



IMPACT ON TECHNOLOGY IN VOTING PROCESS AT INDIA

Assistant Professor Dr.NASARULLA KHAN
Department of Political science
Govt. First Grade College, Ankola, Poojageri

Abstract:

Introduction: In India the robust electoral machinery and the processes have ably been aided and strengthened by technology. A major push to use of technology in the Indian elections came with the use of electronic voting machines.

Review of literature: According to (Gibson et al. 2016;Awad and Leiss 2016;Wang et al. 2017), lack of multiple criteria does not create any difficulties in candidates' election and people participate in elections vote for candidates based on knowledge or intuition.

Objectives of study: The main purpose of this study is various impacts on technology in entire voting process at India and it implementation for next coming up election.

Research Methodology: Reference period: Reference period must be three months for this research i.e. March to May 2022. **Sources of data:** Primary data collection from members of the EMB are appointed, the composition of the EMB, the budget, and the number of staff. Secondary data from various relevant publications constituted the sources of journal, books, newspapers etc. **Statistical tools:** statistical tools are percentage, and Chi square

Data analysis and Interpretation: The researcher assembled, presented and analyzed the relevant data gathered. In this article should be Devices used in election, Role of the EMB in the decision-making process, Makes election process decision, Ownership of election process devices and Provides technical support during elections concerning is analysis.

Chi Square of Hypothesis : *Ho:* The measures taken by Technology do not avoid the process of during voting. *H1:* The measures taken by Technology do avoid the process of during voting.

Conclusion: This article wish to conclude by in India would be useful to repeat this survey on a regular basis to follow trends in the use of ICT by EMBs.

INTRODUCTION:

In particular, many studies have sought to study the impact of the fastest growing voting technology in the 21st century, electronic voting machines, or EVMs; it sometimes called DRE machines, or e-voting machines. In a huge and diverse country like India, Free and fair elections is much more complex and challenging. Humongous logistics issues in terms of material and manpower are involved in the entire process. Free and fair elections need to provide level playing field to all the players in the game. The entire electoral process should be capturing true mood of the electorate. In India the robust electoral machinery and the processes have ably been aided and strengthened by technology. A major push to use of technology in the Indian elections came with the use of electronic voting machines(EVMs). It entirely disrupted the way the elections were conducted. Use of EVMs was not simply the replacement of sturdy ballot boxes and ballot papers. It was a paradigm shift for everyone including the political parties, candidates and the voters.

With introduction of EVMs, booth capturing in its traditional sense of the term lost its sheen. The muscle power at the local level could not guarantee conversion of physical booth capturing into votes polled in favour of a particular candidate. The premium carried by the local muscle power on the polling day reduced drastically. The political parties accordingly moved as far as selection of candidates and use of the muscle power was concerned. The use of EVMs proved boon for the election personnel also. Conducting elections used to be round the clock strenuous nightmarish exercise beginning from cleaning of the ballot boxes to counting of votes running over a few days. The last minute wrangling over doubtful votes till declaration of results used to be terrible experience.

Brouhaha over the EVMs from time to time fizzles out after the spirited defence of its invincibility by the Election Commission. As recently as on 22nd of November, 2018, the Supreme Court dismissed a PIL seeking use of ballot papers in instead of EVMs during Assembly & Lok Sabha polls. The Court rightly observed “Every system and machine is capable to be used & misused. Doubts will be everywhere”.

It is true that no technology in itself can claim to be tamper proof. But, the processes put in place to make the EVMs tamper proof are not only robust but also very transparent. An additional technical device called VVPAT(Voter-verified Paper Audit Trail) machine has been introduced to instill the confidence among the stakeholders. The voter can view the symbol of the candidate of his choice on the screen of VVPAT machine after casting his vote by pressing the button of the EVM. The use of Election Photo Identity Cards for voters at the time of voting has again been a technological intervention to achieve the goal of fair elections. It is another matter that other proofs of identity are also allowed on the day of poll to absolutely ensure that no one is deprived from exercising his franchise.

The electoral roll has also been cleaned by using de-duplication software across the constituencies. Earlier having the same name at multiple polling booths in the same/multiple constituencies resulted in the electoral malpractices. Use of suitable software has also ensured cropping of the elector’s image on the

electoral roll. This ensures prohibition of forged voting on the day of poll. Linking of electoral roll with Aadhar database would further buttress the integrity of the roll and thus purity of the election process.

Database of the polling personnel is thoroughly randomized using a software developed by the National Informatics Centre to ensure concealment of the identity of the polling station where any polling staff would be posted. This obfuscates any kind of intimidation or inducement of the polling personnel. Intermix of the personnel in a polling party is carried out in such a way that no official is from the same department, region or class. Such finesse has been made possible only by use of appropriate technology. Other logistical arrangements relating to conduct of elections have also been made easier by technological intervention. Lakh of vehicles are used for ferrying men and materials across the regions. In particular, movement of security forces from far off places used to be a nightmarish experience for vehicle owners. Hundreds of court cases relating to payment of hiring charges have been contested for years together without any resolution to the satisfaction of all the parties. Now, with centralized monitoring system through a portal with GPS facility, the vehicle management has become far easier.

During the period model code of conduct is in force, various permissions are sought by candidates and political parties for rallies, meetings etc. Earlier, there used to be complaints of partiality and political partisanship in granting such permissions. With introduction of Sugam portal another technological intervention, all the permission processes have been made transparent.

Like Sugam portal, there is another Portal called Samadhan which is used to monitor the complaints received from different quarters. The action taken on every complaint is recorded and is visible to all the stakeholders right from the complainant to the officials sitting in the Election Commission in Delhi. The Election Commission has been using another technological marvel video conferencing is very extensively for monitoring of the entire election process. The Commission has been taking innumerable meetings with the election machinery in the field through video conferencing. On the day of poll, there is direct webcasting of the poll from the polling station. Any person can watch all the activities at the polling station from anywhere in the country. This would have been unthinkable some years ago.

Lately, the Commission has introduced 'Cvigil' app which can be used by the citizens for posting their complaints directly. The still photographs and videos can be uploaded. The app is in public domain. In the current Assembly elections for MP, Chhattisgarh, Telangana and Mizoram elections, this app is being extensively used. The app would go a long way in boosting confidence in the fairness and transparency of the election process. The massive technological intervention in conduct of election at every stage has certainly made it more credible. It has helped in creating level playing field for all the players in the game leading to free and fair elections- sine qua non for a true democracy.

REVIEW OF LITERATURE:

Technology of the Electoral Process:

According to (Bormann and Golder 2013;Grofman 2016;Gibson et al. 2016;Vassil et al. 2016;Awad and Leiss 2016), election process distinguishes one country from another not only based on election method of candidates (for example, majority or proportional method), but also procedures, methods and organizational issues applied during voting. Regardless of voting method (traditional, e-voting, online voting, etc.), selection and evaluation of candidates is an important issue and directly affects voting results.

According to (Gibson et al. 2016;Awad and Leiss 2016;Wang et al. 2017), lack of multiple criteria does not create any difficulties in candidates' election and people participate in elections vote for candidates based on knowledge or intuition. This example can be applied to internet voting or e-voting carried out in many countries.

Technology of the Electoral Challenges:

In the literature, views on e-government vary. While a number of researchers postulate that the e-government will revolutionize the public sector (Vassil et al., 2016;Gibson et al., 2016); other researchers are less optimistic (Germann and Serdü It, 2017). For instance, Jefferson et al. (2004) consider e-government to rely on a set of technology-based tools, which cannot often ensure effective governance

According to Gerlach and Gasser (2009), e-voting systems are confronted with challenges such as web spoofing, use of diverse software, browsers, hardware, and system failure primarily because of factors such as signatures.

However amidst the success of digital voting system, there are notable risk that is associated with the system identified reliability, security and transparency are possible challenges that are inevitable if e-voting is a must considered. The major risk to be privacy, fraud resistance and lack of evidence and thirdly, trust. Trust is essential as the entire purpose of election process is to select trusted individuals that are trust worthy as such, the system must not compromise its actual essence, which is to deliver the desire of the electorates.

In Malaysia, political parties had adopted e-voting for balloting purposes while the Thailand Electoral Commission did consider adopting e-voting for the up-coming national elections which has been post-poned from 2017 (see (Mongkolnchaiarunya, 2016) (Strait Times, 2018 . Similarly, Khazakstan implemented e-voting but later rejected it (Gibson, et al., 2016). In South America, Brazil and Venezuela use the Direct-Recording Electronic (DRE) machines for their general elections (WFD, 2018)

Outsourcing of the Electoral Process:

According to Musial-Karg, 2014;Gibson et al., 2016, e-voting is one of the main components of e-democracy. Currently, the study of the role of e-voting in the countries, which has adopted the formation of e-democracy as a priority, is deemed as an integral part of explorations in the field of e-democracy. The

dynamic development of ICT and the enhancement of social media tools have resulted in significant changes in the functioning of modern countries and societies.

Electronic voting systems are very much attracted to the hackers in recent years. Therefore, for the proper functioning of many e-voting systems, the security schemes for authentication and confidentiality confirmation are very difficult to design. Due to the need and interest of people in the democracy, ensuring security is particularly challenging in e-voting process.

We were also interested in the explanation of the differences in older adults' levels of openness. Based on previous studies and reviews (Powell et al. 2012;Gibson et al. 2016)-showing that, for example, e-voting is not widely offered in European countries, we hypothesized when we collected data shortly before the current COVID-19 pandemic that we would find a low percentage of participants who are open to using digital public services, due to the low visibility and experiences of and with these services. Regarding the expected differences in this openness among the older population, the factors presented in the second research question were considered.

Electronic voting systems try to be as easy to use and secure as the ideal traditional choices and eliminate human error. Electronic voting systems can generally be divided into two categories . Ballots can be used remotely, as well as through closed systems allocated in election offices.

Research Methodology:

Reference Period: Reference period must be three months for this research i.e. March to May 2022.

Sample size: Number of respondents are 255

Sources of Data: *Primary data:* Primary data collection from members of the EMB are appointed, the composition of the EMB, the budget, and the number of staff . *Secondary data:* Secondary data from various relevant publications of journal, books, newspapers etc.

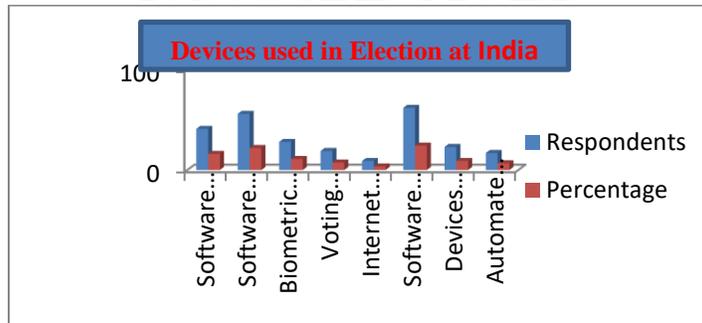
DATA ANALYSIS AND INTERPRETATION:

Table No.1
Devices used in Election at India

SL.No.	Devices used in Elections	Respondents	Percentage
1	Software for registration of candidates	41	16.07
2	Software for registration of voters	56	21.97
3	Biometric voter identification	28	10.99
4	Voting machines	19	7.45
5	Internet voting	9	3.53
6	Software for tabulation	62	24.31
7	Devices for electronic counting of ballots	23	9.01
8	Automated incident reporting system	17	6.67
Total		255	100

(Sources: Field survey during 2022)

Figure No.1
Devices used in Election at India



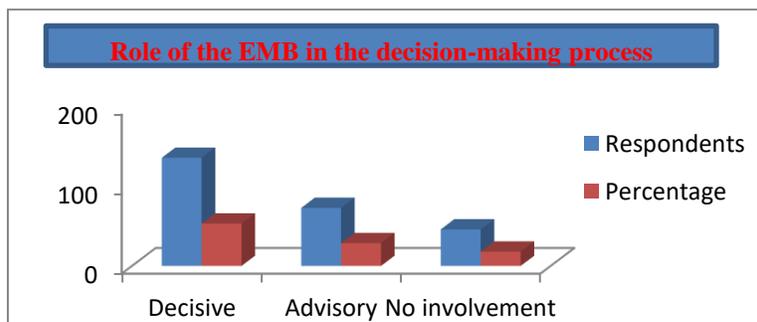
Interpretation: Most EMBs that responded to the survey reported that they used technology to support the tabulation process. A majority of the EMBs surveyed (82%) use technology for this (see Figure 1). Use of technology for the software for tabulation is 24.31% , 21.97 use software for the registration of voters and 16.07% use software for the registration of candidates in India. Biometric voter identification is used in 10.99% in India. 9.01% use technology for the counting process and in 6.67% in India, there is technology in place for an automated incident reporting system. Interestingly, the use of technology for the internet voting process of voting is rather low, compared to the other uses.

Table No.2
Role of the EMB in the decision-making process of used devices

SL.No.	Devices used in Elections	Respondents	Percentage
1	Decisive	136	53.33
2	Advisory	73	28.62
3	No involvement	46	18.03
Total		255	100

(Sources: Field survey during 2022)

Figure No.2
Role of the EMB in the decision-making process of used devices



Interpretation: The analysis is to look at the role of the EMB in the decision-making process. In India that report the use of technology, 136 (53.33%) stated that the EMB has the decisive role in the use of

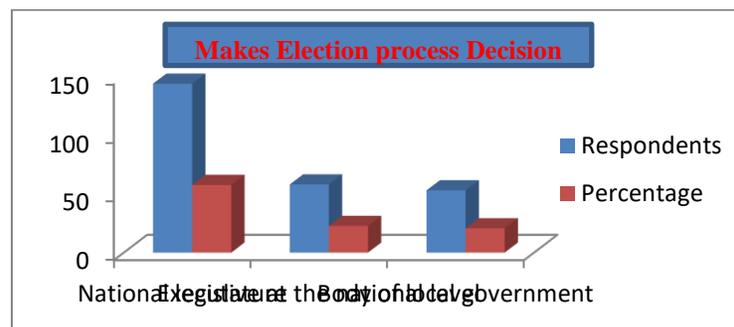
technology. In 73 (28.62%) in India the EMB has an advisory role, and in 46 (18.03%) India it has no role at all. A majority of the EMBs surveyed has the decisive role in the use of technology.

Table No.3
Makes Election process Decision in India

SL.No.	Makes Election process Decision	Respondents	Percentage
1	National Legislature	144	57.6
2	Executive at the National level	58	22.7
3	Body of local Government	53	20.7
Total		255	100

(Sources: Field survey during 2022)

Figure No.3
Makes Election process Decision in India



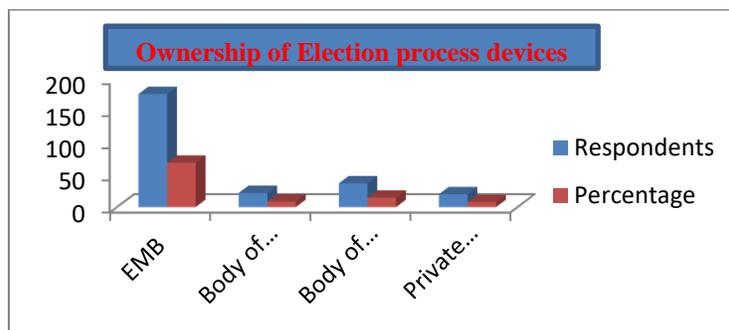
Interpretation: In 144 (57.6%) the National Legislature decides on the use of technology, in 58 (22.7%) this is done by the executive, and in 53 (20.7%) by local Government. A majority of the EMBs surveyed has the National Legislature decides on the use of technology.

Table No.4
Ownership of Election process devices

SL.No.	Ownership of Election process Devices	Respondents	Percentage
1	EMB	176	69.01
2	Body of central government	22	8.63
3	Body of local government	37	14.50
4	Private company	20	7.85
Total		255	100

(Sources: Field survey during 2022)

Figure No.4
Ownership of Election process devices



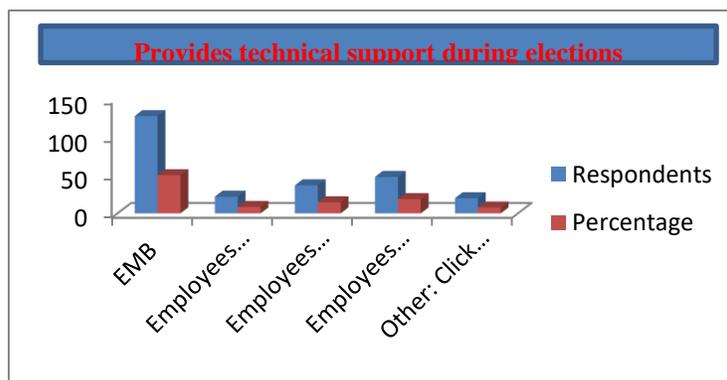
Interpretation: Ownership of the technology used in elections process. When looking at the difference in ownership between independent and governmental EMBs, it is clear that independent EMBs are far more likely to own the technology i.e. 69.01% (see Table 4 and Figure 4). Only governmental EMBs report that ownership in some cases is in the hands of private companies.

Table No.5
Provides technical support during elections concerning these devices

SL.No.	Provides Technical Support	Respondents	Percentage
1	EMB	128	50.19
2	Employees of central government	22	8.62
3	Employees of local government	37	14.50
4	Employees of private company	48	18.80
5	Other	20	7.84
Total		255	100

(Sources: Field survey during 2022)

Figure No.5
Provides technical support during elections concerning these devices



Interpretation: Technological support given on Election Day. In India that they use private companies to provide support on Election Day compared to the reported ownership of the technology (see Table 5 and Figure 5). This indicates that even though in a number of cases the ownership of the technology lies with the EMB or another governmental body, the India still has to rely on a private company to provide support on Election Day.

CHI SQUARE OF HYPOTHESIS:

Ho: The measures taken by Technology do not avoid the process of during voting.

H1: The measures taken by Technology do avoid the process of during voting.

Chi Square of Hypothesis

Variable	O	E	(o-e)	$o-e^2$	$(o-e)^2/e$
Role of the EMB in the decision-making process	169	171	2	4	0.02
Makes Election process Decision	73	71	-2	- 4	0.05
Ownership of Election process	31	36	5	25	0.69
Provides technical support during elections	177	172	-5	-25	0.14
Total	450	450	0	0	0.9

$$\begin{aligned} \text{Computed value of } \chi^2 &= \sum (o-e)^2/e \text{ Degree of freedom} = (R-1)(C-1) \\ &= (4-1)(2-1) \\ &= 3 \end{aligned}$$

Level of significance = 0.05 χ^2 distributions (3, 0.05)

The table value of χ^2 is 12.838

Decision:

If the computed value of $\chi^2 >$ than the table value of χ^2 rejected the Ho hypothesis and accepted H1 hypothesis but if the computed value of $\chi^2 <$ than the table value of χ^2 accepted the Ho hypothesis and rejected the Hi hypothesis, which means that there are measures that will technology do not avoid the process of during voting .

Conclusion:

Research should concludes on : It would be useful to repeat this survey on a regular basis to follow trends in the use of ICT by EMBs. This would make it possible to see if India that are similar take the same steps in this area, or different ones. Also, more qualitative and in-depth India case studies should be undertaken to see what the motives were behind the decisions that were made in India when dealing with the use of ICT in elections. Key areas here would be the effects of international electoral assistance on the use of ICT in receiving countries and the role of vendors in the election process in India.

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