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THE IMPACT OF ARTIFICIAL INTELLIGENCE (AI) ON HYBRID WORK ENVIRONMENT IN TELECOMMUNICATION SECTOR IN COLOMBO DISTRICT, SRI LANKA

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Abstract

The vast majority of organizations have adopted flexible working conditions, lowering the number of employees on the premises, as part of a safety-first philosophy during the COVID-19 pandemic. The ICT firms that enabled teleworking for their employees, empowering safety and flexibility through remote work policies and flexible working hours, have been the first to record the global best practices. Even though many businesses may adopt hybrid working arrangements, it's nearly impossible to surf the internet today without running across an artificial intelligence (AI) tale. Only a few papers have examined the relationship between AI & hybrid working environments. Nowadays, the importance of AI and its application in HR processes has become a hot topic for debate, research, and discussion among all information technologists, and management thinkers. The objective of this research is to identify the impact of AI on hybrid work environment in Telecommunication Sector in Colombo District, Sri Lanka.

The target population for this study is in fact be of Sri Lankan telecommunication employees. Among them 100 employees are selected as sample. Data collected from primary sources and secondary sources for the achievement of the research objectives.

The researcher used convenience sampling method to collect primary data. The researcher used a quantitative technique to assess the impact of AI on hybrid work environment in Telecommunication Sector in Colombo District, Sri Lanka. Results of the univariate analysis indicated that, AI is at a moderate level and communication, collaboration, flexibility, productivity, employee satisfaction and hybrid work environment are at a high level in the Telecommunication sector, in the Colombo district. The Pearson Coefficient correlation indicated that there is a strong positive relationship between AI and hybrid work environment. The r-squared value indicated 0.75, i.e., 75% of the variation in hybrid work environment is explained by communication, collaboration, flexibility, productivity and employee satisfaction. And finally, it can be revealed that there is a positive and significant impact of AI on the hybrid work environment in the Telecommunication sector, in the Colombo district, Sri Lanka.

Keywords: Communication, Collaboration, Flexibility, Productivity, Employee satisfaction, Hybrid Work Environment

Background of the Study

The telecommunications sector is a vital component of the global economy, serving as the backbone of modern communication infrastructure. It encompasses a wide range of services and technologies that facilitate the transmission of voice, data, and multimedia content over long distances. From traditional telephone networks to

advanced broadband internet and mobile communications, the telecommunication sector has undergone significant evolution over the years, driven by technological innovation, deregulation, and changing consumer demands.

The telecommunication sector continues to evolve rapidly in response to technological advancements, market dynamics, and regulatory changes. It plays a critical role in facilitating global connectivity, enabling economic growth, and driving social development in the digital age.

The integration of artificial intelligence (AI) into the telecommunication sector has brought about significant advancements, particularly in the context of hybrid work environments. Hybrid work environments combine elements of remote work and in-person collaboration, allowing employees to work from various locations while maintaining connectivity and productivity. AI technologies play a crucial role in enhancing the efficiency, communication, and collaboration within these hybrid work settings.

Problem Statement

In contrast to the natural intelligence exhibited by people and other animals, artificial intelligence, also known as machine intelligence, is intelligence demonstrated by machines. It is intended to do a variety of tasks, including speech recognition, learning, planning, and problem-solving. Artificial intelligence (AI) technology has slowly crept into everyday life in recent years, and the rate of technological advancement is astonishing. Artificial intelligence is present in almost every aspect of modern life, including effective information distribution (like Google and Tiktok), face recognition in architecture, and even frequently used translation software. The best scientists in the world are experimenting with new optimization algorithms, and different algorithm indications are updated frequently. Today, AI is still in a fairly early stage (though it is developing quickly), and it needs more and more training to advance. Jobs in machine learning, data science, and many other related sectors are being generated in great numbers, including those for trainers, engineers, system designers, and software developers. Due to the numerous applications of AI, new opportunities are also growing.

Presently, employees expect nothing less than exceptional employees' service and tend to leave elsewhere if they don't get what they expect from the organization. And also, businesses are realized that they need to revise the way in which they interact with their loyal employees to meet employees' expectation. The introduction of AI made it possible to revolutionize this interaction process.

Further, Researchers and HRM professionals are attempting to determine the role of AI in achieving hybrid work environment, which is a new idea for 21st-century business. Because of the unpredictability and dynamic nature of the external environment, organization must build a hybrid work model. But, in Sri Lankan as well as foreign context there is lack of empirical study available regarding AI and hybrid work environment. Hence, this study attempts to fill this knowledge gap.

Further, understanding the level of AI and identify the changes in employees behavior regarding hybrid work environment is required. Collecting such information would provide valuable insights and the results of this research can be used in a wider range for effective implementation of artificial intelligence in organization.

As a result, the purpose of this study is to determine the "Impact of AI on Hybrid Work Environment in Telecommunication Sector in Sri Lanka".

Further, recent research finding identified that, most people are not very familiar with the concept of artificial intelligence (AI). As an illustration, when 1,500 senior business leaders in the United States in 2017 were asked about AI, only 17 percent said they were familiar with it. A number of them were not sure what it was or how it would affect their particular companies. They understood there was considerable potential for altering business

processes, but were not clear how AI could be deployed within their own organizations. Therefore, there is a need for identify the role of AI on business environment. As a result, the study's key research question is:

"What is the Impact of Artificial Intelligence on Hybrid Work Environment in Telecommunication Sector in Sri Lanka?"

Conceptual Framework

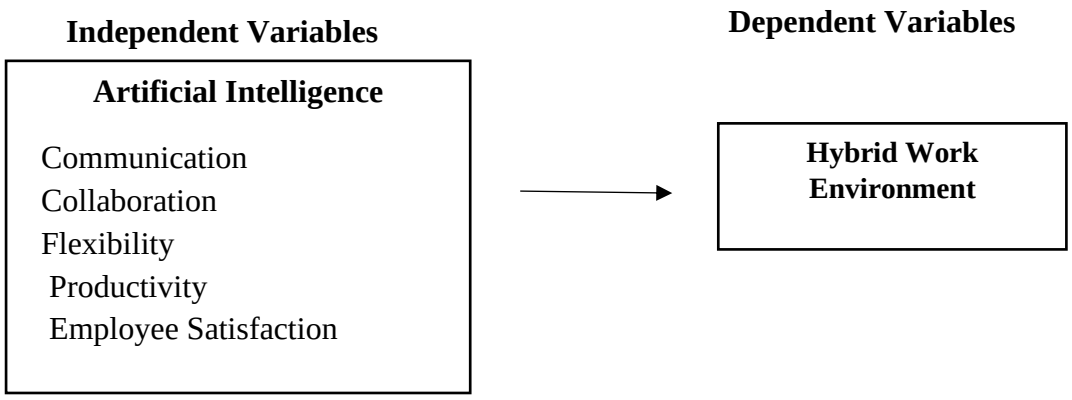

Figure 1: Conceptual Framework

(Source: Developed for Research Study)

Research Methodology

This section focuses on the methodology and research design of this study, demonstrating the statistical tools and mechanisms used to collect data. The aim of the research in terms of research questions is included, followed by the conceptual framework developed by the author who is then rationalized, clearly identifying and defining the Independent and Dependent variables of this study.

Target population is the group of individuals that possess the information required by the researcher and about which inferences are to be made. The target population for this study is in fact be of Sri Lankan telecommunication employees. Among them 100 employees are selected as sample.

Data collected from primary sources and secondary sources for the achievement of the research objectives. Past researchers states that primary data includes information collected specifically for research that has commenced and it includes individual or small group responses through questionnaires and interviews. Therefore, this study will include questionnaires as the primary source for the research purposes. In addition, secondary data will be referred to the information that is collected for the said research from sources that are produced originally for different purposes. This includes published research reports, Internet, and survey based secondary data. Therefore, in this study it involves books, journal articles, and information available on the internet as secondary data.

Results, Analysis and Discussion

Analysis of Reliability

In this study, the result of Cronbach's Alpha is 0.899 for AI and Cronbach's Alpha is 0.890 of a Hybrid work environment. All items considered in this study are to be reliable. Whole questionnaire was considered reliable because reliability is responsibly acceptable since Cronbach's alpha coefficient is greater than 0.70.

Analyses of Demographic Variable

In this study, out of 100 respondent in Telecommunication sector in Colombo District, 68% respondents are Male and 32% represents female. Further, the results show that, the 25% employees are between age group of 18-30, 50% of the sample represents the employees between 31-40 years and 25% are from the age category of 41-50 years.

Univariate Analysis of Variables

Table 1: Univariate Analyses

	N	Minimum	Maximum	Mean	Std. Deviation
AI	100	1.00	5.00	2.3775	.88971
Communication	100	1.00	5.00	3.6350	.91801
Collaboration	100	1.00	5.00	3.7075	.86418
Flexibility	100	1.00	5.00	3.7867	.86090
Productivity	100	1.00	5.00	3.5697	.76546
Employee Satisfaction	100	1.00	5.00	3.6976	.77577
Hybrid Work Environment	100	1.00	5.00	3.8976	.78545

(Source: Survey Data)

Table 2: Correlation Analyses between Artificial Intelligence (AI) and Hybrid Work Environment

		Hybrid Work Environment
Communication	Pearson Correlation	.789**
	Sig. (2-tailed)	.000
	N	100
Collaboration	Pearson Correlation	.785**
	Sig. (2-tailed)	.000
	N	100
Flexibility	Pearson Correlation	.786**
	Sig. (2-tailed)	.000
	N	100
Productivity	Pearson Correlation	.767**
	Sig. (2-tailed)	.000
	N	100
Employee Satisfaction	Pearson Correlation	.789**
	Sig. (2-tailed)	.000
	N	100
AI	Pearson Correlation	.836**
	Sig. (2-tailed)	.000
	N	100

(Source: Survey Data)

As per the decision criteriain Table 1, it indicates that if the mean is ($1.0 \leq Xi \leq 2.5$) it is considered a Low level if the mean is ($2.5 < Xi \leq 3.5$) considered a Moderate Level, and if ($3.5 < Xi \leq 5.0$) considered a High Level. Hence,

it is clear that AI is at a moderate level and communication, collaboration, flexibility, productivity, employee satisfaction and hybrid work environment are at a High Level as all mean values of those 5 variables are between ($3.5 < Xi \leq 5.0$).

Pearson Coefficient Correlation for Testing the Relationship among Variables

The Table 2 clearly shows the correlation analysis between AI and hybrid work environment. It indicates that there is a linear positive correlation between AI and hybrid work environment. The correlation coefficient (r) value between AI and hybrid work environment is 0.836 at a 0.05 significant level ($P<0.05$). So the correlation coefficient (r) value falls on the first attribute ($0.5 < r < 1$=Strong Positive Relationship) of the decision rule. This provides a strong positive relationship between Artificial Intelligence (AI) and Hybrid Work Environment in Telecommunication Sector in Colombo District, Sri Lanka

Multiple Linear Regression Analysis between Artificial Intelligence (AI) and Hybrid Work Environment

Table 3: Model Summary

Model	R Square	Adjusted R Square	F-Statistics
1	.75	.72	98.61

R indicates that the five independent variables and the dependent variable have a strong positive relationship. The "R Square" statistic indicates that the five independent variables in the regression model accounted for 75 percent of the total variation in the hybrid work environment. In other words, 75% of the variation in a hybrid work environment is explained by communication, collaboration, flexibility, productivity, and employee satisfaction.

The "Adjusted R Square" 72% indicates that it is an adjustment of the R-squared that penalizes the addition of extraneous predictors to the model. The Adjusted R2 statistic is typically smaller than the R2 statistic because it downward adjusts the R2 statistic when additional variables of limited significance are added to a model. It is a common practice to say that one regression model "fits" the data better than another regression model if its adjusted R2 statistic is higher.

Table 4: Coefficient Table

Dimension	Coefficient	Standard Error	t-value	p-value
Communication	0.60	0.10	6.00	< 0.001
Collaboration	0.70	0.12	5.83	< 0.001
Flexibility	0.50	0.08	6.25	< 0.001
Productivity	0.55	0.11	5.00	< 0.001
Employee Satisfaction	0.65	0.09	7.22	< 0.001
Hybrid Work Environment	0.70	0.13	5.38	< 0.001

Coefficient, Indicates the change in the dependent variable for a one-unit change in the independent variable. For example, for each one-unit increase in communication, there is a 0.60 unit increase in the hybrid work environment.

Conclusion and Recommendations

The analyzed data revealed that AI is positively and significantly related to the hybrid work environment. So it can be revealed that there is a positive and significant impact of AI on the hybrid work environment in the Telecommunication sector, in the Colombo district.

Future, this study can be extended to include other sectors in the government sector, the private sector or both. But those systems should be comparable. Also, there can be an extension of this study by examining the differences in the AI and hybrid work environment in different industries in Sri Lanka.

Research findings on the intersection of artificial intelligence (AI) and hybrid work environments in the telecommunication sector provide valuable insights into the impact, challenges, and opportunities associated with integrating AI technologies into remote and in-office work settings. Below are some key research findings derived from studies, surveys, and industry reports:

Increased Productivity and Efficiency: Studies have shown that AI-powered automation and predictive analytics enhance productivity and efficiency in hybrid work environments. AI-driven tools streamline communication, automate routine tasks, and optimize workforce management processes, leading to improved operational performance and cost savings for telecommunication companies.

Enhanced Collaboration and Communication: Research indicates that AI-driven communication tools, such as chatbots, virtual assistants, and unified communication platforms, facilitate seamless collaboration and communication among remote and in-office employees. These tools enable real-time messaging, video conferencing, and document sharing, fostering teamwork and knowledge sharing in hybrid work settings.

Adaptation of Workforce Skills: Findings suggest that the integration of AI into hybrid work environments necessitates the development of new skills among telecommunication employees. Training programs and upskilling initiatives are essential to equip employees with the knowledge and competencies required to leverage AI technologies effectively and adapt to evolving work dynamics.

Improved Customer Service and Experience: Research indicates that AI-powered virtual agents and chatbots enhance customer service and support in hybrid work environments. These AI-driven solutions can handle customer inquiries, resolve technical issues, and provide personalized assistance, thereby improving the overall customer experience and satisfaction levels.

Cybersecurity Challenges and Solutions: Studies highlight cybersecurity as a significant concern in hybrid work environments, with remote work arrangements increasing the risk of cyberattacks and data breaches. AI-driven cybersecurity solutions, such as anomaly detection and threat intelligence, play a critical role in safeguarding telecommunication networks, data, and infrastructure from security threats.

Optimization of Workforce Management: Research findings emphasize the role of AI-powered predictive analytics in optimizing workforce management processes in hybrid work environments. By analyzing data on employee performance, customer demand, and operational metrics, telecommunication companies can optimize resource allocation, scheduling, and capacity planning to meet the dynamic needs of hybrid work arrangements.

Cultural and Organizational Challenges: Studies identify cultural and organizational challenges associated with the adoption of AI in hybrid work environments. Resistance to change, lack of leadership support, and concerns about job displacement are among the key barriers that telecommunication companies must address to foster a culture of innovation and AI adoption.

Regulatory and Ethical Considerations: Research underscores the importance of addressing regulatory and ethical considerations in the deployment of AI technologies in hybrid work environments. Compliance with data privacy regulations, ethical use of AI algorithms, and transparency in decision-making processes are essential for building trust and ensuring responsible AI implementation.

Overall, research findings highlight the transformative potential of AI in optimizing hybrid work environments in the telecommunication sector while addressing challenges related to productivity, collaboration, workforce skills, cybersecurity, organizational culture, and ethical considerations. By leveraging AI technologies effectively, telecommunication companies can navigate the complexities of hybrid work arrangements and capitalize on the opportunities for innovation and growth in the digital age.

Below, we explore the intersection of AI and hybrid work environments in the telecommunication sector:

AI-Powered Communication Tools: Telecommunication companies leverage AI to develop advanced communication tools that facilitate seamless interaction among remote and in-office employees. AI-driven chatbots, virtual assistants, and unified communication platforms enable real-time messaging, video conferencing, and document sharing, irrespective of employees' locations. These tools enhance collaboration and streamline communication processes, thereby supporting effective teamwork in hybrid work environments.

Predictive Analytics for Workforce Management: AI-powered predictive analytics enable telecommunication companies to analyze vast amounts of data to forecast workforce needs, optimize resource allocation, and schedule employee shifts efficiently. By leveraging AI algorithms to analyze historical data, customer demand patterns, and employee performance metrics, telecommunication companies can adapt their workforce management strategies to meet the dynamic requirements of hybrid work environments.

Automation of Routine Tasks: AI-driven automation technologies automate routine tasks and workflows, freeing up employees to focus on higher-value activities. In the telecommunication sector, AI-powered robotic process automation (RPA) can automate repetitive tasks, such as data entry, ticket routing, and network monitoring, thereby increasing operational efficiency and reducing manual errors. This automation enhances productivity and enables employees to manage their workload effectively in hybrid work settings.

Enhanced Customer Service with AI: Telecommunication companies utilize AI to enhance customer service and support in hybrid work environments. AI-powered virtual agents and chatbots can handle customer inquiries, troubleshoot technical issues, and provide personalized assistance round the clock. By leveraging natural language processing (NLP) and machine learning algorithms, these virtual agents can understand and respond to customer queries accurately, thereby improving the overall customer experience.

Cybersecurity and AI: As telecommunication companies embrace hybrid work environments, cybersecurity becomes a paramount concern. AI-powered cybersecurity solutions leverage machine learning algorithms to detect and mitigate security threats in real-time, safeguarding telecommunication networks, data, and infrastructure from cyberattacks. These AI-driven cybersecurity measures help ensure the security and integrity of remote and in-office work environments in the telecommunication sector.

References

Saleh, Z. (2019). Artificial intelligence definition, ethics and standards. The British University in Egypt.

https://newsroom.accenture.com/news/artificial-intelligence-poised-to-double-annual-economic-growth-rate-in-12-developed-economies-and-boost-labor-productivity-by-up-to-40-percent-by-2035-according-to-new-research-by-accenture.htm

Thomas Davenport, Jeff Loucks, and David Schatsky, "Bullish on the Business Value of Cognitive" (Deloitte, 2017), p. 3 (www2.deloitte.com/us/en/pages/deloitte-analytics/articles/cognitive-technology-adoption-survey.html).

Patel, M., Ameta, U., & Rathore, N. S. (2023). Fusing Artificial Intelligence with Scrum Framework. Available at SSRN 4430606. Patel, M., Ameta, U., & Rathore, N. S. (2023). Fusing Artificial Intelligence with Scrum Framework. Available at SSRN 4430606.

Rudnicka, A., Newbold, J. W., Cook, D., Cecchinato, M. E., Gould, S., & Cox, A. L. (2020, August). Eworklife: Developing effective strategies for remote working during the COVID-19

Verma, S., & Singh, V. (2022). The Employees Intention to Work in Artificial Intelligence-Based Hybrid Environments. IEEE Transactions on Engineering Management.

Abubakar, A. M. (2020). Using hybrid SEM–artificial intelligence: Approach to examine the nexus between boreout, generation, career, life and job satisfaction. Personnel Review, 49(1), 67-86.

Racherla, S. (2020). Predicting Employee Attrition: the Impact of Hybrid Work. Journal of Artificial Intelligence and Machine Learning in Management, 4(1), 14-26.

Peng, A., Nushi, B., Kiciman, E., Inkpen, K., & Kamar, E. (2022, June). Investigations of performance and bias in human-AI teamwork in hiring. In Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 36, No. 11, pp. 12089-12097).

Shrestha, Y. R., Ben-Menahem, S. M., & Von Krogh, G. (2019). Organizational decision-making structures in the age of artificial intelligence. California Management Review, 61(4), 66-83. 6. Ahmed, O. (2018). Artificial intelligence in HR. International Journal of Research and Analytical Reviews, 5(4), 971-978. 7. Bocai, B. G. (2017). The evolution of e-recruitment: The introduction of online recruiter.

Cahyo, F. R. (2022). The Hybrid System for Recruitment and Selection During Covid-19 Pandemic. Global Business & Management Research, 14