EXPLANATORY NOTE

FOR THE PROPOSED AMENDMENT TO REPUBLIC ACT NO. 9369 (AUTOMATED ELECTION SYSTEM LAW) AND THE ENACTMENT OF THE NEW PHILIPPINE HYBRID ELECTION ACT
BE IT ENACTED BY THE SENATE AND HOUSE OF REPRESENTATIVES OF THE PHILIPPINES IN CONGRESS ASSEMBLED:

Preamble

In a functioning democracy, the legitimacy of government is derived from the free, fair, and credible expression of the people's will through elections. The bedrock of this process is public trust. For over a decade, the Republic has relied on Republic Act No. 9369 to govern our elections through a fully automated system. While well-intentioned in its pursuit of speed, this system has increasingly shown signs of critical vulnerabilities, technological obsolescence, and a fundamental lack of transparency that has eroded public confidence.

The rise of sophisticated digital threats, the "black box" nature of proprietary foreign technology, and the inability for voters and poll watchers to meaningfully verify the count have created a democratic deficit. We are faced with a choice: persist with a flawed and opaque system, or evolve.

This proposed legislation seeks to chart a new path forward by institutionalizing the **Human-Centric Hybrid Election System (HES)**—a revolutionary, locally developed system that masterfully merges the trust and auditability of manual paper-based elections with the speed and efficiency of modern technology. The **HES restores the paper ballot as the canonical record of the vote**, ensuring that technology remains a servant to the will of the people, not its master. This is not a step backward; it is a leap forward into a more secure, transparent, and sovereign electoral future.

I. The Technological and Democratic Imperative for Reform

A. The Failures of the Current Automated System (AES) under RA 9369

The current Automated Election System, dependent on foreign-sourced Vote Counting Machines (VCMs) and Automated Counting Machines (ACMs), is fundamentally flawed for the following reasons:

1. **Lack of True Verifiability:** The Voter-Verified Paper Audit Trail (VVPAT) in the current system is not independently verifiable by the voter. It is printed internally, often unseen, and cannot be meaningfully compared to the digital vote by the person who cast it. This defeats the very purpose of a paper audit trail.
2. **The "Black Box" Problem:** The counting process is performed within a sealed, proprietary machine. Neither the voter, the poll watcher, nor the general public can observe the interpretation of their vote. This opacity breeds suspicion and makes it impossible to detect glitches or malicious programming on the spot.
3. **Centralized Vulnerability:** The AES relies on a single, centralized server for results transmission. This creates a catastrophic single point of failure, making the entire

national election susceptible to hacking, manipulation, or system failure by external attackers or malicious insiders.

4. **Foreign Dependence & Technological Obsolescence:** Our nation's democratic process is held hostage by foreign vendors and their proprietary technology. The VCMs/ACMs are single-purpose, expensive machines that rapidly become obsolete, requiring repeated and costly procurements. This is a drain on national coffers and a compromise of our technological sovereignty.
5. **Exorbitant and Insecure Connectivity:** The AES requires expensive, premium telecommunication plans and complex VPN setups, increasing costs without guaranteeing security. Its architecture is not resilient to the network realities across the archipelago.

B. The Hybrid Election System (HES): A Filipino Solution for Filipino Democracy

The HES is not a return to the slow manual counts of the past. It is a technologically advanced, human-centric system that empowers all stakeholders. Its core philosophy is simple: **The physical, manually marked paper ballot is the definitive vote. Technology is used to make counting transparent, fast, and secure, but ultimate authority rests with humans.**

How the HES Works: Restoring Trust Step-by-Step

1. The Voting and Verification Process: A voter casts their vote on a standard paper ballot. This ballot is then scanned using a simple webcam connected to a laptop.

- **Private Voter Verification:** An image of the ballot is displayed privately on a screen for the voter. The system simultaneously shows its interpretation of the vote.
- **Correction and Confirmation:** The voter can instantly verify if their vote was interpreted correctly. If there is an error, over-vote, or any issue, the system flags it. The voter can correct their ballot on the spot (using a simple shading method to void a mistaken vote and shading a new one). This feature, absent in the current AES, is critical in ensuring the voter's true will is recorded.
- **Human Affirmation:** Only after the voter is satisfied will they affirm the ballot by clicking "Print VVPAT." The system requires a second confirmation ("Are you sure?"). This two-step human interaction prevents accidental printing. The printed VVPAT, which reflects the voter's affirmed choice, is then dropped into a separate, sealed box for a final, definitive audit.

2. The Counting and Tallying Process: This is where HES shines with unparalleled transparency.

- **One-by-One Live Scanning:** After voting ends, each ballot is officially scanned, one by one, using the same webcam.
- **Dual-Screen Transparency:** The image of the physical ballot is projected live onto a large screen, visible to all poll watchers. Simultaneously, a second screen displays the HES's digital interpretation of that same ballot.
- **Human Watcher Affirmation:** Poll watchers actively compare the physical ballot with the system's interpretation, vote by vote. For each ballot, a human Election Officer must

explicitly click to **ACCEPT**, **REJECT**, or **DISPUTE** the system's interpretation. Technology does not make the final decision; a human does.
- **Real-Time Tally:** Once a vote is affirmed by a human, it is instantly added to the candidates' tally, which is displayed on another window visible to everyone in the precinct. There are no hidden counts.

3. The Result Compilation and Transmission Process:

- **Human-Signed Physical Record:** The final results are printed as a hard copy Election Return (ER). This document is physically signed and affirmed by the Election Officers and watchers, creating a binding, legally auditable document.
- **Final Human Authentication:** The signed ER is scanned to create a digital copy. All data (scanned ballots, VVPATs, ERs, metadata) is stored on the laptop. However, it will **not** be transmitted until the Election Officer performs the final step: keying in a unique authentication code, personally affirming the truthfulness and integrity of the data.
- **Distributed, Decentralized, and Redundant Transmission:** Unlike the vulnerable AES, HES uses a peer-to-peer network. Each precinct laptop is a node. When they connect (via regular cellular, Wi-Fi, LAN, or satellite), they automatically synchronize data with each other. There is no central server to hack. If one node is compromised or shows different data, the system automatically flags the discrepancy, as all other nodes hold the true, verified copy. This makes the system extremely resistant to both external and internal manipulation.

II. Comparative Analysis: A Clear Choice for the Future

This chart demonstrates the clear superiority of the Human-Centric Hybrid Election System (HES) for the Philippine context.

Feature	**Traditional Manual System**	**Current AES (VCM/ACM System)**	**Hybrid Election System (HES) - The Filipino Standard**
Method	Fully manual, paper-based counting and canvassing.	Fully automated counting in a "black box" machine.	**Hybrid:** Paper ballots counted transparently with technological assistance for speed and security. **Human-in-the-loop at every step.**
Technology Used	None (pens, paper, tally sheets).	Proprietary, single-purpose, foreign-made VCMs/ACMs.	**Transparent, consumer-grade technology:** Standard laptops and webcams. Open, auditable software platform developed by Filipinos.
Cost	Low hardware cost, high labor & time cost.	**Very High:** Procurement of expensive, single-use machines, maintenance, and premium connectivity.	**Cost-Effective:** Uses existing, multi-purpose hardware. Massively reduces capital expenditure and logistics costs. Re-usable hardware.
Transparency	Fully transparent but slow and prone to human error.	**Opaque:** Counting is hidden inside the machine. Not observable.	**Revolutionary Transparency:** Every ballot, every count, every interpretation is projected live for public and watcher verification.

Feature	Traditional Manual System	Current AES (VCM/ACM System)	Hybrid Election System (HES) - The Filipino Standard
Security	Vulnerable to physical tampering and "dagdag-bawas."	**Highly Vulnerable:** Susceptible to digital hacking, program manipulation, and insider threats. Central server is a single point of failure.	**Extremely Secure:** Paper ballot is the record. Distributed, redundant P2P network eliminates single points of failure. All steps require human affirmation.
Result Transmission	Physical transport of ERs, slow and vulnerable.	Centralized server model (single point of failure), requires expensive VPNs.	**Distributed & Decentralized:** Peer-to-peer synchronization. No central server to attack. Works with basic connectivity (cellular/Wi-Fi).
Simplicity	Simple concept, complex execution.	Deceptively simple for voter, but a complex, opaque system.	**Intuitively Simple:** Voter verification and counting process are easy to understand and observe. Technology assists, it does not confuse.
Speed	**Very Slow.**	Fast in transmitting results, but speed comes at the cost of trust.	**Fast and Secure:** Counting is done quickly at the precinct level. Transmission is instant and redundant. **Speed without sacrificing verifiability.**
Accuracy	Prone to human exhaustion and error.	Accuracy is taken on faith; errors in programming or scanning are difficult to detect.	**High Accuracy:** Vote-by-vote human verification against the physical ballot ensures the digital count perfectly reflects the paper record.
Deployment & Logistics	Logistical challenge of transporting physical ERs.	Massive logistical challenge of deploying thousands of sensitive machines nationwide.	**Simplified Logistics:** Laptops and webcams are light, easy to transport, and readily available nationwide.
Hardware Re-usability	N/A	**Zero.** VCMs/ACMs are single-purpose and become e-waste.	**100%.** Laptops can be used for government, education, and other purposes between elections. A wise investment.
Developer	N/A	Foreign corporations with proprietary technology.	**Filipino Developers and Election Advocates.** Built by Filipinos, for the Philippines. Ensures sovereignty and adaptability.
Customization	N/A	Limited and costly; dependent on foreign vendor's roadmap.	**Highly Customizable:** Software can be adapted by Filipinos to meet the evolving needs of COMELEC and the electorate.
User Friendliness	Laborious for counters.	Simple for voting, but no verification.	**Excellent for Voter and Watcher:** Private verification empowers voters; live counting empowers watchers and builds public trust.
Adaptability	Not scalable for large, fast elections.	Rigid. Cannot adapt to new voting methods or security needs easily.	**Highly Adaptable:** Software can be updated, new security features added, and system adapted for

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			different types of elections.
Digital Audit Trail	None.	Limited, potentially manipulated metadata.	**Unprecedented Digital Forensics:** HES automatically generates a comprehensive and immutable log (see list below), providing the most thorough audit trail in election history.

III. The Unprecedented Digital Audit Trail of HES and Public Display

To enhance transparency and security, the HES platform offers a dedicated election results portal that features live, interactive maps tracking real-time trends, detailed precinct-level breakdowns, and downloadable data, alongside comprehensive forensic insights for each precinct, including:

- Scanned Copies of Counted Ballots & Election Returns
- Digital Numbers, Series & Zone Numbers of Ballots
- Records of Unused & Replaced Ballots
- Metadata, Login and Key-in Prints
- Precinct Number & Names of Election/IT Officers
- HES Station Serial Number
- GNSS Location (GPS), IP & MAC Address
- Connectivity Details (Telco Carrier, Device Type)
- Transmission Data (File Sizes, Time/Date, Session IDs) , etc.

This level of detail makes any attempt at fraud detectable and traceable.

IV. Legislative Proposals: A Mandate for Change

To institutionalize a secure, transparent, and sovereign electoral system, we propose the following legislative actions:

1. **Amend Republic Act No. 9369** to explicitly recognize the primacy of the paper ballot and mandate a **human-in-the-loop** verification process for every digitally interpreted vote.
2. **Enact a new "Hybrid Election Act"** to comprehensively define the standards, processes, and technical requirements for the Human-Centric Hybrid Election System (HES), ensuring it becomes the permanent standard for all national and local elections.
3. **Mandate the Retirement of VCMs/ACMs**, phasing out all current fully automated counting machines due to their inherent lack of verifiability and transparency, and preventing their further procurement.
4. **Certify the HES as the National Election Standard**, tasking the COMELEC to work with local developers and election advocates to refine, implement, and manage the system for future elections.

Conclusion

The time for half-measures and opaque systems is over. The Filipino people demand elections that are not only fast but also demonstrably honest and verifiable. The Human-Centric Hybrid Election System (HES) offers us this opportunity. It is a system built on our own soil, by our own people, tailored to our unique needs, and founded on the unshakeable principle that sovereignty resides in the will of the people—a will that must be counted not by a secret machine, but by human eyes, under the full light of transparency.

We urge this honorable body to seize this moment, to protect our democracy, and to pass this proposed legislation with the utmost urgency. Let us give the nation an election system it can truly trust.

Approved,

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Note: This is a technical draft document and should not be considered legal advice or a procedural guide. For more information, email me at: ed@millawave.com

To learn more about Hybrid Election System (HES), explore our key resources at the DOWNLOAD section of our official website: www.hybridelection.net