citizens to come up with innovative and scalable digital solutions. Such competitions have led to receive considerable amount of newly generated ideas on AI, IoT, robotics and cloud computing. Companies within the industry have launched google assistant-based client support systems which enables the clients to access and manage the tele-communication related services without any additional effort and time consumption.

In addition, Companies have taken initiatives to collaborate with global level expertise in AI based video analytics. It has caused the video surveillance industry to be transformed with highly advanced technologies. Such technology would be utilised to analyse surveillance footages in real-time while detecting behaviours which are suspicious. This technology is expected to be practically used to many purposes such as smart cities, healthcare and transportation error detection. Major telecommunication companies are using Extract Transform and Load (ETL) technology to extract data from multiple sources. It enhances the data management capabilities in a superior manner. In addition, billing consolidation project is in the process to be upgraded with AI technology to serve an upgraded version of retail billing and interconnect billing.

Telecommunication companies in Sri Lanka have introduced bachelor's degree programs in robotics and artificial intelligence and also in data science. Offering of such programs are catering the demand of expertise in these fields. Without being limited to the existing industry, telecommunication sector companies have come up with a digital solution which integrates the IoT and AI to assist the enhancement of agricultural sector. The suggested technology is providing real time data on crops and assist to make appropriate decisions on plantation management and fertilizer usage. Within telecommunication industry, AI is expected to be utilized in network optimization, customer service automation, establishing virtual assistants, fraud prevention and predictive fostering of revenue growth as indicated within annual reports.

(Source of Data: Content analysis of 2024 annual reports of Dialog Axiata Plc, Sri Lanka Telecom Plc)

### **Existing and prospective usage of AI Reported in Material and Capital Goods Industries in Sri Lanka**

Declining of distribution expenses of material and capital goods have been largely attributable to the automation of the projects and the lowered professional fees due to usage of AI. Companies have incorporated AI to assist the pricing decisions and margin improvement decisions while trying to enhance the financial processes by improving access to real-time data and dashboards. Few companies in the Material and capital goods industry have implemented a code system, of which AI is used to identify any compliance related issues.

Automated analysis of ingredients and manufacturing procedures, helped to identify the considerable issues relevant to food safety. AI based calorie counters and physical activity trackers have been introduced, while loyalty programs are also enabled based on automated analysis of buying behaviours. Further, AI is expected be used in asset grading and auctioning processes as well within the industry.

(Source of Data: Content analysis of annual reports of Chevron Lubricants Lanka Plc, John Keells Holdings Plc, Aitken Spence Plc)

### **Existing and prospective usage of AI Reported in Consumer Durable and Retail Industries in Sri Lanka**

Companies in consumer durable industry have initiated shop floor automation and infrastructure monitoring through IoT. Real time data on machine utilisation and status updating help to optimize the production processes and to minimise downtime in engineering and production departments. Companies are utilising tools such as Microsoft Power BI and SAP Fiori to translate data into actionable insights within key departments.

Automated quality control coupled with AI-Powered waste management solution, assists early defect detection, reduces the material waste and also enhances the recycling efficiency. Using of sensors and wearables to real time risk monitoring has been explored while, remote controlled warehouse stock controlling is already showing a successful outcome. Automation tools like UI Path and Microsoft power Automate are being used currently within companies.

In addition to the direct usage of AI based applications within the company's operations, companies have provided the access to employees to AI training programs. Few companies within the industry are currently using Digital knitting platforms and Smart Textiles, while automation has been used for library management, design and prototyping as well.

In addition to that, AI is being used in procurement models and process optimisation as well. Few companies have implemented SMART manufacturing technology ERP systems supported by 'Fast React' planning tool and 'File Maker' for integrating all operation. AI is being used to forecast raw-material requirements accurately and to minimise the inventory as well.

(Source of Data: Content analysis of 2024 annual reports of Teejay Lanka Plc, Hayleys Fabric Plc, Singer (Sri Lanka) Plc)

### **Existing and prospective usage of AI in Consumer Services in Sri Lanka**

Companies in consumer services industry have implemented travel apps which offer features such as real-time flight updates and booking management. In addition, contactless check-in and digital room key initiative are also upcoming with the assistance of AI. Moreover, AI is being used for personalised recommendations and customer services through chatbots as well. Predictive analytics is utilized for forecasting the travel trends and managing the resources, while smart tourism solutions such as digital ticketing have been initiated within the industry. Besides, advance virtual assistance is also being used in the hotel sector for sentiment analysis.

VR and AR technologies are being used for virtual tours of destinations, hotels and attractions which allows the travellers to explore prior to booking. Moreover, companies of consumer service industry are using Generative AI to improve the quality of images. Advanced technologies assist the streamlined travel planning. Furthermore, AI is used for optimising the room rates and capacity utilisation.

(Source of Data: Content analysis of 2024 annual reports of Serendib Hotels Plc, Waskaduwa Beach Resort Plc, Hotel Sigiriya Plc, Aitken Spence Hotel Holdings Plc, Eden Hotel Lanka Plc, The Nuwara Eliya Hotels Company Plc, Trans Asia Hotels Plc)

**Existing and prospective usage of AI Reported in Food, Beverage and Tobacco Industry in Sri Lanka**

Companies which are cultivating crops are currently using AI for enhanced yield prediction. Enabling SMART precision agriculture business model, have resulted in facilitate the management to make timely interventions to address challenges such as climate variability and market fluctuations.

AI is currently being used for Crop and Soil Monitoring, Detecting disease and pests and Intelligent pesticide application. Power Apps for workflow streamlining has been used for efficient process automation and data management. Moreover, AI is being used for the antivirus solutions tailored for proactive threat hunting while AI driven analytics have improved the threat detection and the response time.

Moreover, digital dashboards have been launched to obtain comprehensive insights to ESG and financial performance indicators within the industry's companies. It empowers the stakeholders with real-time data, interactive visualisations, detailed analytics, facilitating informed decision making in sustainability and financial metrics.

AI based agricultural drones are being used to monitor the crop growths, while robots are expected to be used in harvesting and picking in large scale farming. In addition, AI is expected to be utilised to adapt the plantations based on changing environmental factors.

In a summarised view of the annual reports of the industry, it is possible to mention that, even though current execution of AI is comparatively lower, in future it is expected that AI technologies would be used for soil and land management, crop management, water management, energy management and climate information services. In addition to that AI could be used for design crops against pests, disease and tolerant to droughts/ floods- extreme weather conditions.

(Source of Data: Content analysis of 2024 annual reports of Kelani Valley Plantations Plc, Sunshine Holdings Plc, Talawakelle Tea Estates Plc)

**Existing and prospective usage of AI Reported in Healthcare Industry in Sri Lanka**

Within the healthcare sector companies, remote and virtual care has been increased. AI is expected to be utilised to continuous monitoring of the health condition. Furthermore, usage of the wearable devices that operate on the Internet of Medical things (IoMT) Platform, is being an upcoming trend within the sector. These devices are being used to continuously monitor conditions such as COPD, Heart arrhythmias, Asthma, and pain management.

IoMT devices are being used for the predictive maintenance capabilities for medical equipment which reduce the down times as well. Smart watches, continuous glucose monitors, pain management devices, cardiovascular disease management devices and EEG monitors are some examples for continuous automated monitoring which have been backed by advanced technologies including AI.

Artificial intelligence (AI) is also taking on an expanding role in the healthcare industry, with the potential to revolutionise both administrative functions and care delivery. AI is delivering significant value in areas such as diagnosis and automating hospital process workflows. AI is expected to increase accuracy and speed in medical research, diagnostics, and long-term care planning by mimicking human reasoning and leveraging big data processing and pattern recognition.

AI applications span the entire medical ecosystem, from routine health problem treatments to complex disease management and clinical decision support. Healthcare providers are increasingly partnering with technology companies to develop sophisticated AI solutions. Moreover, Predictive AI can assist with administrative functions by forecasting patient and staffing needs.

AI applications which are extensively used in few developed countries' healthcare, and which are expected to be implemented within the Sri Lankan context could be elaborated as below. AI/ML algorithms could be used to provide insights to improve diabetes care and outcomes, while AI-assisted analysis of radiological images, enabling faster processing and detection of anomalies that may escape the human eye. AI chatbots are expected to be powered by natural language processing (NLP) that gather and triage patient information and directing queries to the appropriate medical professional. In addition, pattern recognition in patient genetics and healthcare data analysis to tailor treatment plans to individual needs, is in the planning stage within Sri Lankan context. Furthermore, significant time reduction in the drug development cycle could be achieved through employing AI-powered efficiencies throughout the process.

In a summarised viewpoint, AI and other advanced technologies contribute significantly to improving patient care, through reducing medication errors and enhancing preventive care.

(Source of Data: Content analysis of 2024 recent annual report of Nawaloka Hospitals Plc)

**IV. Conclusion and Recommendations**

This chapter would summarise the key findings and discussions of the content analysis along with the indication of research objective achievement. Chapter would be concluded with providing recommendations and managerial implications of the research which would be followed by the suggestions for future research.

**Summary of Key findings**

As per the content analysis conducted based on the most recent annual reports of public listed companies in Sri Lanka, only less than 10% of the companies have reported existing and prospective AI usages within their business context. Banks and diversified financial institutions had reported AI based usage such as AI powered digital marketing campaigns, AI Cover Visual, Chatbots, Analytics data repository and oracle data bases, AI powered digital banking platform and Self-serving gold loan top-up options. Insurance companies have reported AI initiatives such as Automated Claim Processing, Marketing with AI Deep Fake Option, AI based underwriting and bill prediction, Big Data analytical tools to analyse client behaviour and policy customization. Telecommunications companies had reported existing and prospective AI usages such as Global level AI oriented conferences, Metaverse concerts and digital art exhibitions, Automated voice command support, AI based video analytics and AI integrated billing consolidation.

Companies within Material and Capital Good industries are utilizing AI for Project automation, AI Based pricing and margin improvement decisions, AI based compliance issue resolution and Automated analysis of ingredients and manufacturing procedures. Consumer Durable and Retail Industries' companies have reported that AI is being utilized for Shop floor automation, Automated infrastructure monitoring, AI powered waste management solution and AI base raw-material requirement forecasting. Consumer Service industry companies have reported that, they are utilising AI based travel apps, Predictive analytics to identify travel trends, sentiment analysis through advance virtual assistance, virtual tours of destination and automated room rate optimisation. When it comes to the Food, Beverage and Tobacco industry, AI has been reportedly utilized for enhanced yield predictions, crop and soil monitoring, intelligent pesticides application, improved threat detection and AI base agricultural drones. Finally, the healthcare industry have reported significant amount of AI utilization such as AI powered wearable devices, predictive maintenance capabilities for medical equipment, automating hospital process workflows, AI powered clinical decision support, predictive AI for forecasting patient and staffing needs, AI-assisted analysis of radiological images, pattern recognition in patient genetics and also directing queries to the appropriate medical professional through AI chatbots.

**Managerial Implications and Suggestions for Future Research**

As per the finding which have presented throughout the study, AI has been effectively being used within companies in Sri Lanka, to save the cost and time while enhancing the efficiency and performance in a significant way. However, only 10% of the companies have reported regarding the AI usage, while 90% are not have even mentioned regarding any initiative. This study would provide a clear overview of the possibilities of AI usage within different industries, which are practically being used in Sri Lankan context.

Future research could be conducted to identify further application within public listed companies, non-listed companies and other business entities as well, as AI is a continuously developing technology while the impact of AI technology on different industrial and business performance measures also could be studied.

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