

From Automation to Augmentation: AI's role in Viksit Bharat's Growth 2047

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Abstract: Artificial Intelligence, a subfield of computer science it gaining popularity as it enhances human capacities in various fields. In the last two decades, it has significantly improved manufacturing, service sectors & education. The technology, known as expert system, is widely used in education, engineering, business medicine & wealth forecasting resulting in increased quality and efficiency. Thus, paper explores the transformative potential of AI in India's journey towards becoming developed nation by 2047 highlighting its shift from automation to Augmentation.

Keywords: Artificial Intelligence, Automation and Augmentation.

Introduction: Artificial intelligence is crucial for economic growth, and Viksit Bharat promotes modern businesses and entrepreneurship. PM Modi's "Viksit Bharat@2047" aims to transform India into a \$30 trillion developed economy by 2047, focusing on skilled youth force synergies and government policies. The World Economic Forum suggests India needs to skill and upskill over 400 million workers by 2030. AI-powered warehouse management systems optimize storage layouts, pick-and-pack processes, and predict setbacks. The real power lies in focusing on synergy, enhancing people's abilities and unlocking new potential in outputs. AI could bridge India's skills gap by identifying and enhancing blue-collar workers' strengths and weaknesses. This AI skill augmentation could enhance productivity, reduce costs, and make India globally competitive. However, challenges like India's digital divide must be addressed to fully realize AI's potential. "Viksit Bharat@2047" focuses on micro-level aggregation, focusing on local solutions like rural infrastructure, internet access, digital literacy programs, upskilling initiatives, and AI technology. These solutions cater to blue-collar workers' needs, optimize agricultural practices, and bridge the digital divide. The potential of AI and human abilities can be understood through the analogy of Tony Stark and JARVIS, enabling superhuman feats and complex problem-solving. The blue-collar workforce can evolve and overcome limitations through AI augmentation, contributing to India's success story in 2047. **"Viksit Bharat 2047" aims to make India a developed country by 100th independence anniversary, with AI playing a crucial role in achieving this goal.**

1. **Economic Growth:** AI can significantly enhance production and efficiency in various industries by automating repetitive tasks and streamlining processes, thereby expanding job opportunities and boosting productivity.

2. **Healthcare:** AI-powered solutions could revolutionize the medical field by enabling early diagnosis, personalized treatment plans, and effective resource management, leading to lower costs and improved health outcomes.

2. **Education:** AI can enhance classroom accessibility and efficiency by tailoring lessons to meet individual student needs, thereby closing the achievement gap.

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4. **Agriculture:** AI can enhance agricultural productivity through automated machinery, predictive analytics, and precision farming, leading to improved decision-making, reduced waste, and higher yields for farmers.

5. **Infrastructure Development:** AI can enhance the creation of intelligent and sustainable cities by optimizing resource allocation, traffic control, and urban planning.

6. **Workforce Development:** AI can significantly enhance workforce readiness by enabling reskilling and upskilling of workers to adapt to new tasks and technology.

Benefit of leveraging AI

Increased Productivity: AI automates repetitive tasks, reducing manual intervention and speeding up processes. IT professionals can automate routine maintenance tasks, allowing them to focus on strategic initiatives.

Enhanced ability to make decisions: AI-powered analytics offer IT Professionals real-time insights into their systems, identifying patterns, trends, and anomalies, enabling informed decision-making and potential issue prevention.

Proactive security protocols: AI-based cybersecurity solutions detect and respond to real-time threats, enhancing organizations' defense against cyber attacks by continuously monitoring network traffic and identifying suspicious activities.

Flexibility and scalability: AI systems are scalable, adaptable, and dynamic, enabling IT infrastructure to evolve dynamically, ensuring organizations remain agile and competitive in the face of changing business needs.

Literature review

Md Ferdous Alam et.al Industry trends, historical analysis, and present Gen-AI capabilities all influence the development of NextGen-AI technologies for engineering design and manufacturing. The authors contend that although there may not be much productivity gain from the current technologies, domain-specific obstacles can be addressed. They draw attention to problems with workflow integration, accuracy, and robustness. They also draw attention to economic issues including the distribution of resources and fluctuations in the labor market. In order to produce NextGen-AI that is helpful, they suggest a strategy framework that includes digitizing expertise, fostering collaboration among smaller enterprises, integrating first-principles design methodologies, and promoting human creativity. Additionally, they implore authorities and business executives to give systems integration, data ownership, and security top priority.

Haleem, Abid & Javaid et.al Hyperautomation aims to increase sustainability and revenue by increasing human labor through automated technology and tools. Companies must understand the interrelationships and interoperability of automation methods to successfully scale up operations. Hyperautomation enables companies to automate complex business processes, combining event logs and discovering hidden processes. Emerging technologies like AI can be paired with automation to tackle complex issues and simplify operations. By reducing repetitive operations and automating manual ones, hyperautomation improves efficiency, reduces costs, and enhances customer experience. However, hyperautomation can pose

challenges in new business processes or infrastructure. Investing in new technology can lead to increased productivity, cost savings, and risk management.

Rayhan, Abu. The impact of AI and automation on various industries, employment positions, and the nature of labor in the future are examined in this study paper. It talks about difficulties, moral issues, legislative issues, and regulatory ramifications. It emphasizes the necessity of adaptation, workforce upskilling investments, and the development of various skill sets for both individuals and enterprises. It highlights how crucial cooperation, conscientious AI development, moral reflection, and ongoing education are to a peaceful future.

Objective

- To discuss the shift from automation to augmentation & its implication for India's in achieving Viksit Bharat Vision 2047.

Hypothesis:

Null Hypothesis (H0): In India, the transition from automation to augmentation has no appreciable effect on improving worker skills, creating jobs, growing the economy, embracing digitalization, granting access to healthcare and education, managing resources, or keeping an eye on the environment.

Alternative Hypothesis (H1): In India, the transition from automation to augmentation leads to a notable improvement in workforce skills, new job opportunities, economic growth, digital inclusion, access to healthcare and education, and improved resource management and environmental monitoring.

Methodology: The research utilized a quantitative, deductive technique to collect data from a specific demographic, allowing for hypothesis testing and identifying causal linkages between variables. The study aimed to clarify theoretical ideas and empirical results, using a causal model for numerical results.

Case Processing Summary^a

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
AI	52	100.0%	0	.0%	52	100.0%
Eco	52	100.0%	0	.0%	52	100.0%
Soc	52	100.0%	0	.0%	52	100.0%
Gov	52	100.0%	0	.0%	52	100.0%

Case Processing Summary Interpretation: The Case Processing Summary outlines the data used in the analysis, including 52 AI cases (100.0%), 52 Eco cases (100.0%), 52 Sociology cases (0.0%), and 52 Gov cases (100.0%). All 52 cases were included in the analysis, ensuring that the dataset was complete for all variables. The analysis was conducted on the full dataset, ensuring that the results are based on all available data. The data was included in the analysis for AI, Eco, Sociology, and Gov, ensuring that the analysis was comprehensive and accurate.

Case Summaries

Case Summaries					
Case / Group	Statistic	AI	Eco	Soc	Gov
1		1.60	3.67	4.00	4.00
2		1.60	4.33	4.50	5.00
3		2.20	4.67	4.00	4.00
4		1.80	3.00	4.00	4.00
5		1.20	3.67	4.00	4.00
6		1.60	5.00	3.00	4.00
7		1.20	3.33	3.00	2.50
8		1.80	4.67	5.00	4.00
9		2.40	4.00	4.50	4.00
10		2.20	3.67	4.00	3.00
11		1.80	4.00	4.00	4.00
12		1.20	4.67	4.00	3.00
13		1.40	2.33	1.50	1.50
14		1.60	3.00	3.00	3.00
15		1.20	5.00	4.00	4.00
16		1.80	4.00	3.50	4.50
17		1.40	3.00	4.00	2.50
18		1.80	2.00	2.00	1.50
19		1.60	3.67	3.50	4.00
20		1.80	4.00	4.50	4.50
21		1.60	4.00	4.00	4.00
22		1.20	3.67	5.00	4.50
23		1.60	4.00	4.00	4.00
24		1.20	4.67	4.00	4.50
25		1.40	3.00	3.00	3.00
26		1.40	3.67	3.50	3.50
27		1.20	4.00	4.00	4.00
28		1.80	4.00	3.50	5.00
29		1.80	3.00	4.00	3.50
30		1.60	4.00	4.50	4.50
31		1.20	4.67	4.00	4.00
32		1.40	3.00	4.00	2.50
33		1.20	3.67	4.00	4.50
34		1.40	3.33	3.00	4.00
35		2.20	4.33	4.00	5.00
36		2.40	2.33	2.50	3.00
37		1.60	3.67	3.00	2.50
38		1.80	3.67	3.50	4.50

Case Summaries					
Case / Group	Statistic	AI	Eco	Soc	Gov
39		2.20	4.33	4.00	3.50
40		1.20	4.33	4.00	4.00
41		1.80	1.33	1.00	1.00
42		1.60	2.33	2.00	2.50
43		1.80	3.67	3.00	4.00
44		1.60	3.67	3.50	4.50
45		1.20	3.33	3.00	4.00
46		1.40	2.67	2.50	1.00
47		1.40	2.67	2.00	2.00
48		1.60	3.00	3.50	4.00
49		1.20	4.00	4.00	4.00
50		1.20	4.67	4.00	4.00
51		1.60	4.00	4.00	3.50
52		1.60	1.00	1.00	1.00
Total	N	52	52	52	52
Total	Mean	1.5885	3.6026	3.5192	3.5481
Total	Median	1.6000	3.6667	4.0000	4.0000
Total	Range	1.20	4.00	4.00	4.00
Total	Std. Deviation	.32998	.86832	.90186	1.03970
Total	Variance	.109	.754	.813	1.081
Total	Kurtosis	.080	.927	1.164	.490
Total	Skewness	.722	-.867	-1.144	-1.072
Total	Std. Error of Mean	.04576	.12041	.12507	.14418

a. Limited to first 100 cases.

Case Summaries Interpretation

For every variable—AI, Eco, Soc, and Gov—detailed statistical data is shown in the Case Summaries table. With a median score of 1.6000, the average AI is 1.5885. With a standard deviation of 0.32998 and a range of 1.20, there is little variety. The Eco score average is 3.6026, with a -0.867 skewness, a 0.86832 standard deviation, and a 0.754 variance. With a median score of 4.0000, the Soc score is 3.5192 on average. AI has a range of 1.20 with a standard

The study analyzed the differences in AI, Eco, Sociology, and Gov scores between different groups. The results showed that there were no statistically significant differences between the groups for AI, Eco, Sociology, and Gov. The F-values were greater than 0.05, indicating that there were no significant differences between the groups for any of the variables.

In terms of AI, the F-value was 1.054, with a significance level of 0.390, indicating no statistically significant difference between the groups. In terms of Eco, the F-value was 1.402, with a significance level of 0.248, indicating no statistically significant difference between the groups. In terms of Sociology, the F-value was 1.703, with a significance level of 0.165, indicating no statistically significant difference between the groups. In terms of Gov, the F-value was 1.790, with a significance level of 0.147, indicating no statistically significant difference between the groups.

In summary, the p-values for all four variables (AI, Eco, Sociology, and Gov) were greater than 0.05, indicating no statistically significant differences between the groups for any of the variables.

Test Statistics

			AI	Eco	Soc	Gov
Chi-Square			13.769 ^a	33.846 ^b	65.692 ^c	50.808 ^c
Df			5	11	8	8
Asymp. Sig.			.017	.000	.000	.000
Monte Carlo Sig.	Sig.		.016 ^d	.001 ^d	.000 ^d	.000 ^d
	99% Confidence Interval	Lower Bound	.013	.000	.000	.000
		Upper Bound	.019	.001	.000	.000

The minimum expected cell frequency is 8.7, with 12 cells having a minimum of 4.3. The minimum expected cell frequency is 5.8, with 0 cells having a minimum of 5.8, based on 10000 sampled tables with a starting seed of 2048628469.

Test Statistics Interpretation

The study analyzed the differences in AI, Eco, Sociology, and Gov scores between four groups. The Chi-Square tests were conducted on AI, Eco, Soc, and Gov, with p-values less than 0.05, indicating statistically significant differences between the groups. The results showed no significant differences between the groups for any of the variables, as evidenced by p-values greater than 0.05 for all variables.

The case processing summary showed that all 52 cases were included in the analysis for each variable, ensuring the robustness and reliability of the analysis. Descriptive statistics provided insights into the distribution and variability of the scores for each variable.

AI had a mean of 1.5885, a standard deviation of 0.32998. Eco had a mean of 3.6026, a standard deviation of 0.86832. Sociology had a mean of 3.5192, a standard deviation of 0.90186, and a standard deviation of 3.5481, while Gov had a mean of 3.5481.

The skewness and kurtosis values indicated that the distributions of the scores varied, with some variables showing positive skewness (e.g., AI) and others showing negative skewness (e.g., Eco, Soc, Gov). These findings suggest that the groups differ significantly in their scores for AI, Economics, Sociology, and Government.

Chi-Square Tests

The Chi-Square tests revealed statistically significant differences between the groups for all variables, with p-values less than 0.05. This suggests that the groups differ significantly in their scores for AI, Economics, Sociology, and Government.

Conclusion

The analysis revealed no significant differences in mean scores for AI, Economics, Sociology, and Government among the groups, indicating similar average scores. However, Chi-Square tests revealed significant differences in the distributions of scores between the groups, indicating that the distribution within each group varies significantly. The descriptive statistics provided a detailed overview of the central tendency, variability, and distribution shape for each variable, with differences in skewness and kurtosis values suggesting that the distributions of scores are not uniform across variables.

The findings have implications for policy and program development, further research to understand the underlying factors contributing to these differences, and educational and training interventions for variables like AI and Economics. By understanding these differences, targeted interventions can be designed to address the specific needs of different groups.

Reference

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