

From Statutes To Ballots: Assessing The Legal Facets Of Evms In Pakistan

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Abstract

The echoes of rigged elections have always been witnessed immediately after elections, and democracies like India and Brazil have opted for electronic voting to overcome these chants. Since its first elections in 1970, the history of Pakistani elections has been written with a series of rigging allegations. The electoral experts and a major political party are raising queries to adopt electronic voting to curb these allegations; however, without assessing the implications of Electronic Voting Machines (EVM), its direct adoption can be more catastrophic than the ordinary chants of rigging, resulting in the derailing of democracy in the country. This research was also carried out expecting the implementation of EVM in Pakistan in the next ten years. This research aims to provide insight into the legal implications of EVM in the Pakistani electoral arena and compare the electoral laws of Pakistan to make them conform to the requirements for the adoption of EVM. A mixed-method research method with a case study design has been utilized in this research. An expert sampling technique was opted to gather data from the legal experts, and factor analysis was applied to determine the factors affecting the implementation of EVM. However, research results found that current electoral laws contradict the implementation of EVM. This research highlights the upcoming role of the judiciary in dispute resolution after the implementation of EVM and the requirement for fresh legislation. The requirement of security protocol, audit and testing of EVM machines, and public awareness have been highlighted in this research to make the implementation of EVM acceptable to the public. The findings guide policymakers to align technology advancements with the fundamental principles of democracy, thereby establishing a robust and advanced election system in Pakistan.

Keywords: Electronic Voting Machines, Elections Act 2017, Election Commission of Pakistan, Legal Reforms in Pakistan, Supreme Court of Pakistan.

1. Introduction

Holding an election according to the electoral legal framework is one of the critical factors behind free, fair, and impartial elections (Patel & Wahman. 2014). The essence of a democratic election can only be achieved if electoral laws support fundamental democratic values. An election with democracy can be envisioned, but it is impossible to envision modern democracy without meaningful elections (Richard et al., 2012). Envision a scenario where it is the day of a national election in your country, and you are the first person to arrive at the polling site. You are astonished when the familiar appearance of traditional ballot papers and indelible ink markings on the finger is no longer present. Instead, you have been greeted with an automated voting machine that allows you to cast your ballot with a single button press, ensuring the shortest possible time from voter verification to ballot casting. This scenario, earlier confined to science fiction, is now becoming a tangible reality in election processes worldwide.

To oversee the elections, independent institutions are established in every country as per their constitutional laws. The Election Commission of Pakistan, being the election watchdog of Pakistan, is overseeing the election process in Pakistan. The legal foundations for elections are deeply rooted in the constitution of the Islamic Republic of Pakistan. This document, as a cornerstone, helps establish democratic principles and foundations to underpin the electoral process. The Elections Act 2017 is a consolidated document of election laws providing a comprehensive framework for holding and conducting elections (National Assembly, 2017). This statute provides a mechanism for every electoral process, including the responsibilities and roles of stakeholders, political parties, and election candidates.

The ECP was established in 1956 after the enactment of the first constitution of Pakistan (GOP, 1956). ECP is entrusted under the constitution with the duties of preparing electoral rolls for the conduct of elections to the National, Provincial Assemblies, and local governments, as well as conducting elections to the Senate, National Assembly, Provincial Assemblies, and local government institutes (GOP, 1973). The ECP is also empowered to establish election tribunals to resolve election-related disputes. The legal framework of elections in Pakistan is a bedrock for establishing a democratic government.

Amendments without overseeing the impact of new technologies in these electoral law frameworks will have far-reaching implications that can influence elections' legitimacy, transparency, and fairness.

Pakistan's democratic journey has seen uneven ups and downs since its independence. After witnessing several phases from 1947 to 1970, Pakistan's democratic journey was reshaped after the enactment of the Constitution of the Islamic Republic of Pakistan in 1973. Pakistan's unicameral parliamentary system was shifted to the bicameral system with two houses, i.e., the National Assembly, also known as the Lower House, and the Senate, also known as the Upper House. The Parliament is well defined in Article 48 of the Constitution, including the National Assembly, Senate, and President (National Assembly, 1973). According to the Constitution, elections to the National Assembly and Provincial Assemblies are direct elections through the first past the post system. In contrast, the elections to the Senate are held indirectly through a system of proportional representation (Ali et al., 2023). Since the enactment of the incumbent Constitution in Pakistan, the traditional paper ballot voting system is in the field. Although some changes were made through the 8th Constitutional Amendment and replaced the Assemblies with Majlis Shoora, an advisory council on the analogy of Arab Countries, however, its members were elected on a non-party basis (Stephen & Marvin, 1988). After the end of the Zia regime, the Constitution was restored to its original position, and the same political system was enacted. Later, in 2011, the Pakistan Peoples Party, being in government, initiated reforms to bring the Constitution to its original format and enacted the 18th amendment to the Constitution (National Assembly, 2011). This enactment empowered the ECP by making numerous changes in the powers and duties of the ECP.

The demand for Electronic Voting machines as a primary voting method has gained vast popularity in Pakistan due to the enormous hue and cry for conducting free, fair, and transparent elections on allegations of rigging in the general elections 2018 Pakistan. Besides rigging allegations, some other factors regarding questioning the electoral process include but are not limited to a slow electoral process due to the electoral process being in vogue, misprinting of candidates' names or election symbols, untrained election officials, etc. Despite the increasing use of EVM in elections around the world, there is limited understanding of their impact on the electoral process and their role in promoting democracy. In particular, there is a lack of comprehensive studies on the potential and challenges of EVMs in the context of Pakistan, where the technology has been widely adopted.

The operational importance of EVM is a need of time for Pakistan since all political parties are not on the same page regarding using EVM in elections. This research will go behind the realm of academic inquiry by carrying implications for democratic governance, electoral processes, and innovation through technology. The significance of this research rests on enhanced electoral transparency, fostering public trust, and informed policy decisions on EVM. By exploring more comprehensively the role of EVM in Pakistan's context, this study will evolve as an essential document in shaping discourses on the impact of technology in the elections by providing comprehensive guidance to make the electoral laws in line with the protocols required for the adoption of EVM.

This research aims to address the legal impact of EVM in Pakistan and the evaluation of the Elections Act 2017 to make it in consonance with the adoption of EVM. This research will provide policymakers with an updated position regarding the legal impact and the amendments required to make the electoral law in line with the adoption of EVM.

2. Research Methodology

A mixed method approach has been used by fielding a case study design to carry out this research. Focusing on Pakistan as a case study, this study will examine the legal aspects of the Pakistani electoral area and get an expert opinion using a purposive survey.

2.1 Hypothesis

To test the results of quantitative data, a hypothesis has been designed to test the opinions of the experts on the electoral and legal side.

Null Hypothesis (H_0): Electoral laws and legal institutions have no implications for the success of EVM.

Alternate Hypothesis (H_1): Electoral laws and legal institutions have significant implications for the success of EVM.

3. A Qualitative Review of Electoral Laws

Electoral laws are essential foundations for a democratic society, as they establish the principles of a country's elections (Lon Burnman, 2020). The electoral law has a significant role in determining the credibility of an election. Any shortcomings or defects in the law undermine the fundamental principles of democracy (Adejumobi, S. 2000). Before implementing new technology, it is imperative to undertake electoral reforms. Does the successful application of electoral legislation match with the practical implementation of elections using EVMs examines the practical implementation of the Elections Act, 2017 in the context of EVMs, moving beyond theoretical claims to explore the shortcomings of the Elections Act and the impact of EVMs on the judicial system of Pakistan. A Comparison with Indian Electoral Laws has also been made with Pakistan to provide the shortcomings in Pakistan's law to implement EVM in Pakistan.

3.1.1 Existing Provisions Regarding Use of Technology in Pakistan

In November 2017, the Government of Pakistan implemented the Elections Act 2017 (EA) just before the forthcoming general elections of 2018 (National Assembly, 2017). Despite the challenges posed by the new electoral law, the ECP managed to successfully conduct the elections within a short period (Khan B, 2023). This chapter does a thematic analysis to examine the current provisions of the Elections Act of 2017 pertaining to the implementation of new technologies.

3.1.2 Result Management System

As per Section 13 of the Elections Act 2017, ECP was tasked with the establishment of a result management system for expeditious and immediate tabulation and compilation of election results. It is also envisaged in the EA 2017 to submit the result electronically before 2:00 am.

3.1.3 Computerized Electoral Rolls

Section 23 of the EA 2017 bounds ECP to prepare computerized electoral rolls for the elections to national and provincial assemblies and local governments. Although ECP was already preparing these electoral rolls digitally, however, this legal bounding was also made compulsory in the EA 2017.

3.1.4 Overseas Voting

Section 94 of the EA 2017 has provided that ECP may conduct pilot projects to make arrangements for overseas Pakistanis to vote in bye-elections. The aim of adding this technology was to assess the efficacy, security, secrecy, and financial feasibility of overseas voting. ECP has also been bound to submit the report of such pilot projects to the Parliament within fifteen days of the said pilot.

3.1.5 Electronic and Biometric Voting

Section 103 of the EA 2017 also provides that ECP may conduct pilot projects during bye-elections to utilize EVM and BVMS in addition to the traditional voting procedure. These pilot projects aim to assess the technological efficacy, voters' secrecy and security, and financial impact of such technologies.

4. Lacunas in Pakistan's Electoral Laws

While replacing traditional paper voting with electronic voting may seem straightforward, the process is more complex than it appears. The current election legislation in Pakistan does not adhere to the fundamental tenets of electronic voting, which hinders the implementation of EVMs in the country. It will be essentially equivalent to enacting a whole new electoral law. The Election Act must undergo thorough scrutiny before the deployment of electronic voting. To facilitate the implementation of EVM, this section aims to offer a thorough examination of the significant modifications needed in the Elections Act 2017 to assist policymakers.

4.1.1 Inclusion of Definitions of Technological Terms in Chapter 1

Definitions serve as the fundamental elements of legislation, establishing a basis for clarity, accuracy, and consistent implementation. Legal documents facilitate the clear and precise communication of legal intentions, so minimizing the risk of misunderstandings and promoting a fair and streamlined legal system. The initial stage for amending the Elections Act will require to introduction of definitions of basic terms related to EVM. Some specific definitions required to be added are Electronic Voting Machine (EVM), Ballot Image Voter Verified Paper Audit Trail (VVPAT), Audit Trail, Cybersecurity, etc.

4.1.2 Specific Provision for EVM Voting

The Elections Act 2017 will need to be revised by including a dedicated section to ensure the legitimacy of voting through the use of electronic voting machines. In addition, as the technology adaptive model necessitates the gradual implementation of new technology, it is essential to include a specific clause that grants the Election Commission of Pakistan the authority to introduce the use of EVM in designated constituencies. This specific clause will enable the election oversight body to initiate the implementation of EVM from a preliminary phase.

4.1.3 Measures for Training and Public Awareness

To effectively implement EVM in elections, it is crucial to adopt a double-edged strategy: providing extensive training to election officials and conducting extensive public awareness campaigns. These two features are essential for ensuring a smooth and effective transition from conventional paper-based voting to the EVM. While the present election law assists in training and outreach to the public, additional efforts will be necessary to adopt electronic voting.

4.1.4 Provisions for Security Protocols and Audit Trail

The advancement of digital technology has made every sphere of life dependent on its usage. The same is the case with elections as EMBs are found engaged in using new technologies. However, apprehensions of security protocols and external threats are still in question. The same is the case with EVM, as its adoption will require legal protection to ensure security and audit trail as part of the Elections Act. To provide legal cover to these security protocols and audit trails for free and fair elections, an amendment in the Election Act is required for regular testing and hacking assessment of EVM machines.

4.1.5 Secrecy of Ballot Papers

One of the fundamental tenets of electoral democracy is voting confidentiality, which guarantees the fundamental right to vote free from outside interference or compulsion (United Nations, 1948). Due to this principle, the voters feel free to cast their choice without intimidation and pressure. The secrecy and confidentiality of voting plays a significant role in promoting free and fair elections.

The Constitution of the Islamic Republic of Pakistan and the Elections Act of 2017 also provide that the secrecy of ballots must be maintained during the electoral process. However, there are concerns regarding the EVMs that it will breach the

secrecy of voters making it fearful for voters to cast a vote without any pressure. To ensure that the secrecy of the ballot is not breached, the EA 2017 requires the following measures:

- Amendment in Elections Act 2017 to add a special provision to caution the election official involved in counting or recording votes not to communicate any information that breaches the secrecy of the ballot to anyone (except if authorized during the hearing of post-election complaints at Election Tribunal or other Judicial Forum).
- All the officials performing any duty at the polling station should be made bound to sign a special Certificate that he/she will not breach any secrecy of the ballot at any stage.
- To maintain the secrecy of the ballot in EVM, a special SOP for the encryption of data of voters must be maintained, and except the authorized officer of ECP (for exceptional circumstances), no one should be allowed to access that data.

4.1.6 Procurement and Deployment of EVM

The procurement of EVM is the most crucial step in the implementation of EVM in Pakistan. As the case with the Brazilian EVM, an independent Organization should procure the EVM through the process of open bidding inviting international bidders. At the initial stage, it will be difficult for Pakistan to develop its machines as the case with India, however, it may be opted for at a later stage after getting the trust of the public and relevant stakeholders. At the initial stage, the Elections Act 2017 requires the independence of ECP to procure EVMs of its own choice without involving any Government entity in order to gain public and political trust. ECP may also follow international best practices and initiate a sub-department or collaborate with any organization for procurement of its machines. However, it should be done at a later stage while the elections through EVM are accepted at a broader range.

4.1.7 Accessibility and Inclusivity

The developed countries are nowadays promoting inclusive elections. ECP has also introduced various steps to ensure the participation of all segments of life in the political arena. In order to make EVM's implementation in line with international best practices in terms of inclusivity, it should be ensured that every person, regardless of his physical and educational abilities, can exercise his right to vote. Due to this amendment, the procurement of EVM will be made on the terms of an easy-to-use interface and special measures for all segments of life to make the EVM accessible and inclusive for all.

4.1.8 Independent Oversight and Audit

In order to ensure the integrity and transparency of the EVM, the Act must include provisions for autonomous supervision and examination. The legislation may establish an autonomous entity tasked with supervising the complete process of implementing EVM, including their purchase, deployment, maintenance, and audit. The composition of this committee should consist of individuals who possess expertise in electoral technology, security, and civil society, thereby guaranteeing autonomous and unbiased supervision. The footsteps from the Brazilian case study will make more impact if such an independent body is established.

5. Quantitative Evaluation of Legal Implication on Adoption of EVM

To get a more authentic and profound analysis of the legal implications of EVM adoption, we also undertook a quantitative analysis of the survey using correlation, regression, and factor analysis. The aim was to underpin the potential and challenges in the implementation of EVM in Pakistan. These tests were run on the data gathered through expert sampling from the experts of laws in Pakistan. The first test was to run a correlation analysis.

5.1 Regression and Correlation Analysis

Correlations			
EVM	Pearson Correlation	EVM	Legal Impact
	Sig. (2-tailed)		.430**
	N	252	252
Legal Impact	Pearson Correlation	.430**	1
	Sig. (2-tailed)	.000	
	N	252	252
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 1 : Correlation of EVM and legal impact

From Table 1, it is evident that there is a moderate positive relationship between the dependent variable EVM and Legal implications. The model is statistically significant as the value is less than 0.01, showing a high confidence level in the validity of the relationship of the given data set.

From the above correlation results, we can say that there is a meaningful relationship between legal implications and EVM. However, this correlation does not define causation and requires regression analysis to explore the in-depth nature of the relationship further.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.430 ^a	.185	.182	.34875
a. Predictors: (Constant), Legal Impact				

Table 2: Model Summary of Legal Impact and EVM

The R-value of the model (.430), as given in Table 2, is a positive moderate relationship. The R Square value (.185) is significant but not impressive, showing that legal impacts define 18.5% effects on the adoption of EVM.

5.2 Factor Analysis

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.903	1	6.903	56.754	.000 ^b
	Residual	30.407	250	.122		
	Total	37.310	251			
a. Dependent Variable: EVM						
b. Predictors: (Constant), Legal Impact						

Table 3 : ANOVA test of Legal Impact on adoption of EVM

From Table 3, it is evident that F-Statistic (56.75) and p-value (.000) show that legal impacts significantly affect EVM adoption.

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	.739	.092		8.013
	Legal Impact	.384	.051	.430	.000
a. Dependent Variable: EVM					

Table 4: Coefficients of legal implication on the adoption of EVM

From Table 4, the coefficients table provides the significance of legal impact and EVM. It shows that if we increase legal impact by one unit, the EVM adoption success rate will increase by 0.384 units.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.737
Bartlett's Test of Sphericity	Approx. Chi-Square	12.434
	Df	6
	Sig.	.053

Table 5 : KMO and Bartlett's Test of legal impact on the adoption of EVM

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy yielded a value of .737, suggesting that the sample size was sufficient for the analysis. Bartlett's Test of Sphericity yielded a significant result ($\chi^2 = 12.434$, $df = 6$, $p = .053$), indicating that the variables share a standard structure that may be appropriate for factor extraction.

Component Matrix ^a		
	Component	
	1	2
Occurrence of Electoral Fraud	.692	-.166
Role of Judiciary	.640	.277
Amendments in Laws	.536	-.524
Investigation of Electoral Disputes	.269	.810
Extraction Method: Principal Component Analysis.a		
Two components were extracted.		

Table 6 : Component Matrix of legal implications on the adoption of EVM

From the component matrix defined in Table 6, we got two components by Principal Component Analysis before performing rotation. Component 1, which accounts for 38.797% of the variation, is distinguished by strong associations with the Occurrence of Electoral Fraud (loading: .692), the Role of the Judiciary (loading: .640), and Amendments in Laws (loading: .536). This component embodies a perspective focused on concerns related to electoral fraud, the supervision of the judiciary, and the maintenance of legal stability. Component 2, which accounts for 25.283% of the variance, is characterized by a strong correlation with the Investigation of Electoral Disputes variable (loading = 0.810). The results indicate that the way people view EVM is influenced by their worries about current problems and their desire for transparent procedures.

Rotated Component Matrix		
	Component	
	1	2
Amendments in Laws	.722	-.204
Occurrence of Electoral Fraud	.687	.186
Investigation of Electoral Disputes	-.151	.840
Role of Judiciary	.429	.550
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization. a		
a. Rotation converged in 3 iterations.		

Table 7: Rotated Component Matrix of legal impact on the adoption of EVM

The exploratory factor analysis used Principal Component Analysis with Varimax rotation and Kaiser normalization. The analysis, as tabulated in Table 7, resulted in a two-component solution, and the rotation converged after three rounds. The Rotated Component Matrix displayed clear loadings of the variables on these two components, which can be read as follows: Significant loadings predominantly distinguish component 1 from 'Amendments in Laws' (.722) and 'Occurrence of Electoral Fraud' (.687). This component seems to pertain to electoral procedures' legal and procedural components. The correlation between changes in laws and the prevalence of electoral fraud implies that this factor encompasses aspects of modifying the legal framework and its impact on the fairness of electoral procedures.

The second component is primarily shaped by the 'Investigation of Electoral Disputes' factor with a strong influence of 0.840, and to a lesser degree, the 'Role of Judiciary' factor with an influence of 0.550. This component appears to embody the adjudicative and dispute-resolution elements of elections. The extensive focus on examining electoral conflicts emphasizes the importance of this procedure in relation to election integrity, with the judiciary's involvement seeming to contribute to this aspect, albeit to a lesser extent.

Through factor analysis, two main aspects have been obtained, showing concern over required amendments in the election laws to prevent any electoral misconduct or electoral fraud. The second factor highlights the process for dispute settlement, emphasizing post-election disputes to handle and settle the electoral discrepancies.

5.3 Hypothesis Testing

From the coefficient table ($B=0.384$) and t -value of 7.534, the strength and directions of the relationship between legal impact and EVM have been drawn. We reject the null hypothesis because the p -value is less than 0.05.

6. Conclusion

This research specifically focused on EVM implementation in the Pakistani electoral arena irrespective of technological, political, or social challenges. The research aimed to know the legal impact of EVM adoption and comparative analysis of the electoral laws and provide recommendations for making these laws up to date. Although the legal impact of EVM was recorded at 18 percent, if we include all other factors like political, social, and technological aspects, as concluded in our previous research, we can say that EVM may achieve significant success in implementation in Pakistan. This research found a limited impact of current laws on the implementation of EVM not conforming with the international practices being used where EVM is in the field. This discrepancy requires amendments in electoral laws to align it with EVM adoption but also to facilitate technological advancement. Overall, Pakistan's adoption of EVMs is a story of legal development. There is a need to carefully revise election legislation to create an environment that promotes the successful use of EVM. This endeavor necessitates a careful equilibrium between the fervor for technological progress and the profound responsibility to safeguard democratic principles. As Pakistan progresses in this endeavor, it is crucial to develop a legal framework that aligns with democratic principles and is technologically feasible to establish a robust and future-oriented election system.

7. Recommendations

Pakistan is on the verge of using technology for electronic voting in elections. In the next two general elections, either Pakistan will use EVM or pilot electronic voting machines. This research aims to highlight legal aspects that will be required to be aligned before implementing EVM. Hence, this research paper will work as a wayforward document while EVM will be at the doorstep in Pakistan elections. From the results of this research, a crucial aspect of amending the Elections Act 2017 has been highlighted to include specific legal requirements for the adoption of EVM. From essential definitions in Chapter 1 to provisions relevant to secrecy, audit, security, and inclusiveness of machines, all required amendments have been highlighted and placed below for the policymakers and ECP to adopt before implementing EVM:

- At the initial stage, the Elections Act 2017 requires the independence of ECP to procure EVMs of its own choice without involving any Government entity to gain public and political trust. ECP may also follow the international best practices and initiate a sub-department or collaborate with any organization for procurement of its machines. However, it should be done at a later stage while the elections through EVM are accepted at a broader range.
- Through amendments, an autonomous government body may be established and tasked with supervising the whole process of EVM adoption from procurement to storage, deployment, results tabulation, etc. Such departments should have professionals with expertise in electoral technology and cyber security. The autonomous body should be accountable to the Supreme Court of Pakistan to avoid any governmental influence.

Some specific definitions required to be added are Electronic Voting Machine (EVM), Ballot Image Voter Verified Paper Audit Trail (VVPAT), Audit Trail, Cybersecurity, etc.

- The Election Commission of Pakistan, being the independent Authority to introduce the use of EVM, may be allowed through legislation to initiate the implementation of EVM from a pilot project phase to phased implementation in constituencies that seem fit to use for EVM voting.
- While the present election law assists in training and outreach to the public, additional efforts will be necessary to adopt electronic voting.
- To ensure the security and audit trail of EVM using particular security protocols and audit trails for free and fair elections, an amendment in the Election Act is required for regular testing and hacking assessment of EVM machines. The reports of such testing should be publicized to make the public aware of the potential challenges faced by EVM.
- An amendment in the Elections Act 2017 is required to add a special provision to caution the election official involved in counting or recording votes not to communicate any information that breaches the secrecy of the ballot to anyone (except if authorized during the hearing of post-election complaints at Election Tribunal or other Judicial Forum).
- All the officials performing any duty at the polling station should be bound to sign a special Certificate that he/she will not breach any ballot secrecy at any stage.
- To maintain the secrecy of the ballot in EVM, a special SOP for encryption of voters' data must be maintained. Except for the authorized officer of ECP (for exceptional circumstances), no one should be allowed to access that data.
- In order to make EVM's implementation in line with international best practices in terms of inclusivity, it should be ensured that every person, regardless of his physical and educational abilities, can exercise his right to vote. This step will be ensured by amending the Elections Act to allow procurement of EVM to have an easy-to-use interface for all and special measures for persons with disabilities.
- To resolve election disputes, the Elections Act 2017 requires amendment for the establishment of clear and unbiased procedures to resolve disputes, providing a level playing field to all political parties through fair hearings and proper legal procedure. By implementing these modifications, the Act can efficiently tackle the difficulties of resolving disputes in elections that use EVM while ensuring the honesty of the electoral process and protecting the rights and interests of all parties concerned.

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