The future of Electronic Voting in Pakistan

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ABSTRACT

The use of digital technology for governance related issues is not new in the modern world. Electronic voting, being one of its components, has always been debated, researched and practiced around the world as a substitute of paper based voting system. Having the potential of a game changer on political arena, voices are being raised to introduce e-voting in the general election process for the purpose of fairness, transparency and accountability as well as for speed. Although e-voting has already been introduced in the neighboring country of India, however in Pakistan, the same was worked on initially but abandoned later on. This paper is focused on reflecting the significance of e-voting and ensuring transparency and fairness and finding way e-voting can be initiated in the election process of Pakistan. In short, it argues that Pakistan has all the available features to implement it successfully but needs certain steps and implementing.

KEYWORDS: Democracy, Elections, Vote, Future, Electronic.

1. INTRODUCTION

Pakistan is a federal constitutional democracy that is subject to general and local elections intermittently [1]. Owing to abrupt spread of information and communication technologies throughout its urban and semi urban areas, voices are being raised to introduce ICT for holding fair and transparent general and local bodies’ elections [2]. Election process in Pakistan is an expensive and complicated exercise second to war. A glimpse of the same can be found in a recent ECP report, “Pakistan held its last General Election on 11 May 2013 after completion of five year term of the government elected in 2008. The elections were Politically and technically very challenging. These elections had the largest number of registered voters -86,189,802 including 37,597,415 women and 48,592,387 men. There were 10958 contesting candidates including 419 women. The number of election observers, both national and international, touched 50,000. Additionally, a very active electronic and print media closely watched these elections. The ECP handled the entire logistics operation in a very professional manner and made available all polling materials so that more than 69,000 polling stations could open on time and voters were able to cast their votes.” Here a genuine question would arise as whether free fair and transparent elections can be held on the same day, in limited hours and on such a large scale without any technological support on the ground?

Grappled with such issues, Election Commission of Pakistan ECP worked to discover proper Electronic Voting Machines EVM[3]. Whereas, parliamentary committee on election reforms also held various sessions to know more about the said machines in recent years[4]. The provincial government of Khyber Pakhtunkhwa KP that advocates e-reform in electoral process tested the EVM on a pilot in 2013 but abandoned due to technical problems [5]. No further efforts have been reported since then and status quo is prevailing across the board in Pakistan. However, due to technological advancement in every sphere of life, sooner or later e-voting will be part of election process in Pakistan. The current paper will go through various aspects of this much desired project, by discovering the viable solution of EVM for holding free, fair and transparent election in the country. Due to various basic attitudinal, legal, technical and financial issues, the task in hand is not easy, but is rather very cumbersome, expensive and prone to be maintained constantly and sustained in a technologically vibrant environment, for which the stakeholders are not ready for the time being.

2. BACKGROUND OF THE STUDY

The constitution of Islamic republic of Pakistan, adopted in 1973 declares democracy as one its cornerstones of national life [6]. Every citizen, who is of 18 years age and registered on electoral roll, can vote for national and
provincial assemblies [7]. Election Commission of Pakistan has been assigned the task to prepare electoral rolls and hold elections for various slots [8]. Apart from this, legislative enactment is also in place to provide for the detailed mechanism as how to hold elections [9]. Since the creation of Pakistan in 1947 till the end of 1970, no general election on universal franchise basis held whereas during the later period till date ten general elections have been held so far [10]. Every time, whenever the same took place, allegation of rigging were leveled by the looser parties, the result was that in first election that took place in 1970, the country was split into two, in the coming general election of 1977 martial law was declared by General Zia-ul-haq that was another martial law under General retired Pervez Musharaf. The latest election of 2013 also destabilized national life/ political arena by agitation marches for around a year. The final verdict was pronounced by the judicial commission headed by the then Chief Justice of Pakistan Nasirul Mulk, by dismissing the petitions that alleged rigging.

Electorate distrust on the system is also evident from the analysis of voting turn-outs in the last 40 years also point to the fact that a limited number of voters came out to cast their vote[11]. Table 1 shows the turn outs of past elections.

<table>
<thead>
<tr>
<th>Year</th>
<th>Turnout</th>
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<tbody>
<tr>
<td>2013</td>
<td>53.62%</td>
</tr>
<tr>
<td>2008</td>
<td>44.55%</td>
</tr>
<tr>
<td>2002</td>
<td>41.80%</td>
</tr>
<tr>
<td>1996</td>
<td>35.17%</td>
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<tr>
<td>1993</td>
<td>40.28%</td>
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<tr>
<td>1990</td>
<td>45.46%</td>
</tr>
<tr>
<td>1988</td>
<td>43.07%</td>
</tr>
<tr>
<td>1985</td>
<td>52.93%</td>
</tr>
<tr>
<td>1977</td>
<td>55.02%</td>
</tr>
</tbody>
</table>

Moreover, the polling pattern that prevails today is based on practices that were introduced after the First World War and in 1921. The representation of the People’s Act 1976 was adopted on acceptable international norms in Pakistan. Prior to that election laws in Pakistan were not much developed. During the 1970s and then in 2000s, plethora of electoral laws were adopted to provide for various aspect of the conduct of elections [12].

Due to another reasons, in Pakistan, the conduct of election has always been controversial thanks to various factors like, ballot snatching, over voting, bogus voting, non-voting by female folk, hi-jacking of polling stations, violence, intimidation, buying and selling of votes by the relatively powerful players in the election process and even killing and mayhem of the opponents[13]. Not a single turn of national election has been declared as fair in the last forty years. The credit of all these malpractices goes to various factors, one of which is the manual system of voting. Every single step, right from the printing of ballot paper to polling day and final declaration of result is being carried out on manual base system. This causes many problems that prevent us to declare elections as free, fair and transparent. In turn, this erodes public confidence on state institutions. The electorate gets discouraged to come out and express their opinion in the polls. All these phenomenon compels to ponder on discovering methods as how to reform the election process in such a way as that election have to be trusted by the stakeholders and to avoid manipulation consequently.

### 3. What has been done so far?

Although much rhetoric has been played to introduce e-voting system in Pakistan, no major breakthrough has been done so far on the national level. In a recent encounter, the ECP dwelt on the premise that due to technical and cost issues, it cannot give a final date to launch the EVM [14]. The top managers of the commission referred to the issue of costs. A number of 270,000/- units were claimed to be required to be deployed all across Pakistan during a general election with each machine costing USD 600 to 700[15]. The security risks of machine tampering were also questioned. The machine was referred as setting ducks that cannot defend itself against hacking and human misadventures [16].

The second five years strategic plan 2014-18 issued by the ECP, among other steps, gives a future glimpse of technology use for the purpose. The accomplished projects that have been stated include the "Result Management System RMS" and that of voter verification through mobile SMS. This service was used by 55 million voters in the last election of 2013[17]. The role of Information technology has been taken as
“Piloting and using of EVMs and biometric voter identification and authentication systems is also an area which the ECP will explore. Precisely, IT has become an important crosscutting tool for the ECP management and the election operations. The ECP would like to develop this further so that IT can be used even more effectively as a strategic resource with continuous research and development.[18]”

A number of strategic goals and objectives have been coined by the ECP for the proposed period. The EVM has also been taken to be worked on [19]. The plan of EVM is shown in Table 2.

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Objectives</th>
<th>Completion date</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Develop and operational plan for EVM and BVI</td>
<td>June</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Pilot the use of EVM and BVI in view of feasibility study</td>
<td></td>
<td></td>
<td></td>
<td>June</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Develop and EVM and BVI implementation plan based on pilot</td>
<td></td>
<td></td>
<td>December</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Nationwide rollout of the EVM and BVI system</td>
<td></td>
<td></td>
<td>June</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

source: ECP website

The ground situation is quite different. Nothing has happened as per plan mentioned above. The matter is in the cold storage for the reasons better known to the ECP and apparently due to lack of political will on government and legislature side. A detailed look at the ECP website also shows that no progress has been made on the EVM project [20].

4. Why the project stopped?
The question as why the project abandoned, has been stated by ECP as not having the then permanent Chief Election Commissioner CEC in its establishment to decide on the issue [21]. Ever since the resignation of previous CEC Mr. F.G. Ibrahim, the ECP searched for a permanent CEC that was arranged through a recent appointment of Mr. Justice retired Sardar Raza. However, such intricate technological issue has a distant relevancy with the appointment of CEC as he is a manager or facilitator of ECP affairs on the national level. Security issues in hacking the data of the machine were also cited while making a test of the machine before the parliamentary committee [22].

“ECP’s Director General Information Technology Khizar Aziz candidly told the parliamentary body that the software used by EVMs could be manipulated to affect the results. He said that EVMs installed at polling stations were vulnerable to hacking via Bluetooth signals and other forms of wireless connectivity.

In fact, he told members that the machines could even be tampered with while in storage [23].”

These and some other pretexts were relied upon to dodge the project. Interestingly, this highly sophisticated initiative was taken up by those who got no research or technological expertise in the field. Rather one-day seminar was arranged to listen the international EVM vendors and then what was shown in the demonstration, was heard and relied upon by the ECP and government stakeholders then and there and without any further research and development on the topic. This committee was quick enough to refer to EVM defeat in various European jurisdictions. Technical problems in the Indian experience were also cited.

“Though India had conducted three general elections on EVMs; in 2004, 2009 and 2014, criticism of the voting machines had been severe and the credibility of the process was questionable. The ECP official said that during an interaction with the Indian election authorities, it emerged that there was no mechanism available to ascertain if an EVM had been tampered with. They said it was not possible to check 1.4 million machines to ascertain which one were manipulated.[24]”

Similarly, absence of biometrics was also considered as a barrier in the project. The same and other factors were identified as loopholes in the way of implementing e-voting system in the country. These includes lack of ICT culture and technical know-how in the country, poor IT infrastructure, unfair policies, no check and balance on development and maintenance, rampant corruption, confusion as how to start and where to start the project, huge
costs and resources, lack of trust on the EVM by the stake-holders[20]. Whereas, some out rightly rejected the idea on the old premise of network security and hacking problems in the machines [25]. Despite all these so-called issues, interestingly, the government is not denying to abandon the EVM initiative. Rather it has adopted see and watch policy on the issue. Recently, it was announced that ECP is considering as to whether holding the next general elections on EVM or not [26]. It was candidly admitted that the system is successfully in working in India. As not been actively, the EVM project is in the cold storage due to the hesitant attitude of all stake holders involved in the legislative and policy making issues on national level. The government is throwing the ball in the court of ECP whereas ECP is not taking full responsibility of the issue on its own shoulders. In between the matter is hanging for an indefinite period. Conversely, India has taken extra miles by conducting last three general elections on EVM. The same will be discussed as role model.


The idea of e-voting in India was coined by the then CEC in 1977. The first ever Indian EVM was developed in early 1980s by the Electronics Corporation of India/ECIL but the same could not gain currency [27]. The second generation EVM was a joint venture of ECIL and Bharat Electronics Limited/BEL in 2000. The make-up of the machine has been described as “In 1980s by ECIL, The first EVMs are developed. They introduced the style of system used to this day, including the separate control and ballot units and the layout of both components. These first generation EVMs were based on Hitachi 6305 microcontrollers and used firmware stored in external UV erasable PROMs along with 64kb EEPROMs for storing votes. Second-generation models were introduced in 2000 by both ECIL and BEL. These machines moved the firmware into the CPU and upgraded other components. They were gradually deployed in greater numbers and used nationwide beginning in 2004. In 2006, the manufacturers adopted a third generation design incorporating additional changes suggested by the Election commission. Indian EVMs consist of a BALLOT UNIT used by voters (left) and a CONTROL UNIT operated by poll workers (right) joined by a 5 meter cable. Voters simply press the button corresponding to the candidate of their choice [28]”

The Indian adopted a very systematic, continuous, indigenous and step by step approach to develop the EVM and then implement it in the election exercise [29]. The process was initiated in early 1980s where the first EVM was used in Kerala in 1982. However on, on the direction of Supreme Court of India proper legislation was adopted by amending the Peoples Representation Act 1951 and Conduct of Election Rules 1961 to accommodate the EVM. Later on the proposed machine was researched upon and debated among the election managers, IT experts, academia, in 1990, 2005 and then in 2010. The machine so developed has successfully been used in general elections since 1998, and in 2004, 2009, and latest in 2014. The election data reveals that a record number of 814 million voters used 1.8 million EVMs in 543 constituencies in general election 2014[30]. Despite various claims by the computer hackers/experts that the Indian EVM is prone to serious attacks that can change the election results and violate the secrecy of ballots [31]. The machine is going to develop and deliver for polling and counting purposes in general election. The recent judgment of Supreme Court of India ordered for provision of paper trail record of each voter [32]. If this happened, it will turn the whole process into a new and updated model in the election history of the world. The Indian EVM experience is setting technology trend in the world and other countries are also following the footprints as well [33]. Even the ECP also learnt towards Indian model when the matter was referred to e-voting mechanism. A genuine question that arises is when EVM can safely be used for an electorate population of 814 million in India then why the same cannot be done so for a far lesser proportion of round 80 millions in Pakistan.

6. The way forward.

The stark question as how e-voting can be implemented in Pakistan poses various challenges for the managers of ECP, legislators, policy makers, IT specialists and allied political stakeholders. The most important thing that is often ignored is that everything that is connected with the electronic voting is considered to be the whole and sole responsibility of ECP, without giving it the authority to take decisions and finance its initiatives. The Indian experience, as discussed earlier, clearly shows that e-voting was taken as a national challenge. All the institutions got united under one banner and after a continuous struggle and refinement of three decades, the successful result is before everyone. A record number of 800 million voters cast their votes through machines and the result is declared within hours afterwards. Here in Pakistan, due to bureaucratic culture and lethargic attitudes at political level towards research and innovation, e-voting initiatives have never been taken seriously and deeply. The matter was once taken as normal, the available vendors in world market were invited for demonstration and then the chapter was closed on the premise that the machine is much expensive and prone to fraud and hacking attacks.
However, the working paper published by the ECP concluded that further research is required to select a proper machine for national implementation.

In order to know the actual situation, the author personally visited the regional ECP office. During conversation, the concerned IT specialist expressed his thoughtful opinion that currently a wrong direction is being pursued by the ECP as e-voting machine is not the job of ECP rather the federal government and legislators are responsible to devise proper mechanism in this regard. Moreover, according to the said official, the machine can be developed indigenously by involving local IT universities in the project. At first instance, to identify a compatible voting machine that is compatible with local environment and then develops the said machine at par with international standards.

There are various IT specialized universities, established across the country some of which are of international repute [34]. These universities, if given the job of research and development in respect of e-voting machine, can do better job viz-a-viz international vendors, who just sell their products and leave the aftermath to local users. The product so developed will have the taste of indigenous circumstances, climatic vigor, literacy rate, political concerns, and allied needs of repairs and innovations. Moreover, the role of ministry of information technology and telecommunication cannot be ignoring in the process. The main role of this organization is planning, coordinating and directing efforts to initiate and launch IT programs and projects aimed at economic development of the country [35]. The joint and concerted efforts made by the legislator, technical experts, academia, election commission and government will certainly lead to a fruitful and logical conclusion to search and develop a viable EVM.

7. Benefits of the system.

Although apparently embroiled in multi-dimensional risks, the e-voting system bears inherent merits for the voting culture like Pakistan that surpasses its demerits in the long run [36]. The paper based voting mechanism has a persistent legacy of political and court disputes in Pakistan. Even the last general election of 2013 remained subject to judicial scrutiny in the apex court of the country due to allegations of organized rigging. Six major factors of demerits have been mentioned by the ECP working paper that includes physical management of paper ballots, its storage and security, extra-large size of ballot papers (in the last local elections of KPK held on 30th May 2015, a voter had to cast 7 ballot papers at the same time that consumed around 15 to 20 minutes per voter leaving thousands outside as disenfranchised), high ratio of invalid votes [37], slow voting and counting process, and marking errors [38].

The same paper has mentioned various advantages of the e-voting like being impartial, ballot standardization, invalid ballot elimination, fast counting and instant results, accuracy, fraud prevention, accurate tabulation, cost effectiveness, no need of stamping and signing, increased turnout, fast voting, logistical support, less polling staff, ease for disabled voters, high turn-out, last minute ballot changes, etc.[39]. All them are much related to the voting environment of Pakistan where every single vote is valued and every phase is important for the stakeholders. As stated, voting history of Pakistan reveals political rifts and decrease of trust of stakeholders on the election process due to its weaknesses.

8. Weaknesses.

As e-voting technology has not developed sufficiently, sudden shift of the system to electronic one involves many challenges that cannot be ignored in the long run. For the voting environment like Pakistan, electronic voting machine, if introduced may cause problem while re-counting and checking results when the same is questioned in post-election phases [40]. Literacy rate is too low, the introduction of EVM will confuse illiterate voter by misleading him to vote for wrong candidate [41]. The element of fraud cannot be ignored in connection with EVM. Machines are much easier to be tampered with and get favorable results in favor of certain party or candidates. The Indian EVM, which was considered as foolproof, was tempered by US scientist by installing Bluetooth radio and sending text messages from mobile phone [42].

Transparency is the cornerstone of election process. All the stakeholders want that process should be visible and auditable so that everyone is satisfied with it. Paper based system is visible to all and can be checked anytime if some doubt arises later. EVM is considered as a 'black box', where after pressing of button; rest is unknown to voter and other stakeholders. Everyone is compelled to trust whatever result is produced by the machine, without knowing the actual process. This can easily make the whole process doubtful. The issue of cost is also an obstacle while implementing the project. EVM will be imported as the same is not manufactured indigenously. The ECP has estimated around 25000/- EVMs, per unit costs $300-500 grand total as $67-1125
millions. This is huge expense for which the state coffers are not ready. Other issues that are involved is IT skilled staff, environment-proof machine, temperature controlled storage, power considerations, voter training, breakdown backup etc.[43].

Owing to lack of political will, e-voting is a complex issue for third world country like Pakistan. The same, if introduced, can prove as political game changer by introducing new political culture that may not be acceptable to those who are elite stakeholders. The whole study of EVM confirms one point that no indigenous effort has so far been taken to develop local machine for the purpose and test the same on pilot basis. No official policy is there in this regard and no budget or legal backing has been enunciated for the purpose. Thus it can be easily guessed that EVM will not be part of the upcoming elections for decades due to one or the other pretexts at top level. Because once introduced it can be expanded and refined to internet voting, mobile voting and other forms of digital devices. In this changed scenario the old concepts of vote frauds, ballot snatching, hi-jacking of polling stations, election violence, death and mayhem and jamming of national economic life cycle will not be possible. Every political and non-political organization that manipulates election for gaining power uses different tactics to get around the election process. This phenomenon will no longer work as much liberty will be available to voter to cast his vote with digital devices more smoothly, privately.

10. Conclusion.
E-voting is solution to many problems. That is why the same is demanded for transparency and fairness in the election process. The neighboring India has successfully implemented the project for its 800 million voters across difficult terrains and multiple whether environments. The question is why the same experience is not translated into Pakistan? The answer is not far away from as 'can be'. Apart from political backing the project is in dire quest of technological expertise along with manufacturing setups at mass level to get rid of foreign exchanges. Even if implemented, EVM is not the panacea to all the ills of elections, yet it can alleviate the situation to a more refined and better point.

REFERENCES
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[2] The latest agitation of a new and growing political party confirmed this as they alleged rigging in the manual based election held in 2013 and then demanded for introducing technology in the forthcoming elections. See core demands of Pakistan Tehreeki Insaf at www.insaf.pk
[7] Article 51, ibid
[8] Part VII, ibid
[9] The representation of the peoples Act 176, is the only law that deals with the subject. For the purpose of e-voting system, this law will have to be amended to a great extent in order to accommodate electronic voting.
[13] See supra at number 11, “this study had demonstrated that eight elections in Pakistan beginning with the first one in 1970 and the eighth election in 2008 were flawed by one or more of three forms of rigging: pre-poll, polling day and post-poll. Our conclusion was that the problem of corruption in democracy goes beyond election. It is instead rooted in the acceptability of democracy without rule of law.”
[15] ibid
[16] ibid
[18] ibid
[19] ibid, pp 35
[23] ibid
[24] ibid
[27]See http://www.radio.gov.pk/newsdetail/75956/1
[31] Kumar Hari, The device that runs the world’s biggest Election. The New York Times Blog, see at http://india.blogs.nytimes.com/2014/05/06/the-device-that-runs-the-worlds-biggest-election/?_r=0
[33]Dr. Subramanian Swamy V Election Commission of India, CP No 9093 of 2013, see http://supremecourtofindia.nic.in/outtoday/9093.pdf
[34] The web resources reveal that Indian EVM has been exported to Nepal, Bhutan, Namibia, and Kenya for election purposes.
[35]see world raking reports of Asian Universities on http://www.qs.com/ranking.html LIUMS, GIKI, UET Lahore, QAU and AKU have been included as top raking educational institutes by the QS UK. Also see Express Tribune report on http://tribune.com.pk/story/564260/2013-rankings-three-pakistani-universities-among-worlds-top-200/
[36] see http://www.moitt.gov.pk/gop/index.php?q=aHR0cDovLzE5Mi4xNjguNzAuMTM2L21vaXQvLi9mcm1EZXRhaWxzLmFzcHg%2Fb3B0PWJhc2ljJmlkPTE%3D
[37] Resisting Change: ECP drops idea of e-voting in next polls. “There are issues of specifications…. the technology is not foolproof. There are issues of manufacturing of these machines at such a large scale and storing them. We have issues of voters’ education, see http://www.southasianmedia.net/stories/pakistan/english-language-media/resisting-change-ecp-drops-idea-of-e-voting-in-next-polls-story. Due to security risks e-voting has been disbanded in countries like Germany, Netherlands, Ireland and Paraguay. see IFES 2012 research paper 'International experience with e-voting' on http://www.parliament.uk/documents/speaker/digital-democracy/IFESIVreport.pdf
[38] 1.3 millions votes were rejected in the last election of 2013. see http://www.dawn.com/news/1147836
[40] ibid
[41] ibid, however, the problem can be solved through EVM that generates VVPT
[42] The concept has also been defeated by the EVM introduced by India for her general election, as literacy there is also too low.