ISSN: 2393-8048
International Advance Journal of Engineering, Science and Management (IAJESM)
Multidisciplinary, Multilingual, Indexed, Double Blind, Open Access, Peer-Reviewed, Refereed-International Journal.
SJIF Impact Factor =8.152, January-June 2025, Submitted in March 2025

A Study of E Goverance for Progressive Society in Context of Society 5.0

Ms. Mamata Rout, Research Scholar, Department of Computer Science & Engineering, Glocal University, Mirzapur, Saharanpur (U.P.)
Dr. Amit Singla, Professor, Department of Computer Science & Engineering, Glocal University, Mirzapur, Saharanpur (U.P.)

Abstract

E-governance means that force that is behind digital transformation, such as digital inclusion, transparent governance, and effective service delivery. This research more specifically studies the effect of Common Services Centers (CSCs), internet penetration, and a digital literacy campaign in the establishment of e-governance in India. Using hypothesis testing and growth rate models, the study looks at how the infrastructure of e-governance and the trend of digital adoption are related statistically. The $r = 0.991$, $p < 0.001$ means that the study results indicate that having CSCs implemented is highly positively correlated. The research on the forecast showed that digital literacy started at 27.23% annually from 2015 to 2020, while internet use scaled 15.43% from 2015 to 2023. Though growth rates diminished in recent years, this proves that the digital inclusion measures succeeded. The report suggests that there are investments that need to become more digitally literate, inclusivity of AI in governance, cybersecurity standards that can be improved, and expansion of the CSC (country sufficient condition) coverage. With these, India will be able to fully reap the potential of Society 5.0 and make India a digital society based on people making inclusion and technological empowerment.

Keywords: e-governance, digital inclusion, Common Services Centers, internet penetration, digital literacy, Society 5.0

Introduction

The Indian way of delivering public services through its transparent, effective, and citizen-centric governance models has been completely changed by e-governance. With programs such as Common Services Centers (CSCs) and Digital India, the Indian government is closing the digital gap by providing both rural and urban communities with basic services. Society 5.0 endeavors to become a society of hyperconnectivity driven by AI, where social inclusion is assured and strong technology breakthroughs foster improvement of quality of life.

CSCs have accelerated India's transition from a digital lag to a digital-first governance paradigm enabled by quick growth in the number of CSCs and digital literacy and internet penetration, and they have added value to the civil service through various processes, which include dispersal of grain during times of scarcity, providing market information to rural wholesalers, and facilitating access of the rural poor to basic banking services. The major problems are the lack of good internet connectivity, cybersecurity flaws, and low digital literacy in rural areas, which hinder smooth adoption of e-governance. This research aims to explore the efficiency of India's e-governance ecosystem and provides data-driven insights into India's contribution to achieving Society 5.0 objectives.

Objectives

- To evaluate the expansion and efficacy of India's e-governance programs.
- To examine the relationship among digital literacy rates, internet penetration, and CSC implementation.
- To assess how e-governance affects service accessibility and digital inclusion in rural areas.
- To identify policy gaps and obstacles to the adoption of e-governance.

The need for the research

Although India is going through a digital revolution, the digital divide in literacy of digital

and access to technology continues to be a hindrance in easy e-governance. Metropolitan people, who benefit from portable high-speed internet and contemporizing digital services, are unsettled by the persisting inadequate digital infrastructure and cybersecurity in rural areas.

This research is necessary for assessing the efficacy of the present e-governance models, finding policy gaps, and suggesting some creative approaches to strengthen digital governance in India. This study contributes to guaranteeing that India's transition to Society 5.0 will continue to be supported by e-governance by looking at CSCs, how they use the internet, and the e-literacy initiatives.

Research Methodology

This research puts to the test the implementation of e-governance in India using a quantitative as well as qualitative methodology in the context of Society 5.0. Data is collected from government papers, scholarly publications, and industry sources to be able to evaluate the impact of Common Services Centers (CSCs), the level of internet penetration, and digital literacy on the digital transformation.

In the quantitative study, descriptive statistics, correlation analysis, regression models, and hypothesis testing are used to analyze the relationship between e-governance in foundations and digital inclusion. Using growth rate analysis and compound annual growth rate (CAGR) calculations, growth patterns of CSCs and digital literacy initiatives, as well as internet usage, are measured.

The qualitative component provides the review of academic publications and regulatory documents on governance issues, policy frameworks, and ICT adoption by the means. This research guarantees data quality by comparing data from many sources and using hypothesis testing to determine statistical significance in where e-governance is adopted.

Data Collection

Table 1: Number of Common Services Centres (CSCs) in India (2015-2023)

Financial Year	Number of CSCs (in thousands)
2015	150
2016	200
2017	250
2018	300
2019	350
2020	400
2021	450
2022	500
2023	558

Source: Ministry of Electronics and Information Technology (MeitY), Government of India. Data retrieved from Statista: https://www.statista.com/statistics/1196938/india-number-of-common-services-centres/

Table 2: Internet Subscribers in India (2015-2023)

Year	Internet Subscribers (in millions)
2015	302.35
2016	342.65
2017	422.19
2018	493.96
2019	636.73
2020	749.07
2021	829.30
2022	881.25
2023	954.00

Source: Telecom Regulatory Authority of India (TRAI) Annual Reports. Data retrieved from The Times of India: https://timesofindia.indiatimes.com/technology/tech-news/trai-annual-report-internet-subscribers-surge-growth-in-telecom-sector-and-more/articleshow/112657524.cms

Table 3: Digital Literacy Rate in Rural India (2015-2020)

Year	Digital Literacy Rate (%)
2015	15
2016	20
2017	25
2018	30
2019	40
2020	50

Source: Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) Reports. Data retrieved from the Ministry of Electronics and Information Technology (MeitY), Government of India: https://www.pmgdisha.in/

Table 4: Growth Rate Analysis (Year-over-Year)

Year	CSC Growth (%)	Internet Subscriber Growth (%)	Digital Literacy Growth (%)
2016	33.33	13.33	33.33
2017	25.00	23.21	25.00
2018	20.00	17.00	20.00
2019	16.67	28.90	33.33
2020	14.29	17.64	25.00
2021	12.50	10.71	NA
2022	11.11	6.26	NA
2023	11.60	8.26	NA

Table 5: Correlation Analysis

Variables	Correlation Coefficient (r)
CSCs vs Internet Subscribers	0.987
CSCs vs Digital Literacy Rate	0.991
Internet Subscribers vs Digital Literacy	0.982

Hypothesis Testing

Null Hypothesis (H0): There is no significant correlation between the number of CSCs and digital literacy rate

Alternative Hypothesis (H1): There is a significant positive correlation between the number of CSCs and digital literacy rate

Table 6: Hypothesis Testing Results

Parameter	Value
Correlation Coefficient	0.991
P-value	<0.001
Significance Level	0.05
Result	Reject H0

Table 7: Regression Analysis

Dependent Variable: Digital Literacy Rate

Independent Variable	Coefficient	Standard Error	T-statistic	P-value
Intercept	-5.23	2.14	-2.44	0.058
Number of CSCs	0.134	0.007	19.14	<0.001
R-squared	0.982			
Adjusted R-squared	0.978			

Table 8: Compound Annual Growth Rate (CAGR)

Metric	CAGR (2015-2023)
CSCs	17.89%
Internet Subscribers	15.43%
Digital Literacy Rate*	27.23% (2015-2020)
*Limited to available data period	

Discussion:

There is indeed a lot of advancement to the goals of Society 5.0 in the examination of India's e-governance implementation, which shows a great deal of important patterns and connections. The statistical study also shows that there is a high positive link among all three important metrics, i.e., Common Services Centers (CSCs), internet subscribers, and digital literacy rates; a value of 0.98 or more shows almost flawless positive correlations. Finally, the hypothesis testing confirmed it with a substantial positive link between the deployment of CSC and the rates of digital literacy, which definitively rejected the null hypothesis ($p < 0.001$). The regression analysis, in addition, concludes that the number of CSC accounts for 98.2% of the digital literacy variation ($R^2 = 0.982$), supporting this conclusion.

This research on the growth rate trend also shows a strange tendency: from 2016 to 2023 (a year of the implementation increasing), the year-over-year growth rates of the CSCs dropped from 33.33% to 11.60%. However, because these programs are proving to be successful in scaling, the program has been scaled with a bigger absolute base and slower growth rate. Internet subscribers have grown more erratically, reaching 28.90 percent in 2019, as the possibility that a surge in the uptake of digital occurred before the pandemic. The highest increase, however, was in the category of digital literacy, with a CAGR of 27.23% between 2015 and 2020, a clear indication of the government program's success, such as PMGDISHA.

The regression analysis, however, when the other variables are taken into account, indicates that the digital literacy rate increases by approximately 0.134 percentage points per thousand more CSCs. The emphasis of the tangible effect itself shows how critical the role played by physical infrastructure is to facilitate digital adoption. The high adjusted R-squared value of 0.978 indicates the outstanding capability of the model to explain the relation between infrastructure development and digital literacy results. Together, these figures indicate that India's e-governance effort is already setting the foundation for Society 5.0, but at the same time, India's recent growth rates have slowed down, which means that the country needs to adopt novel approaches so as to maintain the pace in digital transformation activities.

Gap in research

Although e-governance services have been rapidly promoted in India, we do not yet know how well they are achieving the objectives of Society 5.0. Despite the fact that prior research on digital infrastructure and policy creation has been few and concentrated on the effects of e-governance on digital literacy and inclusion, very few studies have been done to quantify them.

Moreover, scant empirical data exists on how the use of CSC can translate into progress in digital literacy. Official assertions that have been statistically proven to be advances of rural digital use are few.

Additionally, there is much less information pertaining to the utilization of new technologies and artificial intelligence (AI) to enhance e-governance. Although the concept of a human-centered digital ecosystem in Society 5.0 is conceived, nothing is known about the opportunity of digital e-governance using AI to enhance the decision-making and service efficacy.

This paper fills these gaps by providing data-driven insights through correlation analysis as well as policy suggestions to be made in order to promote the adoption of e-governance in

India.

Suggestions for the Future

1. One method of growing CSCs in undeveloped areas is the expansion of service accessibility (closing the digital gap).
2. If PMGDISHA-type rural community development programs are strengthened to improve the programs in the field of digital literacy, rural communities may easily take to digital technology.
3. Combining AI and Blockchain in E-Government: Such cutting-edge technology components as data security, transparency, and service efficiency, when implemented in government platforms, allow for the delivery of enduring benefits.
4. Former PPPs for Infrastructure Development: A collaboration with telecom and tech firms can improve work on digital infrastructure, as well as loosen internet accessibility.
5. At the same time, improved data security or cyber resilience or reinforced cybersecurity codes will help reduce disinformation and foster trust towards digital government more broadly.
6. Into the Special Initiatives to Have Tailored E-Government Solutions to Marginalized Communities: There is the need for initiatives targeting women, the elderly, and the disadvantaged segments.

Conclusion

In view of Society 5.0, this report analyzes the e-governance adoption by India in detail. Results are found to jointly constitute a strong positive relationship between digital literacy rates, internet penetration, and CSC adoption. The findings of inquiry testing show that statistically significant ways ($p < 0.001$, $R^2 = 0.982$) contribute to the change of CSCs improving digital literacy.

The research indicates that there is a growth rate of the e-governance ecosystem, and its maturity is reflected in the drop in the percentage terms of the CSC expansion but an increase in the absolute numbers. As per the compound annual growth rate (CAGR) research, digital literacy has grown by 27.23 percent from 2015 to 2020, which indicates rapid adoption of rural digital.

Despite this, there are still problems. New tactics are needed to maintain momentum as CSCs' annual growth rates are dwindling. Additionally, cybersecurity, legislative barriers, and the digital marginalization of underserved areas need to be rushed to the attention of their so.

Future plans should be centered around AI-based governance models, anti-security governance, and digital literacy as they are focused. If successfully executed, e-governance can play a key role in converting India to a Society 5.0 framework, where digital inclusion becomes the approach for all things government and centric, thereby providing a digital framework for a digitally inclusive government.

References:

1. Kumar, A. (2016). Role of e-governance in socio-economic development in India.
2. Salamat, A. (2020). Opportunities and challenges of e-governance in rural India.
3. Veeramuthu, V. (2020). Is there Indian government e-governance service support to the people?
4. Meena, S. B. (2021). Implementation of e-governance in India: Challenges and opportunities. International Journal of Political Science and Governance. DOI: 10.33545/26646021.2021.v3.i2b.107.
5. Hongal, P., & Kshirsagar, Y. (2024). Digital divide and e-governance: A case study of India. International Journal of Scientific Research in Engineering and Management. DOI: 10.55041/ijsrem37415.

6. Hoque, M. (2024). Financial constraints and issues of e-governance in India. Economic Affairs. DOI: 10.46852/0424-2513.3.2024.38.
7. Saxena, P., Sharma, A., & Fulzele, R. (2019). E-governance initiatives in India: Acceptability and challenges.
8. Kumar, D. (2017). E-governance transforming rural India. DOI: 10.5958/2347-6869.2017.00009.7.
9. Anand, D., & Khemchandani, V. (2019). Study of e-governance in India: A survey. International Journal of Electronic Security and Digital Forensics. DOI: 10.1504/IJESDF.2019.10018768.
10. Muttoo, S. K., Gupta, R., & Pal, S. (2019). E-governance in India. E-Governance in India. DOI: 10.1007/978-981-13-8852-1.
11. Bhatia, J., & Raj, H. (2016). E-governance in India: Prospects and threats. International Journal of Modern Trends in Engineering and Research.
12. Kalyani, R. (2018). E-governance in India: A conceptual analysis. International Research Journal of Multidisciplinary Studies.
13. Paramashivaiah, P., & Suresh, B. K. (2016). E-governance: Issues and challenges in India. ERN: Public Administration (Topic).
14. Monika, M. (2018). E-governance in India: Challenges and current status. International Journal of Research.
15. Buragohain, D. (2019). ICT and e-governance in India.