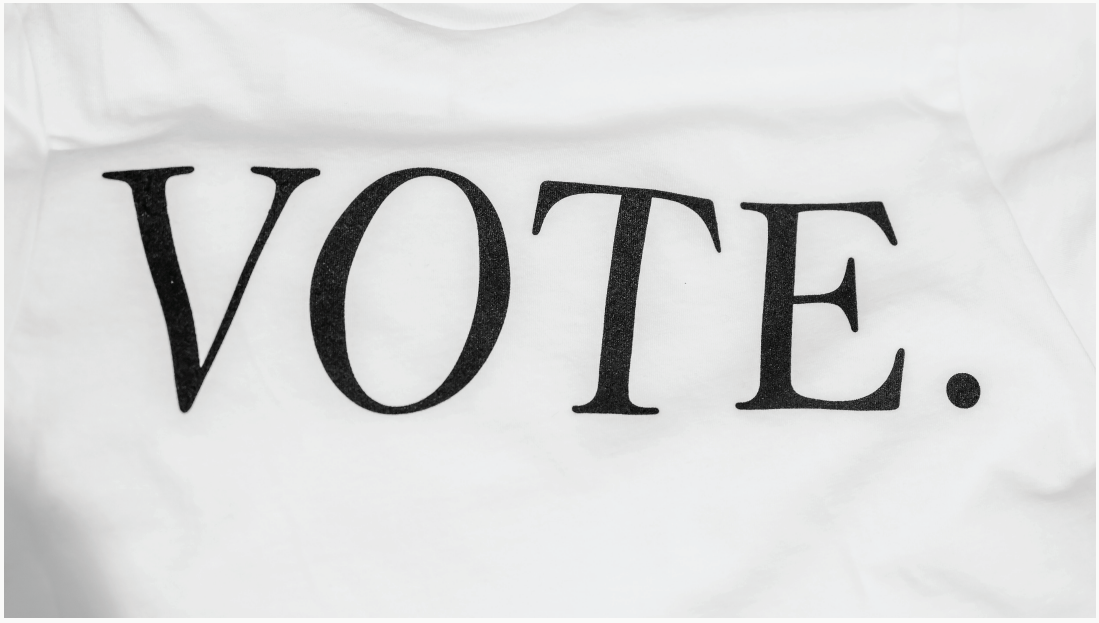
How Can Malaysia Implement Digital Technology in Elections?



In our previous election policy brief, we examined the Malaysian election system, analysing voters' registration, polling day and the vote-counting process. We identified several yawning gaps as a result of the manual nature of the country's election process, such as long queues, the inability to prevent social distancing and washable indelible ink. The country's electoral system also has not experienced any significant overhaul.

Aligned with the Malaysian government's aspirations for digital transformation, this policy brief discusses the potential for digitising the election process, particularly through the implementation of e-voting. E-voting could result in a faster and more efficient voting system, reducing human error, improving the voting experience, increasing voter turnout by remote voting, preventing fraud and increasing accessibility. In the course of doing so we will look at existing electronic voting technologies, analysing how different countries implement e-voting and its potential adoption in Malaysia.

Understanding Different Types of E-Voting Technologies

The process of automating and digitalising the electoral process has been around since the 1960s, with examples like the punch-card machine and the mechanical lever voting machine implemented in some states in the US. This section explores several types of voting technologies.

A Typology of Voting Machines

- **Punch-card Voting Machine**

A voter punches a hole in a card using a punch machine or a stylus indicating their voting choice. The voter then puts the card in a ballot box. In the United States, there were two types of punch-card machines; the Votomatic and the Datavote system.

- The Votomatic card assigns numbers on the location of holes that voters can punch.
- The Datavote card assigns the candidate's name at the hole's location.

While this machine has become increasingly outdated, it is still in use in some states such as Illinois. The benefits of using punch-card voting machines include the cheaper cost of devices, the practicality of a single punch card to carry a massive number of votes, and a more accurate and faster vote counting rate[1].

- **Optical Scan Voting Machine**

The optical scan voting machine utilises an optical scanner to read and count ballot papers. The technology is similar to devices scoring standardised tests. There are several types of optical scan voting machines:

- The mark sense system scans an optical mark made with a pencil.
- The electronic ballot markets (EBM) help voters fill out optical scan ballots. It should not be confused with a direct electronic voting machine as it does not store the vote in internal memory. EBM is useful to help disabled individuals use optical scan voting machines.
- The digital pen is equipped with a tiny camera to record voters' choices on a digital ballot paper. The digital pen tabulates the election results.

The benefits of optical scan voting machines include greater security and transparency as paper ballots serve as voters' records. In the event of doubt, the election commission can still recount paper ballots manually. Vote counting is faster as it is done in one central station. The system is also not difficult to understand as voters traditionally mark their choices on a ballot. The Philippines uses this technology in their voting process.

- **Direct-Recording Electronic (DRE) Voting Machine**

A DRE voting machine allows voters to vote directly on the machine. The device allows voters to push a button indicating their choice or has an electronic touch screen interface. The machine tabulates the data in a removable memory piece or on a printed version. Different versions can also transmit the voting data to a central place. DRE voting machines have been used in Brazil, the United States, and the Netherlands. The pros of adopting DRE voting devices include avoiding faulty paper ballots, increasing anonymity of voting for people with disabilities, and speeding up the sorting and counting of ballots.

Internet Voting

Internet voting uses the internet to cast a vote online. There are two ways that i-voting can take place:

- I-voting can be done remotely, such as in Estonia (further discussion below).
- I-voting can be done physically, where voters go to a polling site and cast their Internet vote through voting machines, or voters go to a kiosk in a public place. In the former case, voter authentication is done manually, while the latter is not.

With i-voting, voters no longer have to travel to a polling site which benefits voters living overseas. Voters no longer have to experience long queues to cast their votes. It also speeds up the vote-counting process.

[1] Ruppe, David. "Illinois Swears by Its Punch Card Voting." ABC News. ABC News, 2022. https://abcnews.go.com/Politics/story?id=122286&page=1.

Digital Registration

E-voting machines do not necessarily come with electronic registration. The majority of countries with e-voting machines use a manual registration system. However, there are several ways the government can implement electronic registration.

- Electronic registration machines scan voters' identity cards. This machine speeds up voters' authentication process. This technology is adopted in Singapore, allowing faster voter registration time.
- Internet voting requires voters to register with an electronic ID card, as Estonia does.

Case Comparison: E-Voting in Other Countries

This section explores several Southeast Asian countries that have automated their electoral process, mainly the Philippines, Singapore and Thailand. We will also examine the success story of Estonia's i-Voting technology while also considering how e-voting implementation failed in the Netherlands.

E-Voting in the Philippines

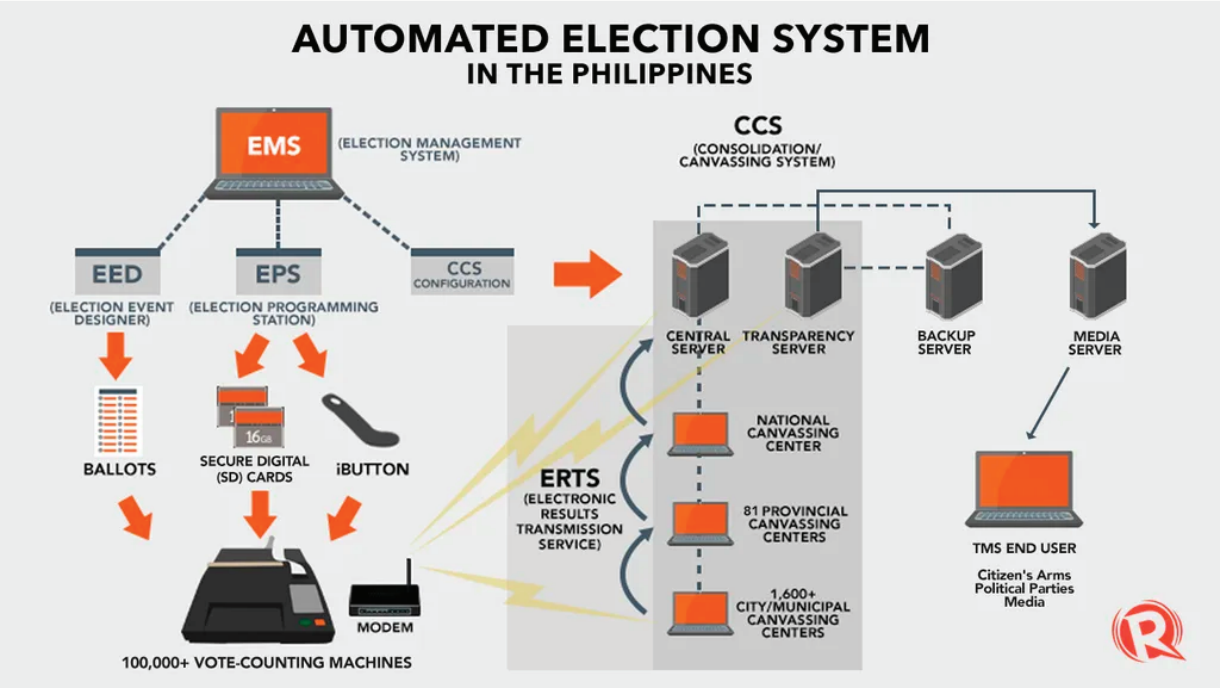
E-voting machines do not necessarily come with electronic registration. The majority of countries with e-voting machines use a manual registration system. However, there are several ways the government can implement electronic registration.

- The Philippines passed an act in 1997 mandating the automatisation of their presidential, congressional and local elections. The law included procuring automated voting machines with minimum manpower, continuous power supply, user-friendly interface and the ability to count 150 ballots per minute. In 2007, the government amended the law to address digital barriers for disabled and digitally illiterate individuals.
- In 2010, the Philippines carried out their first fully automated election, thus making them the first country in South East Asia to implement electronic voting.
- The election uses an optical mark recognition voting machine (OMR) produced by Smartmatic, an international company specializing in electronic voting technology.
- The adoption of OMR voting machines resulted in much faster counting because vote counts are automatically transmitted when polling ends. Previously, it took 40 days to complete the manual calculation of paper ballots resulting in voters' distrust and potential violence. The machine allowed Filipinos to know the election result on the day itself.
- The implementation of e-voting in the Philippines meant that electoral officers required IT training to handle the system. Their election law also decreed that at least one member of the election officers be an IT-capable person. The training was provided by Smartmatic, which focused on operating the vote-counting machines. However, they were not trained to handle the electoral process on polling day resulting in long queues and disorganization[2].

- **How does e-voting work in the Philippines?**
  - The central system for managing e-voting is the Election Management System (EMS).
  - Before election day, EMS prepares ballot templates, makes location-specific configuration files for the voting machines and counting centres and imports pre-election data files.
  - The paper ballot is created by an Election Event Designer (EED), loaded into Secure Digital (SD) cards and iButton security keys.

[2] "Philippines: Building the Electronic Counting System." Ndi.org, November 25, 2013. https://www.ndi.org/e-voting-guide/philippines-CS/building-the-e-counting-system.

- The vote-counting machine does not eliminate manual voter registration and identification, but it speeds up the vote-counting process. After registering, voters cast their vote on a paper ballot.
- Then, they insert the ballot into the voting machine and receive a receipt. They would then submit the receipt into a ballot box. Their fingers get stamped with indelible ink before leaving the polling station.
- The vote-counting machine saves digital images of scanned ballots and encrypts them into SD cards.



- **How are votes transmitted and counted by the Election Commission?**
  - Once polling closes, the voting machines transmit the data to canvassing centres which include the central server, the transparency server and the municipal board of canvassers (MBOC). In the event the central and transparency servers collapse, a backup server is present.
  - The main channel for data transmission is the country's public telecommunications network and satellite transmission for backup.
  - Modems are used to transmit data from the voting machine to canvassing centres.
  - The canvassing system, which uses Real-Time Election Information System (REIS), reads the data and counts the vote.
  - The media server receives data from the transparency server. This server links data to the election watchdog organizations, political parties and media groups[3].

E-Voting in the Philippines

- In 2018, Singapore announced the decision to implement electronic registration and mechanical counting machines in their upcoming general election.
- The decision was intended to improve the efficiency of the election process by decreasing reliance on human labour, voters' waiting time, and paper ballot sorting and counting time.

[3] RAPPLER. "How Does the PH Automated Election System Work?," May 15, 2015. https://www.rappler.com/newsbreak/iq/91663-philippine-automated-election-sytem-explained/.

- The e-voting system was expected to reduce registration time from 10 seconds to a few seconds. It was also estimated that the system could cut ballot sorting and counting time from three to two hours. Therefore, introducing electronic devices in elections would allow the election result to be announced an hour earlier[4].

- The vote-counting machine functions similar to a banknote-counting machine. It is manually operated and does not rely on an Internet connection. Previously, election officers manually bundled the paper ballots, but the machine will help speed up the process of tallying the ballot papers into bundles of 100.

- The registration machine scans voters' ID cards. The process is similar to polyclinic and hospital registrations in the country. Previously, four workers were needed to handle voters' registration. Officers had to find the voters' names on the list and strike their names out. The registration machine will help reduce workers to only two people[5].

- To prevent potential cyberattacks, the electronic registration machines are not connected to any network but are built into standalone devices[6].

- Prior to implementation, the Singapore government conducted roadshows to educate its citizens on the electronic registration process.

E-Voting in Thailand

- In 2003, Thailand announced the use of electronic voting machines for their general elections. The election commission drafted three adoption phases. 57 million THB was spent on implementation and training.

- The initiative was part of the government's move to improve voters' experience, speed up vote tallying and polling results, ultimately, reducing election cost in the long term.

- Each set has four voting machines and one counting machine. The cost of producing one set is approximately 200,000 THB or RM24,922[7]. The machines were designed to fit into a small suitcase facilitating transport to polling stations.

- The voting machine is a direct-recording electronic voting machine (DRE Voting Machine) with touch screens. Voters manually register and identify themselves to election officers. They then choose their candidate on the voting machine. A receipt is printed out which they post into a ballot box.

- Receipts increase voter trust that their vote was recorded, and if there are any problems, officers will recount the receipts to verify the results of the election.

- Prior to the election, Thailand's election commission conducted a voting machine simulator on their website where voters could try using the machine themselves.

- However, Thailand's e-voting implementation encountered several problems. In the 2017 election, the voting machines were only available in 100 polling stations due to insufficient budget.

- The Diplomat reported their apprehension for Thailand's implementation of e-voting with concerns over security and a lack of transparency from the election commission[8].

- The EC's secretary general was also sacked in 2015. He faced corruption accusations involving irregularities in voting machines purchases and inappropriate use of the EC's budget, which was supposed to be used for the e-voting project[9].

[4] Hermes Auto. "Counting Machines to Be Used in next Election." The Straits Times, November 22, 2018. https://www.straitstimes.com/politics/singapolitics/counting-machines-to-be-used-in-next-election.

[5] TODAY. "Shorter Wait for Results at the next GE, with Machines Deployed to Count Votes," 2018. https://www.todayonline.com/singapore/electronic-voter-registration-mechanical-vote-counting-next-general-election.

[6] Yahoo.com. "Next Singapore Election to See Ballot Counting Machines, E-Registration of Voters: ELD," 2018. https://sg.news.yahoo.com/next-singapore-election-see-ballot counting-machines-e-registration-voters-eld-081736274.html.

[7] nationthailand. "EC Demonstrates New Voting Machine." nationthailand. nationthailand, May 25, 2016. https://www.nationthailand.com/in-focus/30286662.

[8] Thediplomat.com. "A Serious Concern over the First Use of E-Voting in Thailand," October 19, 2016. https://thediplomat.com/2016/10/a-serious-concern-over-the-first-use-of-e-voting-in-thailand/.

[9] Mongkol Bangprapa. "Somchai Defends Voting Machine Purchases." https://www.bangkokpost.com, December 14, 2015. https://www.bangkokpost.com/thailand/general/794336/somchai-defends-voting-machine-purchases.

The Successful Case of Internet Voting in Estonia

- Estonia claims to be the first 'digital republic' in the world as they have fully digitalized 99% of its government operations. It is also the first nation to enact legislation designating internet access as a fundamental human right. Since free Wi-Fi hotspots first appeared in 2001, practically all of the nation's populated areas have Internet access.

- Estonia's i-Voting technology, which was developed over more than 15 years, enables voters to cast ballots on a computer at home while using a smart card or an e-identity card that is issued by the government. 46.7% of the population currently uses the system, a number that has consistently increased over time[10].

- **What is an E-identity?**
  - Every Estonian has a government-issued digital identity regardless of where they reside. Any citizen's daily transactions in the public and private sectors involve using an e-ID and the ecosystem that surrounds it.

  - The compulsory national card offers digital access to all of Estonia's encrypted e-services in addition to serving as a legal photo ID. People use their e-IDs to browse their health records, pay bills, vote online, sign contracts, and more. Estonians can access their e-ID with a government-issued ID card, Mobile-ID on a smartphone, or the Smart-ID application.

- **How does Internet voting work in Estonia?**
  - Internet voting occurs during the advance voting period. During this period, Estonians log onto the system's website with their e-ID card.

  - Voters identify themselves with a digital signature proven by their e-ID card.

  - Following voter identification, the voter will view a list of all the candidates running in the electoral district where they reside on the website.

  - The voter must specify on the website which candidate in the electoral district they are registered to vote. Then, they make their voting choices.

  - After casting a vote, the voter will see a confirmation on the website stating their vote was counted.

  - There is no limit to the number of times a voter can vote on the system as each new vote will nullify the previous one. If a voter wants to cast their vote again, their previous vote will be deleted.

  - The voter's identity is removed from the ballot before it reaches the National Electoral Commission to ensure anonymity.

  - If the voter goes to a physical polling station on voting day and casts a vote, their online vote will be deleted.

- **Why is Estonia's I-Voting System Successful?**
  - I-voting is not intended to replace traditional voting at polling centres. Instead, it serves as an alternative method of voting. Therefore, the electoral process can still rely on paper ballots for those who choose to vote traditionally. Accordingly, the system maintains the level of security and confidence that paper ballot voting system offers.

  - Internet voting offers the same level of security and confidence as traditional voting. Different specialists audit the system to ensure transparency and security.

[10] GovernmentTechnology. "Could Estonia Be the Model for Secure Online Voting?" September 25,2022. https://www.govtech.com/blogs/lohrmann-on-cybersecurity/could-estonia-be-the-model-for-secure-online-voting.html

- The system is also created so that it is reusable in future elections.
- In addition to voting in person at specified polling places, voters may also cast their ballots in the mail prior to election day. However, there is now a lower need for postal votes because 33% of voters chose to submit their ballots online during the early voting period.
- Online votes will never take precedence over votes made in person at the physical polls. Vote buying and selling are thus rendered useless, given that it is simple to invalidate any i-vote that has been purchased or sold on election day. Furthermore, any voter who is discovered selling their vote faces severe sanctions[11].

The Failed Case of DRE Voting Machines in The Netherlands

- The DRE voting machine was introduced in 1966 for municipal elections, and 2004 for European Parliament elections and national elections. For voters abroad, in 2006 they were able to cast a vote online[12].
- The voting machine in 1966 was introduced with the hope that it would ease the process of voting for the public and also make the ballot counting session more time-efficient.
- Voters may cast their ballots directly on the machine. The voting machine features a touch screen interface or a button that voters can click to indicate their vote.
- At the end of election day, the voting machine electronically counts the votes cast, which are exclusively stored on an electronic storage medium.
- In the 2006 case however, the confidentiality and integrity of the voting machine was widely questioned by the public. The electorate was concerned that votes could not be physically touched or seen, while the whereabouts of stored electoral data were unknown. Votes as virtual data, as opposed to physical ballots, raised more concerns than confidence.
- Due to concerns about the lack of security and auditability mechanisms of the country's electronic voting machines, a 'We Do Not Trust Voting Computers' campaign emerged[13].
- In the end, due to public pressure, the voting machine was cancelled in 2007.
- Afterwards the parliament established two independent commissions to investigate the incident and to explore the future possibility of electronic voting.
- The committee came up with one potential solution, namely using voter printers and vote counters.
- The machine will print the voting ballot after a vote has been cast, and the ballot will be inserted into a ballot box. The ballot paper will then be scanned and counted using a vote counter.
- However, this model has a risk of vote interception by any nearby devices that can detect and connect with the voting printer. Through this, the connected devices may have the possibility of 'reading' the votes printed through it, thus making it hard to pass the confidentiality aspect of voting.
- After these attempts, the Netherlands returned to the traditional method of voting and ballot counting, as it was believed to be the method that worked best for their context in terms of confidentiality and integrity of the system.

[11] "Towards remote e-voting: Estonian case," https://subs.emis.de/LNI/Proceedings/Proceedings47/Proceeding.GI.47-9.pdf

[12] "E-voting in the Netherlands; past, current, future?" 28 October 2014 https://www.researchgate.net/publication/301547849_E-voting_in_the_Netherlands_past_current_future

[13] "Re-evaluation of the Use of Electronic Voting in the Netherlands." (2013, November 25). https://www.ndi.org/e-voting-guide/examples/re-evaluation-of-e-voting-netherlands

- In 2013, the government set up another committee to investigate if e-voting was possible. They came up with 4 models:
  1. Voting machines
  2. Vote printer and a separate vote counter
  3. Paper ballot votes counted by a vote counter
  4. Paper ballots that are hand counted

- The second option received attention as it provides accessibility towards voters with physical disabilities to vote without requiring other people to help. The vote counter also helps make the ballot counting process more time efficient while reducing the chances of counting inaccuracy, as there will be no chance of the paper ballot being hacked and can be verified by the tally of the vote counter.

- For voters abroad, they are allowed to print the paper ballot by themselves and post it after voting. Through this method, it will eliminate the time taken for the ballot papers to arrive.

Adopting E-Voting in Malaysia: the challenges

The Digital Divide

- **Digital Literacy**
  - A significant challenge to the adoption of voting technologies is the lack of digital skills. In 2019, it was estimated that 75% of Malaysians had basic ICT skills.. Only 50% of the 75% of the population have basic ICT abilities, and another 15% possess advanced ICT skills.
  - These statistics show that less than half of the population actually use the internet for services, such as for e-government, e-learning, and e-health. Consequently, the remaining 25% of the population had zero or very little digital literacy.
  - It also demonstrates how in the networks of the future, citizens will need more than just internet connectivity to participate in the digital economy productively.

- **Digital Infrastructure**
  - Digitalising the voting process requires a high-speed Internet connection to ensure the efficiency and reliability of the system.
  - A study by Khazanah Research Institute revealed that even though 96% of Malaysians are connected to the Internet through mobile broadband, the quality of service differs significantly by location. One of the reasons for differing Internet service quality is telecommunications infrastructure.
  - An individual living in a place far from a telecommunication tower experiences a lower Internet quality service. Furthermore, service quality differs according to the subscribed telecommunications company. To enjoy high-quality Internet service throughout Malaysia, one has to subscribe to more than one network implying a higher consumer cost.
  - Only 40% of telecommunications towers in Malaysia were connected to optical fibres. Optical fibres allow larger data traffic and, thus, higher Internet speed.

- **Fraud Potential**
  - Digital technology does not offer a quick remedy for fraud when electoral authorities are dishonest or careless. In Venezuela's 2017 election for instance, it is claimed that turnout was exaggerated by at least one million votes (out of a population of 32 million).

- Similar to concerns about the selective appointment of AROs during the General Election, there is unquestionably a chance that the manufacturer or company hired for the electronic voting system will customise the electronic voting machines according to the "needs" of the current political party in power. Therefore, all of the other political parties in the nation must scrutinise, distrust, and inquire about the adoption of these systems.

- However this is not solely a challenge for e-voting; a compromised electoral process whether analog or digital is susceptible to fraud.

- **Digital Security Risk**
  - Congressional Research Service of Election Reform and Electronic Voting Systems reports that vendors and election jurisdictions typically declare they do not transfer election results from precincts via the internet, but they may do so via a direct modern connection or Virtual Private Network (VPN). However, if encryption and authentication are insufficient, even this method may be vulnerable to internet attacks.

  - Systems for electronic voting are similarly susceptible to external attacks. Unresolved security issues have prompted numerous nations to give up on computerized voting.

  - After ten years of utilising voting machines, the Netherlands opted to switch back to paper ballots in 2007, one year after the Irish government abandoned its electronic voting initiative despite having invested more than €50 million on equipment.

  - When a vote is solely recorded digitally, there is a chance that it will be permanently lost due to malfunction or hacking.

  - Other concerns include security. The technology must provide data security at least as effective as the corresponding manual processes it is replacing, especially for systems used for recording, tallying, or transmitting voting results.

  - Voter verifiability and secrecy cannot be completely guaranteed by electronic voting.

    > Voting is intended to be confidential. Voters must be given the assurance that only they are aware of their vote and that a third party will not influence their decision. E-voting only checks voters before they cast their e-ballots, in contrast to other forms of electronic transactions like e-banking and e-commerce, which enable complete verification on both ends of the transaction.

    > E-ballots remain anonymous once they are submitted to the system. At the conclusion of the electronic voting process, election officials are unable to confirm whether the e-ballots were cast by the same voters or whether the selections made therein accurately reflect the voters' intentions. Along with voter verification, voters themselves would like to make sure that the election officials accept their ballots and, consequently, the decisions they have made.

    > Election authorities typically ask voters for identification credentials to verify their identities before handing them the votes in a traditional voting process. Voters would hand their votes to election authorities after making their selections, and the ballots would then be placed within a box or put through an optical scanner. In other words, verified voters get to see firsthand and experience firsthand how their ballots' integrity is maintained throughout the voting process.

    > E-voting currently cannot provide the same level of assurance in the confidentiality and verifiability of the vote as traditional voting. Our nation's infrastructure for the public internet is still extremely susceptible to outside meddling. From the time voters cast their e-ballots to the moment election authorities count those e-ballots, there are potential areas of interference with electronic voting[14].

[14] Azmil tayeb. ALIRAN. “Why e-voting is currently not feasible in Malaysia?”November 17,2021. https://m.aliran.com/aliran-csi/why-e-voting-is-currently-not-feasible-in-malaysia

- **Financial Cost**
  - The cost of financing an electronic voting system is a significant challenge. These costs include software subscriptions, digital devices, Internet connectivity, regular system testing expenses, expenses for storing and replacing equipment, and expenses for hiring trained personnel. These become more significant in areas where digital infrastructure is lacking.

  - Outdated voting equipment poses significant security threats since it can lead to technical issues, long queues, and lost votes.

    > Since they were not tested to the most recent security requirements or are using unsupported software that does not obtain security updates, older machines can create intolerable security risks.

    > Long queues, confusion, and lost votes—tens of thousands in almost every election year can also be caused by poor ballot design and instructions from outdated models[14].

    > The urban population enjoys higher quality Internet speed than the rural population as there is a better digital telecommunications infrastructure developed in the area. However, an increase in the urban population will result in higher data traffic. This will decrease the quality of network services if no actions are taken to improve the existing digital infrastructure[15].

Making a case for digitalisation

Despite the many obstacles to implementation, digitising the electoral process remains a critical progressive development to consider as much of public life continues to move into the digital domain. The expansion of government and public services into the fast growing digital economy is a boon to an environment that already conducts most commercial and private services. The agility of digital adoption also allows for faster response to problems, a common issue with many governments. It would be negligent to be left behind.

Tackling fraud, improving access

A digital voting system is crucial to ensure a more operational and efficient delivery of public services. The scope for potential improvement is wide, ranging from addressing registration problems to faulty indelible ink. From the public's perspective, e-voting could solve problems of long queues and time to travel to polling stations. In other words, e-voting creates more accessibility to voters who are physically unable to vote due to physical disabilities or distant location to polling stations. Accordingly, e-voting strengthens democracy in our country as more people can exercise their right to vote. From the government's perspective, e-voting enables more tangible operations during times of crisis such as a pandemic and reduces human error commonly found in the traditional voting process. Down the road, a digital voting system will significantly reduce election cost as it could decrease reliance on human power and physical infrastructure.

Addressing public confidence

Low voter turnout during the recent Johor state election has to be addressed. The EC reported that voter turnout was merely 54.92% from the electoral list. There are several factors that contribute to low voter turnout, some of which can potentially be addressed by a better electoral system[17].

Internet voting allows voters to vote remotely. For the long term, Malaysia could aim to develop an Internet voting system which could either be creating kiosk voting machines in public places or voting on the Internet like in Estonia. This technology not only reduces and eliminates the need to travel to polling stations. It also removes problems like long queues and inaccessible facilities for disabled voters. This need not replace physical voting altogether, but rather provide voters with options.

[15] Brennan Center for Justice. "Voting Machines & Infrastructure". https://www.brennancenter.org/issues/defend-our-elections/election-security/voting-machines-infrastructure

[16] Muhammad Nazhan Kamaruzuki, "Chapter 2: The Quality of Mobile Broadband and Key Policy Recommendations," in #NetworkedNation: Navigating Challenges, Realising Opportunities of Digital Transformation (Khazanah Research Institute, 2021).

[17] New Straits Times. "Low Voter Turnout Cause for Concern, Says PKR." NST Online. New Straits Times, March 13, 2022. https://www.nst.com.my/news/politics/2022/03/779606/low-voter-turnout-cause-concern-says-pkr.

Successful transitions require absolute transparency of process in order to boost public confidence. Essential to this is public education of new systems, including trials and simulations to allow people to experience first-hand what a new voting process would look like. Successful case studies from other countries indicate this is crucial both to fine tune the process and familiarise the electorate with e-voting. Public campaigns of e-voting benefits must be clear for everyone to see to dispel doubt. Additionally while cyber security is of paramount importance, as we continue to move forward into the digital age, cyber security becomes more a requirement regardless of any new system adoption.

None of this would be remotely possible without strong digital infrastructure. Malaysia is already on the right track in transitioning towards 5G technology and already envisions a digital future. The JENDELA action plan announced in 2020 is aimed at improving the nation's digital infrastructure, widening network coverage and improving Internet speed[18]. Digitalizing the voting system is another step forward towards the same goal. There are risks and challenges to adopt an electronic voting system. However we must continually seek ways and methods for democratic improvement, avoiding at all costs the stagnation of complacency in our existing systems.

[18] Hani, "Jendela to Improve Malaysia's Digital...," The Malaysian Reserve (The Malaysian Reserve, December 13, 2020),