# E-Governance Aiding Good Governance : An Empirical Evidence in the Indian Context

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## Abstract

***The Bhagavad Gita*** **indicates good governance as great leadership, dutifulness, and self-realization which are re-interpreted in the modern context. Good governance today has become a way of measuring how public institutions conduct public affairs and manage public resources in a preferred way. It is an accomplishment dependent on many factors and e-governance is one of them. Infact both, good governance and e-governance have different dimensions which impact each other in some way. Taking into consideration the available theoretical literature, a conceptual model was framed in-order to examine the association of these two in the Indian context. The secondary data available in Public Affairs Index report 2016 for good governance and Internet Readiness Index Report 2017 for the aspect of e-governance were used to test the hypotheses. Upon empirical validation of the hypothesized model, it was found that the two dimensions of E-governance, that is, E-Infrastructure and IT Environment were positively associated with good governance ; whereas, the other two dimensions of E-governance, that is, E-Participation and E-Services were found to be negatively associated with good governance. The study findings concluded that governments can promote good governance by enhancing the infrastructural and information technology components.**

***Keywords :*** **E-governance, good governance, e-services, Public Affair Index, Internet Readiness Index.**

**JEL Classification : D73, G30, G38**

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Fair and effective governance is critical for any country. Researchers find it challenging to provide a universal accepted definition of good governance. Great interest in good governance is shown by public policy organizations as economic prosperity is impacted by it (Knack & Keefer, 1995 ; Ngobo & Fouda, 2012). Good governance not only promotes free market policies, justice, and the rule of law, but also provides transparent environment for executing public affairs (Ngobo & Fouda, 2012). Researchers over the globe tried to provide a widely accepted definition of good governance, but each one of them had a different perspective. According to Osborne and Gaebler (1992), new public management is defined as governance, and they also mentioned that a difference should be maintained between government and governance, which means less government and more governance. With the same perspective, it is also stated that the key dimension of governance is government effectiveness in its different type of public affairs (Kooiman, 1999 ; Rhodes, 1994).

Governance is defined as a neutral concept meaning, "the political direction and control exercised over the actions of the members, citizens, or inhabitants of communities, societies, and states" (Brautigam, 1991, p. 3) in

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a working paper, "Governance and Economy : A Review" by The World Bank. The World Bank researchers also contributed their efforts in defining good governance. They found out that political factors cannot be ignored as they influence the process of governance. Even for the regulation of an institution's economic and social functioning, a particular framework is to be established that requires power and authority of the government. Some dimensions of governance such as rule of law, accountability, transparency, and openness affect economic performance. All these aspects of governance affect predictability, creation, and maintenance of business environment, and also have a great influence on fiscal integrity.

The World Bank papers such as "Governance and Development" (The World Bank, 1992) and "Governance. The World Bank's Experience" (The World Bank, 1994) focused on similar dimensions of good governance that are rule of law, transparency, and accountability. Kraay, Zoido - Lobaton, and Kaufmann (1999) developed a methodology in the 20th century defining six new indicators of good governance such as "rule of law," "political stability and lack of violence," "regulatory burden," "voice and accountability," "government effectiveness," and "corruption." These six dimensions were represented as the characteristics of good governance by World Bank researchers. According to them, good governance must have these six characteristics.

A common element in the conceptual definition of governance given by various researchers is regarding the solution of societal problems and issues that depends on the ability of the social and political system (Klijn, 2008). Countless papers and articles by different researchers provide various conceptual definitions of governance with perspectives ranging from social and political to an economic approach as well. Still, the major issue is to measure the quality of governance and the adequate indicator of good governance that correctly measures its quality. In order to know the quality of governance, characteristics of good governance should be measured correctly. For this, a researcher should focus on finding appropriate indicators of good governance even if it is agreed by everyone that no single or combination of indicators can measure the quality of governance or measure its various dimensions.

## Good Governance Indicators

Kaufmann and Kraay (2007) identified World Governance Indicators (WGI) by initially defining governance as :

> The traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced, the capacity of the government to effectively formulate and implement sound policies, and the respect of citizens and the state for the institutions that govern economic and social interactions among them. (p.8)

For each of these three areas, two measures were identified as a result six dimensions of governance or six governance indicators were identified.

**(i) Voice and Accountability (VA) :** This dimension measures the perception of a country's citizens about participating in the process of selection of their government. It also measures their perception towards freedom of association, free media, and freedom of expression.

**(ii) Political Stability and Absence of Violence (PV) :** This dimension measures the perception of a country's citizens about government stability and whether it includes politically motivated violence or terrorism.

**(iii) Government Effectiveness (GE) :** This dimension measures the perception of a country's citizens about government services and their quality. These services can be public services and civil services. This also measures the independent formulation and implementation of government initiatives and services offered without political intervention.

**(iv) Regulatory Quality (RQ) :** This dimension measures the perception of a country's citizens about policies formulated by the government for the country's development and quality of implementation of such regulations.

**(v) Rule of Law (RL) :** This dimension measures the perception of a country's citizens about their beliefs in law and rules created by the government. This also measures their confidence in the rights provided such as property rights, the police, decisions made by court, and control in crime.

**(vi) Control of Corruption (CC) :** This dimension measures the perception of a country's citizens about the corruption in the society. It measures the perception related to power exercised by public agents for their own benefit.

## Public Affairs Index (PAI)

In India, PAI is a tool created and utilized by the Public Affair Centre (PAC) to measure the quality of governance across all the states. It is used to access the governance status at the district level and eventually at the state level. According to the quality of governance in each state, PAI ranked 30 states of India. The PAI report, "Public Affairs Index - Governance in the States of India – 2016" (Mathew, Mukunthan, & Divekar, 2016) comprised of 10 broad themes, 25 focus subjects, and a gamut of 68 indicators. The study involved in this report was based on sentimental analysis. The below section explains all the 10 themes with their indicators.

**(1) Economic Freedom :** In the PAI report, "Economic Freedom" is presented because many studies have examined that economic freedom and social outcomes are positively correlated. This theme was undertaken to analyze the business environment and improvement in it. It also explored the efforts of State governments in improving business conditions in the states. The Government of India has a mission called "Start-Up India" due to which in this theme, focus is on small businesses and start ups. This is related to the government's efforts in order to make business easy such as different policies for entrepreneurs. Economic freedom was measured by using three indicators with the motive to capture perspective and idea for investments, freedom to continue or start a business, and small enterprise's promotions that would increase job opportunities.

**(2) Essential Infrastructure :** Economic growth of a country is determined by roads and communication, urban infrastructure, water, and power. The Government of India enhanced allocation for the infrastructure sector by 10% to build best infrastructures according to Union Budget 2016–17 highlighted by The India Brand Equity Foundation. With better infrastructure and pitch about 'the ease of doing business', the Government of India will be able to attract FDI (foreign direct investment). The government has implemented different initiatives and policies to improve infrastructure such as proper power and water supply, housing facilities, and better roads. Some of these government initiatives are Sustainable Development Goals by 2030, GARV-II app for rural electrification, Dean Dayal Upadhyaya Gram Jyoti Yojana (2015), housing programme implemented in 2015.

**(3) Fiscal Management :** This scheme acknowledges about the efficient state level fiscal management and efficient central level fiscal management. For long term and short term, this factor is very important for a country's development and its economic growth. Demonetization announced on November 8, 2016 by the Prime Minister with the motive to capture black money and tax evasion was also to maintain fiscal accounts. This move by the government was termed as "short term pain for long term gain."

**(4) Support to Human Development :** This theme acknowledges social development of the country by

measuring it on the state level. For better education and health of citizens, State governments and Central government take some measures and provide support for the same. Indicators under this scheme measure the nature and quality of this support by the government. Two focus subjects under this scheme are education and health of the citizens. Policies and different programmes undertaken by the government for supporting human development are Pradhan Mantra Yuva Yojana 2016, Higher Education Financing Agency, Prashikshak 2016, Draft National Education Policy 2016, Shala Asmita Yojna 2016, etc.

**(5) Delivery of Justice :** This theme measures the delivery of justice in the states by assessing the quality of decisions made by high courts and district courts. There exists a large number of pending cases and vacancies of officers. This theme measures delivery of justice on the basis of these two indicators.

**(6) Environment :** This theme focuses majorly on air pollution, environment violation, forest cover, and renewable energy. Development related to environment by the government involves even odd strategies to control pollution and ban on fire crackers.

**(7) Transparency and Accountability :** In order to make governance and administration more participative and open, it needs to be more transparent and accountable to a country's citizens. This theme measures the transparency of the governance on state and central level. It also measures government's accountability by the citizens. With a more transparent and accountable government, states will not only grow, but also develop. With openness of the governance, citizens will be able to participate actively. When the governance is accountable, it works as a strength to get optimistic outcomes. With the help of internet technology, State and Central governments have taken different measures to provide more transparent and accountable governance. Some of the new developments in this field are BHIM (Bharat Interface for Money), introducing Corruption Perception Index in 2016, Digital India, RTI.

**(8) Women and Children :** This theme measures the quality of lives of women and children in this society. This also measures the crime against women and children. It ranks the states on the basis of crime against these two sections, nutrition and legislative for women and children. For providing gender equality and to reduce crime against them, the government undertook some measures that are Juvenile Justice (Care and Protection of Children) Act, Draft National Policy for Women, The Maternity Benefit (Amendment) Bill 2016.

**(9) Social Protection :** India is a country that integrates different social, ethnic, and economic groups. With this integrity, differences also exist among each group. These differences become hurdles in the path of growth. The Public Affairs Index 2016 stated that the very nature of economic growth is such that only some people are able to extract the best out of the processes of growth. The hard fact is that almost 30% of the population of this country live in poverty even as economists debate whether the definition of the poverty line should be ₹ 32 per day or more or less. This theme measures the quality of government initiatives with the motive of providing equality, development, and security to the most deprived sections of the society. Some of the social protection initiatives by the government are security for the employees that includes Compensation Bill 2016, Child Labour Amendment Bill 2016, Direct Benefit Transfer Scheme for Kerosene Subsidy 2016, Pradhan Mantri Fasal Bima Yojana 2016, etc.

**(10) Crime, Law, and Order :** This theme focuses on crimes in the states and the quality of policing. Crimes involve rapes, murders, dowry cases, deaths and policing involves number of police personnel present in the state for maintaining law and the number of women police for better management. A state with less number of crimes

and better policing is ranked at a higher position compared to the state that is involved in large number of crimes and poor policing.

## E-Governance

E-governance is the use of public sector information, their digital services through internet (West, 2005). Several research studies have been conducted, which stated that e-governance is the use of democracy through inter network (Babu & Sundar, 2019 ; Katta, 2017 ; Jindal, Sehrawat, & Medury, 2016). Howard (2001) stated that e-governance focuses on reduction of cost and increasing the efficiency by implementing techniques of e-commerce that helps to create an interface between the government ant its stakeholders ; whereas, Lau, Aboulhoson, Lin, and Atkin (2008) stated that e-governance helps to connect the citizens with the government digitally and defined it as a process where citizens of a country can access the services and information offered by the government or different government agencies digitally. Most definitions of e-governance highlight that it does not mean that a government uses information technology ; instead, e-governance is a process of creating a new interface between the government and its stakeholders. Since 1980s, when the internet emerged across the globe, governments are actively implementing the tools and techniques of information technology in order to reduce their cost, increase efficiency in operational work, and data management (Brown, 1999 ; Norris & Kraemer 1996). The interaction between the government and its stakeholders is new and has emerged recently.

E-governance has become more participative due to the rapid growth of social media sites. By following the internet trends, e-governance is improving its relationship with the citizens. The two-way relationship, that is, access to the opinions and suggestions of citizens and policies and priorities of the government supported by citizen's participation helps the government to have a transparent view of their spending and actions. This way, e-governmence is becoming more consultative (Halpern & Katz, 2012).

E-governance strategies that are fast, complete, and responsive potentially benefit the business. According to Xenos and Moy (2007), transparent and accountable governmental transactions can eliminate corruption perception and result in a better e-government strategy. To start or operate a business, such e-government strategy helps the citizens to access the services easily by reducing corruption. With less corruption and ease of doing business, new firms will be able to start their business, making a country more competitive as the procedures will be functional, fast, and well reported. Successful implementation of e-government can help in reducing the cost by reducing the cost and time spent on government employees (Jaeger & Thompson, 2003). Gupta and Jana (2003) stated that a country aiming for better governance need to implement e-government. E-governance of the States in India can be accessed by its Internet Readiness Index.

## Internet Readiness Index (IRI)

A study on "Index of Internet Readiness of Indian States - 2017" was conducted by Internet Mobile Association of India (IAMAI) in 2017. The motive of this study was to measure the performance of states of India on the basis of their internet readiness. With the increasing use of internet and different digital platforms, the country is transforming into a better digital known economy. Different studies were done on this index with different methodologies by various nations and institutions such as "UN E-Government Survey 2008 : From E-Government to Connected Governance" (United Nations, 2008), The Economist Intelligence Unit (EIU, 2006), The WEFs Network Readiness Index in 2008–09, and NCAER in India.

IAMAI conducts the study on Internet readiness of Indian states every year. According to the report generated by the institution on Internet readiness of Indian states in 2017, four major indicators or parameters were identified on the basis of which the states were assessed and ranked.

These indicators are :

**(i)** E-Infrastructure

**(ii)** E-Participation

**(iii)** IT Environment

**(iv)** Government E-Services

This study and assessment of states would help the government to improve their services. Also, with the help of this study, they will be able to know the citizen's perspective related to state government's initiatives and effectiveness of their implementation. This is a qualitative analysis for state level policymakers that will help them to work better on different issues and get a direction so that they can make their states achieve better rank or position. States can use a combination of IT tools and intelligence measures like business intelligence (Tripathi, Bagga, & Aggarwal, 2020), intelligent automation (Vishnoi, Tripathi, & Bagga, 2019), and marketing intelligence (Vishnoi & Bagga, 2020) to prioritize the development of their respective governance.

## Internet Readiness Indicators

There are major four categories of Internet Readiness Index as discussed above. These four different categories rank each state accurately based on the application of installed information systems (Ravichandran & Lertwongsatien, 2005 ; Srivastava & Bagga, 2014). Better the Internet Readiness Index of the state, better is the e-governance there. In order to measure a state on the basis of these indicators, different measures are undertaken

**Table 1.** ***Internet Readiness Indicators***

| *C*ategory | Measure |
|---|---|
| **IT Environment** | • No. of IT companies per '000 population. |
| | • Ratio of IT workers to total workers. |
| | • Ratio of GDP-IT services to total GDP. |
| **E-Participation** | • Ratio of number of adults completed primary or higher level of education to total population. |
| | • Average revenue per user on mobile services. |
| | • No. of e-transactions in utility bill payments per lakh person above 15 years. |
| | • No. of e-transactions in business to citizen (B2C) services per lakh person above 15 years. |
| | • No. of e-transactions in informational services per lakh person above 15 years. |
| | • No. of e-transactions in statutory and non-statutory services per lakh person above 15 years. |
| **E-Infrastructure** | • Tele - density. |
| | • Mobile subscribers per person above 15 years of age. |
| | • Share of private players in internet service providers. |
| | • Mobile subscribers with internet access per person above 15 years of age. |
| | • Percentage of households using computer/laptop with internet connection. |
| | • Percentage of schools with computer facility. |
| | • Number of post offices under 'Project Arrow'- post offices that were re - modernized and enabled with IT services. |
| **Government E-Services** | • Percentage of kiosks installed under Rural Wireline Broadband Scheme in India. |
| | • Expenditure incurred on operational common service centres per person. |
| | • No. of e-services rolled out for citizen participation. |

for each category. Measures of each category are described in Table 1.

Motivated by different theories given by several scholars in the same field and contradictory views of each of them on the question of impact of e-governance on good governance, the objective and purpose of this study is to determine the relationship of e-governance and good governance ; in simple words, the study aims to determine the impact of internet readiness on good governance. Many research works are done related to governance on an international level. This study is based on Indian states and their governance. It is also aimed to ascertain the impact of dimensions of e-governance on good governance. This study also aims to motivate other researchers to work in the same context and contribute to governance and e-governance literature.

## Conceptual Framework and Hypothesis Development

### *Relating E-Infrastructure to Good Governance*

E-Infrastructure refers to the collection of tools, services, facilities, technology, and resources that citizens require for proper internet usage contributing to internet readiness. This category mainly measures the extent of usage of mobile networks and internet by general public and business organizations. It measures every state based on the e-infrastructure support available to its citizens (Bottum, Davis, Siegel, Wheeler, & Oblinger, 2008). In a state, if proper internet facilities and services are provided, then there will be better participation by citizens. Information and communication technologies (ICT) play a major role in development. With proper ICT, governance can be improved. Digitization makes it easy for the government to get feedback from the people about the services provided to them (Singh, Vishnoi, & Bagga, 2018). In sum, when better e-infrastructure prevails in the state, governance can be accessed easily and made better. Therefore, we propose the following hypothesis :

↳ **H1 :** E-Infrastructure is positively associated with good governance.

### *Relating IT Environment with Good Governance*

IT Environment refers to the number of IT companies registered, number of start-ups etc., in the region. There are very few information technology hubs present in India. More IT companies in the region can help the citizens to get better ICT services and faculties. With a greater number of start-ups, employment opportunities can be increased, and India will be able to take a bigger step toward Digital India, and aid from foreign companies won't be required thereafter. Furthermore, the government can reinforce positive governance through improved recruitment policies and best in class training and development of related workforce (Srivastava & Bagga, 2014).

In sum, when IT Environment will be appropriate, more job opportunities and a greater number of companies will be there to provide better services to the people. Therefore, we hypothesize :

↳ **H2 :** IT Environment is positively associated with good governance.

### *Relating E-Participation with Good Governance*

E-Participation is defined as to what extent the citizens of a region can efficiently use internet and information technology for different activities such as prevailing government services, e-transaction, social media, etc. (Komito, 2005 ; Smith & Dalakiouridou, 2009). More people accessing internet means they are able to avail services provided by the government. Hence, we propose :

↳ **H3 :** E-Participation is positively associated with good governance.

### *Relating Government E - Services with Good Governance*

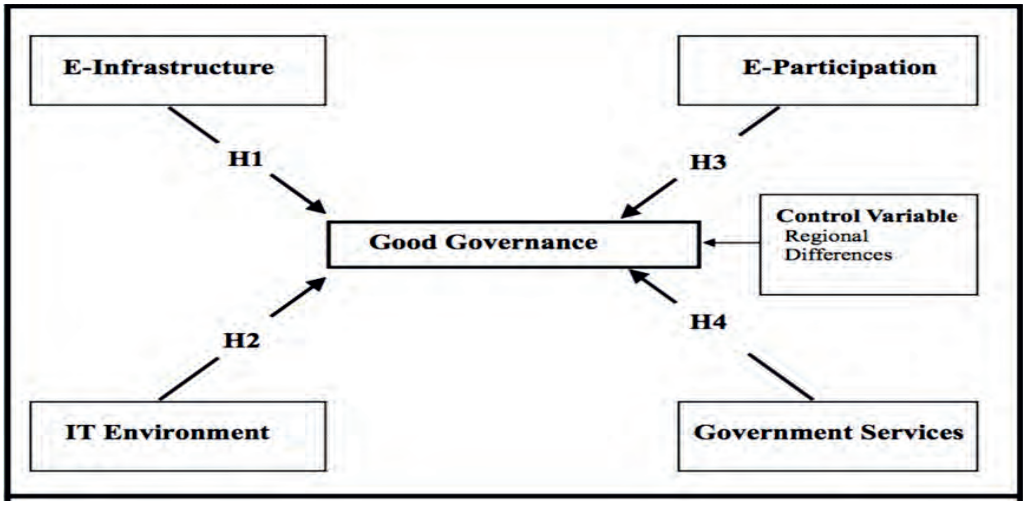
Government E-services refer to services offered by the government digitally. Aadhar card services are an example of this. E-books provided by the government, payment of electricity or water bills through internet comes under government e-services (Rowley, 2006). The more the number of services and facilities provided by the government, the more efficient is the region governed. If people can use services efficiently and easily, then surely the nation will develop, which means there is good governance in the nation. Therefore, we posit :

↳ **H4 :** Government E-Services are positively associated with good governance.

### *Research Model*

Research model of the study is described in Figure 1. This model shows the relationship between internet readiness factors and good governance.

**Figure 1. Research Model**




### *Research Design*

For the purpose of testing the hypotheses formulated, archival data were gathered. This was done mainly because of two reasons :

**(i)** For quality research work, a large amount of primary data had to be collected from all the states of India. Lack of resources and availability of time were constraints for such type of research work (Krishnan & Teo, 2012 ; Srivastava & Teo, 2008).

**(ii)** Many researchers (e.g., Jarvenpaa, 1991) suggested that archival data has many advantages like: bias free and robust (Woszczynski & Whitman, 2004), it can be easily reproduced, and they are large datasets that can give better generalized results (Kiecolt & Nathan, 1985).

The data were gathered from the reports, "Index of Internet Readiness of Indian States (2017)" and "Public Affairs Index - Governance in the States of India - 2016". These agencies collected data rigorously and precisely, and they followed complicated procedures to collect such large data sets to get reliable data. This the reason due to which we directly used the data given in these reports. Hypothesis testing was done by using the data of the year 2017 using cross sectional analysis of 37 states. Good governance is measured by using the Public Affairs Index, that is a dependent variable and four dimensions of Internet Readiness Index, which are the independent variables.

### *Operationalization of Constructs*

Internet readiness measures the online presence established in the region. The focus is more on information technology and online activities and consists of four dimensions :

**(i)** E-Infrastructure,

**(ii)** E-Participation,

**(iii)** IT Services,

**(iv)** Government E-Services.

All these four dimensions are used as the four independent variables. Good governance, on the other hand, is the dependent construct that is measured through the Public Affairs Index in India. Public Affairs Index reports are generated by the Government of India for measuring governance in each state. The Indian government follows rigorous procedures and precise methods to collect the data so that the reliability and validity of the data can be ensured. Good governance is measured by analysis of some of the key indicators as mentioned in the Public Affairs Index report (2017). Core PAI score is used for the cross section analysis. This score ranges from 0.355 – 0.551. Greater the PAI score, the better is the good governance in a state.

## Data Analysis and Results

Analysis of the archival data gathered was done by applying regression and correlation techniques to it. Correlation is conducted to check if there exists any multicollinearity among the independent variables (E-Infrastructure, E-Participation, IT Environment, Government Services). The results reveal that there is a minimal concern for multicollinearity. Further, regression analysis is done for testing the developed hypotheses. This technique is the hierarchical regression analysis technique that is used in many studies in the field of macro-economics and international business that are similar to our study. As discussed earlier, there is no effect of multicollinearity ; so analysis can be done easily without considering its effects (Lance, 1988). Summary of the regression results are represented in Table 2 and Table 3.

As shown in Table 2, value of *R*-Square is 0.823 and value of adjusted *R*-Square is 0.758 ($F$ = 12.754, $p < 0.001$), which indicates a high degree of correlation. The $R^2$ value indicates how much of the total variation in the dependent variable, PAI (good governance), can be explained by the independent variables. Results show in this case, 75.8% can be explained, which is very large. This indicates that the regression model predicts

**Table 2.** ***Regression Model Summary***

| Model | *R* | *R* Square | Adjusted *R* Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .907 | .823 | .758 | .020394 |

**Table 3.** ***Regression Coefficients***

| Coefficients | | | | | |
|---|---|---|---|---|---|
| | Unstandardized Coefficients | | Standardized Coefficients | | |
| **Model** | ***B*** | **Std. Error** | **Beta** | ***t*** | **Sig.** |
| Constant | .448 | .011 | | 40.945 | 0.000 |
| E- Infrastructure | .110 | .021 | 0.885 | 5.260 | 0.000 |
| E-Particlpation | –.003 | .025 | –0.20 | –0.114 | 0.912 |
| IT Environment | .019 | .025 | 0.143 | 0.783 | 0.450 |
| Government Services | –.013 | .033 | –0.081 | –0.399 | 0.697 |

***Note.*** Dependent Variable: PAI (Good Governance)

the dependent variable significantly well. Further, here, $p < 0.001$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data). As can be inferred from Table 3, among the mentioned four dimensions of E-Governance, E-Infrastructure and IT Environment ($\beta = 0.885$ and $\beta = 0.143$, respectively) are positively associated with PAI (Good Governance) ; whereas, E-Participation and Government Services are negatively associated ($\beta = -0.020$ and $\beta = -0.081$, respectively). This means that H1 and H2 are supported ; whereas, H3 and H4 are not supported.

As the study is to determine the association of each dimension of e-governance with good- governance, the findings are quite interesting. Firstly, among the four dimensions of E-governance, only E-Infrastructure and IT Environment are positively associated with good governance. This means that better the e-infrastructure and IT environment provided to the citizens of India, better is the perspective of people about the government and governance in that region. E-infrastructure can be better only when the government approves different plans of private companies and comes up with different initiatives. At present, people are surrounded by technology. For their regular daily work, they are dependent on technology, whether on their mobile phones or their laptop. So, for this reason, internet services and network play an important role. People get satisfied when they are offered fast network and internet services. This requires government approval as the network market is dominated by private service provider companies. These companies seek government approval for different purposes such as installation of network towers in different regions as well as layering of wires underground and in open areas. In addition, better e-infrastructure is positively associated with good governance as free Wi-Fi in different areas is provided by the government ; many schools these days have computer facilities and post-offices have e-mail and internet facilities. With all these, people have the perspective of good governance prevailing in their areas.

This directly points to the e-services and facilities that the government provides and different technical initiatives by them to satisfy the citizens of the country. IT Environment is also positively associated with good governance. This is because with better IT environment, people have a better perspective about the governance in their region. If there is better IT environment, it means that there are more IT companies that are offering great services to people. Not only great services, but with increasing number of IT companies, number of job opportunities for the youth and for the unemployed is also increasing. This indirectly points to the governance economically as more employed population of a state or country contributes to its development, indicating towards good governance in that area. With the approval and initiative of the government, foreign companies work in India to provide services to the citizens and also provide jobs for the unemployed resulting in better GDP. With better IT environment, economy and employment status both are impacted, positively contributing to better perspective of people about governance in their region. So, e-infrastructure and IT environment impact the country economically and politically resulting in positive impact on governance.

Secondly, the other two dimensions of e-governance, that is, E-Participation and Government E-Services are negatively associated with good governance. This means that e-participation has a minimal impact on good governance. E-Participation involves people and citizens participating in electronic transactions. Good governance has no relationship with the frequency of people participating in the online services as per the study. E-Participation involves the adults who are literate and are able to avail online services through the internet. People participating online do not impact good governance. Number of transactions done by the citizens in any field has no link to good governance. Whether people are able to transact online or not, it does not impact their perspective about good governance. The citizen's literacy level and their ability to use the internet has minimal or no impact on perspective about good governance. This is because of the fact that government is not involved in any of these processes. People's literacy and their mode of payment or transaction is solely their choice ; it is upto them where government is involved nowhere. So, it does not impact good governance.

Other than E-Participation, another dimension of E-Governance, that is, government service is negatively associated and has no impact on good governance. Government services involve wireless broadband schemes in India, e-services rolled out. This does not impact good governance because in 2016, these services were not implemented successfully, and also, people were less aware about these at that time. This also involves expenditure incurred on service centres as citizens believe in the development they see and the facilities that they access ; so, these expenses and initiatives that were not successfully implemented do not impact the citizen's perspective about the governance in their region. Comparatively, in 2016, less e-government services were offered as that was the beginning of new tenure of a new political party in the lead. This is also one of the reasons why it does not impact good governance.

There is no study about the effect of internet readiness and its dimensions on good governance. Results of this study establish significant role describing about the impact of E-Infrastructure and IT Environment on good governance and no impact of E-Participation and Government Services on good governance. Hence, better e-infrastructure and more IT companies in India can lead to a developed nation (The World Bank, 2002). It surely contributes to the development of the nation and represents the better functioning of the government(s) in all the states of India.

## Conclusion

In this study, we examine good governance and e-governance, their dimensions, their indices, and their impact. In sum, the results indicate that e-governance and internet readiness matter for better governance in the country. It is also important for the country economically, politically, and technically. India being a developing country should focus on such factors that could help it to be a developed nation in the near future. Such studies and research work will definitely help researchers to come up with more valuable findings.

## Theoretical Implications

This study contributes to the “e-governance” literature and would help other researchers to gain knowledge about it and motivate others to contribute more to this domain. Many earlier studies examined the impact of e-governance on good governance through qualitative case study approach. This study is based on quantitative approach that uses the archival data of 37 Indian states. By doing so, this study highlights that “e-governance” indeed matters in the context of good governance. This study identifies the association of good governance and e-governance. The study also determines the impact of four dimensions of e-governance (E-Infrastructure, E-Participation, IT Environment, and Government Services) on good governance. The study will be helpful for policy makers, practitioners, and public administrators to understand good governance perspective in a better

way. This would help the government institutions and agencies to know about the challenges and opportunities in the government initiatives and services.

## Limitations of the Study and Scope for Future Research

In this study, archival data is used ; future researchers can also analyze and use data from different published sites to find out unexpected findings. There exist several directions that future researchers can focus on. In this study, one of the most unexpected finding is that government electronic services have least or no impact on good governance. Future researchers can test this finding in different socioeconomic conditions. In addition, as this study indicates that E-Infrastructure and IT Environment impacts good governance, future researchers can work in this direction by further drilling it down to understand it further. Since this study focused on Indian states, other future researchers can do the same study for different countries to know the association in those countries. This type of study would surely prove useful and significant for research work of other developing nations.

## Authors' Contribution

Rajesh Kumar is pursuing PhD in Management under the guidance of Prof. Teena Bagga at Amity Business School, Amity University, Noida, Uttar Pradesh. Rajesh Kumar wrote the manuscript with the support of Dr. Teena Bagga. Dr. Bagga conceived the idea of working on archival data and developed the conceptual model ; whereas, Rajesh Kumar worked on other aspects of the manuscript.

## Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest, or non-financial interest in the subject matter, or materials discussed in this manuscript.

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## References

Babu, C. N., & Sundar, S. (2019). Identifying the switching determinants of mobile enterprise customers : The perspective of pull-push-mooring model and mobile number portability. *Indian Journal of Marketing, 49*(6), 21 – 34. https://doi.org/10.17010/ijom/2019/v49/i6/144697

Bottum, J. R., Davis, J. F., Siegel, P. M., Wheeler, B., & Oblinger, D. G. (2008). Cyberinfrastructure : In tune for the future. *Educause Review, 43*(4), 10 – 17.

Brautigam, D. (1991). *Governance and economy: A review* (Vol. 815). World Bank Publications.

Gupta, M. P., & Jana, D. (2003). E-government evaluation : A framework and case study. *Government Information Quarterly, 20*(4), 365 – 387. https://doi.org/10.1016/j.giq.2003.08.002

Halpern, D., & Katz, J. E. (2012, June). *From e-government to social network government : Towards a transition model.* In, WebSci '12: Proceedings of the 4th Annual ACM Web Science Conference (pp. 119 – 127). https://doi.org/10.1145/2380718.2380735

Howard, M. (2001). E-government across the globe : How will 'e' change government. *Government Finance Review , 17*(4), 6 – 9.

Internet and Mobile Association of India. (IAMAI). (2017). *Index of internet readiness of Indian states (2017).* Retrieved from https://cms.iamai.in/Content/ResearchPapers/59923bed-ad4f-439b-b6d9-487fbbc16103.pdf

Jaeger, P. T., & Thompson, K. M. (2003). E-government around the world : Lessons, challenges, and future directions. *Government Information Quarterly, 20*(4), 389 – 394. https://doi.org/10.1016/j.giq.2003.08.001

Jarvenpaa, S. L. (1991). Panning for gold in information systems research: `Second-Hand' data. In H. - E. Nissen, H. K. Klein, & R. Hirschheim (eds.), *Information systems research : Contemporary approaches and emergent traditions* (pp. 63 – 80). Amsterdam : North Holland.

Jindal, N., Sehrawat, A., & Medury, Y. (2016). An analysis of India's need of capacity building for e-governance. *Prabandhan: Indian Journal of Management, 9*(6), 47 – 59. https://doi.org/10.17010/pijom/2016/v9i6/95022

Katta, A. K. (2017). Reality of electronic governance with special reference to Punjab. *Prabandhan: Indian Journal of Management, 10*(12), 50–58. https://doi.org/10.17010/pijom/2017/v10i12/119980

Kaufmann, D., & Kraay, A. (2007). *Governance indicators: Where are we, where should we be going?* (The World Bank Policy Research Working Paper 4370). Retrieved from http://info.worldbank.org/governance/wgi/pdf/wps4370.pdf

Kiecolt, K. J., & Nathan, L. E. (1985). *Secondary analysis of survey data.* Beverly Hills, CA : Sage.

Klijn, E. H. (2008). Governance and governance networks in Europe : An assessment of ten years of research on the theme. *Public Management Review, 10*(4), 505–525. https://doi.org/10.1080/14719030802263954

Knack, S., & Keefer, P. (1995). Institutions and economic performance : Cross - country tests using alternative institutional measures. *Economics & Politics, 7*(3), 207–227. https://doi.org/10.1111/j.1468-0343.1995.tb00111.x

Komito, L. (2005). E - participation and governance: Widening the net. *The Electronic Journal of E-Government, 3*(1), 39–48.

Kooiman, J. (1999). Social-political governance. Overview, reflections and design. *Public Management: An International Journal of Research and Theory, 1*(1), 67 – 92.

Kraay, A., Zoido - Lobaton, P., & Kaufmann, D. (1999). *Governance matters* (World Bank Policy Research Working Paper 2196). https://doi.org/10.1596/1813-9450-2196

Krishnan, S., & Teo, T. S. H. (2012). Moderating effects of governance on information infrastructure and e-government development. *Journal of the American Society for Information Science and Technology, 63*(10), 1929 – 1946. https://doi.org/10.1002/asi.22660

Lance, C. E. (1988). Residual centering, exploratory and confirmatory moderator analysis, and decomposition of effects in path models containing interactions. *Applied Psychological Measurement, 12*(2), 163 – 175.

Lau, T. Y., Aboulhoson, M., Lin, C., & Atkin, D. J. (2008). Adoption of e-government in three Latin American countries: Argentina, Brazil and Mexico. *Telecommunications Policy, 32*(2), 88 – 100. https://doi.org/10.1016/j.telpol.2007.07.007

Mathew, C. K., Mukunthan, A., & Divekar, V. (2016). *Public Affairs Index - Governance in the states of India - 2016.* Retrieved from https://issuu.com/publicaffairscentre/docs/public_affairs_index_-_governance_i

Ngobo, P. V., & Fouda, M. (2012). Is 'Good' governance good for business ? A cross-national analysis of firms in African countries. *Journal of World Business, 47*(3), 435 – 449.

Norris, D. F., & Kraemer, K. L. (1996) . Mainframe and PC computing in American cities: Myths and realities. *Public Administration Review , 56*(6), 568 – 576.

Osborne, D., & Gaebler, T. (1992). *Reinventing government. How the entrepreneurial spirit is transforming the public sector.* Reading, MA : Addison-Wesley.

Ravichandran, T., & Lertwongsatien, C. (2005). Effect of information systems resources and capabilities on firm performance : A resource-based perspective. *Journal of Management Information Systems, 21*(4), 237 – 276. https://doi.org/10.1080/07421222.2005.11045820

Rhodes, R.A. (1994). The hollowing out of the state : The changing nature of the public service in Britain. *The Political Quarterly, 65*(2), 138 – 151.

Rowley, J. (2006). An analysis of the e-service literature : Towards a research agenda. *Internet Research, 16*(3), 339 – 359.

Singh, A., Vishnoi, S. K., & Bagga, T. (2018). A study on customer preferences towards travel and tourism sector and their services. *International Journal of Research in Advent Technology, 6*(12), 3847 – 3854.

Smith, S., & Dalakiouridou, E. (2009). Contextualising public (e) participation in the governance of the European Union. *European Journal of ePractice, 7*(11), 47 – 50.

Srivastava, S. C., & Teo, T. S. H. (2008). The relationship between e-government and national competitiveness : The moderating influence of environmental factors. *Communications of the Association for Information Systems, 23*(2), 73 – 94.

Srivastava, S., & Bagga, T. (2014). A comparative study on the usage of HRIS in the IT/ITES services and manufacturing sectors in the Indian scenario. *Prabandhan: Indian Journal of Management, 7*(6), 21 – 36. https://doi.org/10.17010/pijom/2014/v7i6/59325

The World Bank. (1992). *Governance and development* [Online]. Retrieved from http://www.gsid.nagoya-u.ac.jp/sotsubo/Governance_and_Development_1992.pdf

The World Bank. (1994). *Governance. The World Bank's experience* (Online). Retrieved from http://documents1.worldbank.org/curated/en/711471468765285964/pdf/multi0page.pdf

The World Bank. (2002). *World development report 2002 : Building institutions for markets.* New York : Oxford University Press. Retrieved from https://openknowledge.worldbank.org/handle/10986/5984

Tripathi, A., Bagga, T., & Aggarwal, R. K. (2020). Strategic impact of business intelligence : A review of literature. *Prabandhan: Indian Journal of Management, 13*(3), 35 – 48. https://doi.org/10.17010/pijom/2020/v13i3/151175

United Nations. (2008). *UN E-Government Survey 2008 : From e-government to connected governance.* Retrieved from https://www.un.org/en/development/desa/publications/global-e-government-survey-2008.html

Vishnoi, S. K., & Bagga, T. (2020). Marketing intelligence : Antecedents and consequences. In, *3rd International Conference On Innovative Computing and Communication* (pp. 1 – 9). New Delhi: Elsevier.

Vishnoi, S. K., Tripathi, A., & Bagga, T. (2019). Intelligent automation, planning & implementation: A review of constraints. *International Journal on Emerging Technologies, 10*(1a), 174 – 178.

West, D. M. (2005). *Digital government : Technology and public sector performance.* Princeton, NJ : Princeton University Press.

Woszczynski, A., & Whitman, M. (2004). The problem of common method variance in IS research. In A. Woszczynski & M. Whitman (eds.), *The handbook of information systems research* (pp. 1 – 14). Hershey, PA: IGI Global.

Xenos, M., & Moy, P. (2007). Direct and differential effects of the Internet on political and civic engagement. *Journal of Communication, 57*(4), 704 – 718. https://doi.org/10.1111/j.1460-2466.2007.00364.x

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