The Key to Triumphant Practices of Technology in Elections: It's Time to Reboot Electoral Process in Pakistan

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Abstract

Free and fair elections guarantee the continuation of successful democratic process. Electoral process conducted on period basis is acknowledged as locus of democracy. For a sustainable democracy, free and election should be conducted on a periodic basis. This is one of the important pillars for democracy to prosper and by and large acknowledged as the locus of democracy. If the element of fairness is not present in the election, the outcome is not democracy but dictatorship and the legitimacy of the elected government will be questionable. As a result, many countries of the world have forced to use modern electoral technologies for the purpose replacing traditional paper balloting. The main issue is that these advanced ways of casting votes are not uncontroversial. For a developing country like Pakistan, it is just a beginning. The lack of political stability has made it even more difficult. The article basically suggests a roadmap for these technologies to be implemented in Pakistan, keeping in view the identical political and geographical conditions of the surrounding countries. The experiments of these countries during their implementation phase have also been considered for the purpose. The paper also concludes that despite using every possible technology, the public trust towards Election Management Body is the key. It also recommends some solutions for this challenge as well.

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1. Introduction and Literature Review

The question of an improved election process cannot be addressed without considering an enhanced technological practice during the process. Various worldwide election authorities have used many technological systems to improve the electoral procedure. Simpson, Weiner, and Proffitt (1997) define election as "formal choosing of a person for an office, dignity, or position of any kind; usually by the votes of a constituent body".

A mechanism needs to be defined for such kind of process. This mechanism may be very simple as just counting the raised hands or may be very complex involving multiple jurisdictions. Despite the fact that how much complex or simple this process is, the elections validation owns equal importance. Election validation refers to counting the votes correctly. This makes it both technical as well as political where accuracy of the result and selection of election method are political questions. On the other hand, how the selected method will be implemented is related to the technical side of the aspect. Entire course of history may be changed with the result of an election and history is full of examples (Simidchieva et al., 2010). Nnoli (2003) has stated the importance of elections with the words

> "*Elections are so clearly tied to the growth and development of representative democratic government that they are now generally held to be the single most important indicator of the presence or absence of such government*".

For a sustainable democracy, free and election should be conducted on a periodic basis. This is one of the important pillars for democracy to prosper and by and large acknowledged as the locus of democracy. But if the element of fairness is not present in the election the outcome is not democracy but dictatorship (Aborisade, 2006). A government to be legitimate and true representative of the public cannot be possible without free and fair election (Okoh, 2005).

Riera, Sànchez, and Torras (2002) have mentioned that employing advanced technology (e.g. internet voting) in electoral process is still promising but it should be put into practice correctly to get maximum

benefit out of it and might lead to boosting democratic process. It not only reduced the cost for balloting but also speeds up the process and enhances its accuracy. It helps the voters in mobility and hence increases the voting turnout. But before implementing these new technologies, all the technical issues must be carefully addressed. It is important to ensure that without reliability, confidentiality, trust and transparency, the entire process will be useless and add doubts in the mind of the voter.

The main issue is that these advanced ways of casting votes are not uncontroversial. These methods are but not limited to pushing a button, touch screen, mouse click etc. The controversies are not only coming from Africa, Asia but from the most advanced nations like Europe and even from the United States as well. The vulnerability to fraudulent practices is one side of the picture, while the other side is equally important i.e. confidentiality of the vote (Allers & Kooreman, 2009).

Electoral fraud or rigging is referred to as malpractices during electoral process which are "palpable illegalities" done for the intention of fraud, corruption or ominous to influence, threat or impose any other act to force voters. It may also include the misrepresentation of election results or declaring a candidate as a winner who is actually loser (Agbu, 2016). The validation of results i.e. whether the votes have been counted correctly is also a very significant side of the election procedure. In recent years, with the introduction and implementation of new technology have arisen the concerns regarding the detection of fraud. Even in the United States there is a lot of debate regarding reliability (Levin, Cohn, Ordeshook, & Alvarez, 2009).

Another problem associated with the election fraud using election technology is the lack of evidence in the literature available (Alvarez & Hall, 2010). According to Bader (2014) political context plays an important role regarding the effectiveness of these technologies towards prevention of fraudulent electoral system.

This is the very reason that most countries are still sticking with paper balloting and in some cases going back to the traditional way of voting e.g. just before the Dutch parliamentary elections, it was revealed that with the help of an equipment, votes casted by a specific machine could be traced from distance. As a result, many of the municipalities including Amsterdam were forced to use paper balloting. In addition, in

2007 existing voting machines were banned by the Dutch government (Allers & Kooreman, 2009).

1.1. Objectives of the Study

In Pakistan, after the 2013 general election, Election Commission of Pakistan (ECP) has faced huge allegations of rigging from almost all the political parties. These rigging claims are not limited to recent 2013 general elections but almost every election in Pakistan is characterized by these allegations.

This paper not only focuses on different technologies to be used in election but also emphasizes on their possible use in Pakistan's electoral process. It also explores whether these technologies will bring something good to the country and more importantly is Pakistan ready to use them? The objectives of the study are but not limited to the following:

1. To explore what are the major modern technologies are being used in the electoral process?
2. To explore what are the issues/challenges related to these technologies?
3. Investigate what mechanism should be used to introduce these modern election technologies in Pakistan? Or what measures should be taken before the introduction of these technologies?

1.2. Research Methodology

Discourse Analysis has been selected for the purpose of this paper. The research is exploratory in nature. It is an attempt to dig out not only the current technologies which are being used for the electoral process but also the issues related to these technologies as well from the current literature available. Additionally, narrowing down this research to the literature which is specific to developing countries and more importantly surrounding countries like India, Bangladesh and Sri Lanka etc. The reason to choose countries in South Asia or more importantly South East Asia is that the conditions (Geographic, Demographic and Literacy Rate) are/were very much similar when implementing these technologies. The focus is also given on reports produced by Pildat, Fafen and other agencies.

1.3. Significance of the Study

Keeping in view the importance of an election process, in many countries, paper balloting has been replaced with a technological advanced way of vote casting. The use of technology in election process has increased the validity and reliability of the process to some extent (Nwangwu, 2015). As Golden, Kramon, and Ofosu (2014) have mentioned that the technological advancement in the election process (biometric identification, electronic voting, and webcams at election places) has not only improved the speed of the process but it also promises an accurate and fraud-less mechanism for the purpose.

Therese (2001) has claimed that information and computer technology (ICT) can improve the administrative efficiency during election; it reduces cost and also boosts transparency. Apentsui, Osman, Yahaya, Fuseini, and Issah (2015) have emphasized to integrate electronic technologies into the election process. It is believed that the electorate becomes more responsive, efficient and transparent when electronic technologies are used. The election process will only be considered legitimate if all the stakeholders believe that it was conducted free and fair. Elections without integrity usually not only lead to "internal political conflict" but also "external political pressures" (Levin, Cohn, Ordeshook, & Alvarez, 2009).

The electoral system in Pakistan (especially after 2013 general elections) is always vulnerable to huge challenges. The major opposition parties are very much concerned with the transparency of the process. Currently, a whole new system is required which must satisfy all the stakeholders. The modern technology can play a key role in this regard. The current study focuses on these technologies and also investigates whether the Pakistani political environment is ready and suitable for this new challenge or not. The study also explores the way to implement these technologies in Pakistani electoral process and tries to offer a mechanism for the purpose.

The post general election 2013 elation and rigging allegations have made these elections even more important and the need of academic research in this area has become inevitable.

2. Technologies in Elections

To understand how modern technology can be used in an electoral process, one must know that which technology should be implemented at different levels within an election managing body system. Erleigh (2008) has used a comprehensive Computerization Maturity Map for an Election Managing Body (EMB). This paper will consider this map as a basis for introduction to different technologies to be used or may be helpful in conducting elections.

Figure 1 depicts a map which distributes technologies to be used by an EMB to reach capability maturity level. This model basically defines a growth path through different computerization stages and using multiple applications.

At first phase (Stages 1–3) of this map, "operational and transactional level functions" are automated. Office Automation Applications and Workstation are used to enable the user to set up a functional network, a functional server and a system to manage email operations. The second phase (Stages 4–6) is characterized with the interoperability with the help of required infrastructure. This is the ability to exchange data, communicate and use of the information exchanged through multiple information technologies i.e. supply chain management systems are implemented here.

Major electoral system related applications are also implemented here using functional databases and applications servers. These applications include voter registration systems, candidate management systems, result report systems and geographical information systems.

The third phase (Stage 7) not only combines these applications into an integrated election system but also offers learning management systems for users, electronic document management system and different ERP systems for online collaboration and information sharing (Erleigh, 2008).

3. Issues and Challenges of Electoral Technology

In the last couple of decades, considerable changes have been witnessed in the election process and modern technology has played a nucleus role in it. Modern technology not only facilitates electronic voting and results but also improves voter's registration, mapping systems, public outreach and boundary delimitation. As discussed previously, these technologies

may vary based on their usages, cost and mechanism etc. and hence leads to following proposition:

Proposition 1: There are a number of technologies used for the election process all over the world but under Pakistani circumstances, it is more beneficial to use the technologies currently being used in the surrounding countries like India, Bangladesh or Sri Lanka.

Tweedie (2012), in a book published by The Asia Foundation has mentioned a number of challenges faced by countries especially located in South Asian region. These challenges/issues must be addressed before marching towards the espousal of election technology.

One of the major concerns is that the both national and international stakeholders must be confident towards using the technology in elections. In many situations including Pakistan, opposition is very much in favor of using it just to ensure transparency in the process. Technology makes the entire exercise more efficient as it is speedy than traditional voting procedures, it raises turn over too. The long term cost effectiveness advantage of the process cannot be ignored as well.

The recent election in Democratic Republic of Congo only costs $2.5 per vote and this is just the beginning. As the systems will be matured and with the use of already available technologies the cost is likely to reduce in the coming elections.

Likely, in Bangladesh it was estimated that almost $110 million dollars should be spent to purchase 200,000 electronic voting machines, which are expensive, but one time investment.

Proposition 2: Implementation of advanced technologies in elections has many advantages but it carries a huge cost as well. Election Management Body should be able to demonstrate the fact that this cost adds value to the process.

To some extent, use of technology also prevents fraudulent election processes due to its integrative and secured nature. But one cannot forget the very important role of EMB in this entire process. Transparent ballot boxes do not guarantee transparent elections. To ensure a transparent election, systems must be efficient, election staff and management must not be biased and overall each and every step of the process must be transparent.

It is important to note that electronic voting machines at one side remove changes for rigging but offer opportunities to do the same in a different way. Another challenge which might arise is that it is very difficult to identify any kind of manipulation in the technology as an expert can do it easily and it is not visible as well.

Educating people towards the new technology is a huge challenge too. Because if they are familiar with the technology, it will be become a barrier rather proves to be a helping tool. Someone who is not familiar with the technology will not feel comfortable towards technology usage. This is one of the main excuses from the political parties in Pakistan, who want to avoid the use of modern technology in elections.

Electronic voting or simple E-voting can be conducted under controlled or uncontrolled environments. A controlled e-voting is done under the supervision of technically expert staff at a specified location. It is to some extent can be seen identical to traditional paper based voting.

On the other hand, uncontrolled e-voting can be performed from anywhere e.g. from home, office or any other public place. An uncontrolled e-voting can literally spoil the election-day-ritual. It can also lead to loss of secrecy of vote, family voting may exceed to vote buying as well.

Modern electoral technologies, especially bio-metric voter registration are very much vulnerable to privacy and data protection issues. It is also very much on the agenda of international agencies to protect personal information and prevent it from being used for some illegal or irresponsible activities. Public confidence can be earned through legislating that must lead to protect voters' rights.

Proposition 3: For a successful conduct of electoral process under modern technologies public confidence and public awareness must be addressed on priority basis.

3.1. Electoral Process in Pakistan

For an under-developed country like Pakistan, the electoral process becomes even more important where democracy is still in its infancy and trying to become a significant power against anti-democratic forces. According to Wilder (1999) "There are few countries in the world where elections have played a critical role in the establishment and subsequent political history of a country as they have in Pakistan". Every election in

Pakistan, from 1970 to 2013 has been characterized with boycotts, violence and more importantly rigging allegations.

The significance of 2013 elections cannot be denied for a number of reasons. Firstly, for the first time in the history of Pakistan, transferring of power was taking place from one democratic administration to another. Secondly, it was the biggest elections in terms of number of voters (approximately 86 millions) participating in the elections. Thirdly, in Pakistan for the very first time, the trend was shifting from two big parties to three big parties. The areas which are more important to address are pre-election screening, election set-up, selection of presiding officers, law and order, impression of female voters, post-poll processes and most importantly the election process itself (Bangash & Hussain, 2015).

Technology has been used in elections in many parts of the world. Even in the neighboring countries of Pakistan e.g. Bangladesh, India, China and even Sri Lanka are using the technology for their electoral process. These countries either have shifted wholly to electronic voting or partially moving towards the objective. Keeping in view the recent rigging allegations in Pakistan's 2013 general elections, demands of enforcing technology in the process are being raised from different constituencies of the country. This leads us to fourth proposition:

Proposition 4: Electoral technologies must be implemented gradually as the other neighboring countries have.

3.2. Using Technology for Elections in Pakistan

As discussed earlier the use of technology, especially in a developing country like Pakistan, brings not only the benefits but also carries a lot of challenges as well. Challenging in a way that the voters are not familiarize with the technology leads to a lot of issues. Additionally, as discussed above, the transparency of the process is also under question mark. Another issue that makes it even more difficult is the public confidence and acceptance towards use of technology in electoral process.

In Figure 2 the world map of electronic voting clearly explains that Pakistan is among those countries where discussions have been started for the use of technology in election process. One thing that can be observed clearly that there are many countries which are either using Electronic Voting Machines (EVM) or even internet voting is being used.

Figure 1: EMB Computerization Mature Map
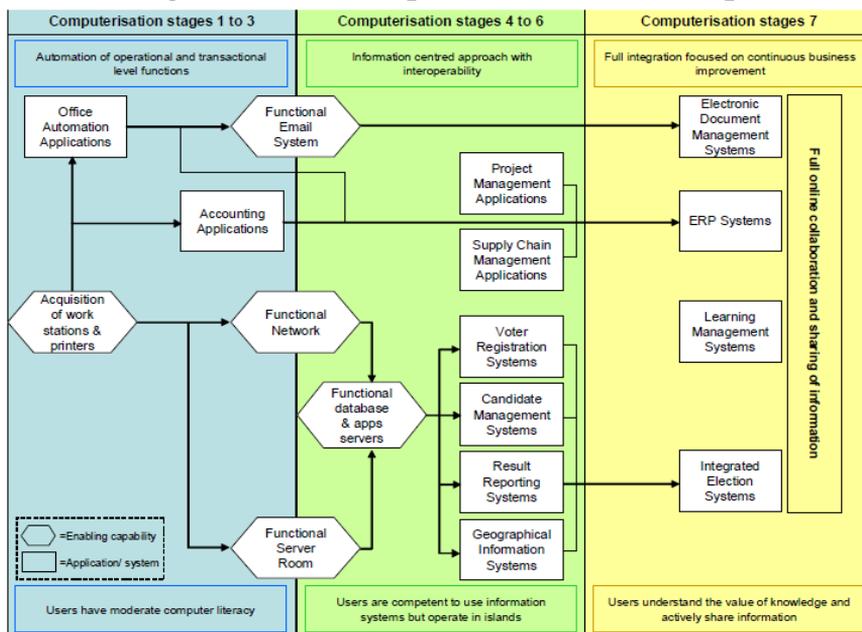
Source: (Erleigh, 2008)

There are also few countries (e.g. Kazakhstan, Norway, Ireland and Germany etc.) who have stopped using voting technologies due to their vulnerable nature, which means these countries have been shifted back to the traditional ways of voting.

In this scenario, Pakistan is required to remain very careful regarding the implementation of technologies. But one must be aware that if the technology is vulnerable to multiple threats, it does not mean that it should not be used any more.

Despite millions of dollars fraud on internet through credit cards and other means every year, transactions through electronic sources are increasing every day. The only thing which is required, is to become more careful when using technology and more steps to be taken to ensure safe use of technology.

4.   Towards a Comprehensive Mechanism of Electoral Process

In the following section, this paper will try to give a mechanism towards the use of technology in the electoral process, demonstrating that what

kind of conditions should be met before introducing these technologies into practice.

4.1. Public Confidence

If the public which is participating in an election exercise has no confidence in it, it makes the legitimacy of the resultant regime questionable. To increase the public confidence towards the use of technology for electoral process, voter register must be published and accordingly available to public for their review. Every political party should be given access to it and authorities must look into the issues constructively and transparently, whenever a party identifies any anomaly or irregularity. Prevailing political scenario combined with perceived autonomy of "Election Management Body" (EMB) plays a very crucial role in constructing the public confidence on technology. The credibility of an EMB is also very important in boosting public confidence. This perception cannot be possible without independent and autonomous machinery responsible for election management (Tweedie, 2012).

In general elections of 2013, the role of Election Commission of Pakistan (ECP) remained highly questionable. If not all but at least some of the political parties have raised very serious allegations on the ECP. It is strongly advocated that the validity of the managing body is very important before implementing technology into the process.

Each and every significant political party, civil society and other organizations should be made a part of the decision making process. It will lead towards building support and knowledge base (McCormack, 2016). It does not matter what kind of method either paper ballot of modern technology is being used in the electoral process.

Voters' confidence is directly influenced by the ballot type and it is mainly dependent on their experience with the ballot itself (Stein, Vonnahme, Byrne, & Wallach, 2008).

4.2. Public Awareness

A country like Pakistan, public awareness towards elections technology is highly important keeping in mind the fact that almost 42% of the population is illiterate (according to Economic Survey of Pakistan 2014-15). A robust public awareness and education campaign should be launched to educate voters towards the usage of the system. Objectives and goals

of the system must be clearly communicated to them. A public feedback system should also be provided.

One can take example from India where more than 84% of the population was illiterate at the time of independence that is almost as equal as Pakistan had at the same time. It is amazing to see how quickly India has adjusted itself to the democratic track after independence. Electoral Management Body, in India's case it is Election Commission of India (ECI) has launched a Systematic Voters' Education and Electoral Participation (SVEEP) wing to educate and motivate the citizens towards electoral participation (Pildat, 2015).

A public awareness program like India has started must be launched to ensure that citizens are very well aware of the electoral systems and its technologies. It should be kept in mind that almost 40% of the population is still illiterate and a strong and rigorous campaign must be launched to achieve the desired objective. So, the proposition 3 is very much satisfied with the view that public awareness and public confidence are the key towards successful implementation of modern election technologies.

4.3. Strategies to Implement Technology

McCormack (2016) has mentioned that electronic voting should be introduced on incremental basis through pilot project. It will not only enhance the familiarity towards the technology but also builds the trust among participants.

As a result, opportunity for success will be increased. In India these technologies have been thoroughly tested to guarantee reliability of the elections and technologies being used.

We at Pakistan, still discussing about whether or not these technologies should be used however, in India Electronic Voting Machines were first introduced and pilot tested way back in 1982. After successful testing and removal of legislative barriers, earlier these EVM were used in bye-elections till 1998. Later on, the General Elections of 2004 were held using these technologies. Even in Bangladesh, elections technologies have been successfully used at bye-elections and other regional level elections.

Plans are to use them for national level elections. Other regional countries which are considered to be less developed have adopted electronic voting machines e.g. Nepal, Bhutan and Namibia. India has progressed tremendously in this to improve these machines with every general election to enhance the trust of voters with every step taken towards making things even better. There is an independent experts' committee to recommend these improvements (Pildat, 2015).

As proposed in proposition 4, Pakistan can take advantage of the Indian experiment in the field. The only thing that should be kept in mind that, Indian democracy is highly matured and experienced. Citizens are very much used to with the technology. Pakistan should also initially utilize these technologies at lower levels (may be bye-elections). Recently, one of the encouraging efforts is made by Lahore High Court Bar Association who conducted their elections using Bio-Metric technologies. It is just a beginning and there is still a long way to go.

4.4. Ensuring Security

As described above, major concerns towards using the modern electronic technology in electoral process is the security of the data, transparency and privacy.

Recent fears regarding cyber security has also increased the worries about election results e.g. recent data breaches experienced by Bank of America, Target and even the US governments have alarmed the electronic systems' security.

It is important to understand that the EVMs are stand-alone machines. These machines are not connected to each other or with the internet. A large scale infiltration is only possible if accessed one by one. Because public at large are not aware that hacking and other related penetration were possible into a system was mainly because these systems were connected to the internet. An increased electoral transparency can only be possible through procedural augmentation.

A pre-election testing and post-election vote audit, a third party audit of software and source code and election observers from all the internal and external stakeholders can make things even more acceptable for everyone. Additionally, a security evaluation regarding the associated security risks of modern electoral technology must be considered with contrast to paper ballot e.g. lost, stone or may be misplaced (McCormack, 2016).

Figure 2: World map of Electronic Voting

Source: http://www.e-voting.cc/en/it-elections/world-map
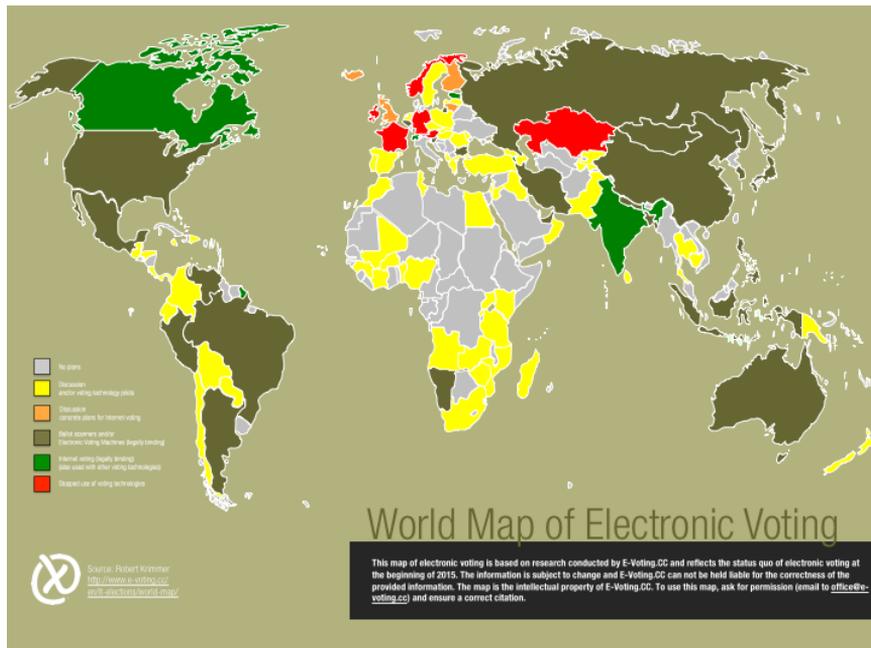
Even in countries where these technologies have been used successfully questions are raised regarding EVM. This has led to a solution called Voter Verifiable Paper Audit Trial. A user can verify that whether their vote was casted correctly or not. It provides an opportunity to audit the "stored electronic results". In India, this technology was used at a number of occasions e.g. bye-elections and Delhi Assembly elections. The major breakthrough was in 2014 National Elections where 20,000 VVPAT machines were used. It is supposed to be that Generation Elections of 2019 will be fully supported by this technology (Pildat, 2015).

4.5. Cost

Another major issue is the cost that incurs towards acquiring and maintaining the modern technology in elections. There is very little evidence available to prove that electronic voting is cost effectiveness than paper ballots. Hossain, Shakur, Ahmed, and Paul (2015) have concluded that use of technology in elections is not only effective in many ways but very cost efficient as well.

Keeping in view that implementation of these technologies at a large scale is always very expensive. It is very important to mention that when calculating the cost for such technologies, a complete life span must be kept in mind. India and Namibia in this regard have acquired such equipment which not only meet the basic needs but also very economical as far as the cost is concerned. There are claims from technology providers that electronic sources are low cost as compared to the traditional paper ballot systems but these claims are yet to be researched by a third party (McCormack, 2016).

One must not ignore the fact that the benefits associated with the use of technologies should be given preference when considering the cost. Benefits do not come alone; one needs to pay for it. Even these technologies are a bit expensive (which is yet to be proved), there should not be any question regarding acceptance of the technologies and this is what the proposition 2 has tried to explain.

Overall, our major proposition i.e. proposition 1 has established very strongly that these technologies should be a part of Pakistan's electoral process especially the one used by our neighboring countries like India, Bangladesh and Sri Lanka as they were facing more or less same challenges as faced by Pakistan today.

5. Conclusions

Reliability and validity of an electoral process is very important for the reason that legitimacy of a regime is totally dependent on the acceptance of election results by the voters themselves. The credibility of the Election Managing Body plays a very important role in it. If voters have complete faith in the EMB, it does not matter how these elections have been conducted i.e. paper ballots or modern technologies. But before using these technologies, citizens must be aware of the usage and consequences. They should be aware tchat how these technologies will make the entire process more efficient, transparent and effective. EMB must ensure that election data is very much secure and there is no data breach is possible.

For a developing country like Pakistan, this is yet to be a beginning. Due to lack of political stability, the electoral process has a number of deficiencies. There is no second opinion regarding whether these technologies should be used or not. They must, but without a comprehensive system which is ready to accept these technologies will result in a total fiasco.

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